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## DEFINITION OF TERMS

**AMPERE:** A unit of electrical current. One volt across one ohm of resistance causes a current flow of one ampere.

**AUDIO TRANSFORMER:** An iron-core transformer for use with audio-frequency currents to transfer signals from one circuit to another. Used for impedance matching to permit maximum transfer of power.

**AUTOTRANSFORMER:** A transformer with a single winding (electrically) in which the whole winding acts as the primary winding, and only part of the winding acts as the secondary (step down); or part of the winding acts as the primary and the whole winding acts as the secondary (step up). A voltage, current, or impedance transforming device in which parts of one winding are common to both primary and secondary parts of the circuit.

**BRIDGING TRANSFORMER:** A transformer designed to couple two circuits having at least nominal ohmic isolation and operating at different impedance levels, without introducing significant frequency or phase distortion.

**CHOKER:** An inductor (reactor) used to limit or suppress the flow of alternating current without appreciable effect on the flow of direct current.

**CURRENT:** The movement of electrons through a conductor. Current is measured in amperes.

**IMPEDANCE:** The total opposition (i.e., resistance and reactance) a circuit offers to the flow of alternating current at a given frequency. It is measured in ohms.

**ISOLATION:** Electrical separation between two locations.

**ISOLATION TRANSFORMER:** A transformer designed to provide magnetic coupling (flux coupling) between one or more pairs of isolated circuits, without introducing significant coupling.

**LINE MATCHING:** A transformer inserted into a system for such purposes as isolation, impedance matching, or additional circuit derivation.

**LINE VOLTAGE CORRECTION (STABILIZATION):** A device that counteracts variations in the powerline voltage and delivers a constant voltage to the connected load.

**POWER TRANSFORMER:** A transformer used for raising or lowering the supply voltage to the various values required by the device being operated.

**RESISTANCE:** A property of conductors which determines the current produced by a given difference of potential. The practical unit of resistance is the ohm.

**RMS TEST VOLTAGE:** A test voltage for determining the breakdown point of insulating materials and spacings. It consists of applying a voltage higher than the rated voltage between two points or between two or more windings.

**TOROIDAL:** A coil wound in the form of a toroidal helix. **TOROID:** A highly efficient type of coil wound upon a ring or 'doughnut' type of core. The toroid provides for high concentrated magnetic field within itself, and has a minimum magnetic flux leakage (external field).

**VA:** Abbreviation for volt-ampere.

**VOLTAGE:** Electrical pressure, i.e., the force which causes current to flow through an electrical conductor.

**VOLT-AMPERE:** Abbreviated VA. A unit of apparent power in an ac circuit containing reactance. It is equal to the potential in volts multiplied by the current in amperes, without taking phase into consideration.

**WATT:** A measure of electrical power.

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<b>HSM</b>	HSM-223	31	HSM-231	31	HSM-251	31
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	HSM-229	31	HSM-240	31	HSM-271	31
	HSM-230	31	HSM-250	31		
<b>JAF</b>	JAF-1	40	JAF-13	40	JAF-33	40
	JAF-5	40	JAF-31	40	JAF-34	40
	JAF-12	40	JAF-32	40	JAF-101	40
<b>K</b>	K6-0600	21	K6-0810	21	K6-1232	21
	K6-0700	21	K6-0910	21	K6-1322	21
	K6-0800	21	K6-0922	21	K6-1332	21
	K6-0900	21	K6-0937	21	K6-1337	21
	K6-1000	21	K6-1032	21	K6-1422	21
	K6-1100	21	K6-1122	21	K6-1432	21
	K6-1200	21	K6-1132	21	K6-1522	21
	K6-1300	21	K6-1137	21	K6-1532	21
<b>MK</b>	MK-1	25	MK-3	25	MK-5	25
	MK-2	25	MK-4	25		
<b>N</b>	N-1X	24	N-48X	22	N-70MG	22
	N-2X	24	N-49X	22	N-73A	22
	N-3M	24	N-51X	22	N-74A	22
	N-3MG	24	N-52M	22	N-76U	22
	N-4M	24	N-53M	22	N-77U	22
	N-4MG	24	N-53MG	22	N-78U	22
	N-5M	24	N-54M	22	N-90MD	25
	N-5MG	24	N-54MG	22	N-92MD	25
	N-6U	24	N-55M	22	N-94MD	22
	N-7M	24	N-55MG	22	N-255MG	22
	N-7MG	24	N-57M	22	N-257MG	22
	N-9M	24	N-57MG	22	N-259MG	22
	N-9MG	24	N-59M	22	N-469A	22
	N-11M	24	N-59MG	22	N-470A	22
	N-11MG	24	N-60SC	24	N-471A	22
	N-33MG	24	N-62U	24	N-150MG	24
	N-34X	24	N-64AC	24	N-250MG	24
	N-37MG	24	N-66A	24	N-500MG	24
	N-39X	24	N-67A	24	N-1000MG	24
	N-40X	24	N-68X	24		

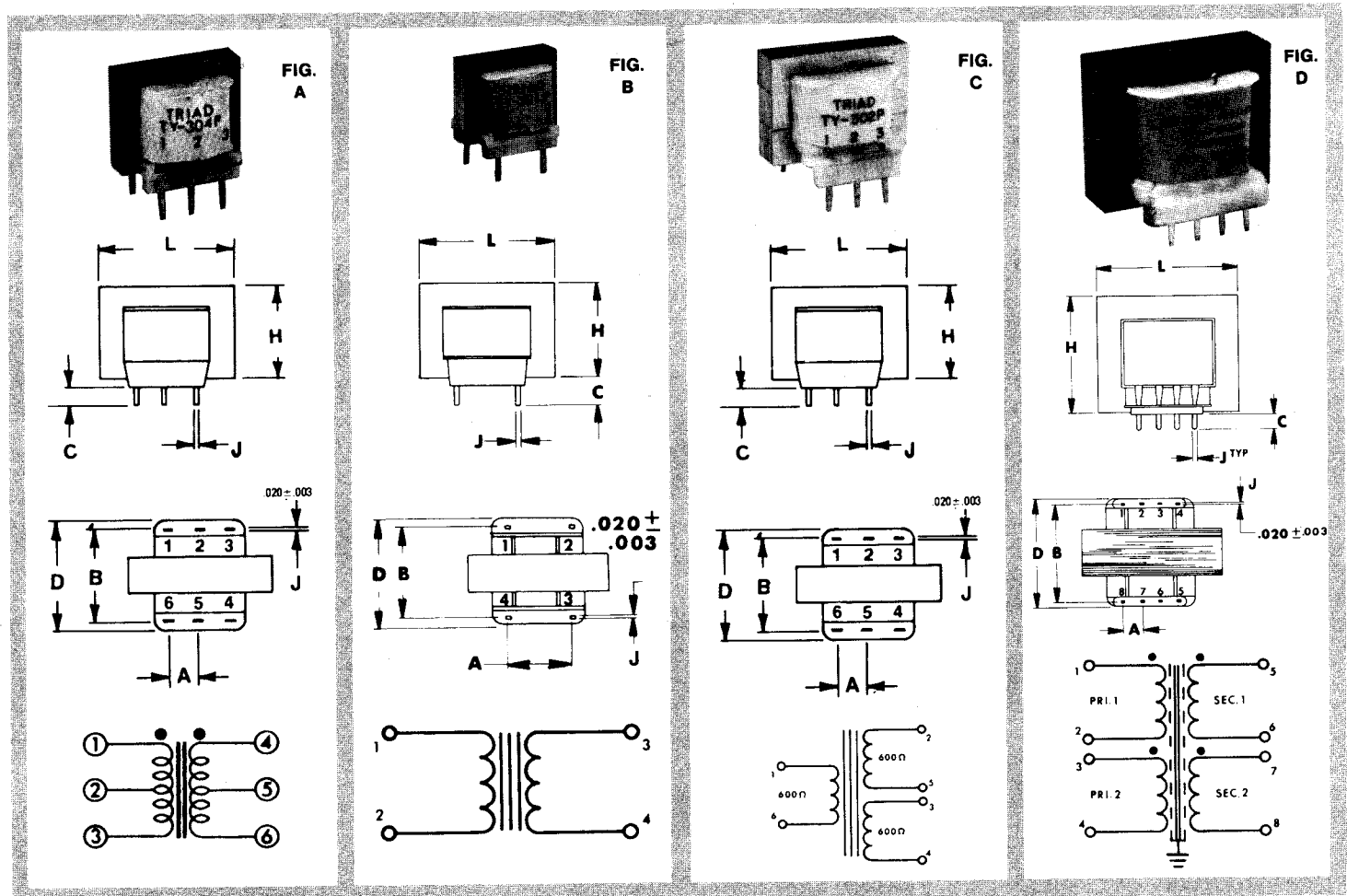
☐ New Item

	Type No.	Page No.	Type No.	Page No.	Type No.	Page No.	Type No.	Page No.	
P	P-1A	30	P-7A	30	P-215AL	30	P-546	24	
	P-3A	30	P-11A	30	P-217AL	30	P-547	24	
	P-5A	30	P-14A	30	P-543	24	P-548	24	
PL	PL-10	40	PL-21	40	PL-32	40			
	PL-11	40	PL-30	40	PL-33	40			
	PL-20	40	PL-31	40	PL-34	40			
PR	PR-21AL	30							
R	R-2C	28	R-22A	29	R-72A	29	R-112A	28	
	R-3A	28	R-23B	28	R-81BS	30	R-112B	28	
	R-4A	29	R-24A	29	R-82B	29	R-114A	28	
	R-5A	29	R-24B	29	R-83A	30	R-115A	28	
	R-6A	29	R-25A	29	R-84K	30	R-116A	28	
	R-7A	29	R-26A	29	R-104A	28	R-118B	28	
	R-8A	29	R-29A	28	R-104B	28	R-120A	28	
	R-9A	29	R-30X	28	R-105A	28	R-121A	28	
	R-10A	29	R-41C	30	R-105B	28	R-200A	29	
	R-10B	29	R-43C	30	R-106A	28	R-201A	29	
	R-11A	29	R-45C	30	R-106B	28	R-202A	29	
	R-11B	29	R-53Z	28	R-108A	28	R-203A	29	
	R-12A	29	R-54X	28	R-108B	28	R-204A	29	
	R-14A	29	R-54Z	28	R-109A	28	R-205A	29	
	R-14B	29	R-55Z	28	R-110A	28	R-206B	29	
	R-16A	29	R-56A	28	R-110B	28	R-208A	29	
	R-21A	29	R-68A	28	R-111A	28	R-209B	29	
	R-21B	29	R-71A	29	R-111B	28			
	S	S-15X	33	S-46A	38-41	S-63X	33	S-79Z	38
		S-19Z	33	S-47Z	38	S-64X	33	S-80E	41
S-22A		41	S-51X	33	S-65X	33	S-81X	38	
S-23X		33	S-53X	33	S-66X	33	S-83Z	33	
S-24A		41	S-54X	33	S-68Z	33	S-84X	38	
S-25Z		38	S-55X	33	S-69Z	33	S-85X	38	
S-26X		33	S-55Z	33	S-70Z	38	S-86Z	38	
S-28X		41	S-56Z	33	S-71Z	38	S-129Z	38	
S-29X		41	S-57Z	33	S-72Z	38	S-131X	38	
S-35A		41	S-58X	38	S-73X	38	S-132X	38	
S-39X		33	S-60A	41	S-76Z	33	S-133Z	38	
S-42A		41	S-61Z	33	S-77U	33	S-142A	41	
S-43Z		38	S-62X	33	S-78Z	38	S-146A	41	
S-44Z		38							
SP		SP-4	35	SP-29	35	SP-49	35	SP-70	35
		SP-5	35	SP-32	35	SP-50	35	SP-106	35
		SP-7	35	SP-33	35	SP-51	35	SP-107	35
		SP-11	35	SP-34	35	SP-52	35	SP-108	35
	SP-13	35	SP-35	35	SP-65	35	SP-117	35	
	SP-15	35	SP-36	35	SP-66	35	SP-118	35	
	SP-20	35	SP-42	35	SP-67	35	SP-128	35	
	SP-21	35	SP-47	35	SP-68	35	SP-310	35	
	SP-22	35	SP-48	35	SP-69	35			
	SPR	SPR-4	34	SPR-22	34	SPR-52	34	SPR-70	34
		SPR-5	34	SPR-29	34	SPR-66	34	SPR-310	34
		SPR-13	34	SPR-32	34	SPR-67	34		
SPR-20		34	SPR-33	34	SPR-68	34			
SPR-21		34	SPR-50	34	SPR-69	34			
SR	SR-45Z	38-41							
T	T-1SP	36	T-20X	36	T-31SP	36	T-35X	36	
	T-1X	36	T-22X	36	T-31X	36	T-41X	36	
	T-2X	36	T-23SP	36	T-32X	36	T-101X	36	
	T-3X	36	T-23X	36	T-33X	36	T-102X	36	
	T-5X	36	T-24X	36	T-34SP	36	T-300	36	
	T-12X	36	T-25X	36	T-34X	36			
	T-13X	36	T-26X	36	T-35SP	36			
	TU	TU-323	23	TU-740-2	23	TU-775	23	TU-830	23
		TU-570-2	23	TU-750-2	23	TU-700	23	TU-840	23
		TU-730-2	23						
TY	TY-17XT	37	TY-45X	37	TY-77S	26	TY-144P	4	
	TY-19XT	37	TY-45XT	37	TY-78	26	TY-145P	4	
	TY-22XT	37	TY-46X	37	TY-79	26	TY-146P	4	
	TY-24X	37	TY-47X	37	TY-80	26	TY-147P	4	
	TY-25X	37	TY-49X	37	TY-81	26	TY-150X	37	
	TY-26X	37	TY-51X	37	TY-82	26	TY-151XT	37	
	TY-27XT	37	TY-51XT	37	TY-83	26	TY-200X	26	
	TY-28XT	37	TY-52X	37	TY-84	26	TY-201TZ	26	
	TY-32X	37	TY-54X	37	TY-85	26	TY-202X	26	
	TY-33X	37	TY-55X	37	TY-86	26	TY-300R	4	
	TY-34X	37	TY-56X	37	TY-88	26	TY-300PR	5	
	TY-35X	37	TY-57X	37	TY-89	26	TY-301P	4	
	TY-35XT	37	TY-58X	37	TY-90	26	TY-301PR	5	
	TY-36X	37	TY-59X	37	TY-91	26	TY-302P	4	
	TY-37X	37	TY-60X	37	TY-92	26	TY-302PR	5	
	TY-37XT	37	TY-62X	37	TY-93	26	TY-303P	4	
	TY-38X	37	TY-68S	26	TY-94	26	TY-303PR	5	
	TY-39X	37	TY-69S	26	TY-99	26	TY-304P	4	
	TY-40X	37	TY-70S	26	TY-100	26	TY-304PR	5	
	TY-41X	37	TY-71S	26	TY-101	26	TY-350P	4	
	TY-42X	37	TY-74S	26	TY-141P	4	TY-462	26	
	TY-43X	37	TY-75A	26	TY-142P	4	TY-468	26	
	TY-44X	37	TY-76A	26	TY-143P	4			

## PLUG-IN PRINTED CIRCUIT AUDIO TRANSFORMERS

Type No.	Fig.	Output MW	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance	H	D	L	Dimensions A	B	C	J	Wt. Oz.
TY-141P	A	100	10,000 CT	10,000 CT	4 ma.	$\frac{5}{8}$	$\frac{19}{32}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.042	1
TY-142P	A	100	10,000 CT	2,000 CT	4 ma.	$\frac{5}{8}$	$\frac{19}{32}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.042	1
TY-143P	A	100	10,000 CT	1,500 CT	4 ma.	$\frac{5}{8}$	$\frac{19}{32}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.042	1
TY-144P	A	100	15,000 CT	15,000 CT	4 ma.	$\frac{5}{8}$	$\frac{19}{32}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.042	1
TY-145P	A	100	600 CT	600 CT	15 ma.	$\frac{5}{8}$	$\frac{19}{32}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.042	1
TY-146P	D	1 watt	600 CT/150 $\Omega$	600 CT/150 $\Omega$	—	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{13}{64}$	$1\frac{1}{32}$	$\frac{3}{16}$	.042	3
TY-147P	A	100	150 CT	600 CT	15 ma.	$\frac{5}{8}$	$\frac{19}{32}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.042	.5

## Schematics, Dimensions, Pin Locations for All Plug-In Printed Circuit Audio Transformers



## TELEPHONE COUPLING TRANSFORMERS

Frequency Response: 300-3500 Hz  $\pm 0.5$  db  
 Longitudinal Balance: 45 db min.  
 Return Loss: 26 db min.  
 Distortion: 0.5% max.

Impedance Matching:  $\pm 10\%$  over entire frequency range  
 Power Level: -45 dbm to +7 dbm.  
 Dielectric: 1500 VRMS  
 Send for Engineering Bulletin TCT-74

Type No.	Fig. No.	Application	Pri. Imp	Sec. Imp	H	D	L	Dimensions A	B	C	J	Wt. Oz.
TY-300P	C	Hybrid*	600	600/600	$\frac{5}{8}$	$\frac{35}{64}$	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{13}{64}$	.041	3.2
TY-301P	B	Coupling	600	900	$\frac{5}{8}$	$\frac{35}{64}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{27}{64}$	$\frac{13}{64}$	.041	3.2
TY-302P	C	Hybrid*	600	600/600	$\frac{3}{4}$	$\frac{15}{16}$	1	$\frac{13}{64}$	$\frac{25}{32}$	$\frac{13}{64}$	.041	3.2
TY-303P	B	Bridging	4000	600	$\frac{5}{8}$	$\frac{35}{64}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{27}{64}$	$\frac{13}{64}$	.041	3.2
TY-304P	A	Coupling	600 CT	600 CT	$\frac{5}{8}$	$\frac{35}{64}$	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{27}{64}$	$\frac{3}{16}$	.041	4.8
TY-350P	—	Holding Coil	2.0 hy @ 60 ma, 1.3 hy @ 100 maDC, 180 ohms DCR		$1\frac{1}{8}$	$\frac{31}{32}$	$1\frac{1}{8}$	$\frac{5}{8}$	1	$\frac{1}{4}$	.041	4.8

\*Two required for hybrid operation. CT for Center Tap.  $\Omega$  Split winding.



Triad-Utrad has introduced a new line of attractively priced telephone coupling transformers for use in work areas where several telephones are connected to a single incoming-outgoing line. The new TY-PR Series similar to our current TY300P transformers are adaptable for hybrid, bridging or coupling applications. These units comply with FCC Rules Part 68.

Connections for transmission and receiving are made possible by means of transformers. Transformers provide proper impedance coupling as well as the necessary balance and isolation requirements. These requirements are very similar to those associated with telephone repeater and termination sets. Coupling transformers provide suitable means of impedance matching, balancing through close coupling, and isolation. All of these parameters must be taken into consideration so that existing line characteristics are maintained and not degraded. Proper transmission line loading is based upon the characteristic impedance of the line, which has attenuation and propagation.

## Specifications

**Frequency Response:** 300-3500 Hz  $\pm 0.5$  db

**Longitudinal Balance:** 45 db min.

**Return Loss:** 26 db min.

**Distortion:** 0.5% max.

**Impedance Matching:**  $\pm 10\%$  over entire frequency range

**Power Level:** -45 dbm to +7 dbm

**Dielectric:** 1500 VRMS

## Longitudinal Balance

The application of good balance within the transformer will help provide for a lower longitudinal noise current to be introduced into the telephone system. In order to maintain good longitudinal balance characteristic, Triad-Utrad units are designed to meet a minimum of 45 db.

## "Reflection" Loss or Return Loss

Reflection loss is the amount of impedance discontinuity between the transmission line and the impedance matching device which causes reflection of energy. The amount of reflection loss is dependent upon the ratio of both the transmission line impedance and the reflected load impedance or transformer primary impedance. Triad-Utrad interconnection transformers are designed to conform to a 26 db minimum reflection loss in order to maintain good transmission characteristics.

## Insertion Loss

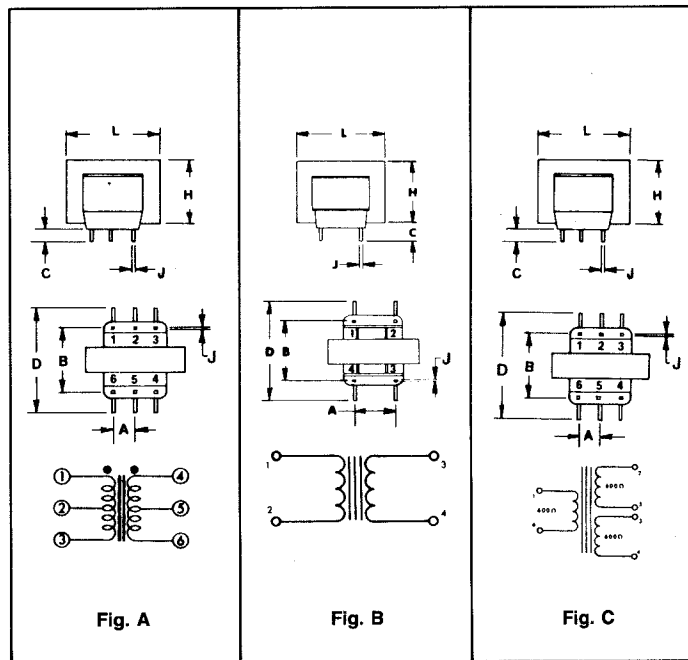
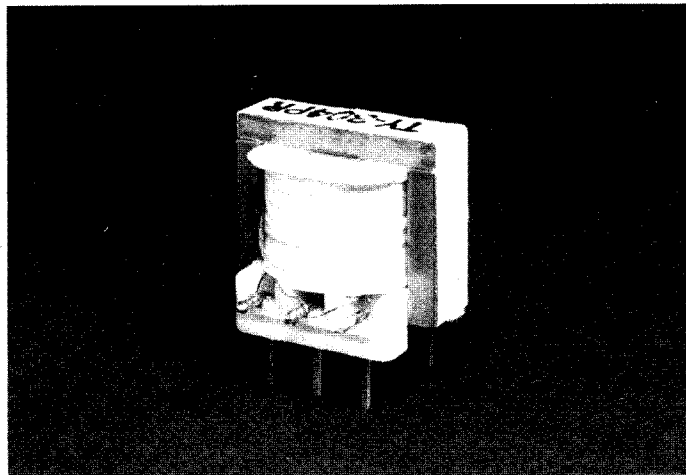
A comparison of the amount of power available with the interconnection transformer in the circuit to the amount of power available without the interconnection transformer in the circuit is called "Insertion Loss". Transformer insertion loss variation over the bandpass of interest should not vary more than .5 db and exceed a total insertion loss of 3 db. The maintained insertion loss for Triad-Utrad interconnection transformers is 3 db maximum.

## Harmonic Distortion

All of Triad-Utrad interconnection transformers are tested with all windings loaded to proper matching impedance, then checked at a frequency of 275 hertz. All Triad-Utrad interfacing transformers have a harmonic distortion of less than .5 percent as the maximum specification.

## Frequency Response

Typical interconnection transformers should have a frequency response that remains within  $\pm .5$  db throughout a spectrum of 300 hertz to 3400 hertz. Triad-Utrad interconnection transformers have a dynamic frequency response of 275 hertz through 3500 hertz  $\pm .5$  db.



Type No.	Fig. No.	Application	Pri. Imp.	Sec. Imp.	Dimensions (inches)					Pin Dim.		Wt. Oz.
					H	D	L	A	B	C	J	
TY-300PR	C	Hybrid*	600	600/600	5/8	5/16	3/4	3/16	27/64	13/64	.025 SQ.	.51
TY-301PR	B	Coupling	600	900	5/8	5/16	3/4	3/8	27/64	13/64	.025 SQ.	.51
TY-302PR	C	Hybrid*	600	600/600	3/4	1 1/32	1	13/64	25/32	13/64	.025 SQ.	1.06
TY-303PR	B	Bridging	4000	600	5/8	5/16	3/4	3/8	27/64	13/64	.025 SQ.	.51
TY-304PR	A	Coupling	600 CT	600 CT	5/8	5/16	3/4	3/16	27/64	13/64	.025 SQ.	.51

☐ New Item    \*Two required for hybrid operation. CT for Center Tap.

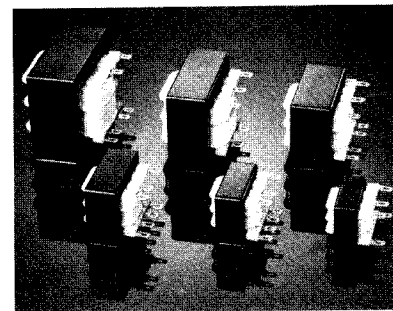
Presenting the Quick Pack series, the latest addition to Triad-Utrad's extensive line-up of small power transformers.

Quick Pack transformers can offer a significant reduction in size and weight for a given VA rating. Plus, these transformers come with a special quick-connect or solder terminal. Quick Pack transformers are available in six sizes for a wide variety of applications.

**Bobbin Wound** — Reduces transformer size and space.

**Split Bobbin Non-Concentric Winding** — Eliminates costly electrostatic shielding. The Quick Pack transformer's unique construction makes possible higher HiPot testing, 2500V rather than 1500V.

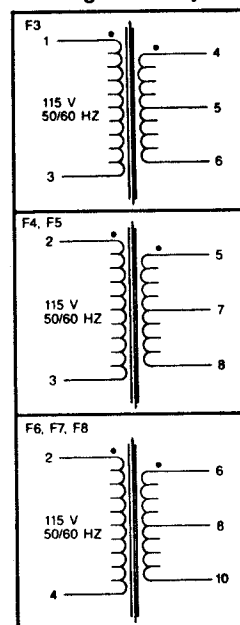
This series is available with single 115V or dual 115/230V primary, rated 50/60 Hz, Class B insulation insures maximum total temperature of 130°C continuous.



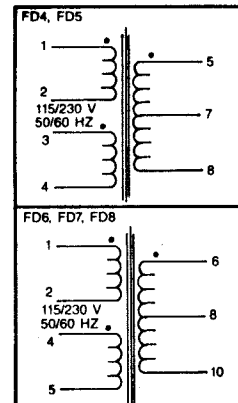
### 50/60 HZ Primary

115V	115-230V	VA	OUTPUT RATING
F3-10	—	2.4	10VCT @ 0.25A
F3-12	—	2.4	12.6VCT @ 0.2A
F3-16	—	2.4	16VCT @ 0.15A
F3-20	—	2.4	20VCT @ 0.12A
F3-24	—	2.4	24VCT @ 0.1A
F3-28	—	2.4	28VCT @ 0.085A
F3-36	—	2.4	36VCT @ 0.065A
F3-48	—	2.4	48VCT @ 0.05A
F3-56	—	2.4	56VCT @ 0.045A
F3-120	—	2.4	120VCT @ 0.02A
F4-10	FD4-10	6	10VCT @ 0.6A
F4-12	FD4-12	6	12.6VCT @ 0.5A
F4-16	FD4-16	6	16VCT @ 0.4A
F4-20	FD4-20	6	20VCT @ 0.3A
F4-24	FD4-24	6	24VCT @ 0.25A
F4-28	FD4-28	6	28VCT @ 0.2A
F4-36	FD4-36	6	36VCT @ 0.17A
F4-48	FD4-48	6	48VCT @ 0.125A
F4-56	FD4-56	6	56VCT @ 0.11A
F4-120	FD4-120	6	120VCT @ 0.05A
F5-10	FD5-10	12	10VCT @ 1.2A
F5-12	FD5-12	12	12.6VCT @ 1.0A
F5-16	FD5-16	12	16VCT @ 0.8A
F5-20	FD5-20	12	20VCT @ 0.6A
F5-24	FD5-24	12	24VCT @ 0.5A
F5-28	FD5-28	12	28VCT @ 0.42A
F5-36	FD5-36	12	36VCT @ 0.35A
F5-48	FD5-48	12	48VCT @ 0.25A
F5-56	FD5-56	12	56VCT @ 0.22A
F5-120	FD5-120	12	120VCT @ 0.1A
F6-10	FD6-10	30	10VCT @ 3.0A
F6-12	FD6-12	30	12.6VCT @ 2.5A
F6-16	FD6-16	30	16VCT @ 2.0A
F6-20	FD6-20	30	20VCT @ 1.5A
F6-24	FD6-24	30	24VCT @ 1.25A
F6-28	FD6-28	30	28VCT @ 1.1A
F6-36	FD6-36	30	36VCT @ 0.85A
F6-48	FD6-48	30	48VCT @ 0.63A
F6-56	FD6-56	30	56VCT @ 0.54A
F6-120	FD6-120	30	120VCT @ 0.25A
F7-10	FD7-10	56	10VCT @ 5.0A
F7-12	FD7-12	56	12.6VCT @ 4.0A
F7-16	FD7-16	56	16VCT @ 3.5A
F7-20	FD7-20	56	20VCT @ 2.8A
F7-24	FD7-24	56	24VCT @ 2.4A
F7-28	FD7-28	56	28VCT @ 2.0A
F7-36	FD7-36	56	36VCT @ 1.5A
F7-48	FD7-48	56	48VCT @ 1.2A
F7-56	FD7-56	56	56VCT @ 1.0A
F7-120	FD7-120	56	120VCT @ 0.5A
F8-10	FD8-10	100	10VCT @ 10.0A
F8-12	FD8-12	100	12.6VCT @ 8.0A
F8-16	FD8-16	100	16VCT @ 6.25A
F8-20	FD8-20	100	20VCT @ 5.0A
F8-24	FD8-24	100	24VCT @ 4.0A
F8-28	FD8-28	100	28VCT @ 3.6A
F8-36	FD8-36	100	36VCT @ 2.8A
F8-48	FD8-48	100	48VCT @ 2.0A
F8-56	FD8-56	100	56VCT @ 1.8A
F8-120	FD8-120	100	120VCT @ 0.85A

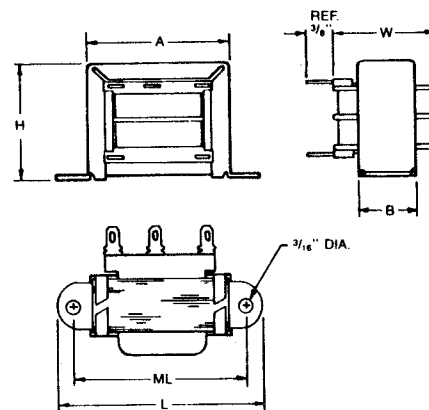
Single Primary



Dual Primary



UL Recognized  
Class B



**NOTES:** Terminals to be quick-connect (.187) or solder lug terminals.

Dielectric strength: 2500 V.

• Indicates like polarity.

### Dimensions

Size	VA	L	W	H	A	B	ML	LB
F3	2.4	2 1/16	1 1/16	1 3/16	1 5/16	9/16	1 3/4	0.1
F4 & FD4	6	2 3/8	1 1/4	1 3/8	1 11/16	1 1/16	2	0.2
F5 & FD5	12	2 13/16	1 3/8	1 5/8	1 5/16	1 3/16	2 3/8	0.3
F6 & FD6	30	3 1/4	1 11/16	1 5/16	2 15/16	1 1/16	2 13/16	1.0
F7 & FD7	56	3 11/16	1 13/16	2 1/4	2 11/16	1 1/16	3 1/8	1.5
F8 & FD8	100	4 1/2	2 1/4	2 5/16	3 1/16	1 5/16	3 9/16	2.7

## Split Bobbin Transformer

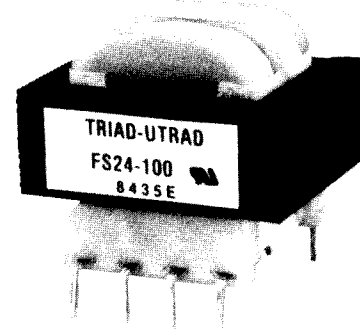
Triad-Utrad's new Split Pack split bobbin transformer increases the depth and versatility of Triad's already extensive line of PC board mounted transformers. Like Triad's recent Flat Pack™ series, the Split Pack transformers are nonconcentrically wound—with primary and secondaries wound side by side, unlike the secondary-on-top-of-primary windings of standard PC board transformers. Split bobbin winding and low capacitive coupling eliminate costly electrostatic shielding. The Split Pack's unique construction make possible higher HiPot testing—2,500V rather than 1,500V.

## 50/60 Hz Dual Secondary

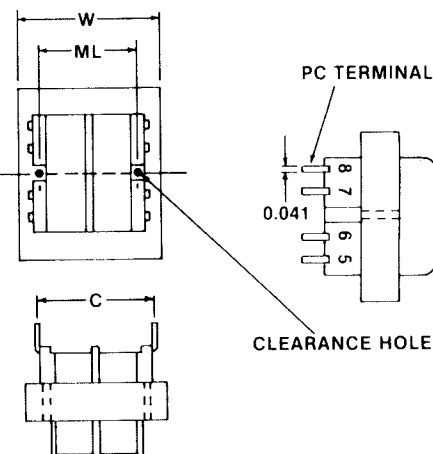
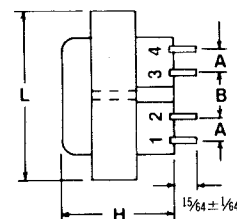
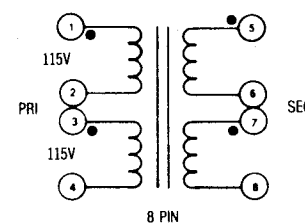
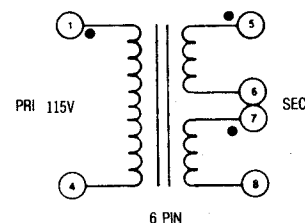
PRIMARY		VA	SECONDARY RATINGS (RMS)			
115V 6 PIN	115-230V 8 PIN		INDIVIDUAL	SERIES	PARALLEL	
F10-110	FS10-110	1.1	5V @ .11A	10V CT @ .11A	5V @ .22A	
F10-250	FS10-250	2.5	5V @ .25A	10V CT @ .25A	5V @ .5A	
F10-600	FS10-600	6	5V @ .6A	10V CT @ .6A	5V @ 1.2A	
F10-1200	FS101200	12	5V @ 1.2A	10V CT @ 1.2A	5V @ 2.4A	
F10-2000	FS102000	20	5V @ 2A	10V CT @ 2A	5V @ 4A	
F10-3600	FS103600	36	5V @ 3.6A	10V CT @ 3.6A	5V @ 7.2A	
F12-090	FS12-090	1.1	6.3V @ .09A	12.6V CT @ .09A	6.3V @ .18A	
F12-200	FS12-200	2.5	6.3V @ .2A	12.6V CT @ .2A	6.3V @ .4A	
F12-500	FS12-500	6	6.3V @ .5A	12.6V CT @ .5A	6.3V @ 1.0A	
F12-1000	FS121000	12	6.3V @ 1.0A	12.6V CT @ 1.0A	6.3V @ 2.0A	
F12-1600	FS121600	20	6.3V @ 1.6A	12.6V CT @ 1.6A	6.3V @ 3.2A	
F12-2850	FS122850	36	6.3V @ 2.85A	12.6V CT @ 2.85A	6.3V @ 5.7A	
F16-070	FS16-070	1.1	8V @ .07A	16V CT @ .07A	8V @ .14A	
F16-150	FS16-150	2.5	8V @ .15A	16V CT @ .15A	8V @ .3A	
F16-400	FS16-400	6	8V @ .4A	16V CT @ .4A	8V @ .8A	
F16-800	FS16-800	12	8V @ .8A	16V CT @ .8A	8V @ 1.6A	
F16-1250	FS161250	20	8V @ 1.25A	16V CT @ 1.25A	8V @ 2.5A	
F16-2250	FS162250	36	8V @ 2.25A	16V CT @ 2.25A	8V @ 4.5A	
F20-055	FS20-055	1.1	10V @ .055A	20V CT @ .055A	10V @ .11A	
F20-120	FS20-120	2.5	10V @ .12A	20V CT @ .12A	10V @ .24A	
F20-300	FS20-300	6	10V @ .3A	20V CT @ .3A	10V @ .6A	
F20-600	FS20-600	12	10V @ .6A	20V CT @ .6A	10V @ 1.2A	
F20-1000	FS201000	20	10V @ 1.0A	20V CT @ 1.0A	10V @ 2A	
F20-1800	FS201800	36	10V @ 1.8A	20V CT @ 1.8A	10V @ 3.6A	
F24-045	FS24-045	1.1	12V @ .045A	24V CT @ .045A	12V @ .09A	
F24-100	FS24-100	2.5	12V @ .1A	24V CT @ .1A	12V @ .2A	
F24-250	FS24-250	6	12V @ .25A	24V CT @ .25A	12V @ .5A	
F24-500	FS24-500	12	12V @ .5A	24V CT @ .5A	12V @ 1.0A	
F24-800	FS24-800	20	12V @ .8A	24V CT @ .8A	12V @ 1.6A	
F24-1500	FS241500	36	12V @ 1.5A	24V CT @ 1.5A	12V @ 3A	
F28-040	FS28-040	1.1	14V @ .04A	28V CT @ .04A	14V @ .08A	
F28-85	FS28-85	2.5	14V @ .085A	28V CT @ .085A	14V @ .17A	
F28-200	FS28-200	6	14V @ .2A	28V CT @ .2A	14V @ .4A	
F28-420	FS28-420	12	14V @ .42A	28V CT @ .42A	14V @ .84A	
F28-700	FS28-700	20	14V @ .7A	28V CT @ .7A	14V @ 1.4A	
F28-1300	FS281300	36	14V @ 1.3A	28V CT @ 1.3A	14V @ 2.6A	
F36-030	FS36-030	1.1	18V @ .03A	36V CT @ .03A	18V @ .06A	
F36-65	FS36-65	2.5	18V @ .065A	36V CT @ .065A	18V @ .13A	
F36-170	FS36-170	6	18V @ .17A	36V CT @ .17A	18V @ .34A	
F36-350	FS36-350	12	18V @ .35A	36V CT @ .35A	18V @ .7A	
F36-550	FS36-550	20	18V @ .55A	36V CT @ .55A	18V @ 1.1A	
F36-1000	FS361000	36	18V @ 1A	36V CT @ 1A	18V @ 2A	
F48-023	FS48-023	1.1	24V @ .023A	48V CT @ .023A	24V @ .046A	
F48-050	FS48-050	2.5	24V @ .05A	48V CT @ .05A	24V @ .1A	
F48-125	FS48-125	6	24V @ .125A	48V CT @ .125A	24V @ .25A	
F48-250	FS48-250	12	24V @ .25A	48V CT @ .25A	24V @ .5A	
F48-400	FS48-400	20	24V @ .4A	48V CT @ .4A	24V @ .8A	
F48-750	FS48-750	36	24V @ .75A	48V CT @ .75A	24V @ 1.5A	
F56-020	FS56-020	1.1	28V @ .02A	56V CT @ .02A	28V @ .04A	
F56-045	FS56-045	2.5	28V @ .045A	56V CT @ .045A	28V @ .09A	
F56-110	FS56-110	6	28V @ .11A	56V CT @ .11A	28V @ .22A	
F56-220	FS56-220	12	28V @ .22A	56V CT @ .22A	28V @ .44A	
F56-350	FS56-350	20	28V @ .35A	56V CT @ .35A	28V @ .7A	
F56-650	FS56-650	36	28V @ .65A	56V CT @ .65A	28V @ 1.3A	
F120-010	FS120-01	1.1	60V @ .01A	120V CT @ .01A	60V @ .02A	
F120-020	FS120-02	2.5	60V @ .02A	120V CT @ .02A	60V @ .04A	
F120-050	FS120-05	6	60V @ .05A	120V CT @ .05A	60V @ .1A	
F120-100	FS120100	12	60V @ .1A	120V CT @ .1A	60V @ .2A	
F120-160	FS120160	20	60V @ .16A	120V CT @ .16A	60V @ .32A	
F120-300	FS120300	36	60V @ .3A	120V CT @ .3A	60V @ .6A	

VA	H	W	L	ML	A	B	C	WT
1.1	15/16	1-1/8	1-3/8	—	.250	.250	1.200	.17
2.5	1-3/16	1-1/8	1-3/8	—	.250	.250	1.20	.25
6	1-5/16	1-5/16	1-5/8	1-1/16	.250	.350	1.280	.44
12	1-7/16	1-9/16	1-7/8	1-1/4	.300	.400	1.410	.70
20	1-7/16	1-7/8	2-1/4	1-1/2	.300	.400	1.600	.80
36	1-9/16	2-3/16	2-5/8	!	.400	.400	1.850	1.1

! 36VA size has 4 mtg. holes on 2-3/16 × 1-3/4 centers



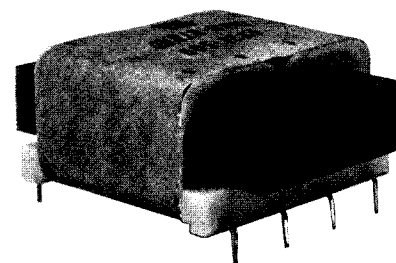
UL Recognized  
Class B



Triad-Utrad's new Flat Pack power transformer is designed to meet the needs of low clearance printed circuit board and solid state power designs. These new units can also be used for control and instrumentation applications. Voltages and currents were chosen for widely used power applications and could be used in single or dual output supplies. The Triad-Utrad Flat Pack has a unique construction feature allowing them to pass a 2000V HiPot test.

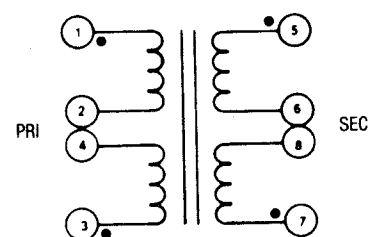
### 115-230 Volts, 50-60 Hz Dual Primary/Dual Secondary

TYPE NO.	OUTPUT WATTS	INDIVIDUAL	SECONDARY SERIES	PARALLEL
FP10-250	2.5	5V @ .25A	10V CT @ .25A	5V @ .5A
FP10-600	6	5V @ .6A	10V CT @ .6A	5V @ 1.2A
FP101200	12	5V @ 1.2A	10V CT @ 1.2A	5V @ 2.4A
FP12-200	2.5	6.3V @ .2A	12.6V CT @ .2A	6.3V @ .4A
FP12-475	6	6.3V @ .475A	12.6V CT @ .475A	6.3V @ .95A
FP12-950	12	6.3V @ .95A	12.6V CT @ .95A	6.3V @ 1.9A
FP16-150	2.5	8V @ .15A	16V CT @ .15A	8V @ .3A
FP16-375	6	8V @ .375A	16V CT @ .375A	8V @ .75A
FP16-750	12	8V @ .75A	16V CT @ .75A	8V @ 1.5A
FP20-125	2.5	10V @ .125A	20V CT @ .125A	10V @ .25A
FP20-300	6	10V @ .3A	20V CT @ .3A	10V @ .6A
FP20-600	12	10V @ .6A	20V CT @ .6A	10V @ 1.2A
FP24-100	2.5	12V @ .1A	24V CT @ .1A	12V @ .2A
FP24-250	6	12V @ .25A	24V CT @ .25A	12V @ .5A
FP24-500	12	12V @ .5A	24V CT @ .5A	12V @ 1.0A
FP30-85	2.5	15V @ .08A	30V CT @ .08A	15V @ .16A
FP30-200	6	15V @ .2A	30V CT @ .2A	15V @ .4A
FP30-400	12	15V @ .4A	30V CT @ .4A	15V @ .8A
FP34-75	2.5	17V @ .075A	34V CT @ .075A	17V @ .15A
FP34-170	6	17V @ .17A	34V CT @ .17A	17V @ .34A
FP34-340	12	17V @ .34A	34V CT @ .34A	17V @ .68A
FP40-60	2.5	20V @ .06A	40V CT @ .06A	20V @ .12A
FP40-150	6	20V @ .15A	40V CT @ .15A	20V @ .3A
FP40-300	12	20V @ .3A	40V CT @ .3A	20V @ .6A
FP56-45	2.5	28V @ .045A	56V CT @ .045A	28V @ .09A
FP56-100	6	28V @ .1A	56V CT @ .1A	28V @ .2A
FP56-200	12	28V @ .2A	56V CT @ .2A	28V @ .4A
FP88-28	2.5	44V @ .028A	88V CT @ .028A	44V @ .056A
FP88-65	6	44V @ .065A	88V CT @ .065A	44V @ .13A
FP88-130	12	44V @ .13A	88V CT @ .13A	44V @ .26A
FP120-20	2.5	60V @ .02A	120V CT @ .02A	60V @ .04A
FP120-50	6	60V @ .05A	120V CT @ .05A	60V @ .1A
FP120100	12	60V @ .1A	120V CT @ .1A	60V @ .2A
FP230-10	2.5	115V @ .01A	230V CT @ .01A	115V @ .02A
FP230-25	6	115V @ .025A	230V CT @ .025A	115V @ .05A
FP230-50	12	115V @ .05A	230V CT @ .05A	115V @ .1A



UL Recognized

Class B



#### Specifications:

##### Primary

115/230

50/60Hz

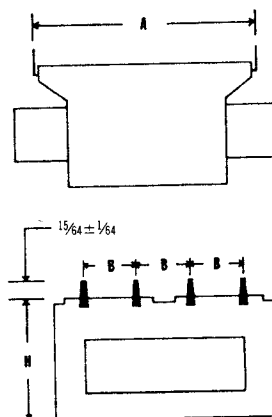
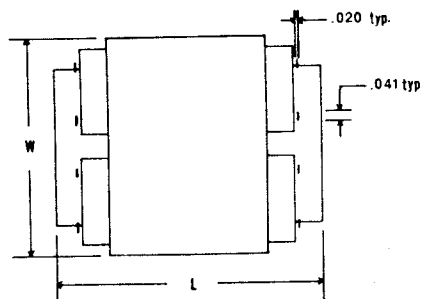
**Flat Pack** = allows 3/4" card spacing for 2.5VA units, 1" card spacing for 6VA units or 1 1/4" for 12VA units

**Split Bobbin** = side by side windings reduce interwinding capacitance and eliminates the need for a static shield

##### Semi-Toroidal

**Construction** reduces radiated magnetic fields and results in balanced windings

**Terminals** are precision spaced



OUTPUT WATTS	H	W	L	A	B	WT OZ
2.5	.650	1.562	1.875	1.600	.375	5
6	.875	1.562	1.875	1.600	.375	7
12	1.062	2.000	2.500	2.000	.500	11

## LOW-VOLTAGE, LOW-CURRENT PLUG-IN PRINTED CIRCUIT TYPES—FOR SMALL DC POWER SUPPLIES

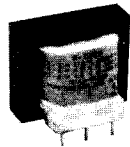
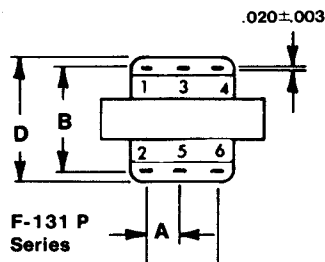
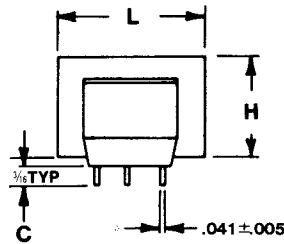
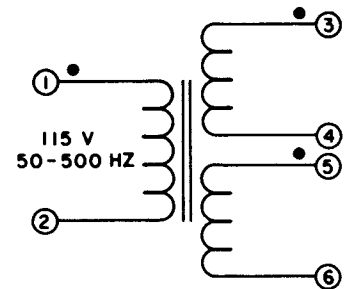


Fig. B



F-131 P  
Series

This series of transformers is ideal for single or dual output DC supplies, isolated control circuits and reference supplies in transistorized control and instrumentation. They provide a voltage stepdown and isolation from power line at relatively low power levels of 1½, 4½ and 7 watts when connected in parallel, and 8 to 116 volts when series connected. Precision spaced plug-in terminals provide fixed mounting centers—the kind usually found only in costly molded units. You get the benefits without the high cost plus maximum power with optimum equipment miniaturization.



Single Primary

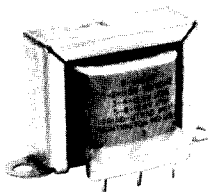
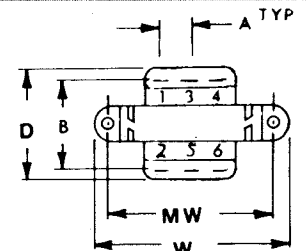
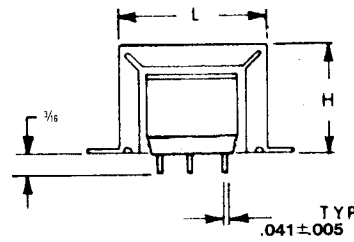


Fig. A

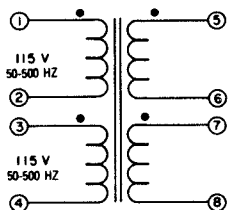


F-141XP Series

### 115 volts, 50-60 Hz Primary, Dual Secondaries

Type No.	Fig.	Output Watts	SECONDARY			Dimensions			L	A	B	MW	Wt. Oz.
			Individual	Series Conn.	Parallel Conn.	H	W	D					
F-131P	B	1½	4V @ .188A	8V CT @ .188A	4V @ .376A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-139P	B	1½	6.3V @ .12A	12.6V CT @ .12A	6.3V @ .24A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-132P	B	1½	7.5V @ .10A	15V CT @ .100A	7.5V @ .200A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-150P	B	1½	8.5V @ .085A	17V CT @ .085A	8.5V @ .170A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-138P	B	1½	12.6V @ .06A	25.2V CT @ .06A	12.6V @ .12A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-133P	B	1½	15V @ .05A	30V CT @ .050A	15V @ .100A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-160P	B	1½	17V @ .045A	34V CT @ .045A	17V @ .090A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-137P	B	1½	20V @ .038A	40V CT @ .038A	20V @ .076A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-134P	B	1½	27V @ .028A	54V CT @ .028A	27V @ .056A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-135P	B	1½	38V @ .02A	76V CT @ .020A	38V @ .040A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-136P	B	1½	58V @ .013A	116V CT @ .013A	58V @ .026A	1½	1½ <sub>32</sub>	125⁄64	5⁄16	1		3.5	
F-141XP	A	4½	4V @ .562A	8V CT @ .562A	4.0V @ 1.124A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-149XP	A	4½	6.3V @ .35A	12.6V CT @ .35A	6.3V @ .70A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-142XP	A	4½	7.5V @ .3A	15V CT @ .300A	7.5V @ .600A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-161XP	A	4½	8.5V @ .264A	17V CT @ .264A	8.5V @ .528A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-148XP	A	4½	12.6V @ .178A	25.2V CT @ .178A	12.6V @ .356A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-143XP	A	4½	15V @ .150A	30V CT @ .150A	15V @ .300A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-162XP	A	4½	17V @ .132A	34V CT @ .132A	17V @ .264A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-147XP	A	4½	20V @ .112A	40V CT @ .112A	20V @ .224A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-144XP	A	4½	27V @ .084A	54V CT @ .084A	27V @ .168A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-145XP	A	4½	38V @ .06A	76V CT @ .060A	38V @ .120A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-146XP	A	4½	58V @ .033A	116V CT @ .033A	58V @ .066A	125⁄64	23⁄64	1¼	145⁄64	13⁄32	13⁄32	2	7.5
F-151XP	A	7½	4V @ .94A	8V CT @ .940A	4.0V @ 1.88A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-159XP	A	7½	6.3V @ .6A	12.6V CT @ .60A	6.3V @ 1.2A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-152XP	A	7½	7.5V @ .5A	15V CT @ .500A	7.5V @ 1.000A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-163XP	A	7½	8.5V @ .441A	17V CT @ .441A	8.5V @ .882A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-158XP	A	7½	12.6V @ .3A	25.2V CT @ .30A	12.6V @ .60A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-153XP	A	7½	15V @ .25A	30V CT @ .250A	15V @ .500A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-164XP	A	7½	17V @ .22A	34V CT @ .220A	17V @ .440A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-157XP	A	7½	20V @ .188A	40V CT @ .188A	20V @ .376A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-154XP	A	7½	27V @ .14A	54V CT @ .140A	27V @ .280A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-155XP	A	7½	38V @ .1A	76V CT @ .100A	38V @ .200A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5
F-156XP	A	7½	58V @ .3A	116V CT @ .300A	58V @ .130A	141⁄64	213⁄64	1½ <sub>32</sub>	161⁄64	13⁄32	15⁄16	2½	10.5

These transformers with dual primaries permit their use in equipment for sale in both foreign and domestic markets. Voltages and currents were chosen particularly for widely-used power applications in semi-conductor circuits such as single or dual output DC supplies and isolated control circuit and reference supplies.



Dual Primary

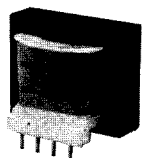


Fig. B-1

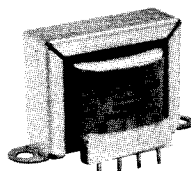
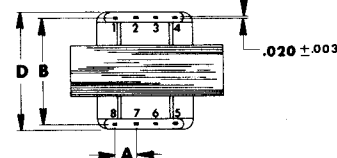
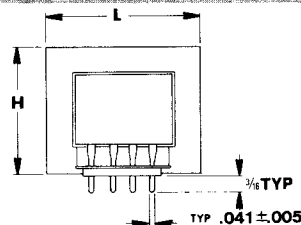
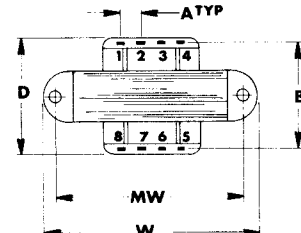
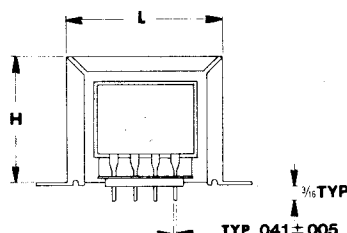


Fig. A-1, A-2

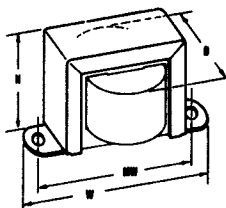
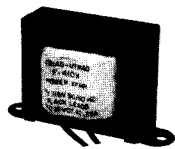


### 115-230 volts, 50-60 Hz Dual Primary/Dual Secondaries

Type No.	Fig.	Output Watts	SECONDARY			Dimensions							Wt. Oz.
			Individual	Series Conn.	Parallel Conn.	H.	W.	D.	L.	A.	B.	MW	
F-3458P	B-1	1	6.3V @ .07A	12.6V CT @ .07A	6.3V @ .14A	$5\frac{5}{64}$	-	$1\frac{3}{8}$	1	$1\frac{3}{64}$	$1\frac{13}{64}$	-	2.5
F-3132P	B-1	1½	7.5V @ .1A	15V CT @ .1A	7.5V @ .2A	$1\frac{1}{8}$	-	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{64}$	1	-	4.0
F-333P	B-1	1½	15V @ .05A	30V CT @ .05A	15V @ .100A	$1\frac{1}{8}$	-	$1\frac{1}{8}$	-	$1\frac{3}{64}$	1	-	4.0
F-367P	B-1	1½	115V @ .0065A	230V CT @ .0065A	115V @ .013A	$1\frac{1}{8}$	-	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{64}$	1	-	4.0
F-348XP	A-1	4½	6.3V @ .35A	12.6V CT @ .350A	6.3V @ .700A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-3142XP	A-1	4½	7.5V @ .3A	15V CT @ .3A	7.5V @ .6A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-349XP	A-1	4½	8V @ .28A	16V CT @ .280A	8V @ .560A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-350XP	A-1	4½	12V @ .18A	24V CT @ .180A	12V @ .360A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-358XP	A-1	4½	10V @ .225A	20V CT @ .225A	10V @ .450A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-3143XP	A-1	4½	15V @ .15A	30V CT @ .15A	15V @ .3A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-363XP	A-1	4½	115V @ .02A	230V CT @ .020A	115V @ .040A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{64}$	2	6.5
F-3152XP	A-1	7½	7.5V @ .5A	15V CT @ .5A	7.5V @ 1.0A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-3153XP	A-1	7½	15V @ .25A	30V CT @ .25A	15V @ .5A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-368XP	A-1	7½	115V @ .065A	230V CT @ .065A	115V @ .13A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-359XP	A-2	10	12V @ .45A	24V CT @ .450A	12V @ .900A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-362XP	A-2	10	10V @ .5A	20V CT @ .500A	10V @ 1.0A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-365XP	A-2	10	6.3V @ .8A	12.6V CT @ .800A	6.3V @ 1.6A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-366XP	A-2	10	8V @ .64A	16V CT @ .640A	8V @ 1.28A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-369XP	A-2	10	115V @ .087	230V CT @ .087A	115V @ .174A	$1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{6}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{6}$	2½	11.0
F-370P	B-1	24	5V @ 2.4A	10V CT @ 2.4A	5V @ 4.8A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-371P	B-1	24	6.3V @ 2A	12.6V CT @ 2A	6.3V @ 4A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-372P	B-1	24	8V @ 1.5A	16V CT @ 1.5A	8V @ 3A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-373P	B-1	24	10V @ 1.2A	20V CT @ 1.2A	10V @ 2.4A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-374P	B-1	24	12V @ 1A	24V CT @ 1A	12V @ 2A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-375P	B-1	24	14V @ .8A	28V CT @ .8A	14V @ 1.6A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-376P	B-1	24	17V @ .7A	34V CT @ .7A	17V @ 1.4A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-377P	B-1	24	20V @ .6A	40V CT @ .6A	20V @ 1.2A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-378P	B-1	24	28V @ .42A	56V CT @ .42A	28V @ .84A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3
F-379P	B-1	24	60V @ .2A	120V CT @ .2A	60V @ .4A	$1\frac{1}{8}$	-	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	-	13.3

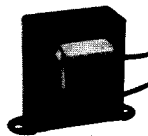


## for Power Supply, Control and Filament Circuits

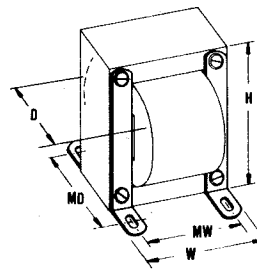
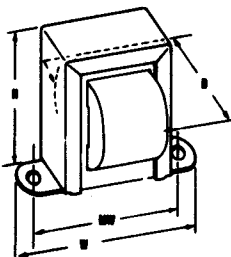


**X Case**

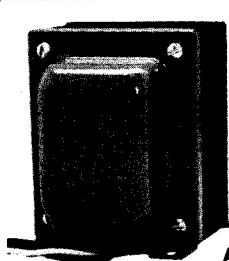
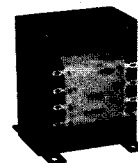
Most units in case type X also available on special order with shields added or with channel frame removed.



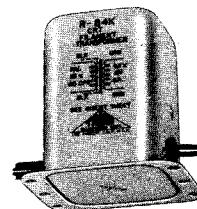
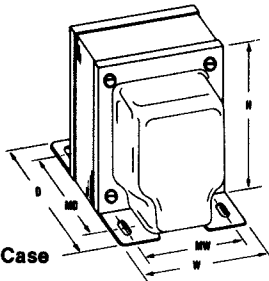
**Z Case**



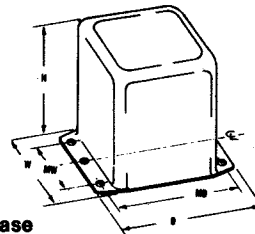
**U Case**



**A Case**



**K Case**



### Single secondary / 50-60 Hz. Listed in order of increasing secondary voltages

Type No.	Secondary		Primary Volts	RMS Test		Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps		Volts				H	W	D	MW	MD		
<b>F-50X#</b>	Sec. 6.3-5 Pri. 6.3-5	2		Pri. 500 Sec. 5000		X	Leads	1 $\frac{1}{8}$	3 $\frac{3}{8}$	2	2 $\frac{1}{8}$		$\frac{3}{16}$	1.2
Special Fil. Line Matching Transformer														
<b>F-1X#</b>	2.5 CT	3	115		1500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.68
<b>F-301X</b>			115/230											
<b>F-72Z#</b>	2.5 CT	5	115	Pri. 1500 Sec. 7500		Z	Pri. Leads Sec. Lugs	2 $\frac{3}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$		$\frac{3}{16}$	1.7
<b>F-6X#</b>	2.5 CT	6	115	Pri. 1500 Sec. 2500		X	Leads	1 $\frac{1}{8}$	3 $\frac{3}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$		$\frac{3}{16}$	1
<b>F-306X</b>			115/230											
<b>F-3X#</b>	2.5 CT	10	115	Pri. 1500 Sec. 3000		X	Leads	2 $\frac{9}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.7
<b>F-5U</b>	2.5 CT	10	115	Pri. 1500 Sec. 7500		U	Leads	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	2	1 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	2.2
<b>F-71U#</b>	2.5 CT	10	115	Pri. 1500 Sec. 10,000		U	Pri. Leads Sec. Leads	3 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	2.6
<b>F-7X</b>	5 CT	3	115		1500	X	Leads	1 $\frac{1}{8}$	3 $\frac{3}{8}$	2	2 $\frac{1}{8}$		$\frac{3}{16}$	1.3
<b>F-8X</b>	5 CT	6	115		1500	X	Leads	2 $\frac{9}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.7
<b>F-12X</b>	5 CT	8	115		2500	X	Leads	2 $\frac{19}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{8}$		$\frac{3}{16}$	2.5
<b>F-10U#</b>	5 CT	14	115	Pri. 1500 Sec. 10,000		U	Leads	3 $\frac{1}{8}$	3 $\frac{3}{8}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	4.75
<b>F-15U#</b>	5 CT	15	115	Pri. 1500 Sec. 3000		U	Leads Lugs	3 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	3.25
<b>F-9U</b>	5.2 CT	13	115		1500	U	Leads	3 $\frac{1}{8}$	2 $\frac{1}{8}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	$\frac{5}{16} \times \frac{3}{16}$	4
<b>F-11U</b>	5.2 CT	24	115		1500	U	Leads	3 $\frac{13}{16}$	3 $\frac{3}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	6.75
<b>F-13X</b>	6.3	.6	115		1500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.37
<b>F-313X</b>			115/230											
<b>R-84K</b>	6.3†	.6	115	Pri. 1500 Sec. 3500		K	2-Leads	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$	$\frac{3}{16}$	1.5
<b>F-14X#</b>	6.3 CT	1.2	115	Pri. 1500 Sec. 2500		X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.7
<b>F-314X</b>			115/230											
<b>F-14Z#</b>	6.3 CT	1.2	115	Pri. 1500 Sec. 2500		Z	Leads	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.7

†Static shield. †Tapped primary to produce lower voltages. #60 cycle operation



# for Power Supply, Control and Filament Circuits

## Single secondary / 50-60 Hz (Continued)

Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-52X	6.3†	1.2	115	Pri. 1500 Sec. 5000	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1
F-51X#	6.3-5†	2	115	Pri. 1500 Sec. 5000	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.25
F-16X	6.3 CT	3	115	Pri. 1500 Sec. 2500	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.3
F-316X			115/230										
F-53X	6.3	4	115	Pri. 1500 Sec. 5000	X	Leads	2 <sup>1</sup> / <sub>32</sub>	4	2 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.1
F-43X#	6.3	4	115	1500	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.25
F-18A	6.3 CT	6	115	1500	A	1-Leads	3 <sup>3</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>32</sub>	2 <sup>3</sup> / <sub>8</sub>	2	1 <sup>1</sup> / <sub>16</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	2.5
F-18X	6.3 CT	6	115	1500	X	Leads	2 <sup>1</sup> / <sub>32</sub>	4	2 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.3
F-318X			115/230										
F-19X†	6.3 CT-6 CT	6	115	2000	X	Leads	2 <sup>1</sup> / <sub>32</sub>	4	2 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.3
F-69X	6.3 CT	8	115	1500	X	Leads	2 <sup>1</sup> / <sub>16</sub>	4	2 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.3
F-21A	6.3 CT	10	115	1500	A	1-Leads	3 <sup>1</sup> / <sub>32</sub>	2 <sup>3</sup> / <sub>32</sub>	3 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	2	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	3.8
F-20U†	6.3 CT-6 CT	11	115	Pri. 1500 Sec. 3000	U	Leads	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	3	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>16</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	4
F-17U	6.3 CT Lo-Cap.	15	115	Pri. 1500 Sec. 10,000	U	Pri. Leads Sec. Leads	4 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	7.5
F-22A	6.3 CT	20	115	2000	A	2-Leads	3 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>32</sub>	4 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	3	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	7
F-24U†	7.5 CT- 6.3 CT	8	115	Pri. 1500 Sec. 3000	U	Leads	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	2 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>16</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	3.65
F-28U†	7.5 CT- 6.3 CT	25	115	Pri. 1500 Sec. 3000	U	Leads & Lugs	4 <sup>3</sup> / <sub>8</sub>	3 <sup>13</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>8</sub>	3	3 <sup>1</sup> / <sub>16</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	7.5
F-180X	10 CT	1	115	1500	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	.9
F-31X	10 CT	3	115	2000	X	Leads	2 <sup>3</sup> / <sub>32</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>		<sup>3</sup> / <sub>16</sub>	1.7
F-95X	10 CT	4	115	1500	X	Leads	2 <sup>3</sup> / <sub>8</sub>	4	2 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.1
F-33U	10 CT	5	115	2000	U	Leads	3	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>8</sub>	2	2 <sup>1</sup> / <sub>16</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	2.5
F-96U	10 CT	6	115	1500	U	Leads	3	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	2	2 <sup>1</sup> / <sub>16</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	2.1
F-23U	10 CT	7	115	1500	U	Leads	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	2 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>16</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	3.9
F-97U	10 CT	8	115	1500	U	Leads	3 <sup>3</sup> / <sub>16</sub>	2 <sup>13</sup> / <sub>16</sub>	3	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	4.0
F-35U	10 CT	10	115	2000	U	Leads	4 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>16</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	9.1
F-113X	12	0.15	115	1500	X	Leads	1 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	2		<sup>3</sup> / <sub>16</sub>	.4
F-216X#	12	.35	115	1500	X	Leads	1 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	2		<sup>3</sup> / <sub>16</sub>	.37
F-114X	12	0.7	115	1500	X	Leads	1 <sup>3</sup> / <sub>8</sub>	2 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>		<sup>3</sup> / <sub>16</sub>	.8
F-217X#	12	1.2	115	1500	X	Leads	2	3 <sup>1</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.0
F-218X#	12	2	115	1500	X	Leads	2	3 <sup>1</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>		<sup>3</sup> / <sub>16</sub>	1.13
F-219X#	12	4	115	1500	X	Leads	2 <sup>3</sup> / <sub>16</sub>	4	2 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.3
F-220U#	12	6	115	1500	U	Leads	3 <sup>3</sup> / <sub>16</sub>	2 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	3.5
F-221U#	12	8	115	1500	U	Leads	3 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	<sup>3</sup> / <sub>8</sub> × <sup>3</sup> / <sub>16</sub>	4.0
F-29U†	12 CT-11 CT 10 CT	11	115	Pri. 1500 Sec. 3000	U	Leads	4 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>16</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	6.5
F-70X	12.6 CT	1.0	115	1500	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.3
F-25X	12.6 CT	1.5	115	1500	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.3
F-325X			115/230										
F-44X#	12.6 CT	2	115	1500	X	Leads	1 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2	2 <sup>13</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	1.25
F-344X			115/230										
F-26X#	12.6 CT	2.5	115	1500	X	Leads	2 <sup>3</sup> / <sub>32</sub>	3 <sup>11</sup> / <sub>16</sub>	2	3 <sup>3</sup> / <sub>8</sub>		<sup>3</sup> / <sub>16</sub>	1.55
F-326X			115/230										
F-224X#	12.6	3	115	1500	X	Leads	2 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>		<sup>3</sup> / <sub>16</sub>	1.6
F-225X#	12.6	4	115	1500	X	Leads	2 <sup>3</sup> / <sub>8</sub>	4	2 <sup>1</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>		<sup>3</sup> / <sub>16</sub>	2.3
F-181U	12.6 CT	4	115	1500	U	Leads	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	2	2	<sup>3</sup> / <sub>16</sub>	2.3
F-3181U			115/230										
F-182U	12.6 CT	6	115	1500	U	Leads	3 <sup>3</sup> / <sub>8</sub>	2 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>8</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	3.8
F-183U	12.6 CT	8	115	1500	U	Leads	3 <sup>13</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	<sup>5</sup> / <sub>16</sub> × <sup>3</sup> / <sub>16</sub>	5

‡Static shield. †Tapped primary to produce lower voltages. #60 cycle operation

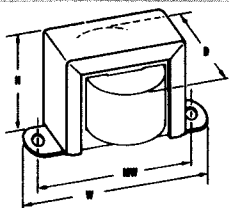
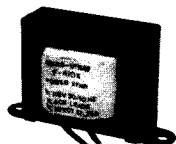
## for Power Supply, Control and Filament Circuits

Single secondary / 50-60 Hz (Continued)

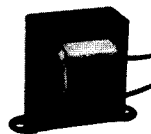
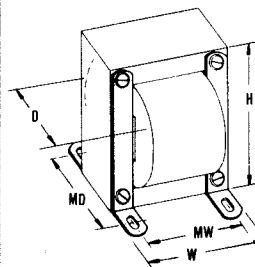
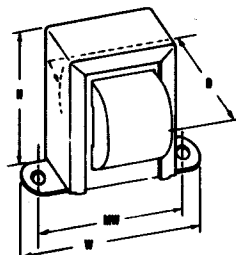
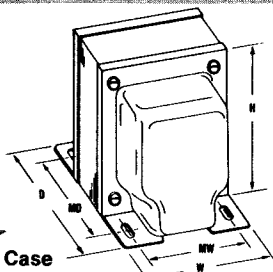
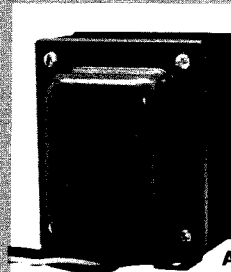
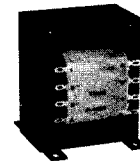
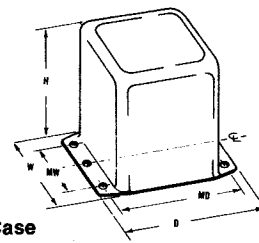
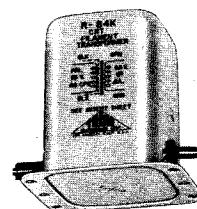
Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-112X	14 CT	0.25	115	1500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.4
F-3112X	14 CT	0.25	115/230	1500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.3
F-250X	14 CT	1	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{4}$	1 $\frac{3}{4}$	2 $\frac{13}{16}$		$\frac{3}{16}$	1.2
F-251X	14 CT	2	115	1500	X	Leads	2 $\frac{1}{4}$	3 $\frac{1}{16}$	1 $\frac{1}{16}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.5
F-252U	14 CT	4	115	1500	U	Leads	3	2 $\frac{1}{2}$	2 $\frac{1}{8}$	2	2 $\frac{1}{4}$	$\frac{5}{16} \times \frac{3}{16}$	3
F-253U	14 CT	6	115	1500	U	Leads	3 $\frac{3}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	$\frac{5}{16} \times \frac{3}{16}$	4
F-410X	18 CT	.75	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{3}{8}$	2	2 $\frac{13}{16}$		$\frac{3}{16}$	1.3
F-411X	18 CT	1	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{3}{8}$	2 $\frac{1}{8}$	2 $\frac{13}{16}$		$\frac{3}{16}$	1.45
F-412X	18 CT	1.5	115	1500	X	Leads	2 $\frac{9}{32}$	3 $\frac{3}{4}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.7
F413X	18 CT	2	115	1500	X	Leads	2 $\frac{9}{32}$	3 $\frac{3}{4}$	2 $\frac{1}{4}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.95
F-254X	20 CT	1	115	1500	X	Leads	2 $\frac{1}{4}$	3 $\frac{1}{16}$	1 $\frac{1}{16}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.5
F-255X	20 CT	2	115	1500	X	Leads	2 $\frac{1}{16}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$		$\frac{3}{16}$	2.5
F-256U	20 CT	4	115	1500	U	Leads	3 $\frac{3}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	$\frac{5}{16} \times \frac{3}{16}$	4
F-257U	20 CT	6	115	1500	U	Leads	3 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{5}{8}$	$\frac{5}{16} \times \frac{3}{16}$	5.7
F-258U	20 CT	8	115	1500	U	Leads	3 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{5}{16} \times \frac{3}{16}$	6.4
F-259U	20 CT	10	115	1500	U	Leads	4 $\frac{1}{8}$	3 $\frac{1}{16}$	3 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	$\frac{5}{16} \times \frac{3}{16}$	7.4
F-115X	24 CT	0.085	115	1500	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{8}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.3
F-3115X			115/230										
F-116X	24 CT	0.2	115	1500	X	Leads	1 $\frac{3}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.45
F-3116X			115/230										
F-117X	24 CT	0.4	115	1500	X	Leads	1 $\frac{5}{8}$	2 $\frac{1}{16}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.8
F-3117X			115/230										
F-246X#	24 CT	.5	440	1500	X	Leads	2	3 $\frac{1}{4}$	1 $\frac{1}{8}$	2 $\frac{1}{16}$		$\frac{3}{16}$	.8
F-118X	24 CT	.7	115	1500	X	Leads	2	3 $\frac{1}{4}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.3
F-3118X			115/230										
F-45X#	24 CT	1	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{3}{8}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.3
F-345X			115/230										
F-230X	24 CT	1	440	2000	X	Leads	2 $\frac{1}{4}$	3 $\frac{1}{16}$	1 $\frac{1}{16}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.7
F-46X#	24	1	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	2 $\frac{1}{16}$		$\frac{3}{16}$	1.4
F-346X			115/230										
F-229X#	24	2	115	1500	X	Leads	2 $\frac{1}{16}$	4	2	3 $\frac{1}{16}$		$\frac{3}{16}$	2.3
F-192X	24 CT	2	115	1500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$		$\frac{3}{16}$	2.3
F-231X	24 CT	2	440	2000	X	Leads	2 $\frac{1}{16}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$		$\frac{3}{16}$	2.4
F-193U	24 CT	4	115	1500	U	Leads	3 $\frac{1}{16}$	3 $\frac{1}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	4
F-232U	24 CT	4	440	2000	U	Leads	3 $\frac{3}{4}$	3 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	$\frac{5}{16} \times \frac{3}{16}$	4.6
F-260U	24 CT	6	115	1500	U	Leads	3 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{3}{16}$	6.4
F-261U	24 CT	8	115	1500	U	Leads	4 $\frac{1}{8}$	3 $\frac{1}{16}$	3 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	$\frac{5}{16} \times \frac{3}{16}$	7.4
F-401U	24 CT	10	115	1500	U	Leads	4 $\frac{1}{8}$	3 $\frac{1}{16}$	3 $\frac{3}{4}$	2 $\frac{3}{4}$	3	$\frac{5}{16} \times \frac{3}{16}$	8.0
F-226U#	24 CT	12	115	1500	U	Leads	4 $\frac{1}{16}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	3	3 $\frac{1}{4}$	$\frac{5}{16} \times \frac{3}{16}$	10.4
F-57X	25.2 CT	1	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{3}{8}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.5
F-357X			115/230										
F-41X#	25.2 CT	2	115	1500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$		$\frac{3}{16}$	2.2
F-341X			115/230										
F-56X	25.2 CT	2.8	115	1500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$		$\frac{3}{16}$	2.5
F-119X	26.8 CT	0.15	115	1500	X	Leads	1 $\frac{3}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.45
F-120X	26.8 CT	0.5	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{4}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.3
F-40X#	26.8 CT	1	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{3}{8}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.3
F-340X			115/230										
F-55X	26.8 CT	1.7	115	1500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$		$\frac{3}{16}$	2.3
F-355X			115/230										
F-121X	28 CT	.085	115	1500	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{3}{8}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.25
F-122X	28 CT	.175	115	1500	X	Leads	1 $\frac{3}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.35
F-123X	28 CT	.300	115	1500	X	Leads	1 $\frac{5}{8}$	2 $\frac{1}{16}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.60
F-124X	28 CT	.800	115	1500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{4}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.00
F-184X	28.0 CT	1	115	1500	X	Leads	2 $\frac{1}{16}$	3 $\frac{1}{16}$	2 $\frac{1}{4}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.4
F-185U	28.0 CT	2	115	1500	U	Leads	3 $\frac{1}{16}$	2 $\frac{1}{2}$	2 $\frac{1}{16}$	2	2 $\frac{1}{4}$	$\frac{5}{16} \times \frac{3}{16}$	2.9
F-3185U			115/230										
F-187U	28.0 CT	4	115	1500	U	Leads	3 $\frac{1}{2}$	2 $\frac{1}{8}$	3 $\frac{1}{16}$	2 $\frac{1}{4}$	2 $\frac{3}{4}$	$\frac{5}{16} \times \frac{3}{16}$	5.3

#60 cycle operation.

## for Power Supply, Control and Filament Circuits

**X Case**

Most units in case type X also available on special order with shields added or with channel frame removed.

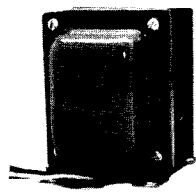
**Z Case****U Case****A Case****K Case**

### Single secondary / 50-60 Hz. Listed in order of increasing secondary voltages

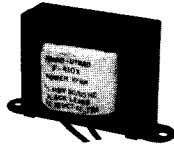
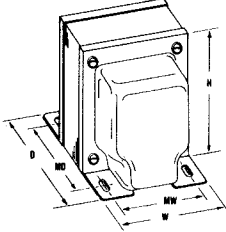
Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-262X	30.0 CT	1	115	1500	X	Leads	2 1/4	3 11/16	1 15/16	3 1/8		3/16	1.5
F-210X	30.0 CT	1.7	115	1500	X	Leads	2 19/32	4	2 1/4	3 3/8		3/16	2.3
F-263U	30.0 CT	2	115	1500	U	Leads	3	2 1/2	2 3/8	2	2 3/8	5/16 x 3/16	3.2
F-264U	30.0 CT	4	115	1500	U	Leads	3 3/4	3 3/8	3 3/8	2 1/2	2 3/8	5/16 x 3/16	5.7
F-265U	30.0 CT	6	115	1500	U	Leads	4 1/8	3 7/8	3 1/2	2 3/4	2 3/4	5/16 x 3/16	7.4
F-266U	30.0 CT	8	115	1500	U	Leads	4 1/2	3 3/4	4	3	3	5/16 x 3/16	10.0
F-227X#	35 CT	.065	115	1500	X	Leads	1 3/16	2 1/16	1 3/16	1 3/4		3/16	.3
F-188X	35.0 CT	.1	115	1500	X	Leads	1 5/8	2 13/16	1 7/16	2 3/8		3/16	.35
F-228X#	35 CT	.3	115	1500	X	Leads	1 3/8	2 13/16	1 3/8	2 3/8		3/16	.6
F-189X	35.0 CT	.5	115	1500	X	Leads	2 3/16	3 11/16	1 15/16	3 3/8		3/16	1.0
F-54X	35 CT	1.5	115	1500	X	Leads	2 19/32	4	2 1/4	3 3/8		3/16	2.2
F-354X			115/230										
F-190U	35.0 CT	2	115	1500	U	Leads	3 3/8	2 13/16	2 3/4	2 1/4	2 3/8	5/16 x 3/16	3.5
F-191U	35.0 CT	4	115	1500	U	Leads	3 13/16	3 3/8	3 3/8	2 3/4	2 1/2	5/16 x 3/16	6.0
F-267U	35.0 CT	6	115	1500	U	Leads	4 1/8	3 7/8	3 1/2	2 3/4	2 3/4	5/16 x 3/16	7.4
F-268U	35.0 CT	8	115	1500	U	Leads	4 1/2	3 3/4	4 1/4	3	3 1/4	5/16 x 3/16	11.0
F-269U	35.0 CT	10	115	1500	U	Leads	5 1/4	4 3/8	4 1/8	3 1/2	2 3/4	3/8 x 1/4	12.0
F-270X	40.0 CT	1	115	1500	X	Leads	2 3/16	4	2 1/4	3 3/8		3/16	2.6
F-271U	40.0 CT	2	115	1500	U	Leads	3 3/8	2 13/16	2 7/8	2 1/4	2 3/8	5/16 x 3/16	4.0
F-272U	40.0 CT	4	115	1500	U	Leads	3 3/4	3 3/8	3 1/2	2 1/2	2 3/8	5/16 x 3/16	6.4
F-273U	40.0 CT	6	115	1500	U	Leads	4 1/2	3 3/4	4	3	3	5/16 x 3/16	10.0
F-274U	40.0 CT	8	115	1500	U	Leads	4 1/2	3 3/4	4 1/4	3	3 3/8	5/16 x 3/16	10.5
F-275U	40.0 CT	10	115	1500	U	Leads	5 3/8	4 3/8	4 1/2	3 1/2	3 1/4	3/8 x 1/4	14.5
F-276X	50.0 CT	1	115	1500	X	Leads	2 3/16	4	2 1/4	3 3/8		3/16	2.4
F-277U	50.0 CT	2	115	1500	U	Leads	3 3/8	3 3/8	2 3/8	2 1/2	2 3/8	5/16 x 3/16	4.7
F-278U	50.0 CT	4	115	1500	U	Leads	4 1/8	3 7/8	3 1/2	2 3/4	2 3/4	5/16 x 3/16	7.4
F-58A	50 CT	5	115	1500	A	Leads	4 3/8	3 13/16	4 1/2	3	3 3/8	3/8 x 3/16	10.0
F-59X	60 CT	.4	115	1500	X	Leads	1 15/16	3 3/16	2	2 13/16		3/16	1.3
F-279U	60.0 CT	1	115	1500	U	Leads	3	2 1/2	2 3/8	2	2 3/8	5/16 x 3/16	3.4
F-280U	60.0 CT	2	115	1500	U	Leads	3 3/4	3 3/8	3 3/8	2 1/2	2 3/8	5/16 x 3/16	5.6
F-281U	60.0 CT	4	115	1500	U	Leads	4 1/2	3 3/4	4	3	3	5/16 x 3/16	10.0
F-282U	60.0 CT	6	115	1500	U	Leads	5 1/4	4 3/8	4 1/8	3 1/2	2 3/4	5/16 x 3/16	12.5
F-283U	70.0 CT	1	115	1500	U	Leads	3 3/8	2 13/16	2 3/8	2 1/4	2 1/4	5/16 x 3/16	4.0
F-284U	70.0 CT	2	115	1500	U	Leads	3 3/4	3 3/8	3 1/2	2 1/2	2 1/2	5/16 x 3/16	6.0

#60 cycle operation.

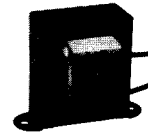
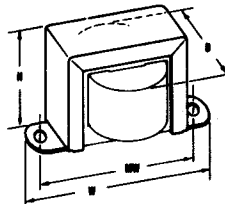
## for Power Supply, Control and Filament Circuits



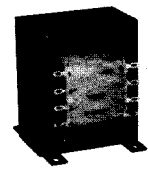
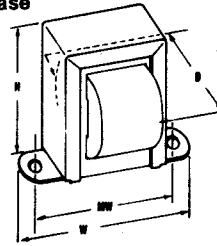
**A Case**



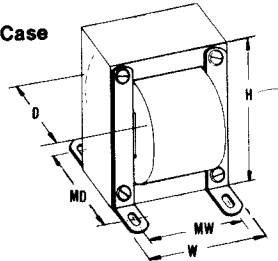
**X Case**



**Z Case**



**U Case**



### Multiple secondary / 50-60 Hz

Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-27U	10 CT 2.5 CT	10 10	115	1500 7500	U	Leads	4 $\frac{3}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{8}$	$\frac{3}{8} \times \frac{3}{16}$	6.2
F-32A	6.3 CT* 6.3 CT*	3 3	115	1500	A	1-Leads	3 $\frac{3}{16}$	2 $\frac{1}{32}$	2 $\frac{5}{8}$	2	1 $\frac{1}{16}$	$\frac{3}{8} \times \frac{3}{16}$	2.5
F-34A	6.3 CT* 6.3* 6.3* 6.3*	1.75 1.75 1.75 1.75	115	1500	A	2-Leads	3 $\frac{3}{16}$	2 $\frac{1}{32}$	3	2	2 $\frac{1}{16}$	$\frac{3}{8} \times \frac{3}{16}$	3.3
F-36A	6.3 CT* 6.3* 6.3* 6.3*	3.5 3.5 3.5 3.5	115	1500	A	1-Leads	3 $\frac{3}{8}$	3 $\frac{3}{32}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{8}$	$\frac{3}{8} \times \frac{3}{16}$	5
F-38A	6.3 CT* 6.3* 6.3* 5 CT 5	5 5 1 2 4	115	1500	A	2-Leads	3 $\frac{3}{8}$	3 $\frac{3}{32}$	3 $\frac{3}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{8}$	$\frac{3}{8} \times \frac{3}{16}$	6
F-233Z	6* 6*	2 2	96	1500	Z	Lugs	2 $\frac{1}{16}$	3 $\frac{3}{8}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.5
F-234Z#	12 CT 12 CT	.1 .1	115	1500	Z	Lugs	1 $\frac{3}{8}$	2	1 $\frac{1}{8}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.3
F-235Z#	12 CT 12 CT	.25 .25	115	1500	Z	Lugs	2	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.6
F-236Z#	12 CT 12 CT	.5 .5	115	1500	Z	Lugs	2 $\frac{3}{16}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.9
F-237Z#	12 CT 12 CT	1 1	115	1500	Z	Lugs	2 $\frac{3}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	1.1
F-238U#	12 CT 12 CT	2 2	115	1500	U	Lugs	2 $\frac{1}{2}$	3	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2	$\frac{3}{8} \times \frac{3}{16}$	2.2
F-239U#	12 CT 12 CT	4 4	115	1500	U	Lugs	3 $\frac{3}{8}$	3 $\frac{3}{4}$	2 $\frac{3}{4}$	3 $\frac{3}{8}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	4.25
F-240U#	12 CT 12 CT	6 6	115	1500	U	Lugs	3 $\frac{1}{2}$	4 $\frac{3}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{16}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	5.4
F-293X#	12 12	.5 .5	277	Pri. Sec. 2500 Sec. Core 1500	X	Leads	2	3 $\frac{1}{4}$	1 $\frac{1}{8}$	2 $\frac{1}{16}$		$\frac{3}{16}$	.8
F-294X	12 12	1 1	277	1500	X	Leads	2	3 $\frac{1}{4}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.2
F-42A	12.6 CT* 12.6*	2.5 2.5	115	1500	A	1-Leads	3 $\frac{1}{32}$	2 $\frac{21}{32}$	3 $\frac{3}{8}$	2 $\frac{1}{4}$	2	$\frac{3}{8} \times \frac{3}{16}$	3.7
F-83A# ¶	12.6 CT* 12.6 CT*	5 5	115	Pri. Sec. 1500 Sec. core 2500	A	2-Leads	3 $\frac{3}{8}$	3 $\frac{3}{32}$	3 $\frac{3}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{8}$	$\frac{3}{8} \times \frac{3}{16}$	6

\*Windings may be connected in series to obtain their combined voltage when properly phased: Current will be equal to the current of the lowest winding.

Example: Two 6.3V windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain combined current. Example: Two 6.3V, windings @ 2A. in parallel would be 6.3V. @ 4A.

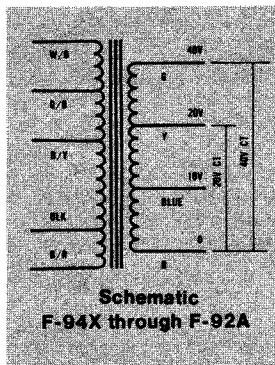
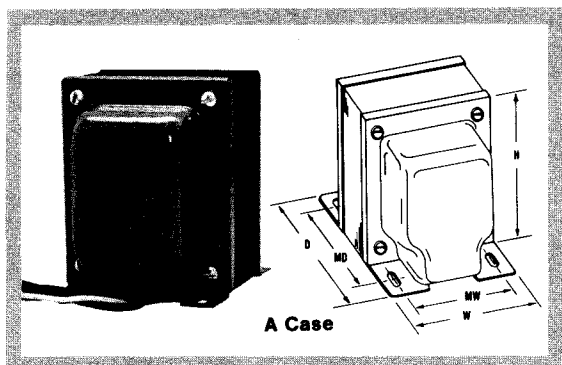
#60 cycle operation ¶ Tapped primary 105-115-125.

Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-295Z	15	.1	115	1500	Z	Leads	1 $\frac{1}{4}$	2	1 $\frac{1}{2}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.4
	12	.1											
	12 CT	.1											
F-3295Z	15	.1	230	1500	Z	Leads	1 $\frac{1}{4}$	2	1 $\frac{1}{2}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.41
	12	.1											
	12 CT	.1											
F-296Z#	15	.15	115	1500	Z	Leads	1 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.6
	12	.15											
	12 CT	.15											
F-297Z#	15	.25	115	1500	Z	Leads	1 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.7
	12	.25											
	12 CT	.25											
F-3297Z	15	.25	115/230	1500	Z	Leads	2 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$		$\frac{3}{16}$	.8
	12	.25											
	12 CT	.25											
F-298Z	15	.5	115	1500	Z	Leads	2 $\frac{1}{4}$	3 $\frac{1}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$		$\frac{3}{16}$	1.25
	12	.5											
	12 CT	.5											
F-3298Z	15	.5	115/230	1500	Z	Leads	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2	2 $\frac{1}{4}$		$\frac{3}{16}$	1.25
	12	.5											
	12 CT	.5											
F-299X	15	1.5	115	1500	X	Leads	2 $\frac{1}{4}$	4	2 $\frac{1}{4}$	3 $\frac{1}{4}$		$\frac{3}{16}$	2.3
	12	1.5											
	12 CT	1.5											
F-241U#*	18 CT	1	115	1500	U	Lugs	2 $\frac{1}{2}$	3	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2	$\frac{3}{8} \times \frac{3}{16}$	2.2
	18 CT	1											
	18 CT	1											
F-242U#*	18 CT	2	115	1500	U	Lugs	3 $\frac{1}{8}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	4.0
	18 CT	2											
	18 CT	2											
F-243U#*	18 CT	4	115	1500	U	Lugs	3 $\frac{1}{2}$	4 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	5.2
	18 CT	4											
	18 CT	4											
F-244U#*	18 CT	8	115	1500	U	Lugs	3 $\frac{1}{2}$	4 $\frac{1}{2}$	4	3 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	8.3
	18 CT	8											
	18 CT	8											
F-245U#*	18 CT	12	115	1500	U	Lugs	4 $\frac{1}{2}$	5 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	11.9
	18 CT	12											
	18 CT	12											
F-194X	32.0 CT	.050	115	1500	X	Leads	1 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	2 $\frac{1}{4}$		$\frac{3}{16}$	.45
	15.5 CT	.20											
	15.5 CT	.20											
F-195X	32.0 CT	.250	115	1500	X	Leads	2 $\frac{1}{4}$	3 $\frac{1}{4}$	1 $\frac{1}{4}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.3
	15.5 CT	.750											
	15.5 CT	.750											
F-395X	32 CT	.250	230	1500	X	Leads	2 $\frac{1}{4}$	3 $\frac{1}{4}$	1 $\frac{1}{4}$	3 $\frac{1}{8}$		$\frac{3}{16}$	1.3
	15 CT	.750											
	15 CT	.750											
F-196U	32.0 CT	1	115	1500	U	Leads	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	4.0
	15.0 CT	2											
	15.0 CT	2											
F-396U	32 CT	1	230	1500	U	Leads	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	4.0
	15 CT	2											
	15 CT	2											
F-197U	32.0 CT	1	115	1500	U	Leads	3 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	4.7
	15.0 CT	4											
	15.0 CT	4											
F-397U	32 CT	1	230	1500	U	Leads	3 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	4.7
	15 CT	4											
	15 CT	4											
F-198U	32.0 CT	1	115	1500	U	Leads	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	6.2
	15.0 CT	6											
	15.0 CT	6											
F-199U	32.0 CT	1	115	1500	U	Leads	4 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{16}$	7.4
	15.0 CT	10											
	15.0 CT	10											

### 115 volts, 50-60 Hz Primary / Triple Output Secondaries for $\pm 15V$ and $+5V$ DC

TYPE No.	Fig.	Output Watts	Secondary #1	Secondary #2	H.	W.	Dimensions				MW	Wt. Oz.
							D.	L.	A.	B.		
F-165P	C-1	1½	24V CT @ .025A	9V CT @ .100A	1⅛	1⅝	1⅜	1⅝	1⅜	1		3.5
F-167P	C-1	1½	32V CT @ .020A	15V CT @ .060A	1⅛	1⅝	1⅜	1⅝	1⅜	1		3.5
F-168XP	D-1	4½	32V CT @ .050A	15V CT @ .195A	1⅜	2⅜	1⅜	1⅝	⅝	1⅜	2	7.5
F-166XP	D-1	7½	24V CT @ .125A	9V CT @ .500A	1⅜	2⅜	1⅜	1⅝	⅝	1⅜	2½	10.5
F-169XP	D-1	7½	32V CT @ .100A	15V CT @ .287A	1⅜	2⅜	1⅜	1⅝	⅝	1⅜	2½	10.5

## for Power Supply, Control and Rectifier Circuits



### Secondary voltages obtainable from F-94X through F-92A low voltage rectifier transformers:

7v, 7.5v, 8v, 8.5v, 9.5v, 10v, 14vct, 15vct, 16vct, 17vct, 19vct, 20vct, 21v, 22.5v, 24v, 25.5v, 28vct, 28.5v, 30vct, 32vct, 34vct, 38vct, 40vct.

### LOW VOLTAGE RECTIFIER / transistor drive voltage, 50-60 Hz

Type No.	Primary Volts	Secondary AC		DC Volts		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
		AC Volts	DC Amps*	Half Wave	FW Bridge				H	W	D	MW	MD		
F-94X F-394X	115† 230†	10-20 CT-40 CT	.035	15	30	1500	X	Leads	1 1/8	2 1/8	1 1/8	2		3/16	.5
F-90X F-390X	115† 230†	10-20 CT-40 CT	.1	15	30	1500	X	Leads	1 1/8	2 1/16	1 1/8	2 1/8		3/16	.7
F-91X F-391X	115† 230†	10-20 CT-40 CT	.3	15	30	1500	X	Leads	2 1/32	3 1/16	2	3 1/8		3/16	1.5
F-93X F-393X	115† 230†	10-20 CT-40 CT	.75	15	30	1500	X	Leads	2 19/32	4	2 1/4	3 1/8		3/16	2.4
F-92A F-392A	115† 230†	10-20 CT-40 CT	1	15	30	1500	A	Leads (2 Holes)	3 1/8	2 19/32	3	2	2 1/8	3/8 x 3/16	3.25

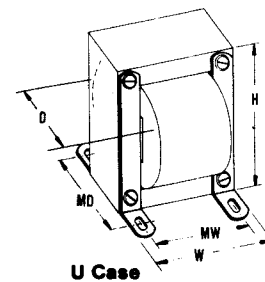
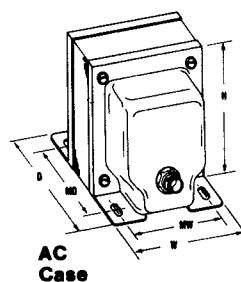
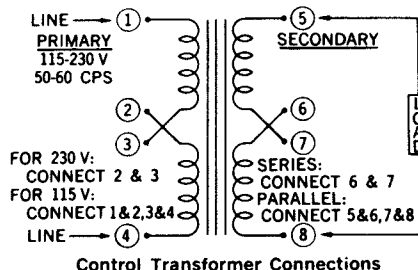
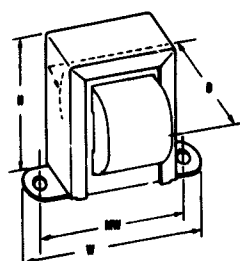
\*FWB Rectifier Circuit NOTE: 230 volt primaries can also be used with 277v. †Tapped primary to produce lower voltages.

### CONTROL TRANSFORMERS / primary 115/230V, 50-60 Hz, 6, 12, 24 volt secondaries

For use with relays, solenoids, small motors, speed changers, pumps, heating elements, control valves for fluids and gases, fans and blowers, elec-

tronic tubes, automatic assembly equipment, recording devices, elevators, door openers, low voltage lamps and similar applications.

Type No.	Secondaries			VA Rating	Case Type	Connections	Case Dimensions			Mounting Dimension		Mfg. Hole Size	Shpg. Wt. in Lbs.
	Individual	Parallel	Series CT				H	W	D	MW	MD		
F-105Z	6V @ 1A	6V @ 2A	12V @ 1A	12	Z	Lugs	2 3/8	2 1/4	1 1/4	2 3/8		3/16	1
F-106Z	6V @ 2A	6V @ 4A	12V @ 2A	24	Z	Lugs	2 3/8	3 1/8	2	2 13/16		3/16	1 1/2
F-107Z	12V @ 2A	12 @ 4A	24V @ 2A	48	Z	Lugs	3 1/8	3 3/8	2 3/8	3 1/8		3/16	2 1/2
F-398U	12V @ 3A	12V @ 6A	24V @ 3A	72	U	Lugs	3 13/32	2 13/16	2 13/16	2 1/4	2 1/4	3/16 x 3/16	4 1/4
F-108U	12V @ 4A	12V @ 8A	24V @ 4A	96	U	Lugs	3 13/32	2 13/16	2 13/16	2 1/4	2 1/4	3/16 x 3/16	4 1/4
F-399U	12V @ 6A	12V @ 12A	24V @ 6A	144	U	Lugs	3 3/4	3 1/8	3 1/2	2 1/2	2 1/8	3/16 x 3/16	5.9
F-109U	12V @ 8A	12V @ 16A	24V @ 8A	192	U	Lugs	4 1/8	3 1/8	3 3/8	2 3/4	3	3/16 x 3/16	8
F-211Z	24V @ .25A	24V @ .5A	48V @ .25A	12	Z	Lugs	2 3/8	2 1/4	1 1/4	2 3/8		3/16	.678
F-212Z	24V @ .5A	24V @ 1.0A	48V @ .50A	24	Z	Lugs	2 3/8	3 1/8	2	2 13/16		3/16	1.05
F-213Z	24V @ 1A	24V @ 2.0A	48V @ 1.0A	48	Z	Lugs	3 1/8	3 1/8	2 3/8	3 1/8		3/16	2.25
F-214U	24V @ 2A	24V @ 4.0A	48V @ 2.0A	96	U	Lugs	3 13/32	2 13/16	3 1/8	2 1/4	2 3/8	3/16 x 3/16	3.24
F-400U	24V @ 3A	24V @ 6A	48V @ 3A	144	U	Lugs	3 3/4	3 1/8	3 1/2	2 1/2	2 3/8	3/16 x 3/16	5.9
F-215U	24V @ 4A	24V @ 8.0A	48V @ 4.0A	192	U	Lugs	4 1/8	3 1/8	3 3/8	2 3/4	3	3/16 x 3/16	6.06



Other control transformers in standard commercial constructions, with single and multiple primaries and secondaries will be found on pages 8, 9, 10, and 11. They are listed in order of increasing secondary volt-

ages. Low voltage, low current plug-in types will be found on pages 4, 5, 6, and 7, in single and dual primaries, dual and triple secondaries.



<b>F-204U</b>		FULL WAVE CENTER-TAPPED 8.0 ADC				FULL WAVE BRIDGE		4.0 ADC	
		Resistive Load		Capacitive Load (4000 mfd)		Resistive Load		Capacitive Load (2000 mfd)	
		Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2		29.3	11.8	29.7	14.5	29.3	24.4	29.2	34.0
1-7	2-6	26.0	10.3	26.2	12.2	26.0	21.4	25.8	29.2
1-6	2-5	23.2	9.0	23.3	10.5	23.2	18.9	23.0	25.4
1-7	2-5	20.9	8.1	21.0	9.2	20.8	16.8	20.7	22.4
1-3		19.5	7.5	19.6	8.5	19.4	15.7	19.4	20.8
1-7	3-6	17.8	6.6	17.9	7.6	17.8	14.2	17.7	18.6
1-6	3-5	16.5	6.0	16.5	6.5	16.4	12.9	16.4	16.8
1-7	3-5	15.3	5.5	15.3	5.9	15.2	11.9	15.2	15.2
1-4		14.5	5.1	14.5	5.6	14.4	11.2	14.4	14.3
1-7	4-6	13.6	4.7	13.6	5.1	13.5	10.4	13.5	13.0
1-6	4-5	12.7	4.3	12.7	4.6	12.6	9.6	12.6	12.0
1-7	4-5	12.0	4.0	12.0	4.2	11.9	9.0	11.9	11.0

<b>F-205U</b>		FULL WAVE CENTER-TAPPED 12.0 ADC				FULL WAVE BRIDGE		6.0 ADC	
		Resistive Load		Capacitive Load (6000 mfd)		Resistive Load		Capacitive Load (3000 mfd)	
		Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2		30.0	12.0	29.8	14.8	29.7	24.6	29.7	33.6
1-7	2-6	26.2	10.3	26.0	12.3	25.9	21.3	25.9	28.4
1-6	2-5	24.0	9.4	23.8	11.2	23.8	19.4	23.8	25.4
1-7	2-5	21.6	8.3	21.3	9.4	21.3	17.2	21.3	22.2
1-3		19.9	7.6	19.8	8.8	19.7	15.9	19.7	20.2
1-7	3-6	18.2	6.8	18.0	7.7	18.0	14.2	17.9	17.9
1-6	3-5	17.2	6.3	17.0	7.0	16.9	13.3	16.8	16.5
1-7	3-5	15.8	5.7	15.6	6.2	15.5	12.1	15.5	14.8
1-4		14.8	5.2	14.8	5.7	14.7	11.4	14.6	13.8
1-7	4-6	13.8	4.7	13.8	5.2	13.8	10.5	13.7	12.6
1-6	4-5	13.1	4.4	13.0	4.7	13.1	9.9	13.0	11.7
1-7	4-5	12.3	4.1	12.2	4.3	12.3	9.2	12.2	10.8

<b>F-206U</b>		FULL WAVE CENTER-TAPPED 15.0 ADC				FULL WAVE BRIDGE		8.0 ADC	
		Resistive Load		Capacitive Load (7500 mfd)		Resistive Load		Capacitive Load (4000 mfd)	
		Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2	—	30.1	12.5	30.0	16.0	30.0	25.0	30.0	36.0
1-7	2-6	26.7	10.9	26.8	13.9	26.7	21.8	26.8	31.2
1-6	2-5	23.9	9.6	23.9	12.0	23.7	19.1	23.7	27.5
1-7	2-5	21.5	8.6	21.5	10.4	21.2	17.1	21.2	24.4
1-3	—	19.8	7.8	19.9	9.5	19.8	15.7	19.8	22.3
1-7	3-6	18.2	7.2	18.2	8.4	18.0	14.4	18.0	20.6
1-6	3-5	16.8	6.5	16.8	7.4	16.7	13.1	16.7	18.2
1-7	3-5	15.5	6.0	15.5	6.7	15.3	11.9	15.3	16.5
1-4	—	14.8	5.6	14.8	6.3	14.6	11.3	14.6	15.3
1-7	4-6	13.8	5.2	13.8	5.7	13.6	10.4	13.6	14.0
1-6	4-5	12.7	4.8	12.9	5.1	12.8	9.6	12.8	12.9
1-7	4-5	12.1	4.5	12.1	4.8	12.0	8.9	12.0	12.0

<b>F-207U</b>		FULL WAVE CENTER-TAPPED 22.5 ADC				FULL WAVE BRIDGE		12.0 ADC	
		Resistive Load		Capacitive Load (11,250 mfd)		Resistive Load		Capacitive Load (6000 mfd)	
		Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2	—	29.6	12.2	29.5	15.9	29.7	24.3	30.0	35.5
1-7	2-6	26.9	10.8	26.5	13.6	26.4	21.4	26.3	31.0
1-6	2-5	24.2	9.5	23.9	12.0	24.0	19.3	23.8	27.8
1-7	2-5	21.8	8.5	21.8	10.6	21.8	17.3	21.7	24.8
1-3	—	19.6	7.6	19.7	9.2	19.7	15.6	19.6	21.9
1-7	3-6	18.2	7.0	18.1	8.3	18.1	14.3	18.1	19.9
1-6	3-5	16.9	6.4	16.8	7.5	16.8	13.2	16.8	18.2
1-7	3-5	15.8	6.0	15.8	6.9	15.6	12.0	15.7	16.8
1-4	—	14.5	5.4	14.3	6.1	14.6	11.2	14.4	15.0
1-7	4-6	13.8	5.1	13.5	5.5	13.6	10.3	13.6	14.0
1-6	4-5	13.0	4.8	12.9	5.2	13.0	9.6	12.9	12.9
1-7	4-5	12.1	4.4	12.1	4.8	12.2	9.0	12.2	12.2

The voltages in these tables were obtained using silicon rectifiers, and capacitor values shown for capacitive loads. Actual voltages obtained may vary slightly from values shown due to voltage drops across rectifiers, actual capacitor values, and lead losses.

It may be necessary to de-rate current values in capacitive circuits by 15-20% for lower transformer and rectifier temperatures if the higher temperatures produced by these circuits are objectionable. Be sure to choose rectifiers with suitable characteristics to handle voltages and currents shown, as well as PIV and surge currents which will be encountered.



## UNIVERSAL RECTIFIER POWER / primary 117 volts, 50-60 Hz

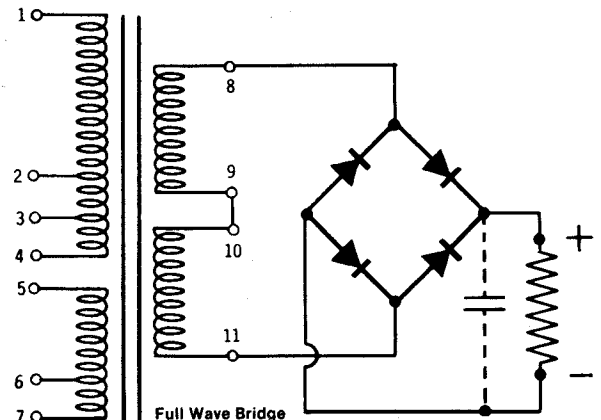
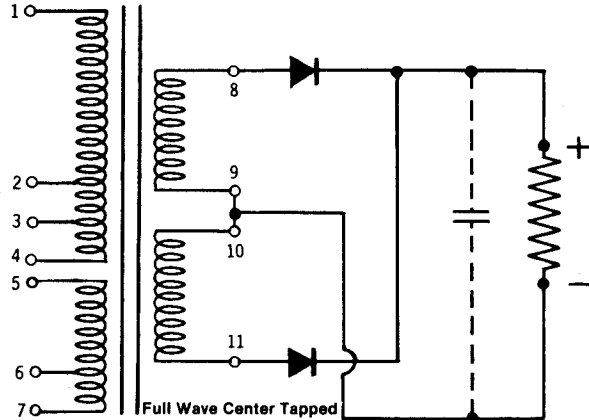
These Triad units give maximum flexibility when integrated into full-wave CT or bridge type circuits with silicon or selenium rectifiers.

No. F-200A has two identical secondary windings, each supplying 13 or 18 AC volts at 900 DC ma. Secondary voltages are selected by primary taps. The other 6 units have primaries connected to terminals 1, 2, 3 and 4. A separate winding connected to terminals 5, 6, and 7 is used in series with the primary to increase or decrease the secondary voltage output. The secondaries of these 6 transformers consist of two identical windings which may be connected to give a wide variety of output voltages. Instructions packed with each unit indicate specific terminal connections and voltage combinations which may be obtained by using the taps on both

primary and secondary windings, plus the "bucking" action of the additional primary winding.

The voltages in these tables were obtained using silicon rectifiers, and capacitor values shown for capacitive loads. Actual voltages obtained may vary slightly from values shown due to voltage drops across rectifiers, actual capacitor values, and lead losses.

It may be necessary to de-rate current values in capacitive circuits by 15-20% for lower transformer and rectifier temperatures if the higher temperatures produced by these circuits are objectionable. Be sure to choose rectifiers with suitable characteristics to handle voltages and currents shown, as well as PIV and surge currents which will be encountered.



Type No.	Secondary No. 1 AC Volts	Secondary DC Amps		Secondary No. 2 AC Volts	DC Amps	RMS Test Volts	Case Type	Connections	Case Dimensions			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Full Wave CT	Bridge						H	W	D	MW	MD		
F-200A	13 or 18 @ .9 ADC	-	-	13 or 18 @ .9 ADC	-	1500	A	Leads	3 $\frac{3}{32}$	2 $\frac{21}{32}$	2 $\frac{1}{8}$	2	2	$\frac{3}{16} \times \frac{3}{16}$	2.7
F-202U	11.0 to 29.5	2.0	1.25	-	-	1500	U	Lugs	3	2 $\frac{1}{2}$	3	2	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{5}{16}$	2.5
F-203U	12.0 to 30.0	4.0	2.0	-	-	1500	U	Lugs	3 $\frac{3}{8}$	2 $\frac{1}{16}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{5}{16}$	3.8
F-204U	11.5 to 29.0	8.0	4.0	-	-	1500	U	Lugs	3 $\frac{3}{8}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	$\frac{5}{16} \times \frac{5}{16}$	6.1
F-205U	12.0 to 29.5	12.0	6.0	-	-	1500	U	Lugs	4 $\frac{1}{8}$	3 $\frac{1}{8}$	5 $\frac{1}{8}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$	$\frac{5}{16} \times \frac{5}{16}$	9.1
F-206U	12.1 to 29.2	15.0	8.0	-	-	1500	U	Lugs	4 $\frac{1}{8}$	3 $\frac{3}{4}$	5	2 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{5}{16} \times \frac{5}{16}$	12.6
F-207U	12.2 to 29.0	22.5	12.0	-	-	1500	U	Lugs	5 $\frac{1}{8}$	4 $\frac{1}{8}$	5 $\frac{1}{8}$	3 $\frac{1}{2}$	4 $\frac{1}{4}$	$\frac{5}{16} \times \frac{5}{16}$	20.5

F-202U						FULL WAVE CENTER-TAPPED 2.0 ADC				FULL WAVE BRIDGE				1.25 ADC	
Input Terminals		Tie Terminals	Resistive Load		Capacitive Load (1000 mfd)		Resistive Load		Capacitive Load (500 mfd)		Resistive Load		Capacitive Load (500 mfd)		D. C. Volts
			Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	
1-2			30.2	12.2	30.0	15.3	29.3	24.6	29.3	33.3	29.3	24.6	29.3	33.3	
1-7		2-6	27.0	10.6	26.9	13.0	26.2	21.7	26.0	28.6	26.2	21.7	26.0	28.6	
1-6		2-5	23.8	9.2	23.7	11.1	23.0	18.9	23.0	24.6	23.0	18.9	23.0	24.6	
1-7		2-5	21.7	8.2	21.7	9.8	20.7	16.9	20.7	21.8	20.7	16.9	20.7	21.8	
1-3			19.7	7.3	19.7	8.7	19.1	15.5	18.9	19.7	19.1	15.5	18.9	19.7	
1-7		3-6	18.3	6.6	18.1	7.8	17.5	14.1	17.4	17.7	17.5	14.1	17.4	17.7	
1-6		3-5	16.6	5.9	16.6	6.9	15.9	12.6	15.8	15.7	15.9	12.6	15.8	15.7	
1-7		3-5	15.4	5.4	15.4	6.1	14.7	11.7	14.7	14.4	14.7	11.7	14.7	14.4	
1-4			14.7	5.1	14.7	5.7	14.1	11.1	14.0	13.4	14.1	11.1	14.0	13.4	
1-7		4-6	13.8	4.7	13.7	5.1	13.2	10.2	13.1	12.4	13.2	10.2	13.1	12.4	
1-6		4-5	12.8	4.3	12.8	4.6	12.2	9.4	12.2	11.2	12.2	9.4	12.2	11.2	
1-7		4-5	12.2	3.9	12.1	4.2	11.5	8.8	11.4	10.3	11.5	8.8	11.4	10.3	

F-203U						FULL WAVE CENTER-TAPPED 4.0 ADC				FULL WAVE BRIDGE				2.0 ADC	
Input Terminals		Tie Terminals	Resistive Load		Capacitive Load (2000 mfd)		Resistive Load		Capacitive Load (1000 mfd)		Resistive Load		Capacitive Load (1000 mfd)		D. C. Volts
			Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	
1-2			29.8	12.0	29.7	15.0	29.5	24.7	29.5	34.7	29.5	24.7	29.5	34.7	
1-7		2-6	26.7	10.6	26.6	12.8	26.3	21.9	26.3	30.3	26.3	21.9	26.3	30.3	
1-6		2-5	24.7	9.7	24.5	11.7	24.3	20.1	24.2	27.4	24.3	20.1	24.2	27.4	
1-7		2-5	22.4	8.6	22.2	10.2	22.0	18.0	22.1	24.4	22.0	18.0	22.1	24.4	
1-3			21.3	8.2	21.2	9.6	21.0	17.2	21.0	23.2	21.0	17.2	21.0	23.2	
1-7		3-6	19.4	7.2	19.4	8.6	19.2	15.6	19.2	21.0	19.2	15.6	19.2	21.0	
1-6		3-5	18.2	6.7	18.2	8.0	18.0	14.5	18.0	19.3	18.0	14.5	18.0	19.3	
1-7		3-5	16.9	6.2	17.0	7.1	16.6	13.4	16.6	17.6	16.6	13.4	16.6	17.6	
1-4			14.8	5.2	14.7	5.8	14.5	11.4	14.5	14.8	14.5	11.4	14.5	14.8	
1-7		4-6	13.8	4.8	13.8	5.3	13.7	10.6	13.6	13.6	13.7	10.6	13.6	13.6	
1-6		4-5	13.2	4.5	13.2	4.9	13.1	10.1	12.9	12.8	13.1	10.1	12.9	12.8	
1-7		4-5	12.9	4.2	12.4	4.6	12.3	9.4	12.3	11.9	12.3	9.4	12.3	11.9	

Triad Universal Rectifier Power Transformers are designed for solid-state rectifier supplies. The DC voltage shown is for circuits A and B. Higher voltage can be obtained through the use of capacitor input filters; in that

case, however, rated DC current must be reduced approximately by 2. If a voltage doubler circuit (D) is used, current must be reduced approximately by 4.

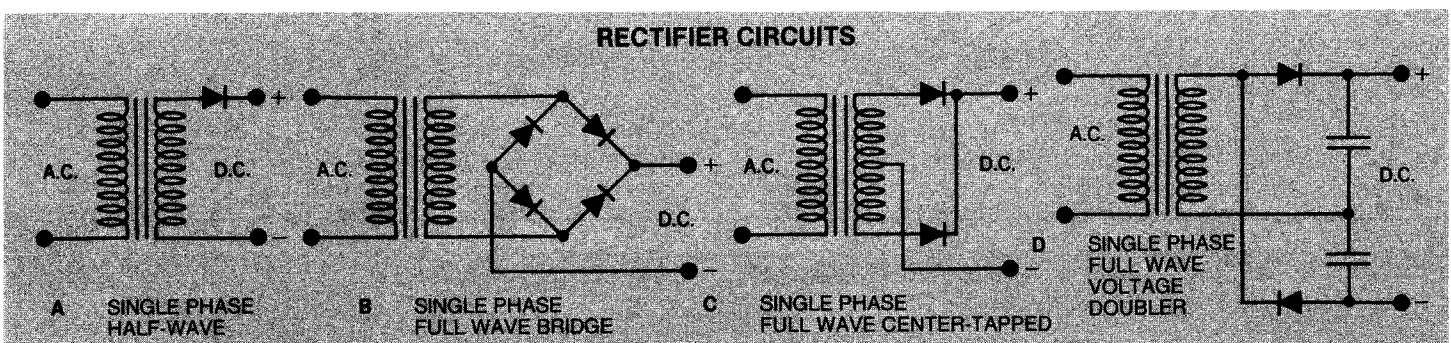
## UNIVERSAL RECTIFIER POWER / primary 50-60 Hz

Type No.	Primary Volts	Secondary AC		DC Volts		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
		Volts	Amps	Half Wave	Bridge				H	W	D	MW	MD		
F-47U	115	0-17-18	3	6-7	13-14	1500	U	Leads	3	2½	2¼	1½	2½	¼×¼	3.2
F-347U	115/230														
F-48U	115	0-17-18	6	6-7	13-14	1500	U	Leads	3½	3½	3½	2½	2½	⅝×⅝	5.5
F-49U	115	36*	3	13	26	1500	U	Leads	4½	3½	3¼	3	3½	⅝×⅝	9.75
		36*	3	13	26										
F-60U●	115	0-6.5-13-19.5-26	3	9	18	1500	U	Leads	3½	2½	2½	2¼	2½	⅝×⅝	3.5
F-360U	115/230														
F-61U	115	0-24-27-30-33-36	3	13	26	1500	U	Leads	3¼	3½	3¼	2½	2½	⅝×⅝	5.65
F-361U	115/230														
F-67U#	110-120	0-24-27-30-33-36	8	13	26	1500	U	Leads	4½	3½	4½	3	3½	⅝×⅝	10.75
F-63U	115	0-8-9*	2	-	6-7	1500	U	Leads	2	2½	2½	2	2½	⅝×⅝	2.3
		0-8-9*	2	-	6-7										
F-64U	115	0-7-8-9	7	-	5-6-7	1500	U	Leads	3½	2½	2¼	2¼	2½	⅝×⅝	3.5
F-364U	115/230														
F-62U#	105-115-125	9*	10	-	7	1500	U	Leads	4½	3½	5¼	3	4½	⅝×⅝	16
		9*	10	-	7										
		9*	10	-	7										
		9*	10	-	7										
F-68U#	115	9CT*	3.5	-	7	1500	U	Leads	3½	3½	3½	2½	2½	⅝×⅝	5
		9*	3.5	-	7										
		9*	3.5	-	7										
		9*	3.5	-	7										
F-65U	110-120	0-140-150-160	.75	60	115	1500	U	Leads	3½	3½	3½	2½	2½	⅝×⅝	5.8
F-74U	117	28CT*	2	-	-	1500	U	Lugs	3½	3½	3¼	2½	2½	⅝×⅝	5.7
		28CT*	2	-	-										
F-75U	117	28CT*	4	-	-	1500	U	Lugs	4½	3½	4½	2½	3¼	⅝×⅝	10
		28CT*	4	-	-										
F-79U#	115	0-24-26-28-30	15	11.4	22.8	1500	U	Leads, Lugs	3½	4½	5½	3¼	4½	⅝×⅝	18.5
F-80U#	115†	0-12-13.5-15-16.5-18*	20	-	13	1500	U	Leads	5½	4½	5½	2½	4½	⅝Dia.	25
		0-12-13.5-15-16.5-18*	20	-	13										
F-86U	115	12CT	10	-	-	1500	U	Leads	3¼	3½	3½	2½	2½	⅝×⅝	6.2
F-84AC#	115 or 230§	12CT*	10	-	8.5	2000	AC	Leads	4½	3½	5½	3	3½	⅝×⅝	12.7
		12CT*	10	-	8.5			(2 Holes)							
F-85U	115†	5-7.5*	20	-	8-12.5	1500	U	Leads	4½	3¼	4½	3	3½	⅝×⅝	12
		5-7.5*	20	-											

\*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding.

Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A. ● Intermittent duty at max. rated output; continuous duty limited to both 50VA and 3A max.

‡Static Shield. #60 cycle operation. †Tapped primary to produce lower voltages. §Split winding. CT for Center Tap.



## SIGNALING / 50-60 Hz

Type No.	Primary Volts	Secondary AC		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
		Volts	Amps				H	W	D	MW	MD		
F-102X	115	4-8-12-16-20-24	2	2500	X	Leads	2½	3½	2½	3½		⅝	1.75
F-104U	115	4-8-12-16-20-24	4	2500	U	Leads	3½	2½	2½	2¼	2½	⅝×⅝	3.13

## Portable and Hard Wire Voltage Regulators

From small or large computers, point-of-sale terminals, word processors — to virtually any microprocessor-based industrial control, the Linestar voltage regulators from Triad protect your equipment and operation with accurate voltage control.

Low voltage, noise, power surges, transients or even short time power disruptions can cause loss of memory or errors in your system.

Triad's Linestar series provides voltage regulation with the added feature of both common and transverse mode noise attenuation. With complete isolation from the power line, Linestar voltage regu-

lators can be used as a portable dedicated line.

The Linestar voltage regulator suppresses transients and is current limiting so it protects against overloading. If you work from an AC source, the Linestar voltage regulator is a must for your equipment.

Linstar portable and hard wire voltage regulators provide better than 120 DB of common mode noise attenuation and greater than 60 DB of transverse (normal) mode noise attenuation. The waveshape is sinusoidal and contains less than 3 percent harmonic distortion, making the Linestar regulator excellent for any type of electronic load.

Output regulation is a  $\pm 3$  percent with input line voltage as great as  $\pm 15$  percent. Linestar voltage regulators will still maintain voltage output for inputs outside this range. Units up to 2kVA are portable and are designed for office operation.

### Linstar Features (Portable Models)

- Accurate voltage regulation.
- Rejection of common mode noise of 120 DB.
- Rejection of transverse mode noise of 60 DB.
- Absolutely no installation costs with Linestar portable models.
- Complete isolation from power line — less than 2.5 PFD.
- Suitable for office operation — sound level of 45 DB.
- Operation in ambients of  $-20^{\circ}$  to  $50^{\circ}\text{C}$ .
- No loss of output for up to 3 m/s.
- Input line cord.
- Output receptacles.
- Power switch.

### Portable Models 60 Hertz Single Phase

Output VA Rating	Catalog Number	Input Voltage Range	Nominal Output Voltage	Approx. Unit Wt. (lbs.)	Figure Code	Dimensions (Inches)		
						A (Length)	B (Width)	C (Height)
140	K6-0600	95-130	120	15½	1	12¾	4¾	7¾
250	K6-0700	95-130	120	20	1	12¾	4¾	7¾
300	K6-0800	95-130	120	30	1	16¾	9¾	8¾
500	K6-0900	95-130	120	40	1	16¾	9¾	8¾
750	K6-1000	95-130	120	49	1	16¾	9¾	8¾
1000	K6-1100	95-130	120	59	1	16¾	9¾	8¾
1500	K6-1200	95-130	120	80	1	16¾	11½	10¾
2000	K6-1300	95-130	120	101	1	16¾	11½	10¾

### Hard Wire Models 60 Hertz Single Phase

Output VA Rating	Catalog Number	Input Voltage Range	Nominal Output Voltage	Approx. Unit Wt. (lbs.)	Figure Code	Dimensions (Inches)					Mounting Slots
						A (Length)	B (Depth)	C (Width)	D (Width)	E	
300	K6-0810*	95-130, 190-260	120	28	2	12¾	6	5¾	8¾	5	¾x1¾
500	K6-0910*	95-130, 190-260	120	37	2	13	6	5¾	8¾	5	¾x1¾
500	K6-0922*	190-260, 380-520	120x240	37	2	13	6	5¾	8¾	5	¾x1¾
500	K6-0937*	95-130, 175-235, 190-260	120x208	47	2	15¾	6	5¾	8¾	5	¾x1¾
750	K6-1032*	95-130, 175-235, 190-260	120x240	47	2	15¾	6	5¾	8¾	5	¾x1¾
1000	K6-1122*	190-260, 380-520	120x240	59	2	16¾	6	5¾	8¾	5	¾x1¾
1000	K6-1132*	95-130, 175-235, 190-260	120x240	59	2	16¾	6	5¾	8¾	5	¾x1¾
1000	K6-1137*	95-130, 175-235, 190-260	120x208	59	2	16¾	6	5¾	8¾	5	¾x1¾
1500	K6-1232*	95-130, 175-235, 190-260	120x240	78	3	18¾	6	6¾	8¾	5	1¾x1¾
2000	K6-1322*	190-260, 380-520	120x240	101	3	19	9¾	3¾	11¾	5	1¾x1¾
2000	K6-1332*	95-130, 190-260, 175-235	120x240	101	3	19	9¾	3¾	11¾	5	1¾x1¾
2000	K6-1337*	95-130, 175-235, 190-260	120x208	101	3	19	9¾	3¾	11¾	5	1¾x1¾
2500	K6-1422*	190-260, 380-520	120x240	120	3	19¾	9¾	4¾	11¾	5	1¾x1¾
2500	K6-1432*	95-130, 175-235, 190-260	120x240	120	3	19¾	9¾	4¾	11¾	5	1¾x1¾
3000	K6-1522*	190-260, 380-520	120x240	130	3	20¾	9¾	5¾	11¾	5	1¾x1¾
3000	K6-1532*	95-130, 175-235, 190-260	120x240	130	3	20¾	9¾	5¾	11¾	5	1¾x1¾
3000	K6-1537*	95-130, 175-235, 190-260	120x208	130	3	20¾	9¾	5¾	11¾	5	1¾x1¾
3750	K6-1622*	190-260, 380-520	120x240	158	3	21¾	9¾	6¾	11¾	5	1¾x1¾
3750	K6-1632*	95-130, 175-235, 190-260	120x240	158	3	21¾	9¾	6¾	11¾	5	1¾x1¾



Portable Model

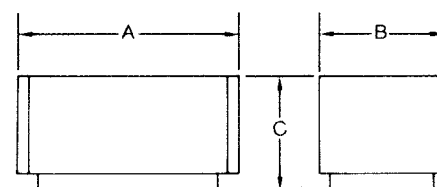


Figure 1

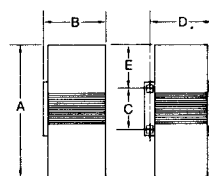


Figure 2

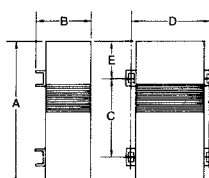
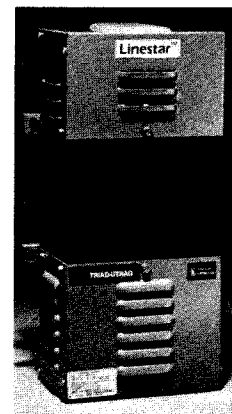
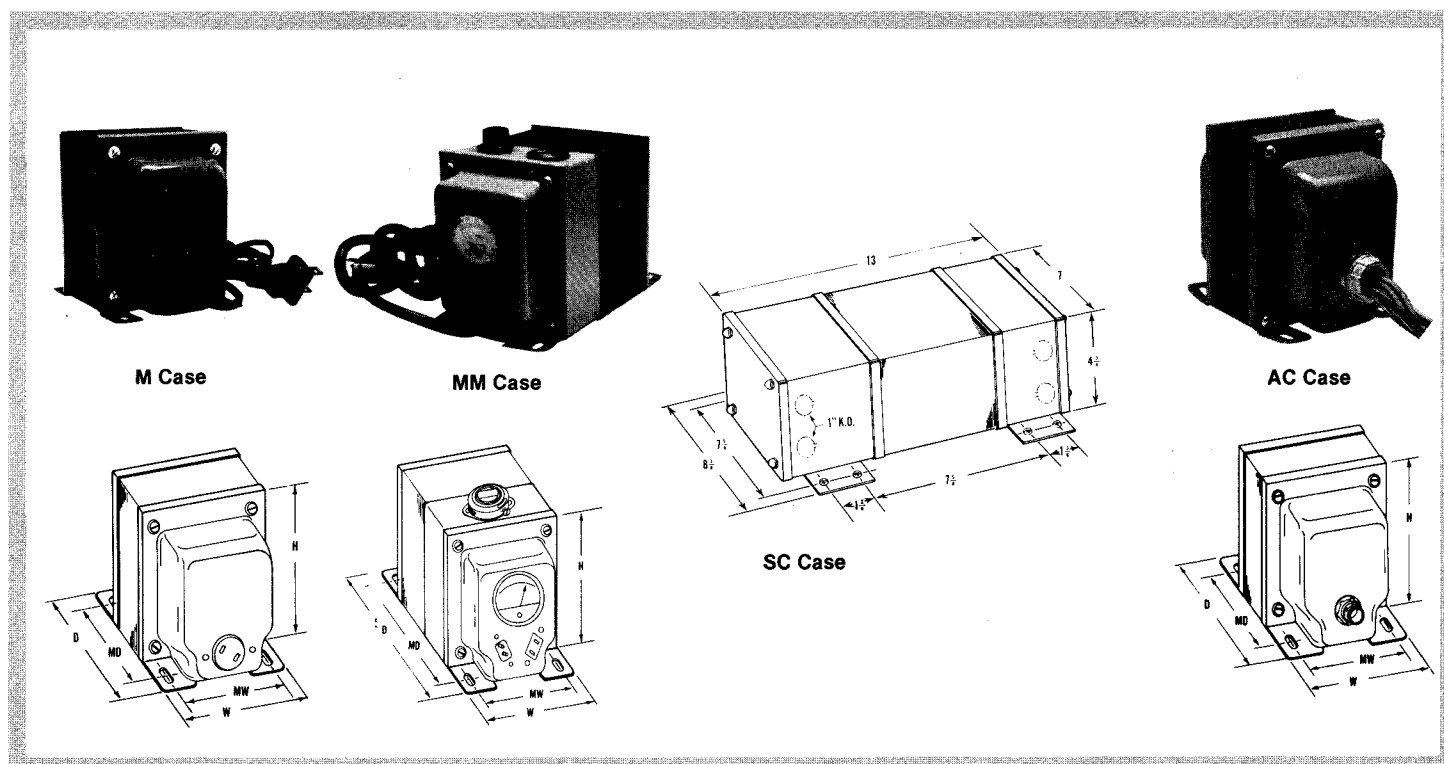
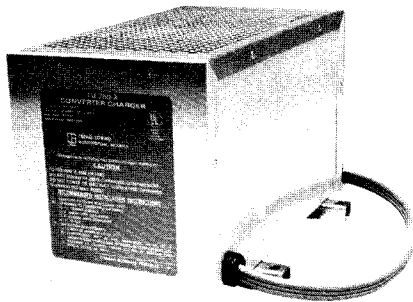


Figure 3

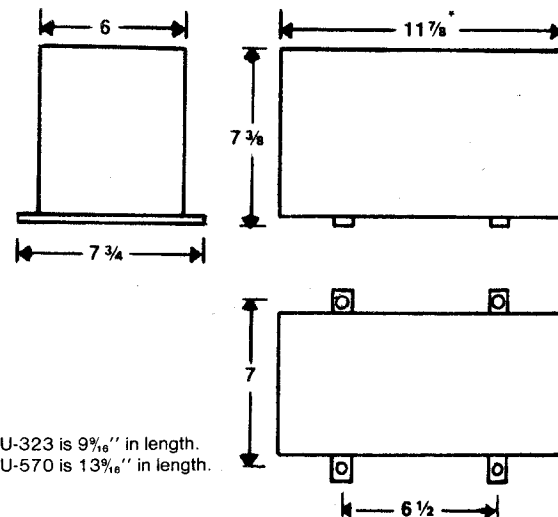


Hard Wire Model





## DIMENSIONS



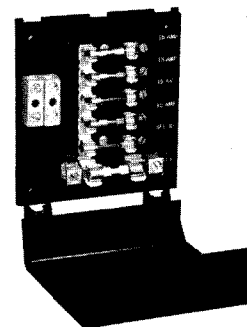
\* TU-323 is 9 1/8" in length.  
TU-570 is 13 3/8" in length.

## Converter/Battery Charger Specifications

Triad-Utrad Model Number	Current Rating (D.C. Amps)	A.C. Input		D.C. Output		Automatic Reset Thermal Cutout	Agency Listing	Weight (Pounds)
		Volts	Amps	Volts	Amps			
TU-730-2	30	95-130 60 Hz	5.5	12.0 min. @ full load 14.1 max. @ no load	30	Yes	U.L.	19
TU-830-2	30	95-130 60 Hz	5.5	12.0 min. @ full load 14.1 max. @ no load	30	Yes	C.S.A.	19
TU-740-2	40	95-130 60 Hz	7.3	12.0 min. @ full load 14.1 max. @ no load	40	Yes	U.L.	23
TU-840-2	40	95-130 60 Hz	7.3	12.0 min. @ full load 14.1 max. @ no load	40	Yes	C.S.A.	23
TU-750-2	50	95-130 60 Hz	8.6	12.0 min. @ full load 14.1 max. @ no load	50	Yes	U.L.	25
TU-775-2	75	95-130 60 Hz	14.5	12.0 min. @ full load 14.1 max. @ no load	75	Yes	U.L.	25
TU-700-2	40	200-240 50 Hz	3.5	12.0 min. @ full load 14.1 max. @ no load	40	Yes	None	23

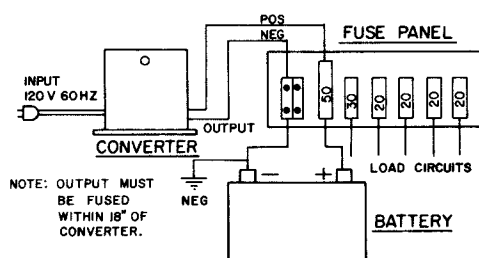
## Fuse Panel Specifications

Triad P/N	Description	Width	Length
FB-532P	6 Circuit AGU 50 Battery Fuse, 1 SFE 30, 4 SFE 20, Plastic Case	4 1/2"	5 1/4"
FB-315P	5 Circuit SFE 30 Battery Fuse, 4 AGC 15, Plastic Case	4 1/2"	5 1/4"
FB-431P	6 Circuit AGU 40 Battery Fuse, 1 SFE 30, 4 AGC 15, Plastic Case	4 1/2"	5 1/4"
FB-8532M	9 Circuit AGU 50 Battery Fuse, 1 SFE 30, 7 SFE 20, Metal Case	5 1/4"	8 3/4"
FB-8315M	8 Circuit SFE 30, Battery Fuse, 7 AGC 15, Metal Case	5 1/4"	8 3/4"
FB-8532CM	9 Circuit same as FB-8532M except has closed ends to meet CSA	5 1/4"	8 3/4"

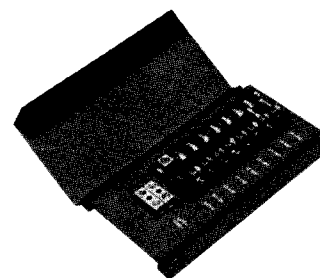


**FB-532P Fuse Panel**

## TYPICAL CONNECTION DIAGRAM



New Item



**FB-8532M Fuse Panel**

## STEPUP/STEPDOWN AUTOFORMERS / 50-60 Hz

Type No.	Output Watts (VA)	Primary Volts	Secondary		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
			Volts ±5%	RMS Amps				H	W	D	MW	MD		
F-290X#	10	277	115	.09	1750	X	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.45
F-291X#	20	277	115	.17	1500	X	Leads	1 1/16	3 1/4	1 1/16	2 1/16		3/16	.8
F-292X#	50	277	115	.43	1700	X	Leads	2 1/4	3 1/16	2 1/8	3 1/8		3/16	1.7
N-1X	50	230	115	.435	1500	X	Leads	2 3/32	3 1/16	2	3 1/8		3/16	1.5
N-39X	50	0-100-115-127-135	115	.43	1500	X	Lugs	1 1/16	3 1/4	2	2 1/16		3/16	.8
N-3M	85	230	115	.74	1500	M	6' Cord & Plug & Socket	3 1/32	2 3/32	2 7/8	2 1/4	1 1/8	3/8 × 3/16	3
N-3MG*										3 1/2		2 1/8		
F-300X#	100	277	115	.87	2500	X	Leads	2 5/16	4	2 1/8	3 1/8		3/16	2.3
N-2X	100	230	115	.87	1500	X	Leads	2 5/16	4	2 1/8	3 1/8		3/16	2.1
N-40X	100	0-100-115-127-135	115	.87	1500	X	Lugs	1 1/16	3 1/4	2 3/8	2 1/16		3/16	1.2
N-150MG	150	115	230	.65	1500	M	6' 3 Wire Cord, Plug & Socket	3 1/32	2 3/32	3 1/8	2 1/4	2 1/8	3/8 × 3/16	4.9
F-302U#	150	277	115	1.3	2500	U	Leads	2 1/16	3 3/8	2 1/4	2 1/16	2	3/8 × 3/16	2.9
N-4M	150	230	115	1.3	1500	M	6' Cord, Plug & Socket	3 1/32	2 3/32	3 3/8	2 1/4	2 3/8	3/8 × 3/16	4.7
N-4MG*										4 1/4		2 1/8		
N-34X	150	0-95-105-115-125-135	115	1.3	1500	X	Lugs	2 1/32	4	2 1/4	3 3/8		3/16	2.2
N-33MG*	150	65/75/90/100/115/130/145	115	1.3	1500	MM	6' Cord, Plug, Switch, Socket & Meter	5 1/8	3 1/16	5 1/2	3	4 3/8	3/8 × 3/16	6.4
N-6U	200	230	115	1.7	1500	U	Leads	3 3/8	2 1/16	2 1/16	2 1/4	2 1/4	3/8 × 3/16	3.6
N-250MG	250	115	230	1.1	1500	M	6' 3 Wire Cord, Plug & Socket	3 3/8	3 1/4	3 1/16	2 1/2	2 1/8	3/8 × 3/16	6.6
N-5M	250	230	115	2.17	1500	M	6' Cord, Plug & Socket	3 3/8	3 3/32	4 1/4	2 1/2	3	3/8 × 3/16	7
N-5MG*										4 1/16		3 1/2		
N-37MG*	500	65/75/90/100/115/130/145	115	4.35	1500	MM	6' Cord, Plug, Switch, Socket & Meter	5 1/8	3 1/16	7	3	5 1/16	3/8 × 3/16	15.0
N-500MG	500	115	230	2.2	1500	M	6' 3 Wire Cord, Plug & Socket	4 3/8	3 3/8	4 3/4	3	3 3/8	3/8 × 3/16	11.2
N-7M	600	230	115	5.22	1500	M	6' Cord, Plug & Socket	4 3/8	3 1/16	5	3	3 3/8	3/8 × 3/16	12
N-7MG*														
N-1000MG	1000	115	230	4.35	1500	M	6' 3 Wire Cord, Plug & Socket	5 3/8	4 1/2	5 1/2	3 1/2	4 1/8	1/2 × 1/4	17.39
N-9M	1250	230	115	10.85	1500	M	6' Cord, Plug & Socket	5 3/8	4 1/2	6 1/4	3 1/2	5 1/8	1/2 × 1/4	24
N-9MG*														
N-11M	2000	230	115	17.4	1500	M	6' Cord, Plug & Socket	5 3/8	4 1/2	8 1/4	3 1/2	6 1/8	2 1/32 × 5/32	33.25
N-11MG*														

## UNIVERSAL ISOLATION / AUTOFORMER / VOLTAGE CONTROL / 50-60 Hz

Have four 115-volt windings. Both primary and secondary may be connected for 115 or 230 volts.

Type No.	Output Watts (VA)		RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
	Isolation	Autoformer					H	W	D	MW	MD		
N-64AC	500	1000	1500	AC	Leads	1 Conduit	5 5/8	4 1/2	5 1/2	3 1/2	3 3/8	1/2 × 1/4	15
N-62U	1000	2000	1500	U	Leads		6 1/2	5 1/2	5	4 1/4	3 3/4	3/4 × 3/16	29.5
N-60SC	2000	4000	2500	SC	Leads	Knockouts	4 3/4	8 1/2	13 1/2	7 3/8	7 3/8	3/32	56

\*Has 3-wire plug, cord and socket. \$Split winding. #60 cycle operation.

## Reliable, low cost general purpose supplies

## Features

- Open Frame Construction
- Glass Epoxy Printed Circuit Board
- High Performance IC Regulator
- Computer Grade Filter Capacitor
- All Silicon Semiconductors
- Small Size 2 1/2" × 4" × 4 1/2"
- (Weight: 2 lbs. net, 2 1/2 lbs. shipping)
- Foldback Current Limiting and Short Circuit Protection
- Adjustable Output

## Specifications

Input: 115V ± 10% 60 Hz ± 5% Regulation: Line: ±0.5%  
Load: ±0.5%

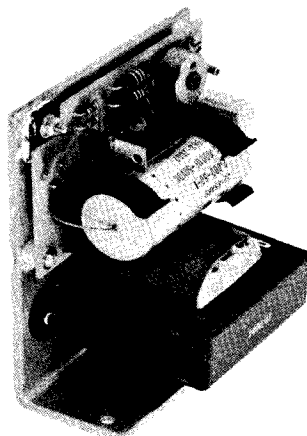
Ripple: 5 MV RMS or 15 MV pk to pk max.

Temp Coefficient: .2%/°C

Grounding: Floating output either positive or negative max. may be grounded

Output Adjustment: ±5%

Type No.	Output Voltage	Output Current 65°C	
P-543	5V	3.0A	1.5A
P-546	12V	1.5A	.8A
P-547	15V	1.5A	.8A
P-548	24V	1.0A	.5A

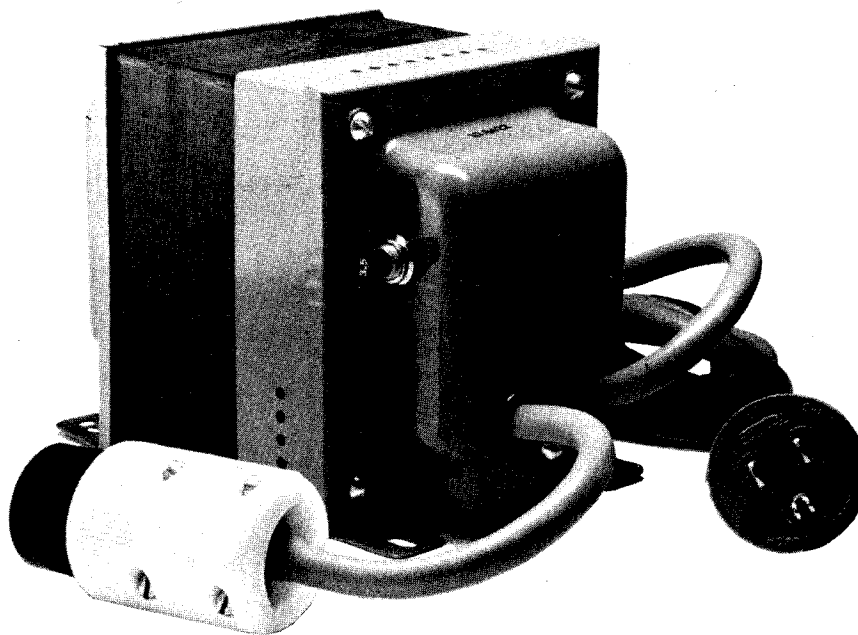


P Series



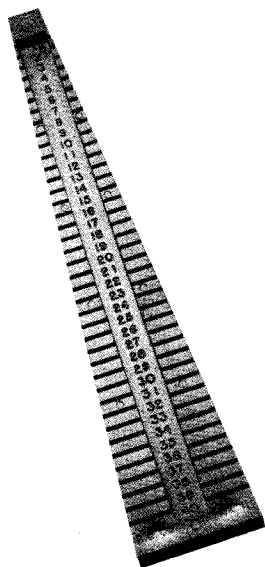
## Hospital Type Isolation Transformer

Triad-Utrad's new hospital type isolation transformers are designed and constructed to meet the low leakage current requirements for today's medical equipment needs. The transformers are constructed with non-concentrically precision wound coils. The primary and secondary are precision wound on separate arbors, then assembled on the laminate core side by side and separated by insulation. This allows for no electrical connection, under normal or overload conditions, between the primary and secondary windings. Units come with a resettable circuit breaker, offering protection from overload and short circuit conditions. Leakage current from primary to secondary is rated at less than 50 micro-amps and is typically measured at less than 10 micro-amps. Line cord, plug and receptacle are U.L. listed hospital grade and U.L. verified to meet federal specifications W-C-596E.



## LOW LEAKAGE-ISOLATION

Type No.	Output Watts (VA)	Primary Volts	Secondary		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Volts	Amps				H	W	D	MW	MD		
N-90-MD	250	115	115	2.17	1500	M	6' Cord, Plug & Socket Circuit Breaker	4 1/8	3 3/8	6 1/8	3	4 15/16	3/8 x 3/16	11.9
N-92-MD	500	115	115	4.35	1500	M	6' Cord, Plug & Socket Circuit Breaker	5 1/32	4 1/2	7	3 1/2	5 5/8	2 1/32 x 9/32	17.6



## Lead Bending Gauges

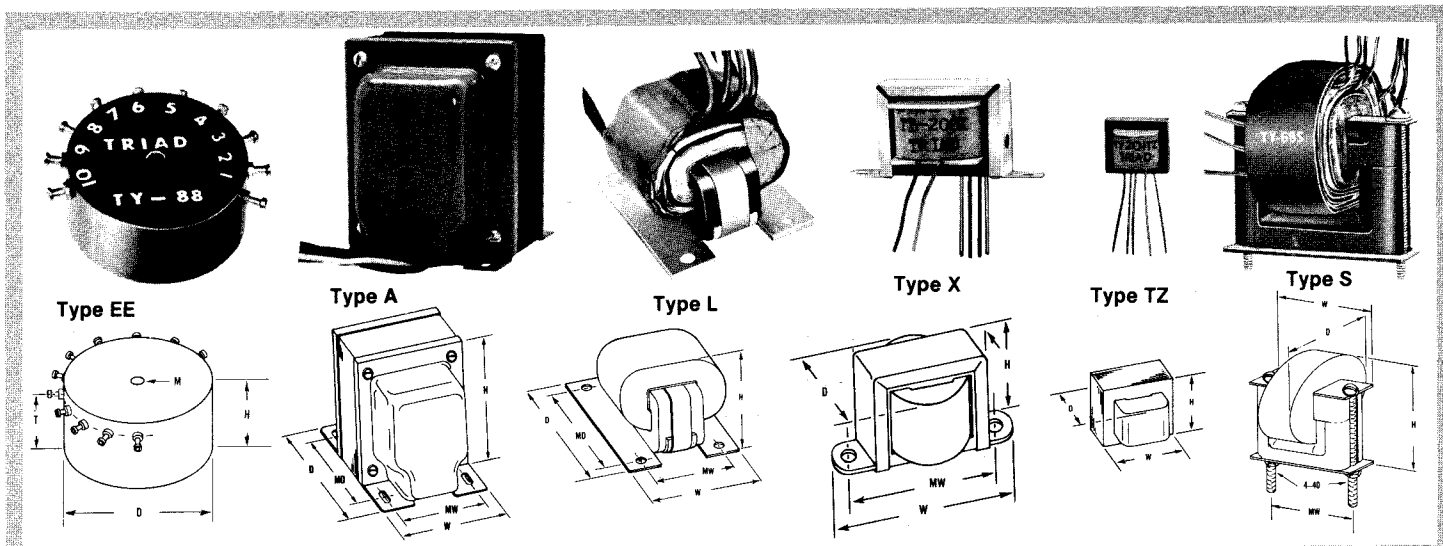
A set of five MK lead bending gauges will provide fast, accurate forming for most components used in printed board circuitry. All models have 40 numbered positions. Each position is numbered and leads are bent rapidly with gentle finger pressure. No other tools are required. Aggravation and physical damage to components associated with "free bending" by longnose pliers are completely eliminated.

The MK-1 gauge (.375 to 1.50 centers) is designed for 1/4-watt resistors, although diodes, disc capacitors and other parts of similar size may be processed. The MK-2 gauge (.50 to 1.50 centers) is for 1/2-watt resistors and items of similar sizes. The MK-3 gauge (.75 to 2.50 centers) is designed for 1-watt resistors and similar components. The MK-4 (.875 to 2.50 centers) is used on 2-watt resistors and items of similar size, with special features to accommodate the DO outline "TOP HAT" diodes. The MK-5 (.260 to 1.42 mounting centers) accepts all 1/2-watt resistors and diodes—standard RC05 and DP-35 type components. These methods are currently being employed to determine the correct component lead spacing:

- No. MK-1
- No. MK-2
- No. MK-3
- No. MK-4
- No. MK-5



## For Transistor Power Supplies



These quality transformers are produced in either (1) commercial open-frame, double, varnish and vertical-shielded types, or (2) epoxy molded toroidal types exceeding the Grade 5, Class R requirements of Specification MIL-T-27B TF5RX40ZZ.

Complete information on these units will be found in the Triad Engineering Bulletin on Transistor Power Supply Transformers.

### EPOXY MOLDED TOROIDAL TYPE / dc to dc

Type No.	D.C. Source Volts	D.C. Volts out of Rectifier		D.C. Milliamperes Maximum	Case Type	Dimensions—Inches				Weight Lbs.
		F.W. Bridge	F.W.C.T.			T	D	H	M	
TY-78	12.6	250	125	100	EE	1/2	1 1/4	1 1/16	1 1/64	.35
TY-79	12.6	300	150	200	EE	3/4	1 3/4	1	1 1/64	.35
TY-80	12.6	325	162.5	150	EE	3/4	1 3/4	1	1 1/64	.35
TY-81	12.6	375	187.5	200	EE	3/4	2	1	1 1/64	.50
TY-82	12.6	450	225	150	EE	3/4	2	1	1 1/64	.50
TY-83	12.6	500	250	250	EE	1 1/8	2 3/4	1 3/8	3/16	.85
TY-84	12.6	600	300	200	EE	1 1/8	2 3/4	1 3/8	3/16	1.00
TY-85	12.6	600	300	350	EE	1 1/8	2 7/8	1 7/8	13/64	2.00
TY-86	12.6	425	212.5	350	EE	1 1/8	2 3/4	1 3/8	3/16	1.00
TY-88	28	250	125	80	EE	1 3/32	1 1/8	3/16	7/64	.25
TY-89	28	300	150	100	EE	1/2	1 3/4	1 1/16	1 1/64	.35
TY-90	28	325	162.5	200	EE	3/4	1 3/4	1	1 1/64	.35
TY-91	28	375	187.5	200	EE	3/4	2	1	1 1/64	.50
TY-92	28	450	225	200	EE	3/4	2	1	1 1/64	.50
TY-93	28	500	250	250	EE	1 1/8	2 3/4	1 3/8	3/16	.85
TY-94	28	600	300	200	EE	1 1/8	2 3/4	1 3/8	3/16	1.00
TY-99	6	300	150	100	EE	3/4	1 3/4	1	1 1/64	.35
TY-100	6	325	162.5	150	EE	3/4	2	1	1 1/64	.50
TY-101	6	375	187.5	200	EE	1 1/8	2 3/4	1 3/8	3/16	1.00

### OPEN AND VERTICAL SHIELDED TYPES / dc to ac

Type No.	Primary D.C.	Secondary		Case Type	Dimensions—Inches			Mounting Dimensions		Weight Lbs.	
					H	W	D	MW	MD		
TY-468	28	110-115-125v	400cps	60 watts	L	1 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	2	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	<sup>1</sup> / <sub>2</sub>
TY-462	12	110-115-125v	400cps	60 watts	L	1 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	2	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	<sup>1</sup> / <sub>2</sub>
TY-75A	12	110-115-125v	60cps	115 watts	A	3 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>8</sub>	5
TY-76A	12	110-115-125v	60cps	60 watts	A	3 <sup>7</sup> / <sub>16</sub>	2 <sup>21</sup> / <sub>32</sub>	2 <sup>5</sup> / <sub>8</sub>	2	1 <sup>11</sup> / <sub>16</sub>	3

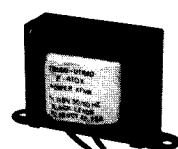
### OPEN TYPE / 12 volt dc to dc

Type No.	D.C. volts out of Rectifier		D.C. Milliamperes Maximum	Dimensions—Inches			MW	Weight Lbs.
	F.W. Bridge	F.W.C.T.		H	W	D		
TY-68S	250	125	65	1 3/4	1 1/4	1 11/32	1 1/2	.2
TY-69S	300	150	100	1 1/4	1 3/8	1 1/8	1 1/2	.5
TY-70S	325	162.5	150	2	2 3/8	2 1/16	1 1/2	.6
TY-71S	375	187.5	200	2	2 3/8	2 1/16	1 1/2	.65
TY-74S	600	300	200	2	4 1/8	3	3 3/4	1.07
TY-77S†	670	335	180	2	4 1/8	3	3 3/4	1.07

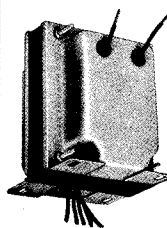
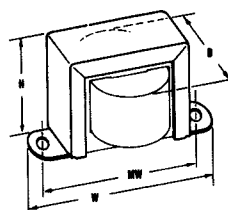
### OPEN TYPE / dc to dc converter

Type No.	*Typical operation		Case Type	Dimensions—Inches			MW	Weight Lbs.
	Input	Output		H	W	D		
TY-200X	3 v.DC @ 20 ma.	1050 v.DC @ 25 μa.	X	1 3/16	1 1/8	7/8	1 3/8	.08
TY-201TZ	4 v.DC @ 15 ma.	500 v.DC @ 50 μa.	TZ	7/16	1/2	7/16	—	.015
TY-202X	4 v.DC @ 45 ma.	550 v.DC @ 80 μa.	X	1 3/16	1 1/8	7/8	1 3/8	.08

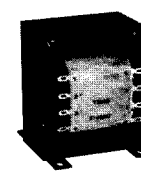
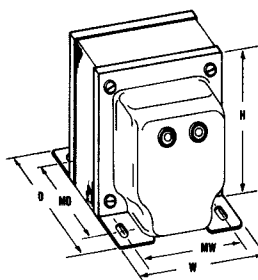
\*May vary with circuit components, load requirements, etc. †Has additional winding for bias in SSB transmitters. Replacement for Triad-Utrad Nos. 5965 and 6278.



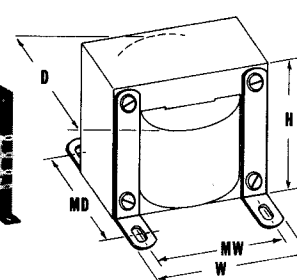
X Case



AL Case



U Case



## SMOOTHING FILTER REACTORS

Type No.	Current DC MA.	Inductance†† Henries	Resistance Ohms	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimensions		Mtg. Hole Size	Max. Unit Wt. Lbs.
								H	W	D	MW	MD		
C-85X	10	1.5	70	2500	X	Leads	-	1 1/4	2 1/2	1 1/2	1 3/4		3/8	.4
C-2X	15	2	70	1500	X	Leads	-	1 3/8	2 1/2	1 1/4	1 3/4		3/8	.21
C-30X	15	50	3500	1500	X	Leads	-	1 1/2	2 1/2	1 1/2	2		3/8	.42
C-1X	20	15	1000	1000	X	Leads	-	1 3/8	2 1/2	1 1/4	1 3/4		3/8	.21
C-84X	30	12	400	1500	X	Leads	-	1 3/8	2 3/8	1 3/8	2		3/8	.5
C-3X	50	10	500	1500	X	Leads	-	1 1/2	2 1 3/8	1 1/2	2 3/8		3/8	.6
C-4X	50	4	360	1500	X	Leads	-	1 3/8	2 3/8	1 3/8	2		3/8	.35
C-6X	65	5	330	1500	X	Leads	-	1 1/8	2 1 3/8	1 1/2	2 3/8		3/8	.6
C-5X	75	12	390	1000	X	Leads	-	1 1 1/8	3 3/8	1 3/4	2 1 3/8		3/8	1
C-8X	75	7	240	1500	X	Leads	-	1 1 1/8	3 3/8	1 3/4	2 1 3/8		3/8	1
C-7X	90	10	270	1000	X	Leads	-	1 1 1/8	3 3/8	2	2 1 3/8		3/8	1.3
C-9X	90	4	100	1500	X	Leads	-	1 1 1/8	3 3/8	1 3/4	2 1 3/8		3/8	1
C-11X	110	6	160	1500	X	Leads	-	2 3/32	3 1 1/8	2	3 3/8		3/8	1.5
C-10X	125	9	250	1000	X	Leads	-	2 3/32	3 1 1/8	2	3 3/8		3/8	1.6
C-12A	160	6	165	1500	A	Leads	1	2 3/32	2 1 1/32	2 1/2	1 3/4	1 3/4	3/8 x 3/16	2
C-12X	160	6	165	1500	X	Leads	-	2 3/32	3 1 1/8	2 3/8	3 3/8		3/8	1.75
C-13X	160	3	75	1500	X	Leads	-	2 3/32	3 1 1/8	2 1/2	3 3/8		3/8	1.75
C-14A	200	6	150	1500	A	Leads	1	3 3/8	2 2 1/2	2 3/8	2	1 1 1/8	3/8 x 3/16	2.5
C-14X	200	6	150	1500	X	Leads	-	2 1 3/32	4	2 1/4	3 3/8		3/8	2.3
C-16A	200	10	150	2500	A	Leads	1	3 1/2	2 3 1/2	3 1/2	2 1/4	2 3/8	3/8 x 3/16	4.5
C-21X	225	1.5	65	1500	X	Leads	-	1 1 1/8	3 3/8	1 1/4	2 1 3/8		3/8	1.1
C-24X	240	1	50	1500	X	Leads	-	1 3/8	2 1 3/8	1 1/2	2 3/8		3/8	.75
C-15A	250	4	100	1500	A	Leads	1	3 3/8	2 2 1/2	2 3/8	2	1 1 1/8	3/8 x 3/16	2.65
C-15X	250	4	100	1500	X	Leads	-	2 1 3/32	4	2 1/4	3 3/8		3/8	2.3
C-23X	260	1.2	45	1500	X	Leads	-	1 1 1/8	3 3/8	2	2 1 3/8		3/8	1.35
C-27X	290	.7	30	1500	X	Leads	-	1 3/8	2 1 3/8	1 1/2	2 3/8		3/8	.75
C-36X	300	.5	30	1500	X	Leads	-	1 3/8	2 3/8	1 1/2	2		3/8	.5
C-17X	300	1.5	40	1500	X	Leads	-	2 3/32	3 1 1/8	2	3 3/8		3/8	1.6
C-18A	300	8	110	2500	X	Leads	1	3 3/8	3 3/32	3 3/8	2 1/2	2 3/4	3/8 x 3/16	6.3
C-19A	300	10	105	3000	A	Leads	1	4 1/4	3 1 3/32	4 1/8	2 3/4	3	3/8 x 3/16	7.75
C-34X	350	.6	35	1500	X	Leads	-	1 3/8	2 1 3/8	1 1/2	2 3/8		3/8	.6
C-28X	350	1	35	1500	X	Leads	-	1 1 1/8	3 3/8	2	2 1 3/8		3/8	1.35
C-29X	375	1.5	50	1500	X	Leads	-	2 3/32	3 1 1/8	2	3 3/8		3/8	1.6
C-20A	400	6	60	3000	A	Leads	1	4 3/8	3 1 3/8	4 1/2	3	3 3/8	3/8 x 3/16	10.5
C-22A	500	10	65	3000	A	Leads	1	5 1/8	4 1/2	5 1/8	3 1/2	4 1/8	1/2 x 1/4	16.5
C-45AL	500	10	65	5000	AL	Leads	2-Side	5 1/8	4 1 3/32	5 1/8	3 1/2	4 1/8	1/2 x 1/4	17.75
C-40X	600	.32	10	1500	X	Leads	-	1 1 1/8	3 3/8	2	2 1 3/8		3/8	1.3
C-47U	1A/2A	.31/.075§	3/7.5	1500	U	Leads	-	3 1/2	2 3/8	3 3/8	2 1/4	2 1 1/8	3/8 x 3/16	4.6
C-56U	2.0	.035	.79	1500	U	Lugs	-	2 1/4	2 3/8	2	2 3/8	1 3/4	3/8 x 3/16	2
C-48U	2.5A/5A	.08/.02§	.61/.155	1500	U	Leads	-	3 1 3/8	3 3/8	3 3/8	2 1/2	3 1/8	3/8 x 3/16	6.75
C-57U	4.0A	.025	.55	1500	U	Lugs	-	3 3/8	3 3/8	2 1/4	2 1 3/8	2 1/8	3/8 x 3/16	3.5
C-49U	5A/10A	.032/.008§	.19/.05	1500	U	Leads	-	4 1/4	3 1/2	3 3/8	2 3/4	3 1/8	3/8 x 3/16	8
C-58U	8.0A	.01	.15	1500	U	Lugs	-	3 3/8	3 3/4	3 3/8	3 1/8	2 1/2	3/8 x 3/16	5.5
C-59U	12.5A	.01	.10	1500	U	Lugs	-	3 1/2	4 1/8	3	3 1/8	2 3/8	3/8 x 3/16	6.25
C-80U	20A/40A	.024/.006§	.1/.025	1500	U	Lugs	-	5 1/8	4 3/8	5 1/2	2 3/4	4 1/2	3/8 x 3/16	21.25
C-60U	22.5A	.005	.06	1500	U	Lugs	-	3 3/4	4 1/2	4 3/8	3 3/4	3 1/2	3/8 x 3/16	12.75

## SWINGING FILTER REACTORS

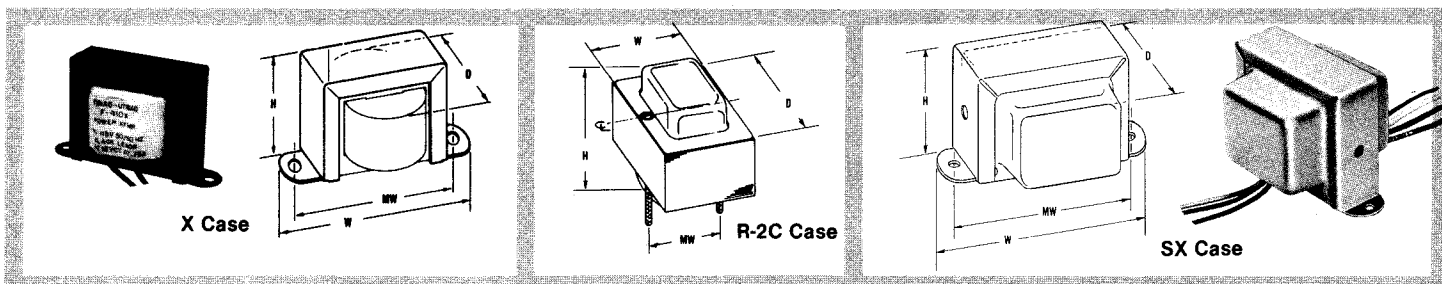
Triad's highly dependable Swinging Filter Reactors provide a swinging input reactance which substantially improves the regulation of high volt-

age power supplies and prevents DC voltage from rising to the maximum peak AC rectifier input.

Type No.	Current DC MA.	Inductance†† Henries	Resistance Ohms	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimensions		Mtg. Hole Size	Max. Unit Wt. Lbs.
								H	W	D	MW	MD		
C-31A	20/200	25/5	150	2500	A	Leads	1	3 1/32	2 3 1/2	3 1/2	2 1/4	2 3/8	3/8 x 3/16	4.6
C-33A	30/300	25/5	105	3000	A	Leads	1	4 1/4	3 1 3/32	4 1/8	2 3/4	3	3/8 x 3/16	7.6
C-35A	40/400	20/4	65	3000	A	Leads	1	4 3/8	3 1 3/8	4 1/2	3	3 3/8	3/8 x 3/16	10.5

†† Inductance tolerance—20% + 50% § Split winding.

## PLATE AND FILAMENT TYPES



## MULTI-PURPOSE TV AND STEREO

Type No.	Secondary #1*	Secondary #2	RMS Test Volts	Case Type	Connections	Case Dimensions					WT
						H	W	D	MW		
F-170SX	20 VCT @ .200 ADC	6.3V @ .200A	1500	SX	Leads	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		.40
F-171SX	26 VCT @ .200 ADC	6.3V @ .200A	1500	SX	Leads	2 $\frac{1}{8}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$		.50
F-172SX	24 VCT @ .400 ADC	6.3V @ .300A	1500	SX	Leads	1 $\frac{1}{8}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$		.62
F-173SX	30 VCT @ .400 ADC	6.3V @ .300A	1500	SX	Leads	1 $\frac{1}{8}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$		.62
F-174SX	30 VCT @ .500 ADC	6.3V @ .500A	1500	SX	Leads	1 $\frac{1}{2}$	3 $\frac{1}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$		1.06
F-175SX	44 VCT @ .400 ADC	6.3V @ .500A	1500	SX	Leads	1 $\frac{1}{2}$	3 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$		1.25
F-176SX	40 VCT @ .800 ADC	6.3V @ .500A	1500	SX	Leads	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	3 $\frac{1}{8}$		1.68
F-177SX	50 VCT @ .800 ADC	6.3V @ 1.000A	1500	SX	Leads	2 $\frac{1}{2}$	4	2 $\frac{1}{2}$	3 $\frac{1}{8}$		2.31
F-178SX	60 VCT @ .600 ADC	6.3V @ 1.000A	1500	SX	Leads	2 $\frac{1}{2}$	4	2 $\frac{1}{2}$	3 $\frac{1}{8}$		2.31
F-179SX	60 VCT @ 1.000 ADC	6.3V @ 1.000A	1500	SX	Leads	2 $\frac{1}{2}$	4	2 $\frac{1}{2}$	3 $\frac{1}{8}$		2.31

\*Secondary #1 current rating with FWCT Rectifier.

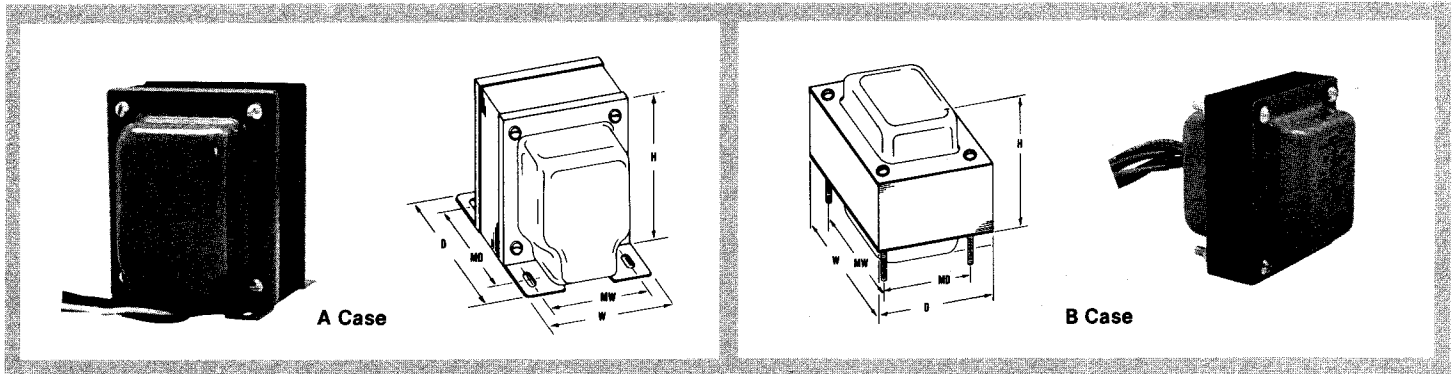
## FOR PREAMPLIFIERS, VTVM, ETC. / primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts +5%	DC Ma Cond. Input	DC Ma Choke Input	Rectifier Filament Volts +5%	Rectifier Filament Amps	Other Filaments Volts +5%	Other Filaments Amps	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H W D			Mounting Dimension MW MD		Mtg. Hole Size	Max. Unit Wt. Lbs.
R-68A†	400-0-400	30	38	5	2	6.3* 6.3*	1.2 1.2	2000	A	1	3 $\frac{1}{32}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2	2 $\frac{1}{16}$	$\frac{3}{8} \times \frac{1}{16}$	3
R-2C†	135	15	19	-	-	6.3	.9	1500	C	Leads	1 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{4}$	-	-	1
R-23B†	125-0-125	22	28	-	-	6.3 15.5-12.6	.8 .6	1500	B	1	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	-	1.75
R-3A†	250-0-250	20	25.5	-	-	6.3 CT	2	1500	A	1	2 $\frac{1}{32}$	2 $\frac{1}{32}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	1.75
R-53Z	250-0-250	25	32	-	-	6.3	1.0	1500	Z	Leads	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2	2 $\frac{1}{8}$	-	$\frac{3}{8}$	1.0
R-55Z#	125-0-125	25	32	-	-	6.3	1	1500	Z	Leads	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$	-	$\frac{3}{8}$	1.0
R-29A†	115-0-115	40	51	-	-	6.3 CT	1.5	1500	A	1	2 $\frac{1}{32}$	2 $\frac{1}{32}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	1.75
R-30X†	135	50	64	-	-	6.3	1.5	1500	X	Leads	2 $\frac{1}{32}$	3 $\frac{1}{32}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$	-	$\frac{3}{8}$	1.5
R-54X†#	115	15	19	-	-	6.3	.6	1500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	-	$\frac{3}{8}$	1
R-54Z	115	15	19	-	-	6.3	.6	1500	Z	Leads	1 $\frac{1}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{8}$	2	-	$\frac{3}{8}$	1
R-56A†	130	20	25	-	-	0-15-22.5-30	.6	1500	A	2	2 $\frac{1}{32}$	2 $\frac{1}{32}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	2	$\frac{3}{8} \times \frac{1}{16}$	2

## COMBINED PLATE AND FILAMENT / primary 115 volt, 60 Hz

Type No.	Secondary AC Volts +5%	DC Ma Cond. Input	DC Ma Choke Input	Rectifier Filament Volts +5%	Rectifier Filament Amps	Other Filaments Volts +5%	Other Filaments Amps	RMS Test Voltage	Case Type	Lead Holes Used	Case Dimension H W D			Mounting Dimension MW MD		Mtg. Hole Size	Max. Unit Wt. Lbs.
R-104A†	250-0-250	40	51	-	-	6.3 CT	2	1500	A	1	2 $\frac{1}{32}$	2 $\frac{1}{32}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	$\frac{3}{8} \times \frac{1}{16}$	1.55
R-104B†	250-0-250	40	51	-	-	6.3 CT	2	1500	B	1	1 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	-	1.55
R-105A†	300-0-300	65	82	-	-	6.3 CT	2.7	1500	A	1	3 $\frac{1}{8}$	2 $\frac{1}{32}$	2 $\frac{1}{2}$	2	1 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	2
R-105B†	300-0-300	65	82	-	-	6.3 CT	2.7	1500	B	1	1 $\frac{1}{8}$	3	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2	-	2
R-106A†	240-0-240	50	63.5	5	2	6.3 CT	2	1500	A	1	3 $\frac{1}{8}$	2 $\frac{1}{32}$	2 $\frac{1}{2}$	2	1 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	2.1
R-106B†	240-0-240	50	63.5	5	2	6.3 CT	2	1500	B	1	1 $\frac{1}{2}$	3	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2	-	2.1
R-108A†	250-0-250	75	95	5	2	6.3 CT	2.5	1500	A	1	3 $\frac{1}{8}$	2 $\frac{1}{32}$	2 $\frac{1}{8}$	2	1 $\frac{1}{16}$	$\frac{3}{8} \times \frac{1}{16}$	2.4
R-108B†	250-0-250	75	95	5	2	6.3 CT	2.5	1500	B	1	1 $\frac{1}{4}$	3	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2	-	2.4
R-109A†	300-0-300	75	95	5	2	6.3 CT	3	1500	A	1	3 $\frac{1}{2}$	2 $\frac{1}{32}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	$\frac{3}{8} \times \frac{1}{16}$	2.9
R-110A†	262.5-0-262.5	90	115	5	2	6.3 CT	5	1500	A	1	3 $\frac{1}{2}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	2	$\frac{3}{8} \times \frac{1}{16}$	3.25
R-110B†	262.5-0-262.5	90	115	5	2	6.3 CT	5	1500	B	1	1 $\frac{1}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{4}$	2	-	3.25
R-111A†	350-0-350	90	115	5	3	6.3 CT	3.5	1500	A	1	3 $\frac{1}{2}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	2	$\frac{3}{8} \times \frac{1}{16}$	3.25
R-111B†	350-0-350	90	115	5	3	6.3 CT	3.5	1500	B	1	1 $\frac{1}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{4}$	2	-	3.25
R-112A†	275-0-275	110	140	5	2	6.3 CT	5	1500	A	1	3 $\frac{1}{2}$	2 $\frac{1}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	3.7
R-112B†	275-0-275	110	140	5	2	6.3 CT	5	1500	B	1	2	3 $\frac{1}{8}$	2 $\frac{1}{16}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	-	3.7
R-114A†	350-0-350	125	160	5	3	6.3 CT	4.5	1500	A	1	3 $\frac{1}{8}$	3 $\frac{1}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	4.7
R-115A†	340-0-340	70	89	5	2	6.3 CT	2.5	1500	A	2	3 $\frac{1}{8}$	2 $\frac{1}{32}$	3	2	1 $\frac{1}{16}$	$\frac{3}{8} \times \frac{1}{16}$	3.5
R-116A†	350-0-350	160	200	5	3	6.3 CT	5	1500	A	1	3 $\frac{1}{8}$	3 $\frac{1}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	$\frac{3}{8} \times \frac{1}{16}$	5.65
R-118B†	375-0-375	175	220	5	3	6.3 CT	8	1500	B	1	2 $\frac{1}{4}$	4 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	-	7.45
R-120A†	350-0-350	200	255	5	3	6.3 CT	8	1500	A	1	4 $\frac{1}{4}$	3 $\frac{1}{32}$	4 $\frac{1}{8}$	2 $\frac{1}{2}$	3	$\frac{3}{8} \times \frac{1}{16}$	8.25
R-121A†	400-0-400	200	255	5	3	6.3 CT	6	1500	A	1	4 $\frac{1}{4}$	3 $\frac{1}{32}$	4 $\frac{1}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{3}{8} \times \frac{1}{16}$	8.25

## PLATE AND FILAMENT TYPES



### COMBINED PLATE AND FILAMENT / primary 115 volt / 50-60 Hz

Type No.	Secondary		DC Ma.		Rectifier Filament		Other Filaments		RMS Test Volts	Case Type	Lead Holes Used	Case Dimension			Mounting* Dimension		Max Unit Wt. Lbs.
	AC Volts ±5%	Cond. Input	Choke Input	Volts ±5%	Amps	Volts ±5%	Amps	Volts ±5%				H	W	D	MW	MD	
R-4A	250-0-250‡	40	51	-	-	6.3 CT	2	6.3 CT	1500	A	1	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>16</sub>	1.75
R-5A	300-0-300‡	65	82	-	-	6.3 CT	2.7	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2	1 <sup>1</sup> / <sub>16</sub>	2.75
R-6A	240-0-240‡	50	63.5	5	2	6.3 CT	2	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2	1 <sup>1</sup> / <sub>16</sub>	2.75
R-7A#	300-0-300‡	50	63.5	5	2	6.3 CT	2	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2	1 <sup>1</sup> / <sub>16</sub>	2.75
R-22A#	190-160-0-160-190‡	70	89	-	-	6.3 CT	.6	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2	1 <sup>1</sup> / <sub>16</sub>	2.75
R-8A	250-0-250‡	75	95	5	2	6.3 CT	2.5	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2	2 <sup>1</sup> / <sub>16</sub>	3
R-9A	300-0-300‡	75	95	5	2	6.3 CT	3	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3.5
R-10A	262.5-0-262.5‡	90	115	5	2	6.3 CT	5	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	4.5
R-11A	350-0-350‡	90	115	5	3	6.3 CT	3.5	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	4.25
R-11B	350-0-350‡	90	115	5	3	6.3 CT	3.5	6.3 CT	1500	B	1	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	4.25
R-12A	275-0-275‡	110	140	5	2	6.3 CT	5	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	4.5
R-14A	350-0-350‡	125	160	5	3	6.3 CT	4.5	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	6
R-14B	350-0-350‡	125	160	5	3	6.3 CT	4.5	6.3 CT	1500	B	1	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	6
R-72A#	400-0-400‡	140	178	5	3	6.3 CT	4	6.3 CT	1500	A	2	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	5.75
R-16A	350-0-350‡	160	200	5	3	6.3 CT	5	6.3 CT	1500	A	1	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	7
R-21A	400-0-400‡	200	255	5	3	6.3 CT	6	6.3 CT	1500	A	2	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	9.25
R-21B	400-0-400‡	200	255	5	3	6.3 CT	6	6.3 CT	1500	B	1	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	9.25
R-71A#	450-0-450‡ (2000V Test)	250	317	5	4	6.3 (2000V Test)	4	6.3 CT	1500	A	2	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3	3 <sup>1</sup> / <sub>16</sub>	12
R-24A#	400-0-400‡	300	380	5	6	6.3 CT	6	6.3 CT	1500	A	1	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3	3 <sup>1</sup> / <sub>16</sub>	14
R-24B#	400-0-400‡	300	380	5	6	6.3 CT	6	6.3 CT	1500	B	1	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3	14
R-25A	400-0-400‡	500	635	5	6	6.3 CT	7	6.3 CT	2000	A	2	5 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>16</sub>	19

\*Mtg. Hole Size for "A" case types, 3/8 x 3/8 except R-25A; 1/2 x 1/4.

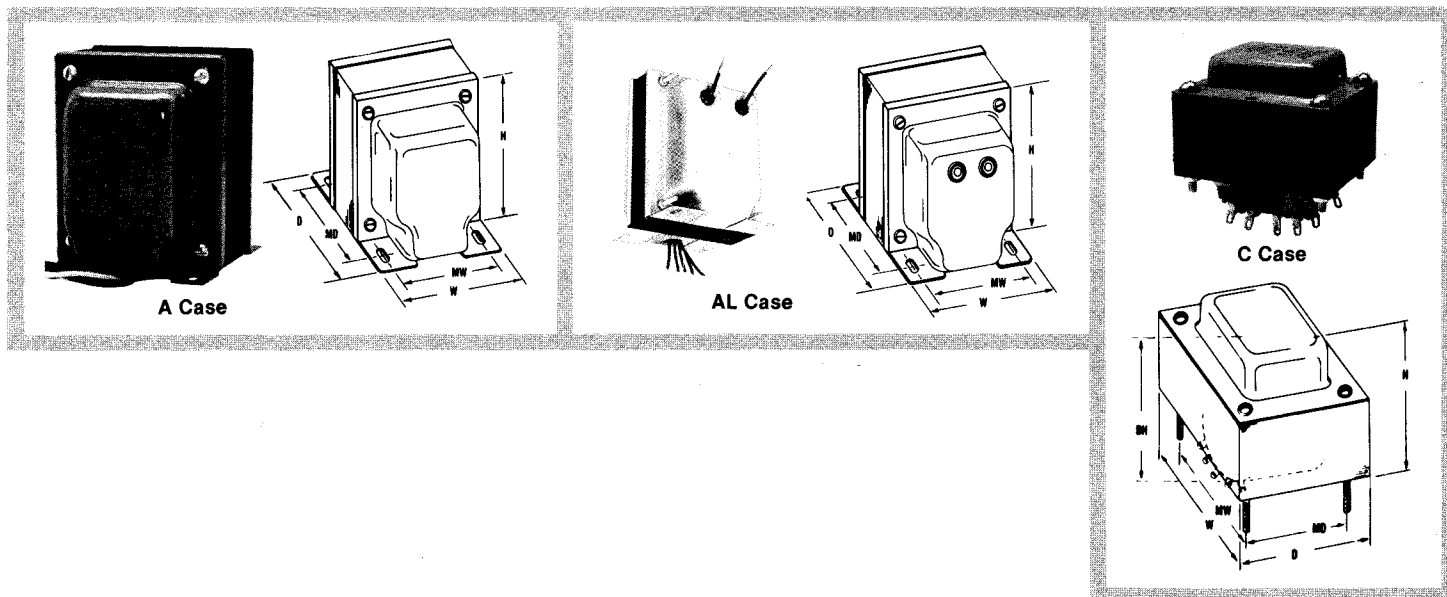
### SOLID STATE RECTIFIER POWER / primary 117 volts, 50-60 Hz

Type No.	Secondary No. 1		Secondary No. 2		Secondary No. 3		RMS Test Volts	Case Type	Connections	Case Dimensions			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	DC ma.	Volts	Amps	Volts	Amps				H	W	D	MW	MD		
R-200A	200-0-200	400	6.3	3	6.3	3	1500	A	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	7.1
R-201A	150-0-150	600	6.3	2.5	6.3	2.5	1500	A	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	7.1
R-202A	100-0-100	800	6.3	2	6.3	2	1500	A	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	6.9
R-203A	50-0-50	1600	6.3	1.5	6.3	1.5	1500	A	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	6.0
R-82B	35-0-35	3000	-	-	-	-	1500	B	Leads	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3	-	8.3
R-208A	40-0-40	1200	-	-	-	-	1500	A	Leads	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	4.4
R-204A	40-0-40	2000	6.3	1.5	6.3	1.5	1500	A	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	6.5
R-209B	30-0-30	3000	-	-	-	-	1500	B	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3	-	10
R-205A	30-0-30	2500	6.3	1.5	6.3	1.5	1500	A	Leads	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3/8 x 3/8	6.0
R-206B	27-0-27	1250	-	-	-	-	1500	B	Leads	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	-	4.8

\*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

CT for Center Tap. ‡Static shield. #60 cycle operation.

## PLATE AND FILAMENT TYPES



## CATHODE RAY TUBE / primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts ±5%	DC Ma.		Rectifier Filament		Other Filaments		RMS Test Voltage	Connections Case or Lead Type Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		Cond. Input	Choke Input	Volts ±5%	Amps	Volts ±5%	Amps			H	W	D	MW	MD	
R-41C	440-0-440-1250	125 5	158	5 2.5* 2.5*	3 1.75 1.75	6.3	.6	(2.5 V & 6.3V)—3500 Others—1500	C Lugs	3¼	4⅞	3½	3⅞	2¼	7.5
R-45C	400-0-400-800	30 5	38	5* 5*	2 2	6.3 6.3 CT 6.3	.6 3 1	Pri. & 6.3 CT 1500 Others—3000	C Lugs	2⅞	3¼	3⅞	3⅞	2½	4.5
R-43C	1600	3				0-2.5-5-6.3 0-2.5-5-6.3	1 3	Pri.—1500 Others—4200	C Lugs	2⅞	3⅞	2⅞	2½	2	3.5
R-83A●●	400-0-400-650	70 3		125♦	.3	6.3 CT 6.3	3.5 .6	6.3V.6A—3000 Others—1500	A 2-Sides	3⅞	2⅞	3¼	2¼	2⅞	5
R-84K●●						6.3	.6	3500	K 2-Sides	2¼	2¼	2¼	2⅞	1½	1.5

● Direct Replacement For Power Transformer in Model 0-12 Heathkit Scope. ●● CRT Filament Transformer for Heathkit Model OP-1 Scope. #60 Cycle operation. ‡ Static shield.

\*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding.

Example: Two 6.3 V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

♦ 2 ohms 2W resistor in series with filament when IV2 is used.

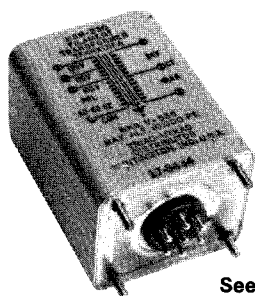
## REGULATED POWER SUPPLY / primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts ±5%	DC Ma.		Rectifier Filament		Other Filaments		RMS Test Voltage	Connections Case or Lead Type Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		Cond. Input	Choke Input	Volts ±5%	Amps	Volts ±5%	Amps			H	W	D	MW	MD	
R-70A‡	440-0-440	59	75	6.3 6.3	.6 .3	6.3 6.3	.9 3	2000	A 1	3⅞	3⅞	3⅞	2½	2¼	4.5
R-26A‡	440-360-0-360-440	157	200	5	3	6.3 CT 6.3 6.3	8 3 1	2000	A 1	4⅞	3⅞	4⅞	3	3⅞	12

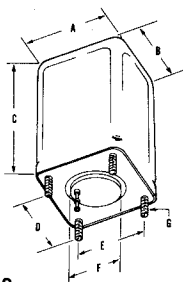
## PLATE POWER / primary 115 volt, 50-60 Hz

Type No.	Primary	Secondary		Rectifier Filament		RMS		Case Type	Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
	AC Volts	AC Volts††	DC MA—Choke Input	Volts	Amps	Test Voltage	H			W	D	MW	MD		
		±5%	CCS											ICAS	
P-1A†	115	220-110-0-110-220	160	192	5	3	1500	A	1	3 <sup>1</sup> / <sub>32</sub>	2 <sup>3</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	4
P-3A†	115	300-150-0-150-300	300	360	5	4	1500	A	1	3 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>32</sub>	3 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	6.25
P-5A†#	115	550-0-550	250	300	5	4	2500	A	1	4 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>7</sup> / <sub>8</sub>	3	2 <sup>7</sup> / <sub>8</sub>	8
P-7A†#	115	617.5-0-617.5	250	300	5	4	2500	A	1	4 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>8</sub>	3	3 <sup>1</sup> / <sub>8</sub>	9
P-11A†#	115	727.5-0-727.5	250	300	-	-	2500	A	1	4 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	3 <sup>7</sup> / <sub>8</sub>	3	2 <sup>7</sup> / <sub>8</sub>	8.5
P-14A††	115	890-712.5-0-712.5-890	250	300	-	-	3000	A	2	5 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	4 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	13.5
P-215AL†	115-230	1170-0-1170	250	300	-	-	3500	AL	1 + 2□	5 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	4 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	13.5
P-217AL†	115-230	1440-0-1440	250	300	-	-	4000	AL	1 + 2□	5 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	4 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	14.75
PR-21AL†#	115-230	1650-0-1650	500	600	-	-	4500	AL	1 + 2□	6 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	29





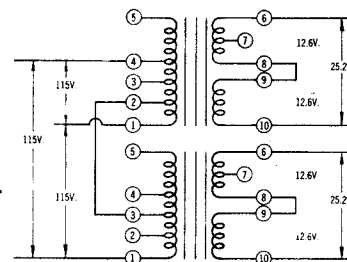
**HS & HSM Case**  
See case chart, page 29.



### Schematic for Scott Connection

using two HS-442's  
Primary 115V. 400 C.P.S. 3 Phase  
to  
2 Phase 25.2V. or 2 Phase 12.6V.

Secondaries on each Transformer  
can be used in Series,  
Parallel or Separately



## FILAMENT / 50-60 Hz

Type No.	Mil Type No.	Primary Volts	Filaments		RMS Test Voltage	F. Dim. Inches	Mil Case Type	Max. Unit Wt. Lbs.
			Volts	Amps				
HSM-223	TF4RX01YY	115	6.3	.6	1500	7/8	AJ-2	.75
HSM-229	TF4RX01JB	0-105-115-125	6.3 CT	8	2500	1 1/8	JB	5
HSM-230	TF4RX01FA	0-105-115-125	24 CT	.8	1500	7/8	FA	2
HSM-240	TF4RX01GA	0-115-230	12.6 CT* 12.6*	1.5 1.5	2500	1 3/8	GA	3.25
HSM-236	TF4RX01JB	0-105-115-125	12.6 CT* 12.6*	2 2	2500	1 3/8	JB	6.5
HSM-228	TF4RX01JA	0-105-115-125	6.3 CT* 6.3*	6 6	Pri. 1500 Sec. 2500	1 3/8	JA	6.3
HSM-231	TF4RX01JB	0-105-115-125	6.3 CT 5 CT	5 3	2500	1 3/8	JB	4.9

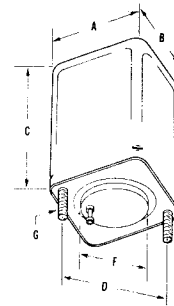
## ISOLATION / 50-60 Hz

Type No.	Mil Type No.	Primary Volts	Secondary			RMS Test Voltage	F. Dim. Inches	Mil Case Type	Max. Unit Wt. Lbs.
			Volts	Current	VA				
HSM-271	TF4RX01KA	115/230	0-105-115-125	1A.	125	1500	7/8	KA	9.25

## LOW VOLTAGE / 50-60 Hz / for solid state applications

Type No.	Mil Type No.	Primary Volts	Secondary		RMS Test Volts	DC Volts		Mil Case Type	Max. Unit Wt. Lbs.
			AC Volts*	RMS Amps		CT FW	FW Bridge		
HSM-250	TF4SX02AJ	115	8.25-40.5	.07-.22 DC	1500	6.6-24	6-53	AJ	13 oz.
HSM-251	TF4SX02FA	115	8.25-40.5	.4-1.2 DC	1500	6.6-24	6-53	FA	2
HSM-252	TF4SX02HA	115	8.25-40.5	1.0-3.0 DC	1500	6.6-24	6-53	HA	4.5

	AH	AJ	EA	EB	FA	GA	HA	JA	JB	KA
A	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1 $\frac{13}{16}$	1 $\frac{13}{16}$	2 $\frac{1}{16}$	2 $\frac{3}{16}$	2 $\frac{3}{16}$	3 $\frac{1}{16}$	3 $\frac{1}{16}$	3 $\frac{3}{16}$
B	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1 $\frac{15}{16}$	1 $\frac{15}{16}$	2 $\frac{1}{16}$	2 $\frac{3}{16}$	3 $\frac{1}{16}$	3 $\frac{1}{16}$	3 $\frac{1}{16}$	3 $\frac{15}{16}$
C	1 $\frac{1}{4}$	2 $\frac{3}{16}$	2 $\frac{3}{16}$	2 $\frac{7}{16}$	3 $\frac{1}{16}$	3 $\frac{13}{16}$	4 $\frac{1}{4}$	4 $\frac{1}{4}$	3 $\frac{3}{4}$	5 $\frac{1}{4}$
D	1 $\frac{1}{4}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	1 $\frac{11}{16}$	2 $\frac{1}{16}$	2 $\frac{13}{16}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3
E		1 $\frac{3}{16}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	1 $\frac{55}{16}$	2 $\frac{1}{16}$	2 $\frac{1}{16}$	2 $\frac{1}{16}$
G	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$
I	6-32	6-32	6-32	6-32	6-32	6-32	8-32	8-32	8-32	10-32



	AJ-2
A	1 $\frac{5}{16}$
B	1 $\frac{5}{16}$
Bw	
C	2 $\frac{3}{16}$
D	*1 $\frac{5}{16}$
F	$\frac{7}{8}$
G	6-32

AJ-2 Case

**COMBINED PLATE AND FILAMENT / primary 115 volt / 380-1500 Hz**

Type No.	MIL Type Number	Secondary Plate Supply			Filaments		RMS Test Voltage	F. Dim Inches	MIL Case Type	Max. Unit Wt. Lbs.
		A.C. Volts	D.C. Ma. Cond. In	D.C. Ma. Choke In	Volts	Amps				
HS-401	TF4RX03EB	250-0-250‡	40	51	6.3 CT* 6.3*	1 1	1500	$\frac{7}{8}$	EB	1.2

**ISOLATION / primary 115 volt / 380-1500 Hz**

Type No.	MIL Type No.	Secondary			RMS Test Voltage	F. Dim Inches	MIL Case Type	Max. Unit Wt. Lbs.
		Volts	Current	VA				
HS-470‡	TF4RX01EA	115	.35A.	40	1500	$\frac{7}{8}$	EA	1.5
HS-472‡	TF4RX01GA	115	1.39A.	160	1500	$\frac{7}{8}$	GA	3.1
HS-475‡	TF1RX01KA	115	4.4A.	500	1500	$\frac{7}{8}$	KA	8.75

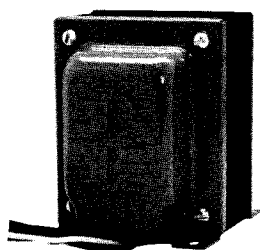
**FILAMENT / 380-1500 Hz**

Type No.	MIL Type No.	Volts Primary	Filaments		RMS Test Voltage	F. Dim Inches	MIL Case Type	Max. Unit Wt. Lbs.
			Volts	Amps				
HS-436	TF4RX01AH	115	6.3 CT	1	1500	$\frac{23}{32}$	AH	.3
HS-425	TF4RX01YY	0-105-115-125	6.3 CT	2	1500	$\frac{7}{8}$	AJ-2	.65
HS-427	TF4RX01EA	0-105-115-125	6.3 CT	5	Pri. 500 Sec. 2500	$\frac{7}{8}$	EA	1.12
HS-438	TF4RX01EA	0-105-115-125	24 CT	1.5	1500	$\frac{7}{8}$	EA	1.2
HS-441	TF4RX01HA	0-105-115-125	5 CT* 5* 2.5 CT	10 10 10	2000 7500	Special	HA	4
HS-443	TF4RX01YY	0-105-115-125	12.6 CT* 12.6*	.8 .8	1500	$\frac{7}{8}$	AJ-2	.75
HS-442 For Scott connection	TF4RX01EA	0-57.5-99.7-115-120	12.6 CT* 12.6*	2 2	1500	$\frac{7}{8}$	EA	1.25
F-439U		115	26	3.85	2000	(Dim.) 3 $\frac{3}{4}$ H 2 $\frac{1}{2}$ W 2 $\frac{1}{4}$ D	Spl (Non-Mil)	2.25
HS-444 For Scott connection	TF4SX01FA	0-57.5-99.7-115-120	26 CT* 26 CT*	2 2	2000	.9	FA	1.9
HS-440	TF1RX01EA	0-105-115-125	32	1.50	1500	$\frac{7}{8}$	EA	1.25

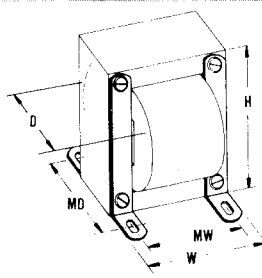
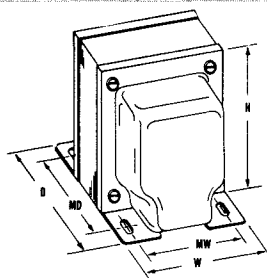
\*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding.

Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A. †Tapped for 5-Volt rectifier use. CT for Center Tap. ‡Static shield.

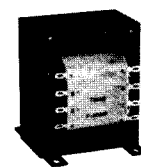




A Case



U Case



## REPLACEMENT PUSH-PULL OUTPUT / push-pull tubes to voice coil / 3-4 ohms

Type No.	Output Watts	Primary D.C. Ma		Matching Impedance		D.C. Resistance		Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimensions			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Total	Each Side			Primary	Secondary				H	W	D	MW	MD		
S-39X	3-4	60	30	12,000 CT	3-4	750	.46	54.6:1	1500	X	1 1/8	2 3/8	1 3/8	2		3/16	.45
S-64X	4-6	80	40	6000 CT	3-4	550	.35	42.5:1	1500	X	1 3/8	2 3/8	1 1/2	2		3/16	.5
S-15X	7-10	70	35	10,000 CT	3-4	785	.32	53.7:1	1000	X	1 5/8	2 13/16	1 1/2	2 3/8		3/16	.6
S-19Z	10-14	100	50	10,000 CT	3-4	755	.33	53.7:1	1000	Z	2 5/16	2 7/8	2	2 3/8		3/16	1.3
S-68Z	15-18	180	90	3400 CT (3000 CT/3800 CT)	3-4	135	.29	29.1:1	1500	Z	2 23/32	3 1/8	2	2 13/16		3/16	1.6
S-69Z	15-18	120	60	5000 CT	3-4	230	.31	35.4:1	1500	Z	2 23/32	3 1/8	2	2 13/16		3/16	1.6

## UNIVERSAL OUTPUT / single or push-pull tubes to voice coil

Type No.	Output Watts	Application	Primary D.C. Ma		Matching Impedance		Total D.C. Resistance		Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension	Max. Unit Wt. Lbs.
			Total	Single Total	Primary	Secondary	Primary	Secondary				H	W	D	MW	
S-62X	2	Single or P.P. Plates	60	30	2000 to 10,000	.64 to 26.3	440	.79	25:1	1500	X	1 3/8	2 3/8	1 1/4	1 1/4	.21
S-51X	5	Single or P.P. Plates	70	35	4000 to 14,000	.04 to 89.6	420	.98	25:1	1000	X	1 3/8	2 3/8	1 1/4	2	.45
S-63X	6	Single or P.P. Plates	100	50	1500 to 7000	.5 to 28.6	240	.745	18.7:1	1500	X	1 3/8	2 3/8	1 1/4	2	.45
S-54X	8	Single	70		1500 to 5000	.535 to 15.6	182	.835	17.9:1	1500	X	1 3/8	2 13/16	1 1/2	2 3/8	.6
S-53X	8	Single or P.P. Plates	80	40	4000 to 14,000	.04 to 89.6	340	.83	24.9:1	1000	X	1 3/8	2 13/16	1 1/2	2 3/8	.6
S-55X	10	P.P. Plates	100		4000 to 14,000	.04 to 89.6	427	1.04	24.9:1	1000	X	1 15/16	3 3/16	1 1/8	2 13/16	1
S-55Z	10	P.P. Plates	100		4000 to 14,000	.04 to 89.6	427	1.04	24.9:1	1000	Z	2 3/16	2 7/8	1 1/4	2 3/8	1
S-56Z	12	Single	85		1500 to 6000	.35 to 24	125	.7	15.8:1	1500	Z	2 23/32	3 1/8	2	2 13/16	1.6
S-57Z	15	P.P. Plates	110		4000 to 14,000	.04 to 89.6	456	1.76	25:1	1000	Z	2 23/32	3 1/8	2	2 13/16	1.6
S-61Z	20	P.P. Plates	125		4000 to 12,000	1.5 to 20.2	200	.7	19.85:1	1500	Z	2 23/32	3 1/8	2 1/8	2 13/16	1.8

## OUTPUT / line to voice coil

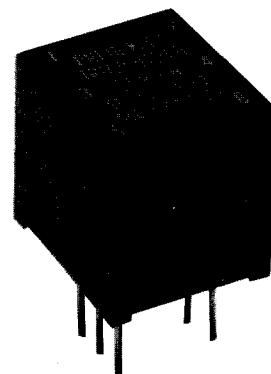
Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Ma. D.C.	Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary							H	W	D	MW	MD	
S-23X	3	Lo Imp. Line to Speaker Autoformer	50	3.2-4	3.8	.29	-	3.75:1	100-8000	1000	X	Leads	1 3/8	2 1/8	1 1/4	1 1/4		.21
S-26X	4	Line to Speaker Autoformer	500/50	3.2-4	28.8	.3	-	11.2:1	100-8000	1000	X	Leads	1 3/8	2 1/8	1 1/4	1 1/4		.21
S-66X	3	Line to Speaker Autoformer	500	16/8/4	42	1.25	-	5.6:1	100-10,000	1000	X	Leads	1 3/8	2 3/8	1 3/8	2		.45
S-65X	5	Line to Speaker	500	8/4	33.6	.7	-	7.95:1	300-7000	500	X	Leads	1 3/8	2 3/8	1 3/8	2		.45
S-83Z	25	Line to Voice Coil	500	15/8/6/4	24	1.0	-	5.75:1	50-15,000	1500	Z	Lugs	2 3/8	2 7/8	1 3/8	2 3/8		1.0
S-76Z	10	Variable Line to Speaker Matching Transformer	250/125 62.5/31	16/8/4	30	.67	-	3.92:1	40-15,000	1500	Z	Lugs	2 23/32	3 1/8	2 1/8	2 13/16		1.8
S-77U	30	High Level Line to Line or Speaker Matching Transformer	500 CT/ 125 $\Omega$	32/16/8/4/2	36	2.05	-	3.96:1	40-15,000	1500	U	Leads & Lugs	3 7/8	2 13/16	4 1/8	2 1/4	3 1/8	5

CT for Center Tap.  $\Omega$  Split winding.

## BLUE CHIP TRANSFORMERS

Streamlined construction methods have made it possible to produce the **BLUE CHIP**, a low cost equivalent of the Triad **RED SPEC** transformer.

Reliability and performance have not been sacrificed, however. **BLUE CHIP** transformers have passed reliability testing side by side with **RED SPECS**. Each **BLUE CHIP** transformer has the same first rate performance as its respective Red Spec equivalent. Features include: Pin for pin compatability with the Red Spec . . . Gold plated nickel alloy leads . . . Constructed to meet MIL-T-27(D) . . . Mounting feet for ready inspection of all solder joints . . . Hermetically sealed epoxy molded case . . . 1000 volt insulation test voltage . . . Exceptional operation from 300 to 150K Hz . . . Base dimensions of .505 x .575 . . . Overall height .575 . . . Weight .25 oz . . . Dry hydrogen-annealed trialloy, deep drawn .020 inch case (SPR-310) available for providing as much as 20 to 45 dB magnetic shielding.



Type No.	Application	Matching Impedance		Max. ma DC Unbalanced In Primary	D.C. Resistance		Frequency Response	Power Level @ $\pm 1.5$ dB	Power Level @ $\pm 3$ dB	Overall Turns Ratio	Fig. No.
		Primary	Secondary		Pri.	Sec.					
SPR-4	Input	200,000 CT	1,000 CT	0 ma DC	1800	38	300-60K	10 mW	12.5 mW	14.1:1	3
SPR-5	Input	50,000 CT	1,000 CT	0 ma DC	900	53	300-125K	25 mW	30 mW	7.06:1	3
SPR-13	Interstage	25,000 CT/20,000 CT	1,000 CT/800 CT	.6 ma DC	690	100	350-125K	50 mW	60 mW	5:1	3
SPR-20	Driver	10,000 CT	1,200 CT	1 ma DC	510	54	300-150K	50 mW	60 mW	2.89:1	3
SPR-21	Driver	10,000 CT	2,000 CT	1 ma DC	480	100	300-150K	50 mW	60 mW	2.24:1	3
SPR-22	Driver	10,000	2,000 CT/500§	1 ma DC	500	49/57	300-150K	50 mW	60 mW	4.48:1:1	4
SPR-29	Driver	10,000 CT	500 CT	1 ma DC	510	20	300-150K	50 mW	60 mW	4.48:1	3
SPR-32	Output	500	50	4 ma DC	37	2	300-150K	50 mW	60 mW	3.49:1	1
SPR-33	Output	1,000	50	3 ma DC	63	2	300-150K	50 mW	60 mW	4.5:1	1
SPR-50	Output	500 CT	600	4 ma DC	26	36	300-150K	50 mW	60 mW	1.1:1	2
SPR-52	Output	1,500 CT	600	2.6 ma DC	76	36	300-150K	50 mW	60 mW	1.58:1	2
SPR-66	Output-Isolation	10,000 CT	10,000 CT	1 ma DC	330	450	300-125K	50 mW	60 mW	1:1	3
SPR-67	Output-Isolation	600 CT	600 CT	4 ma DC	29	36	300-150K	50 mW	60 mW	1:1	3
SPR-68	Output-Isolation	10,000	10,000 CT/2,500§	1 ma DC	340	210/250	300-125K	50 mW	60 mW	2:1:1	4
SPR-69	Output-Isolation	600	600 CT/150§	4 ma DC	28	17/19	300-150K	50 mW	60 mW	2:1:1	4
SPR-70	Output-Isolation	600	600	4 ma DC	28	36	300-150K	50 mW	60 mW	1:1	1
SPR-310	Shield	—	—	—	—	—	—	—	—	—	—

CT for Center Tap §Split Secondary.

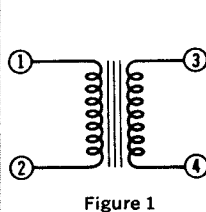


Figure 1

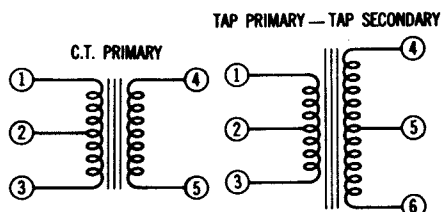


Figure 2

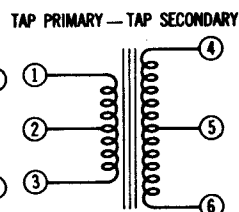


Figure 3

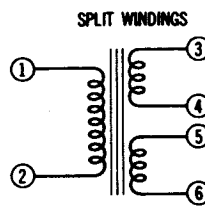
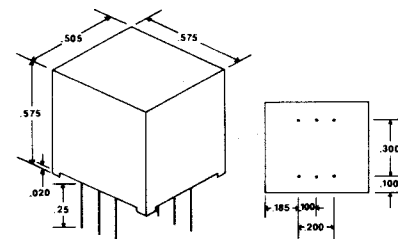
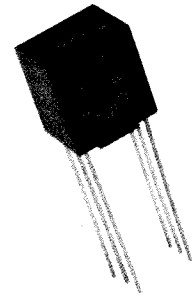


Figure 4

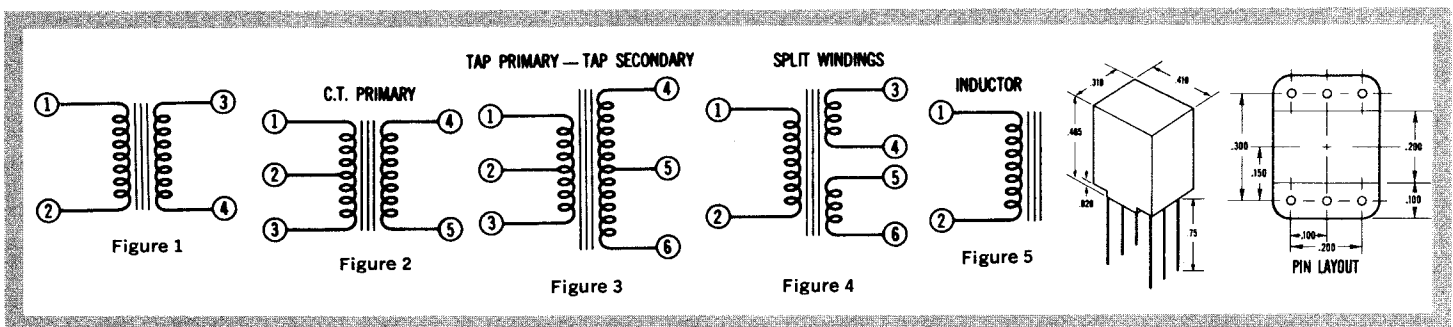


All Red Spec transformers are designed and constructed to conform to the rigid requirements of Specification MIL-T-27D. Features are: solid epoxy molded case . . . legible, permanent circuit data on every unit . . . base mounting pad for ready inspection of all solder joints . . . high-strength .020-diameter nickel alloy leads . . . all leads are gold plated . . . no stripping or tinning required . . . operating voltage: 150 volts DC . . . insulation test voltage 1000 V RMS . . . exceptional operation from 100 to 100,000 cycles . . . base dimensions of only .310 by .410 inch . . . total height of just .465 inch . . . weight: 1/16 ounce . . . lowest possible fatigue factor . . . dry hydrogen-annealed, Trialloy, deep-drawn .020-inch case (SP-310) available for providing as much as 20 to 45 db magnetic shielding.



Type No.	MR Type Number	Power Level In MW	Application	Matching Impedance		Max MA DC Unbalanced In Primary	DC Resistance		Overall Turns Ratio	Fig. No.
				Primary	Secondary		Primary	Secondary		
SP-4	TF5S21ZZ	10	Input	200,000 CT	1,000 CT	0	5300	100	14.1:1	3
SP-5	TF5S21ZZ	25	Input	50,000 CT	1,000 CT	0	3800	75	7.1:1	3
SP-7	TF5S21ZZ	10	Input	200,000	1,000	0	5300	100	14.1:1	1
SP-11	TF5S21ZZ	40	Interstage	25,000/20,000	1,000/800	.5	1700	115	5:1	1
SP-13	TF5S21ZZ	40	Interstage	25,000 CT/20,000 CT	1,000 CT/800 CT	.5	1700	115	5:1	3
SP-15	TF5S21ZZ	50	Interstage	10,000 CT	1,500 CT	1	1050	300	2.57:1	3
SP-20	TF5S21ZZ	50	Driver	10,000 CT	1,200 CT	1	1050	200	2.88:1	3
SP-21	TF5S21ZZ	50	Driver	10,000 CT	2,000 CT	1	1050	330	2.24:1	3
SP-22	TF5S21ZZ	50	Driver	10,000	2,000 CT/500§	1	1050	146/168§	4.48:1:1	4
SP-29	TF5S21ZZ	50	Driver	10,000 CT	500 CT	1	1050	80	4.47:1	3
SP-32	TF5S21ZZ	50	Output	500	50	3	60	8	3.16:1	1
SP-33	TF5S21ZZ	50	Output	1,000	50	3	145	8	4.4:1	1
SP-34	TF5S21ZZ	50	Output	600	3.2	3	70	.76	13.6:1	1
SP-35	TF5S21ZZ	50	Output	1,200	3.2	2	131	.76	19.3:1	1
SP-36	TF5S21ZZ	50	Output	10,000	3.2	1	1160	.81	55.8:1	1
SP-42	TF5S21ZZ	50	Output	150 CT	12	10	18	2.7	3.54:1	2
SP-47	TF5S21ZZ	50	Output	1,500 CT	12	3	179	2.9	11.2:1	2
SP-48	TF5S21ZZ	50	Output	7,500 CT	12	1	796	2.9	25:1	2
SP-49	TF5S21ZZ	50	Output	300	600	7	41	98	1:1.42	2
SP-50	TF5S21ZZ	50	Output	500 CT	600	3	67	98	1:1.1	2
SP-51	TF5S21ZZ	50	Output	900 CT	600	4	104	96	1.22:1	2
SP-52	TF5S21ZZ	50	Output	1,500 CT	600	3	168	92	1.58:1	2
SP-65	TF5S21ZZ	50	Output	8,000 CT	3.2	1	790	.76	50:1	2
SP-66	TF5S21ZZ	50	Output-Isolation	10,000 CT	10,000 CT	1	1000	1300	1:1	3
SP-67	TF5S21ZZ	50	Output-Isolation	600 CT	600 CT	3	72	92	1:1	3
SP-68	TF5S21ZZ	50	Output-Isolation	10,000	10,000 CT/2500§	1	1000	565/650§	2:1:1	4
SP-69	TF5S21ZZ	50	Output-Isolation	600	600 CT/150§	3	72	40/45§	2:1:1	4
SP-70	TF5S21ZZ	50	Output-Isolation	600	600	3	72	92	1:1	1
SP-106	TF5S20ZZ	—	Audio Choke	6HY	—	2	1700	—	—	5
SP-107	TF5S20ZZ	—	Audio Choke	1.25HY	—	2	180	—	—	5
SP-108	TF5S20ZZ	—	Audio Choke	3.5HY	—	2	1100	—	—	5
SP-117	TF5S20ZZ	—	Audio Choke	.9HY	—	2	110	—	—	5
SP-118	TF5S20ZZ	—	Audio Choke	.3HY	—	4	42	—	—	5
SP-128	TF5S20ZZ	—	Audio Choke	.1HY	—	5	15	—	—	5
SP-310	—	—	Shield	—	—	—	—	—	—	—

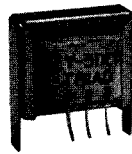
CT for Center Tap. §Split Secondary.



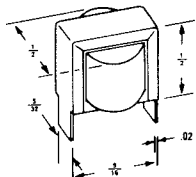
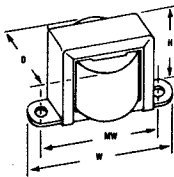
## MINIATURE AUDIO



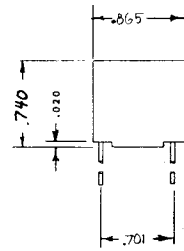
X Case



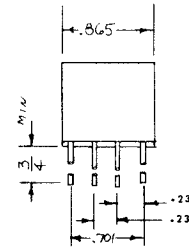
XT Case



Highly dependable Triad Trijets are available as open frame units, or epoxy-molded for space saving and extreme reliability. Six of the most popular units in the T-series are encapsulated with plug-in terminals for printed circuit board use. All units have rigid tinned copper leads .750 long. A mu-metal case, No. T-300, may be slipped on any of these units to provide as much as 20 to 45 db magnetic shielding.



SP Case



Type No.	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response $\pm 30\text{dB}$	RMS Test Vols	Case Type	Connections	Case Dimension			Mounting Dimension MW	Mfg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary						H	W	D			
T1X†	1MW.	Line or Mike to Grid	600/250/50	50,000	80	3200	1:9.16	60-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-1SP										SP	Tinned Copper Leads						
T-2X†	1MW.	Line or Mike to Grid-Hi Gain	600/250/50	250,000	44	3600	1:20.6	100-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.100	.045
T-3X	1MW.	Line or Mike to Single or P.P. Grids	600/250/50	60,000 CT	100	3600	1:10	60-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-5X†	1MW.	Mike or Voice Coil to Grid	30/12/4	50,000	7	3500	1:39.7	50-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-12X	10MW.	Interstage-Plate to Single or P.P. Grids	15,000	60,000 CT	1350	2700	1:2	60-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-13X	10MW.	Interstage-Plate to Single or P.P. Grids	15,000 3 MA. D.C.	95,000 CT	1330	3300	1:2.5	350-7,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-20X	10MW.	Output-Plate to Line	15,000	600/250/50	1330	58	5:1	60-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-22X	10MW.	Output-Plate to Line	15,000 3 MA. D.C.	600/250/50	1330	58.8	5:1	350-7,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-23X	10MW.	Output-Single or P.P. Plates to Line	20,000 CT	600/250/50	2000	70	5.76:1	60-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.100	.045
T-23SP										SP	Tinned Copper Leads						
T-24X	10MW.	Plate or Transistor to Transistor	10,000 CT 2 MA. D.C.	2000 CT	1000	200	2.24:1	50-20,000	500	X	Leads	5/8	1 1/32	3/4	1	.100	.045
T-25X	10MW.	Plate to Line or Transistor	12,000 CT 2 MA. D.C.	600 CT/150§	1350	70	4.47:1	50-16,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-26X	20MW.	Transistor to Line or Transistor	50,000 CT .5 MA. D.C.	600 CT/150§	2500	70	9.1:1	100-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-31X†	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	50-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-31SP										SP	Tinned Copper Leads						
T-32X	20MW.	Transistor to Transistor or Line	1500 CT 2 MA. D.C.	600 CT/150§	150	60	1.58:1	50-20,000	500	X	Leads	5/8	1 1/32	1 1/16	1 1/16	.125	.04
T-33X†	10MW.	Isolation-High Impedance	5000 CT	5000 CT	1500	2200	1:1	60-15,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-41X	1MW.	Transistor-Driver-Single to Push-Pull	1000 10 MA. D.C.	200 CT	428	128	2.25:1	20-15,000	500	X	Leads	5/8	1 1/32	1 1/16	1 1/16	.125	.04
T-34X	20MW.	Transistor or Line to Transistor or Line	500 CT 2 MA. D.C.	500 CT/125§	45	55	1:1.03	50-20,000	500	X	Leads	5/8	1 1/32	1 1/16	1 1/16	.125	.04
T-34SP										SP	Tinned Copper Leads						
T-35X	10MW.	Transistor or Line to Transistor	600 CT 1 MA. D.C.	2000 CT/500§	68	200	1:1.7	50-20,000	500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-35SP										SP	Tinned Copper Leads						
T-101X		Audio Choke	50 HY @ .75 MA. D.C.		4000				500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-102X		Coupling Reactor	6 HY. or @ 3 MA. D.C.	4 HY. @ 6 MA. D.C.	295				500	X	Leads	5/8	1 1/32	3/4	1	.096	.045
T-300		Magnetic shield for T-SP series. Dimensions, 0.91 × 0.91 × 0.754															

§ Split winding CT for Center Tap † Static shield

## MINIATURE AUDIO TRANSISTOR TRANSFORMERS

Developed primarily for transistor circuitry, Triad miniatures can be applied with equal effectiveness in tube circuitry. Skillful design of these units permits the reversing of primary and secondary windings with virtually no loss in coupling characteristics. Power wattage given in the table is

for lowest operating frequency; this wattage can be increased by as much as five times at the center of the frequency response curve. Frequency response will be equal to, or better than  $\pm 3$  db. 300-10,000.

Type No.	Power Output Watts	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension MM	Mfg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary					H	W	D			
TY-19XT	.150	Output Single or P.P. to V.C.	10000 CT	16/8/4	1174	2.6	24.6:1	500	XT	Leads	$2\frac{1}{32}$	$1\frac{1}{8}$	$\frac{5}{8}$	$2\frac{5}{32}$	—	.65
TY-22XT	.150	Interstage-Sgl. or P.P. to Sgl. or P.P.	5000CT	7500 CT	650	790	1:1.22	500	XT	Leads	$2\frac{1}{32}$	$1\frac{1}{8}$	$\frac{5}{8}$	$2\frac{5}{32}$	—	.65
TY-24X	.2	Driver-Single to Sgl. or P.P.	50000 .5MA D.C.	3,000 CT	3720	250	4.08:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-25X	.2	Driver-Single to Sgl. or P.P.	100000 .5MA D.C.	200 CT	9900	19.5	22.4:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-26X	.2	Driver-Single to Sgl. or P.P.	100000 .5MA D.C.	3000 CT	9880	318	5.78:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-27XT	.01	Output Single or P.P. to Line	500 CT 2MA D.C.	500 CT	37.5	51.5	1:1	500	XT	Leads	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	—	.025
TY-28XT	.01	Output Single or P.P. to Line	500 CT 2MA D.C.	200 CT	38.2	25	1.58:1	500	XT	Leads	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	—	.025
TY-32X	.2	Interstage-Sgl. or P.P. to P.P.	200 CT 2MA D.C.	2000 CT	29	233	3.18:1	1000	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-33X	.2	Output-Single or P.P. to V.C.	400 CT 5MA D.C.	16/8/4	30	3	5:1	1000	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-34X	.2	Interstage-Sgl. or P.P. to Sgl. or P.P.	400 CT 5MA D.C.	2000 CT	41	128	2.25:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-35X	.1	Interstage-Sgl. or P.P. to Sgl. or P.P.	500 CT 2MA D.C.	150 CT	57	32	1.82:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-35XT	.1	Interstage-Sgl. or P.P. to Sgl. or P.P.	500 CT 2MA D.C.	150 CT	57	32	1.82:1	500	XT	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-36X	.2	Interstage-Sgl. to Sgl. or P.P.	2000 2MA D.C.	1500 CT	165	140	1.15:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-37X	.2	Interstage-Sgl. or P.P. to Sgl. or P.P.	2000 CT 4MA D.C.	8000 CT	200	550	1:2	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-37XT	.2	Interstage-Sgl. or P.P. to Sgl. or P.P.	2000 CT 4MA D.C.	8000 CT	200	550	1:2	500	XT	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-38X	.2	Interstage-Sgl. or P.P. to Sgl. or P.P.	3000 CT 4MA D.C.	1000 CT	263	105	1.74:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-39X	.2	Output-P.P. to V.C.	4000 CT 4MA D.C.	16/8/4	333	1.8	15.7:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-40X	.1	Interstage-Sgl. to Sgl. or P.P.	5000 1MA D.C.	200 CT	440	27	5:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-41X	.1	Interstage-Sgl. to Sgl.	16000 1MA D.C.	4000	1373	330	2:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-42X	.1	Output-Sgl. to V.C.	20000 .5MA D.C.	8/4	1440	1.07	50:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-43X	.1	Interstage-Sgl. to Sgl. or P.P.	20000 .5MA D.C.	800 CT	1435	82	5:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-44X	.2	Output-Sgl. to V.C.	1000 10MA D.C.	16/8/4	181	3.8	7.9:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-45X	.2	Output-Sgl. or P.P. to V.C.	500 CT 5MA D.C.	16/8/4	56	3.8	5.2:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-45XT	.2	Output-Sgl. or P.P. to V.C.	500 CT 5MA D.C.	16/8/4	56	3.8	5.2:1	500	XT	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-46X	.25	Interstage-Sgl. to P.P. or Sgl.	100 100MA D.C.	1000 CT	5.5	60	1:3.15	1500	X	Leads	$1\frac{3}{8}$	$2\frac{1}{8}$	$1\frac{1}{2}$	2	$\frac{3}{8}$	.4
TY-47X	.2	Output-Sgl. or P.P. to V.C.	2000 CT 10MA D.C.	16/8/4	260	3.95	11.2:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-49X	.3	Interstage-Sgl. or P.P. to Sgl. or P.P.	500 CT 12MA D.C.	5000 CT	40	245	1:3.15	500	X	Leads	$1\frac{3}{8}$	$2\frac{1}{8}$	$1\frac{3}{8}$	2	$\frac{3}{8}$	.4
TY-51X	.05	Driver-Sgl. or P.P. to Sgl. or P.P.	2000 CT 10MA D.C.	200 CT	748	120	3.16:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-51XT	.05	Driver-Sgl. or P.P. to Sgl. or P.P.	2000 CT 10MA D.C.	200 CT	748	120	3.16:1	500	XT	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-52X	.1	Driver-Sgl. or P.P. to Sgl. or P.P.	20000CT 1MA D.C.	2000 CT	2140	327	3.17:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-54X	.1	Interstage-Sgl. to Sgl. or P.P.	15000 1.5MA D.C.	200 CT	2130	55	8.65:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-55X	.2	Interstage-Sgl. or P.P. to Sgl. or P.P.	2000 CT 2MA D.C.	500 CT	140	65	2:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-56X	.05	Interstage-Sgl. to Sgl. or P.P.	10000 1MA D.C.	2000 CT	1034	334	2.24:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-57X	.2	Output-Sgl. or P.P. to V.C.	250 CT 10MA D.C.	16/8/4	34.6	3.7	3.94:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-58X	.2	Output-Sgl. or P.P. to V.C.	125 CT 15MA D.C.	8/4	16	2.2	3.97:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-59X	.2	Interstage-Sgl. or P.P. to Sgl. or P.P.	5000 CT 1MA D.C.	50,000 CT	378	6410	1:3.16	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	1	$1\frac{3}{8}$	.120	.08
TY-60X	.1	Input-High Imp. to Transistor	200000 0 D.C.	1000	8400	195	14.2:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-62X	.1	Output-Sgl. to Voice Coil	10000 2MA D.C.	4	709	1.5	50:1	500	X	Leads	$\frac{5}{8}$	$1\frac{1}{32}$	$1\frac{1}{8}$	$1\frac{1}{8}$	.125	.04
TY-150X	.3	Interstage-Sgl. or P.P. to Sgl. or P.P.	500 CT	500 CT	40	55	1:1	500	X	Leads	$1\frac{3}{8}$	$1\frac{1}{8}$	$\frac{7}{8}$	$1\frac{3}{8}$	.125	.12
TY-151XT	.15	Interstage-Sgl. or P.P. to Sgl. or P.P.	5000 CT	10000 CT	635	825	1:1.41	500	XT	Leads	$2\frac{1}{32}$	$1\frac{3}{8}$	$\frac{5}{8}$	$2\frac{5}{32}$	—	.05
TY-17XT		Filter Choke	11 mhy @ 1ADC			.75		1000	XT	Leads	$1\frac{3}{8}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$\frac{3}{8}$	.21

## OUTPUT / low level

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Case Type	Connections or Lead Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary							H	W	D	MW	MD		
A-53X	2	Single or P.P. Plates to Line	18,000 CT	600/250/50	1160	38	20	5.5:1	70-7000	1000	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.6
S-58X	1	Line to Line	600 CT/150 $\Omega$	600 CT/150 $\Omega$	46	47.2	-	1:1	100-10,000	500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.21
S-81X	1	Line to Line	600	600	46	47.2	-	1:1	100-10,000	500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$		$\frac{3}{16}$	.20
S-84X	10	Line to Line	500/333/200/125/50	500/333/200/125/50	21.7	23.8	-	1:1	50-20,000	1000	X	Lugs	2	3 $\frac{1}{4}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$		$\frac{3}{16}$	1

BULK-PACKED LINE—  
MATCHING TRANSFORMERS

These line matching transformers available in bulk only are the most reliable, easy-to-install and economical choice for use in efficient public address systems. Leads are color-coded for instant identification, and stripped and tinned for use with twist-on solderless connectors.

Type No.	Output Watts	Secondary Impedance	Case Type	H	W	D	MW	Wt. Lbs.
FOR 70.7-VOLT CONSTANT VOLTAGE LINE								
S-7010	10/5/2.5	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2 $\frac{3}{8}$	.50
S-7005	5/2.5/1.25	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2	.37
S-7002	2/1/0.5	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2	.37
S-7001	1/0.63/0.32	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{4}$	.25
FOR 25-VOLT CONSTANT VOLTAGE LINE								
S-2510	10/5/2.5	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2 $\frac{3}{8}$	.50
S-2505	5/2.5/1.25	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2	.37
S-2502	2/1/0.5	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2	.37
S-2501	1/0.63/0.32	8 ohms	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{4}$	.25

## OUTPUT / 70.7 volt line in voice coil

Type No.	Output Watts	Type	Secondary Impedance	D. C. Resistance		Freq. Resp. $\pm 3$ DB	RMS Test Voltage	Case Type	Case Dimension			MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
				Primary	Secondary				H	W	D				
S-73X	5/2.5/1.25/625/31	Isolation	16/8/4	838	1.17	40-15,000	1500	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.45
S-70Z	5/2.5/1.25/625/31	Autoformer	8/4	580	.65	40-15,000	1000	Z	1 $\frac{1}{16}$	2	1 $\frac{1}{8}$	1 $\frac{3}{16}$		$\frac{3}{16}$	.45
S-47Z	8/4/2/1/5	Isolation	16/8/4	515	.93	30-20,000	1500	Z	1 $\frac{1}{16}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.67
S-85X	5/4/3/2/1	Isolation	16/8	320	1.5	50-20,000	1000	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.4
S-78Z	10/5/2.5/1.25	Isolation	16/8/4	157	.84	40-20,000	1000	Z	1 $\frac{1}{16}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.6
S-86Z	16/8/4/2/1/5	Isolation	16/8/4	570	1.15	40-15,000	1000	Z	2 $\frac{3}{4}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{1}{16}$		$\frac{3}{16}$	1.5
S-25Z	10/5/2.5/1.25	Autoformer	8/4	120	.475	30-20,000	1000	Z	2 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{4}$	2 $\frac{3}{8}$		$\frac{3}{16}$	1
S-71Z	10/5/2.5/1.25	Autoformer	16/8/4	148	.835	40-20,000	1000	Z	1 $\frac{1}{16}$	2 $\frac{3}{8}$	1 $\frac{1}{2}$	2		$\frac{3}{16}$	.6
SR-45Z	10/5/2.5/1.25	Autoformer	16/8/4	267	.866	20-20,000	1000	Z	2 $\frac{3}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{16}$		$\frac{3}{16}$	1.8
S-79Z	20/10/5/2.5	Isolation	16/8/4	69	.7	40-20,000	1000	Z	2 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{4}$	2 $\frac{3}{8}$		$\frac{3}{16}$	1
S-72Z	20/10/5/2.5	Autoformer	16/8/4	56.5	.5	40-20,000	1000	Z	2 $\frac{3}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{4}$	2 $\frac{3}{8}$		$\frac{3}{16}$	1
S-46A	20/10/5/2.5	Autoformer	16/8/4	88.7	.82	30-15,000	1000	A	3 $\frac{3}{8}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2	2 $\frac{1}{16}$	$\frac{3}{8} \times \frac{3}{16}$	4
S-43Z	30/20/10/5	Isolation	16/8/4	40	1.0	40-20,000	1500	Z	2 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{4}$	2 $\frac{3}{8}$		$\frac{3}{16}$	1.6
S-44Z	50/40/25/15	Isolation	16/8/4	25	1.5	40-20,000	1500	Z	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2	2 $\frac{3}{8}$		$\frac{3}{16}$	1.5

## OUTPUT / 25 volt line to voice coil

Type No.	Output Watts	Type	Secondary Impedance	D.C. Resistance		Freq. Resp. $\pm 3$ DB	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
				Primary	Secondary				H	W	D	MW	MD		
S-131X	2/1/5	Isolation	8/4	63	.67	50-20,000	1500	X	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2		$\frac{3}{16}$	.45
S-132X	5/2.5/1.25/625	Isolation	16/8/4	37.6	.76	30-20,000	1500	X	1 $\frac{1}{8}$	2 $\frac{1}{16}$	1 $\frac{1}{8}$	2 $\frac{3}{8}$		$\frac{3}{16}$	.8
S-133Z	10/5/2.5/1.25	Isolation	16/8/4	12.5	.66	20-20,000	1500	Z	2 $\frac{3}{32}$	3 $\frac{1}{8}$	2	2 $\frac{1}{16}$		$\frac{3}{16}$	1.6

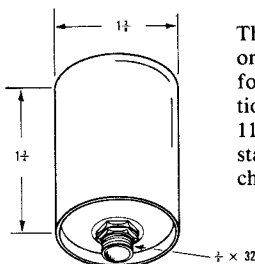
## MATCHING / 25 or 70.7 volt line

Type No.	Output Watts	Matching Impedance		D.C. Resistance		Freq. Resp. $\pm 3$ DB	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Primary	Secondary	Primary	Secondary				H	W	D	MW	MD		
S-129Z	30	20.8 CT (25V. to 70V.) 166 CT (70V. to 25V.)	166 CT 20.8 CT	1.9	16.9	20-15,000	1500	Z	3 $\frac{3}{32}$	3 $\frac{3}{8}$	2 $\frac{1}{4}$	3 $\frac{3}{8}$		$\frac{3}{16}$	2.3

CT for Center Tap.

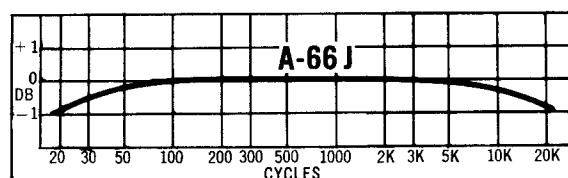
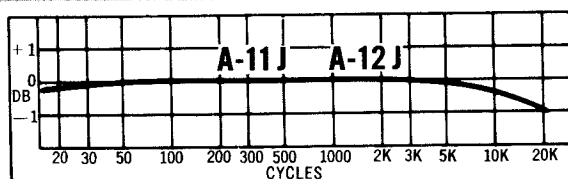


## J SERIES / low level high fidelity



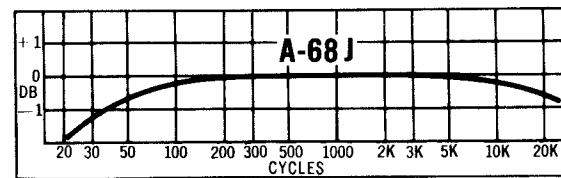
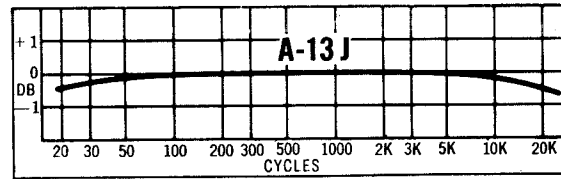
The flexibility of Triad J Series transformers permits amplifiers to exceed broadcast standards. Although economy in construction places them in a lower price class, these units approach and closely approximate the performance characteristics of more costly hermetically sealed units. Features: single-hole mounting, allowing rotation for maximum hum reduction . . . alloy shielding gives 40 to 60 db hum reduction (60 to 80 db in Types A-11J, A-12J, A-13J) . . . wide frequency ranges . . . flexible leads for ease of mounting . . . input units electrostatically magnetically shielded . . . light weight . . . smooth, baked enamel cases, 1 1/2" diameter, 1 1/2" above chassis . . . legible circuit diagrams permanently affixed to every case.

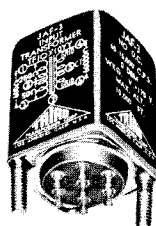
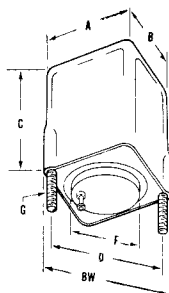
Type No.	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Freq. Resp. $\pm 30\text{dB}$	RMS Test Voltage	Case Connec- tions	Case Dim		Mfg. Hole Diameter	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary					H	D		
A-9J‡	1MW	Line or Mike to Grid	600/250/50	85,000	32.7	3450	1:12	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-10J‡	1MW	Balanced Line or Mike to Single Grid	600 CT/150\$\$\$	60,000	33.7	4040	1:10.5	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-11J‡	10MW	Line or Mike to Grid	600/250/50	60,000	50	5000	1:10	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-12J‡	10MW	Balanced Line or Mike to Grid	600 CT/150\$\$\$	60,000	50	4920	1:10	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-13J‡	1MW	Line to Line or Transistor	600/300/200 CT/110/50\$\$\$	600 CT/150\$\$\$	62	70	1:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-14J	10MW	Balanced Line or Mike to Single Grid	600 CT/150	20,000	55	1465	1:5.77	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.27
A-15J	10MW	Balanced Line or Mike	600/250/50	20,000	53	1400	1:5.77	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.25
A-52J	100MW	Line or Transistor to Line or Transistor	500 CT/125\$\$\$ 20 MA D.C.	2000 CT/500\$\$\$	50	200	1:2	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-56J	100MW	Line or Transistor to Voice Coil	500 CT/125\$\$\$ 15 MA D.C.	16/4\$\$\$	50	1.5	5.6:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-79J	200MW	Transistor to P-P Transistors or Line	1000 10 MA D.C.	200 CT/50\$\$\$	302	138	2.2:1	20-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-58J	100MW	P-P Plates or Transistors to Line or Transistors	10,000 CT/2500\$\$\$	2000 CT/500\$\$\$	1000	200	2.24:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-40J	10MW	Plate to 1 or 2 Grids	15,000	115,000 CT	1540	4020	1:2.76	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-41J	32MW	Tube to 1 or 2 Grids	15,000 8 MA D.C.	80,000 CT	1392	8109	1:2.3	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-55J	100MW	Plate to Line	15,000	600/250/75	1020	46	5:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-61J	50MW	Line to 2 simultaneously loaded lines or transistors	600/150\$\$\$	600/150\$\$\$ 600/150\$\$\$	47	40 40	1.4:1:1	60-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-65J	100MW	Single or Push-Pull Plates to Balanced Line	15,000 CT	600 CT/150\$\$\$	1630	73	5:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-66J	100MW	Plate to Line	15,000 4 MA D.C.	600/250/50	1740	81.2	5:1	40-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-68J	100MW	Sgl. or P-P Plates to Balanced Line	15,000 CT 4 MA D.C.	600 CT/150\$\$\$	1723	81	5:1	40-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-69J	100MW	P-P Plates or Bridging to Line	25,000 CT/6250\$\$\$ 2.5 MA D.C.	500 CT/125\$\$\$	2500	50	7.1:1	50-20,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-78J	100MW	1 or 2 Transistor to Balanced Line	2,000 CT	600 CT/150\$\$\$	112	48.5	1.82:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-57J‡	50MW	Line or Transistor to Line	600/250/50	600/250/50	40	44	1:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35
A-67J‡	50MW	Balanced Line to Balanced Line	600 CT/150\$\$\$	600 CT/150\$\$\$	43.8	44.1	1:1	30-15,000	500	J Leads	1 3/4	1 1/2	3/8	.35



### PERFORMANCE CURVES

A-11J  
A-12J  
A-13J  
A-66J  
A-68J



AF  
Case

AF	
A	$5\frac{1}{64}$
B	$5\frac{1}{64}$
Bw	$1\frac{1}{64}$
C	$1\frac{5}{32}$
D	$2\frac{7}{32}$
F	$\frac{5}{8}$
G	4-40
Unit	$2\frac{1}{2}$
Wt.	OZ.



PL-20, PL-21

PL-30 through  
PL-34PL-10, PL-11  
Trigger Coil

## JAF SERIES

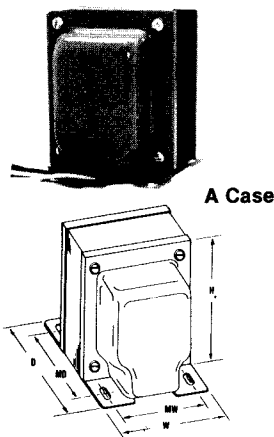
Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
JAF-1‡	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	50,000	100	3180	1:9.16	60-15,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-5‡	TF1QX10YY	1MW.	Mike to Voice Coil to Grid	30/12/4	50,000	6	3500	1:39.7	50-15,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-12	TF1QX10YY	10MW.	Plate to Sgl. or P.P. Grids	15,000	60,000 CT	1350	2700	1:2	60-15,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-13	TF1QX15YY	10MW.	Plate to Sgl. or P.P. Grids	15,000 3 MA. D.C.	95,000 CT	1330	3330	1:2.5	350-7,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-31‡	TF1QX16YY	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	60-15,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-32	TF1QX13YY	20MW.	Transistor to Transistor or Line	1500 CT 2 MA. D.C.	600 CT/150§	150	60	1.58:1	50-20,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-33‡	TF1QX21YY	10MW.	Line to Line Hi Imp. Isolation	5,000 CT	5000 CT	1500	2200	1:1	60-15,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-34	TF1QX17YY	20MW.	Transistor or Line to Transistor or Line	500 CT 2 MA. D.C.	500 CT/125§	45	50	1:1.03	50-20,000	500	45 DB	$\frac{5}{16}$	AF	.1
JAF-101	TF1QX20YY		Coupling Reactor	50 Henries@ .75 MA. D.C.		4000				500	45 DB	$\frac{5}{16}$	AF	.1

## TRIGGER-PHOTOFLASH transformers

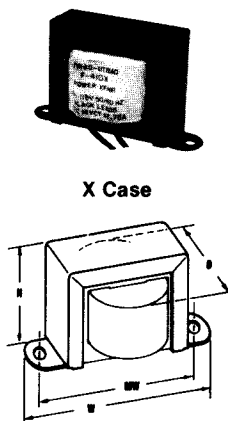
Type No.	Application	Turns Ratio	Primary Inductance	Leakage Inductance	D.C. Resistance		Output Volts or Volt- $\mu$ Sec Rating	Dimensions		Ht.	Weight Oz.
					Primary	Secondary		Dia.	Length		
PL-10	PHOTOFLASH	1:30	2 $\mu$ H	1 $\mu$ H	.2	115	6-8KV	$\frac{1}{2}$	$\frac{3}{4}$		$\frac{1}{2}$
PL-11	PHOTOFLASH	1:30	15 $\mu$ H	1.5 $\mu$ H	.156	113	10-12KV	$\frac{1}{2}$	$\frac{3}{4}$		$\frac{1}{2}$
PL-20	SCR TRIGGER	1:1	200 $\mu$ H	2 $\mu$ H	1.1	1.1	2000 V $\mu$ Sec	$\frac{5}{8}$	$\frac{3}{4}$		1
PL-21	SCR TRIGGER	1:1:1	200 $\mu$ H	2 $\mu$ H	1.1	1.1	2000 V $\mu$ Sec	$\frac{5}{8}$	$\frac{3}{4}$		1
PL-30	SCR TRIGGER	1:1:1	7.5mHy	90 $\mu$ H	1.85	1.85	130 V $\mu$ Sec	.562	.562	.343	$\frac{1}{2}$
PL-31	SCR TRIGGER	1:1	7.5mHy	90 $\mu$ H	1.9	1.9	130 V $\mu$ Sec	.562	.562	.343	$\frac{1}{2}$
PL-32	SCR TRIGGER	2:1	7.5mHy	100 $\mu$ H	1.8	.95	130 V $\mu$ Sec	.562	.562	.343	$\frac{1}{2}$
PL-33	SCR TRIGGER	2:1:1	7.5mHy	100 $\mu$ H	1.9	.95	130 V $\mu$ Sec	.562	.562	.343	$\frac{1}{2}$
PL-34	SCR TRIGGER	5:1	7.5mHy	115 $\mu$ H	1.8	.42	130 V $\mu$ Sec	.562	.562	.343	$\frac{1}{2}$

CT for Center Tap. §Balanced two windings. ‡Static shield. §§§ Split winding.

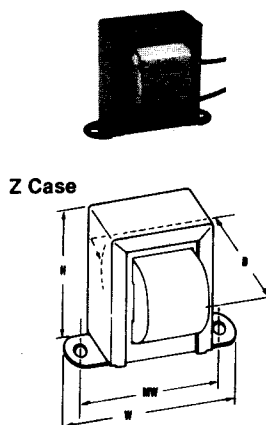
■ Williamson type circuit may be used. Taps on primary for proper screen operation. ■■ See case chart, page 29.



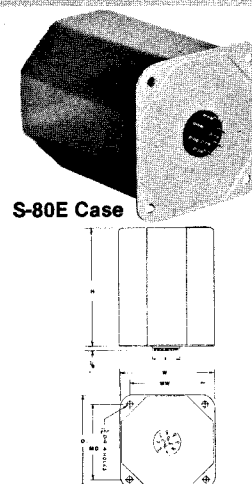
A Case



X Case



Z Case



S-80E Case

These medium-priced audio components are manufactured to Triad's strict quality control standards to provide highly reliable performance in minimum over-all space. Designed for quick and easy mounting, they have exceptional construction features which make them ideal for replacement purposes in public address, amateur radio, and all other audio systems. Like all standard Triad units, these are instantly obtainable from your stocking Triad distributor.

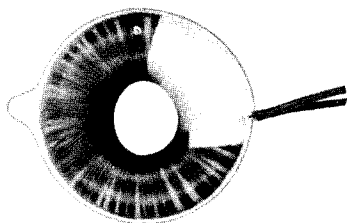
Triad's research, quality control, and production capabilities have combined to turn out complete transformer coverage for today's complex tube and circuitry developments. As industry leader in the replacement field, Triad offers: minimum over-all size . . . greatest life expectancy . . . easy mounting . . . exact location placement in chassis . . . widest range of types and power ratings . . . economical price.

## HIGH FIDELITY OUTPUT / tube to line or voice coil

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Turns	Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Case Type	Connections Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary	Ma. D.C. Per Side						H	W	D	MW	MD	
S-142A	15	P.P. 6V6's, EL84's, etc. to Speaker	8000 CT	16/8/4	450	.76	50	22.2:1	20-20,000	1500	A	2	3 $\frac{1}{16}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2	2 $\frac{1}{16}$	3.75
S-35A	20	P.P. 6L6's, etc. to Speaker	5000 CT	16/8/4	320	.8	80	17.6:1	20-20,000	1500	A	1	3 $\frac{1}{16}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2	2 $\frac{1}{16}$	4.3
S-146A	25	P.P. 5881, 6L6's, etc. to Speaker	6600 CT	16/8/4	250	.715	80	20:1	10-50,000	Pri. 2000 Sec. 1500	A	2	3 $\frac{1}{2}$	2 $\frac{1}{32}$	4 $\frac{1}{4}$	2 $\frac{1}{4}$	3 $\frac{1}{8}$	5.75
S-42A	50	P.P. Par. 6L6's Class A to Speaker	4500 CT	16/8/4	147	.56	140	16.9:1	30-15,000	1500	A	1	4 $\frac{1}{4}$	3 $\frac{1}{32}$	4 $\frac{1}{8}$	2 $\frac{1}{4}$	3 $\frac{1}{2}$	8.25
SR-45Z	10	70 Volt Line Autoformer	4000/2000/1000/500	16/8/4	255	.77	-	15.7:1	20-20,000	1000	Z	Leads	2 $\frac{3}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{16}$	-	1.75
S-46A	20	70 Volt Line Autoformer	2000/1000 500/250	16/8/4	88	.82	-	11:1	30-15,000	1000	A	1	3 $\frac{1}{16}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2	2 $\frac{1}{8}$	4

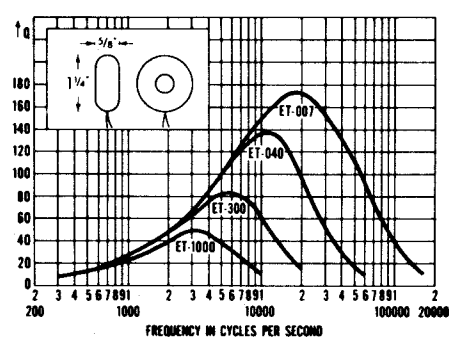
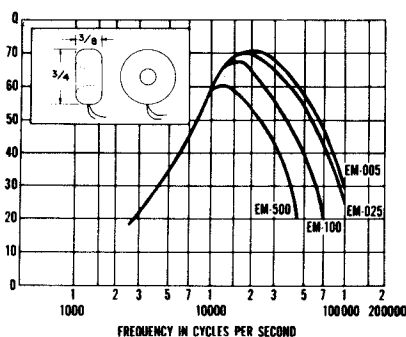
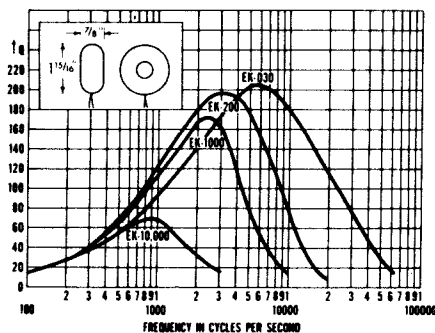
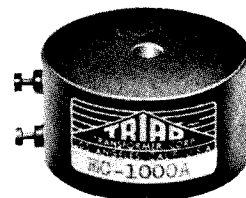
## OUTPUT / tube to voice coil & line

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Turns	Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary	Ma. D.C. Per Side						H	W	D	MW	MD	
S-28X	5	Single Plate to Line or Speaker	7500	500/16/8/4	595	35.8	40	4.05:1	50-12,000	1000	X	Leads & Lugs	1 $\frac{1}{16}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{16}$	-	1
S-29X	5	Single Plate to Line or Speaker	5000	500/16/8/4	660	56	45	3.16:1	50-12,000	1000	X	Leads & Lugs	1 $\frac{1}{16}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{16}$	-	1
S-22A	15	P.P. Plates to Line or Speaker	5000 CT	500/16/8/4	424	48.3	50	3.16:1	25-15,000	1500	A	1	2 $\frac{3}{32}$	2 $\frac{1}{32}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	2.5
S-24A	15	P.P. Plates to Line or Speaker	8000 CT	500/16/8/4	675	39.5	40	3.98:1	20-15,000	1500	A	1	2 $\frac{3}{32}$	2 $\frac{1}{32}$	2 $\frac{1}{16}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	2.5
S-80E	20	P.P. Plates to Line or Speaker	8000 CT	500/200/70/16/8/5/3/1.5	199	21.33 .504	200	22.2:1:5.5	40-10,000	1500	Spl.	-	3 $\frac{1}{4}$	3	3	2 $\frac{1}{8}$	2 $\frac{1}{8}$	3.5
S-60A	35	P.P. Plates to Line or Speaker	6600 CT	500/250/16/8/4	118.5	9.6	150	3.65:1	30-20,000	2000	A	2	3 $\frac{1}{8}$	3 $\frac{1}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	4



Triad Toroidal Inductors have the highest Q and highest measure of stability with voltage and temperature variations. These units have cores of powdered nickel alloy and are wound with low distributed capacitance and resistance—each coil providing a minimum inductance tolerance of plus or minus 2 percent. Triad toroids may be ordered with standard leads in strong plastic coating, or epoxy molded, encapsulated per Specification MIL-T-27B; TF5RX20ZZ. To specify molded toroids with goldplated fixed terminals, an "A" should be added to the full type number; for example, EM-001A. Should special applications require even closer tolerances, call your Triad representative for assistance.

**Note:** For molded toroids with gold plated fixed terminals, add A to type number.



### EK Series

For maximum "Q" and power.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EK-030	30 mh	1.4	150
EK-030A	30 mh	1.4	150
EK-040A	40 mh	1.9	130
EK-080A	80 mh	3.1	92
EK-100	100 mh	4.4	82
EK-200	200 mh	7.5	58
EK-200A	200 mh	7.5	58
EK-250	250 mh	9.0	52
EK-250A	250 mh	9.0	52
EK-700	700 mh	27.0	31
EK-1000	1000 mh	45.0	26
EK-1000A	1000 mh	45.0	26
EK-3000	3000 mh	116	15
EK-20000	20000 mh	800	5.8

### EM Series

For extremely miniaturized circuits such as missile applications, where size and weight must be kept to a minimum.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EM-001	1 mh	1.25	150
EM-001A	1 mh	1.25	150
EM-002	2 mh	1.70	108
EM-004	4 mh	2.60	76
EM-005	5 mh	3.10	68
EM-007A	7 mh	4.5	57
EM-010	10 mh	6.5	48
EM-010A	10 mh	6.5	48
EM-025	25 mh	16.5	30
EM-030A	30 mh	18	27.6
EM-050	50 mh	30	22
EM-100A	100 mh	66	15
EM-250A	250 mh	155	9.6
EM-1000	1000 mh	650	4.8
EM-1000A	1000 mh	650	4.8

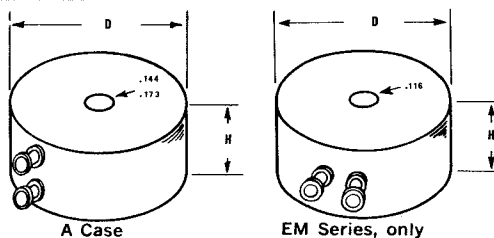
### ET Series

Optimum combination of size, power and "Q."

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
ET-001	1 mh	.30	680
ET-001A	1 mh	.30	680
ET-002	2 mh	.50	480
ET-002A	2 mh	.50	480
ET-003	3 mh	.68	396
ET-005A	5 mh	1.10	306
ET-007	7 mh	1.50	260
ET-010A	10 mh	2.0	217
ET-015	15 mh	2.85	177
ET-015A	15 mh	2.85	177
ET-020A	20 mh	4.0	153
ET-030A	30 mh	6.5	125
ET-040	40 mh	9.2	108
ET-040A	40 mh	9.2	108
ET-050	50 mh	10.3	97
ET-100	100 mh	24	68
ET-100A	100 mh	24	68
ET-150	150 mh	35	56
ET-200	200 mh	44.5	48
ET-250	250 mh	64	43
ET-250A	250 mh	64	43
ET-300	300 mh	70	40

#### OPEN TYPE SIZES AND WEIGHTS

	EA Series	EC-ET Series	EK Series	EM Series
DIA.	1 1/8	1 1/16	2 1/8	1 1/16
HT.	1/2	3/4	1 1/16	3/8
I.D.	1/4	1/4	7/16	1/8
WT. (oz.)	.6	1.6	5	.2



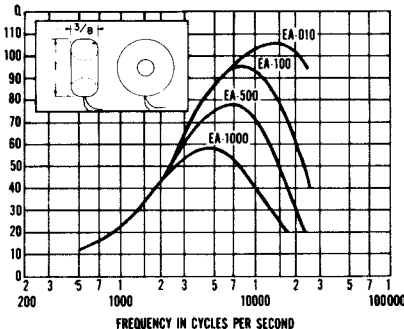
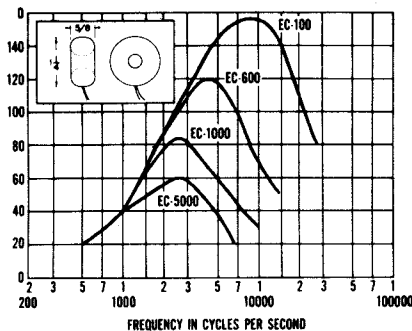
#### MOLDED TYPE SIZES AND WEIGHTS

	EA Series	EC-ET Series	EK Series	EM Series
DIA.	1 1/8	1 1/16	2	3/4
HT.	1/2	2 1/32	1	3/8
I.D.	9/16	9/16	9/16	7/16
WT. (oz.)	.8	2	6	.3

## TRIAD SUB-MINIATURE TOROIDAL INDUCTORS

Triad sub-miniature inductors are toroidally wound on permalloy powdered cores. Encapsulated in high temperature epoxy resin. Weldable or solderable leads of gold plated nickel allow. Highly resistant to severe acceleration, shock or vibration. Manufactured to meet the requirements of MIL-T-27B, Grade 5 Class S (MIL type TF5SX20ZZ). Average weight, .1 oz.

Case size of all units  
is  $\frac{7}{16}$  inch diameter  
by  $\frac{1}{4}$  inch high.



### EC Series

Optimum combination of size, power and "Q."

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EC-001	1 mh	.40	520
EC-001A	1 mh	.40	520
EC-003	3 mh	.70	300
EC-004	4 mh	.82	260
EC-005	5 mh	.92	233
EC-005A	5 mh	.92	233
EC-010	10 mh	1.30	165
EC-010A	10 mh	1.30	165
EC-020A	20 mh	1.85	116
EC-030	30 mh	2.85	95
EC-030A	30 mh	2.85	95
EC-050	50 mh	5.50	74
EC-050A	50 mh	5.50	74
EC-070	70 mh	8.30	62
EC-070A	70 mh	8.30	62
EC-100	100 mh	13.00	52
EC-100A	100 mh	13.00	52
EC-260	200 mh	23.00	37
EC-200A	200 mh	23.00	37
EC-250	250 mh	33.00	33
EC-250A	250 mh	33.00	33
EC-300	300 mh	35.00	30
EC-300A	300 mh	35.00	30
EC-400	400 mh	42.00	26
EC-400A	400 mh	42.00	26
EC-500	500 mh	72.00	23
EC-1000	1000 mh	134	16.5
EC-1000A	1000 mh	134	16.5
EC-2000A	2000 mh	220	11.6
EC-3000	3000 mh	370	9.5
EC-3000A	3000 mh	370	9.5
EC-5000	5000 mh	780	7.4
EC-10000A	10000 mh	1100	5.2

### EA Series

Smaller size for compact circuitry such as airborne applications.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EA-001	1 mh	.40	270
EA-001A	1 mh	.40	270
EA-002	2 mh	.58	192
EA-002A	2 mh	.58	192
EA-010	10 mh	2.10	86
EA-010A	10 mh	2.10	86
EA-015	15 mh	3.10	70
EA-020A	20 mh	4.25	60
EA-025	25 mh	4.80	54
EA-025A	25 mh	4.80	54
EA-030	30 mh	6.70	50
EA-040	40 mh	9.50	43
EA-040A	40 mh	9.50	43
EA-050A	50 mh	11.0	38
EA-100	100 mh	23.0	27
EA-150	150 mh	37.0	22
EA-200	200 mh	42.0	19
EA-250	250 mh	60.0	17
EA-250A	250 mh	60.0	17
EA-300	300 mh	70.0	16
EA-500	500 mh	115	12
EA-500A	500 mh	115	12
EA-600	600 mh	150	11
EA-1000	1000 mh	260	8.6
EA-1000A	1000 mh	260	8.6



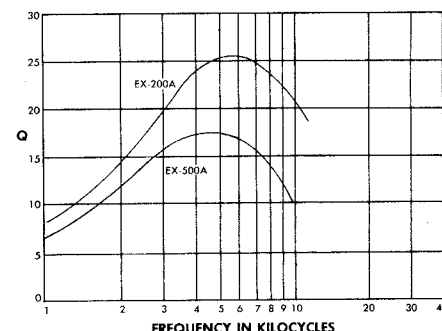
Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EX-005A	5 mh	11	47
EX-015A	15.0 mh	23.0	27
EX-040A	40.0 mh	54.0	15
EX-060A	60.0 mh	82.0	15
EX-200A	200 mh	139	6
EX-300A	300 mh	206	5

\* Will give less than 5% inductance drop but should not be exceeded under operating conditions.  
Inductance tolerance of EX-002A through EX-300A is  $\pm 2\%$ .

### "Q" vs. frequency curves on Sub-miniature Inductors

$$Q = \frac{\omega L}{R_{eff}} \quad \begin{array}{l} \omega = 2\pi f \text{ where } f \text{ is freq. in cps} \\ L = \text{inductance in henries} \\ R_{eff} = \text{effective resistance} \end{array}$$

These curves show "Q" versus frequency for eight typical Triad type EX toroidal inductors. At low frequencies the effective resistance consists principally of the DC resistance of the coil; therefore, "Q" increases linearly with frequency. As the frequency is raised, core losses (hysteresis, eddy current and residual) increase the effective resistance. Distributed capacity in the winding effectively increases the reactive impedance until resonance, then reduces it. As a result, the "Q" curve levels off and then drops.



All cases used for housing Triad low-frequency components are drawn from Mumetal and dry hydrogen-annealed after fabrication to provide the greatest possible low-density permeability. When Mumetal cases are used with heavy copper interleaving, maximum attenuation as high as 100 db. is achieved; additional reduction in pickup through use of humbucking coils can add 45 db. in the most effective plane. Stray field shield designations are:

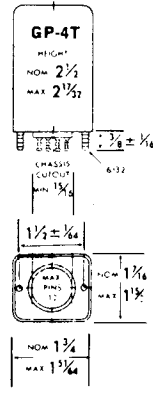
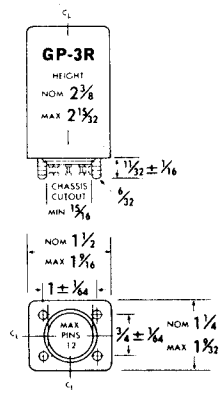
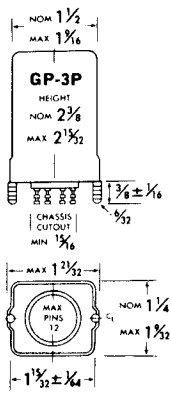
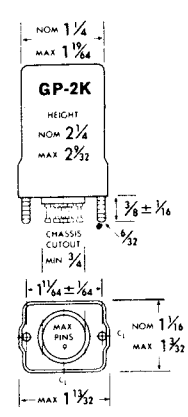
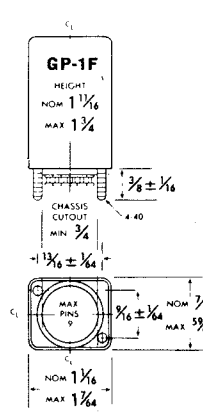
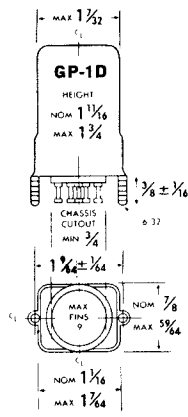
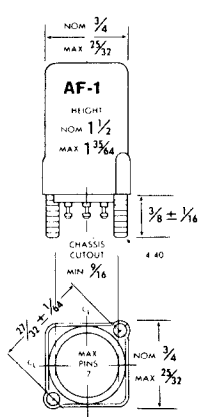
- P—1 one Mumetal case gives 45 db;
- P—1H P—1 shielding with humbucking coils gives 90 db;
- P—3 two Mumetal cases with copper interleaving gives 70 db;
- P—3H P—3 shielding with humbucking coils gives 115 db;
- P—5 three Mumetal shields with interleaving gives 95 db;
- P—5H P—5 shielding with humbucking coils provides 135 db in most effective plane.

## INTERSTAGE TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60CPS	Primary Matching Impedance in Ohms	Secondary Matching Impedance in OHMS	DC Resistance		Turns Ratio	Frequency Response in C.P.S. $\pm 10$ dB	Max. Level DBM	Stray Fields Shield	Case	Weight
				Primary in Ohms	Secondary in Ohms						
G-31†	350 h.	10,000\$ or 2500\$\$	100,000\$ or 25,000\$\$	1400	10,000	1-3.16	5-5000	-15	P1-H	GP-2K	5½ oz.
G-40†	230 h.	10,000\$ or 2500\$\$	483,000\$ or 120,700\$\$	1100	17,000	1-7	7.5-1500	-10	P1-H	GP-3P	7¼ oz.
G-48	18 h.	1000\$ or 250\$\$	250\$ or 62½\$\$	165	40	2-1	10-30,000	-10	P1	GP-1D	2¼ oz.
G-336	160 h.	10,000\$ or 2500\$\$	22,500**	2600	4200	1-1.5	12-20,000	-10	P1-H	AF-1	1.5 oz.
G-435	285 h.	10,000\$ or 2500\$\$	90,000**	2700	9500	1-3	6.5-5000	-15	P1-H	GP-1F	3.2 oz.

## INPUT TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60 CPS	Primary Matching Impedance in Ohms	Secondary Matching Impedance in Ohms	DC Resistance		Turns Ratio	Frequency Response in C.P.S. $\pm 10$ dB	Max. Level DBM	Stray Fields Shield	Case and Mounting	Weight
				Primary in Ohms	Secondary in Ohms						
G-4†	.9h.	60\$-44-30\$-25 15\$-7½\$-5\$-1.25\$	157,000\$ or 39,250\$\$	9	10,400	1-51	11-5000	0	P5-H	GP-4T	11½ oz.
G-5†	55 h.	1000\$-666-466-400\$ 250\$-135\$-100\$-34\$	137,000\$ or 34,250\$\$	235	15,500	1-11.75	3-4000	-10	P1-H	GP-3P	7¼ oz.
G-17†	4 h.	200\$-50\$	442,000**	17	26,000	1-47	8.5-2500	-10	P3-H	GP-3R	8 oz.
G-101†	8.3 h.	500\$-333-233-200\$ 125\$-67½\$-50\$-17\$	145,000**	120	10,000	1-17	11-3700	-10	P1-H	GP-1D	3.2 oz.





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## SPECIFICATION SHEET FOR YOUR CUSTOM DESIGNED OR MODIFIED STANDARD TRANSFORMERS

Date \_\_\_\_\_

### TRANSFORMER/CHOKE DESIGN INFORMATION:

Unit Types: ☐ Power  
☐ Filament  
☐ Autoformer  
☐ Plate  
☐ Isolation  
☐ Choke (filter)  
☐ Other \_\_\_\_\_

\_\_\_\_\_  
COMPANY NAME

\_\_\_\_\_  
ENGINEERING CONTACT

\_\_\_\_\_  
ADDRESS

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Application: \_\_\_\_\_

### ELECTRICAL SPECIFICATIONS:

Primary Input Voltage: \_\_\_\_\_ Frequency: \_\_\_\_\_

Windings	Volts	Amps	Watts	RMS Test Voltage	Termination	Center Taps
#1 Sec.						
#2 Sec.						
#3 Sec.						

Shielding: ☐ Electrostatic ☐ Magnetic ☐ Other

Dimensions: \_\_\_\_\_ Height \_\_\_\_\_ Width \_\_\_\_\_ Length

Agency Approvals Required: ☐ UL ☐ CSA ☐ VDE ☐ Other \_\_\_\_\_

Mounting or Case Type (as shown in Triad-Utrad Catalog)

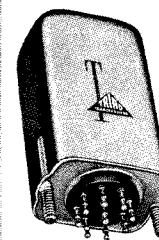
☐ X Case ☐ P Case ☐ XP Case ☐ Z Case ☐ U Case

☐ Flat Pack ☐ Split Pack ☐ New Quik Pack ☐ New Control Transformer

Quantity Needed: \_\_\_\_\_ Delivery Required: \_\_\_\_\_

Target Price: \_\_\_\_\_ Additional Information Attached

Schematic Diagram: \_\_\_\_\_



GP Case

## LOW LEVEL AUDIO INPUT

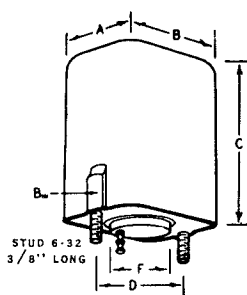
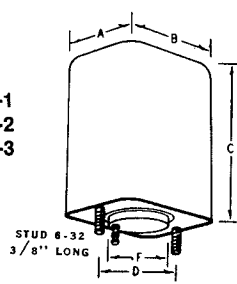
Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
HS-1‡	TF1QX10YY	10MW.	Universal-Line or Mike to Grid	600 $\Omega$ /250 $\Omega$ /150/62.5	77,000	70	3640	1:11.3	20-20,000	500	90 DB P-5	7/8	GP-4	.75
HS-4‡	TF1QX10YY	10MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600 $\Omega$ /250 $\Omega$ /150/62.5	117,600 CT	70	4160	1:14	20-20,000	500	70 DB P-3	7/8	GP-4	.65
HS-5	TF1QX10YY	1MW.	Dynamic Mike to Grid	30	127,500	4.1	4860	1:65.2	40-12,000	500	90 DB P-5	7/8	GP-4	.7

## LOW LEVEL AUDIO INTERSTAGE

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
HS-27	TF1QX15YY	130MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grid	20,000 CT $\Omega$ /5000	60,000 CT $\Omega$ /15,000	1700	6420	1:1.72	20-20,000	1000	45 DB P-1	7/8	GP-4	.72
HS-29	TF1QX10YY	20MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT $\Omega$ /5000	80,000 CT $\Omega$ /20,000	2000	4,000	1:2	20-20,000	500	90 DB P-5	7/8	GP-4	.7
HSM-31	TF4RX19FA	3W.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT $\Omega$ /5000	20,000 CT $\Omega$ /5000 CT	2060	950	1:1	20-20,000	1500	-	1 3/8	FA ■ ■	2
HS-32	TF1QX15YY	200MW.	Sgl. Plate to Sgl. or P.P. Grids	15,000 (6MA. D.C.)	60,000 CT $\Omega$ /15,000	5000	10,000	1:2	20-15,000	1000	45 DB P-1	7/8	GP-5	1.13

## LOW LEVEL AUDIO OUTPUT / mixing, matching &amp; bridging

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response $\pm 3$ DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
HS-50	TF1QX16YY	400MW.	Sgl. Plate to Line	15,000	600 $\Omega$ /250 $\Omega$ /150/62.5	1020	52.6	5:1	20-20,000	500	70 DB P-3	7/8	GP-4	.75
HS-60	TF1QX16YY	20MW.	Sgl. Plate to Line	15,000	600 $\Omega$ /250 $\Omega$ /150/62.5	900	45	5:1	20-20,000	500	45 DB P-1	2 3/32	GP-2	.4
HS-52	TF1QX13YY	400MW.	P.P. Plates to Line	20,000 CT $\Omega$ /5000	600 $\Omega$ /250 $\Omega$ /150/62.5	815	30	5.6:1	20-20,000	1000	45 DB P-1	7/8	GP-4	.85
HS-56V‡	TF1SX16YY	100MW.	Line to Line	600 $\Omega$ /250 $\Omega$ /150/62.5	600 $\Omega$ /250 $\Omega$ /150/62.5	60	60	1:1	10-30,000	500	70 DB P-3	7/8	GP-4	.75
HS-66‡	TF1QX16YY	100MW.	Line to Line	600 $\Omega$ /250 $\Omega$ /150/62.5	600 $\Omega$ /250 $\Omega$ /150/62.5	60	60	1:1	10-30,000	500	45 DB P-1	7/8	GP-3	.6

GP-1  
GP-2  
GP-3GP-4  
GP-5

	GP-2	GP-3	GP-4	GP-5
A	1 1/16	1 1/4	1 7/16	1 3/8
B	1 1/4	1 5/16	1 3/4	2
Bw	1 1/32	1 1/32	—	—
C	2 1/4	2 3/8	2 1/2	2 3/4
D	1 3/16	1 1/32	1 1/2	1 1/2
F	3/4	1 1/16	1 1/16	1 1/16

## SHIELDING

- P-1**—One nickel alloy high permeability shield—45db. reduction in pickup.
- P-3**—Two nickel alloy shields interleaved with one heavy copper shading ring—70db. reduction in pickup.
- P-5**—Three nickel alloy shields interleaved with two heavy copper shading rings—90db. reduction in pickup.