

TRANSFORMERS 1979-80

TRIAD

Transformers
Inductors
Power Supplies
Circuit Cards
for Industry

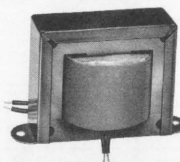


TRIAD-UTRAD
Distributor Services

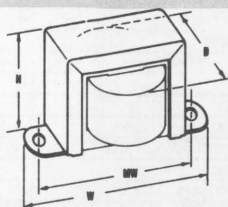
305 North Briant Street, Huntington, Indiana 46750



for Power Supply, Control and Filament Circuits



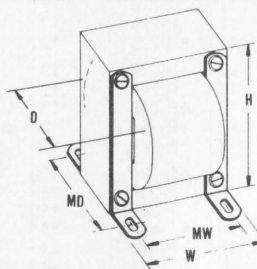
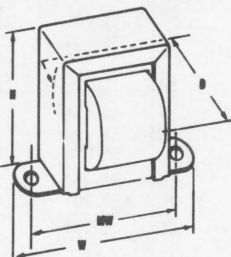
X Case



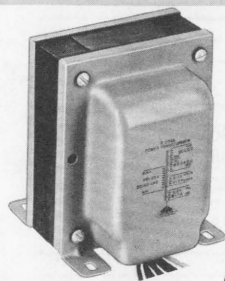
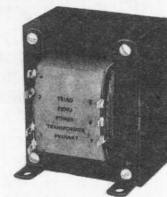
Most units in case type X also available on special order with shields added or with channel frame removed.



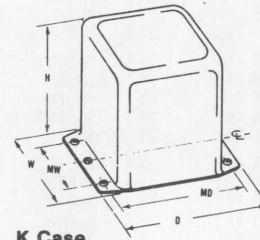
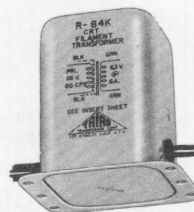
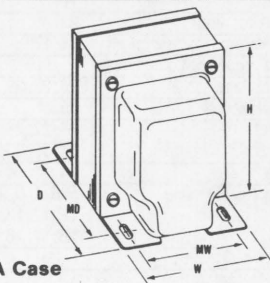
Z Case



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		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps		Volts	Volts			Volts	H	W	D	MW		
F-50X#	Sec. 6.3-5 Pri. 6.3-5	2		Pri. 500 Sec. 5000		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆		3 ¹ / ₁₆	1.2
Special Fil. Line Matching Transformer														
F-1X#	2.5 CT	3	115	1500		X	Leads	1 ⁵ / ₁₆	2 ¹³ / ₁₆	1 ¹ / ₁₆	2 ³ / ₁₆		3 ¹ / ₁₆	.68
F-301X			115/230											
F-72Z#	2.5 CT	5	115	Pri. 1500 Sec. 7500		Z	Pri. Leads Sec.-Lugs.	2 ²³ / ₃₂	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆		3 ¹ / ₁₆	1.7
F-6X#	2.5 CT	6	115	Pri. 1500 Sec. 2500		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹ / ₁₆		3 ¹ / ₁₆	1
F-306X			115/230											
F-3X#	2.5 CT	10	115	Pri. 1500 Sec. 3000		X	Leads	2 ⁹ / ₃₂	3 ³ / ₄	2 ¹ / ₁₆	3 ³ / ₁₆		3 ¹ / ₁₆	1.7
F-5U	2.5 CT	10	115	Pri. 1500 Sec. 7500		U	Leads	3 ¹ / ₁₆	2 ¹ / ₂	2 ¹ / ₁₆	2	1 ¹ / ₈	5 ¹ / ₁₆ X3 ³ / ₁₆	2.2
▲F-71U#	2.5 CT	10	115	Pri. 1500 Sec. 10,000		U	Pri. Leads Sec. Leads	3 ¹ / ₁₆	2 ¹³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₈	5 ¹ / ₁₆ X3 ³ / ₁₆	2.6
F-7X	5 CT	3	115	1500		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆		3 ¹ / ₁₆	1.3
F-8X	5 CT	6	115	1500		X	Leads	2 ⁹ / ₃₂	3 ³ / ₄	2 ¹ / ₁₆	3 ³ / ₁₆		3 ¹ / ₁₆	1.7
F-12X	5 CT	8	115	2500		X	Leads	2 ¹³ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆		3 ¹ / ₁₆	2.5
F-10U#	5 CT	14	115	Pri. 1500 Sec. 10,000		U	Leads	3 ¹ / ₁₆	3 ³ / ₁₆	3 ¹ / ₄	2 ¹ / ₂	2 ¹ / ₁₆	5 ¹ / ₁₆ X3 ³ / ₁₆	4.75
F-15U#	5 CT	15	115	Pri. 1500 Sec. 3000		U	Leads Lugs	3 ¹ / ₂	2 ¹ / ₈	2 ¹¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₁₆	5 ¹ / ₁₆ X3 ³ / ₁₆	3.25
F-9U	5.2 CT	13	115	1500		U	Leads	3 ¹ / ₁₆	2 ¹³ / ₁₆	3 ¹ / ₄	2 ¹ / ₄	2 ¹ / ₈	5 ¹ / ₁₆ X3 ³ / ₁₆	4
F-11U	5.2 CT	24	115	1500		U	Leads	3 ¹ / ₁₆	3 ³ / ₁₆	3 ³ / ₁₆	2 ¹ / ₂	3 ¹ / ₁₆	5 ¹ / ₁₆ X3 ³ / ₁₆	6.75
F-13X	6.3	.6	115	1500		X	Leads	1 ⁵ / ₁₆	2 ³ / ₁₆	1 ⁵ / ₁₆	2		3 ¹ / ₁₆	.37
F-313X			115/230											
R-84K	6.3‡	.6	115	Pri. 1500 Sec. 3500		K	2-Leads	2 ¹ / ₄	2 ¹ / ₄	2 ¹¹ / ₁₆	1 ¹ / ₂	2 ³ / ₁₆	3 ¹ / ₁₆	1.5
F-14X#	6.3 CT	1.2	115	Pri. 1500 Sec. 2500		X	Leads	1 ⁵ / ₁₆	2 ¹³ / ₁₆	1 ⁵ / ₁₆	2 ³ / ₁₆		3 ¹ / ₁₆	.7
F-314X			115/230											
F-14Z#	6.3 CT	1.2	115	Pri. 1500 Sec. 2500		Z	Leads	1 ¹⁵ / ₁₆	2 ³ / ₁₆	1 ⁵ / ₁₆	2		3 ¹ / ₁₆	.7
F-52X	6.3‡	1.2	115	Pri. 1500 Sec. 5000		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹ / ₁₆		3 ¹ / ₁₆	1
F-51X#	6.3-5‡	2	115	Pri. 1500 Sec. 5000		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆		3 ¹ / ₁₆	1.25
F-16X	6.3 CT	3	115	Pri. 1500 Sec. 2500		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆		3 ¹ / ₁₆	1.3
F-316X			115/230											
F-53X	6.3	4	115	Pri. 1500 Sec. 5000		X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆		3 ¹ / ₁₆	2.1
F-43X#	6.3	4	115	1500		X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆		3 ¹ / ₁₆	1.25

▲ Discontinued item, available until stock depleted.

‡ Static shield.

† Tapped primary to produce lower voltages.

60 cycle operation

POWER TRANSFORMERS



COMMERCIAL GRADE

for Power Supply, Control and Filament Circuits

Multiple secondary / 50-60 Hz

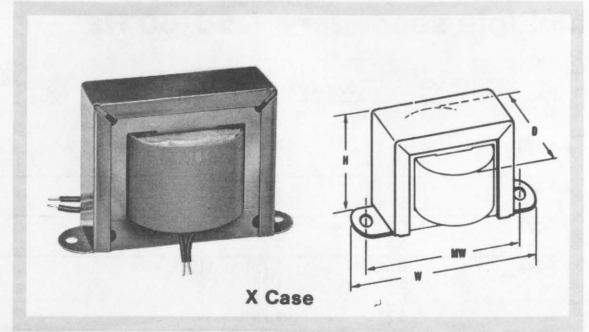
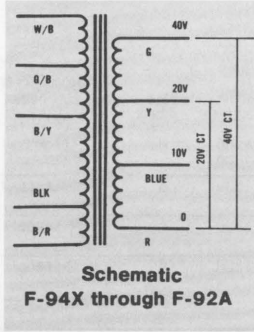
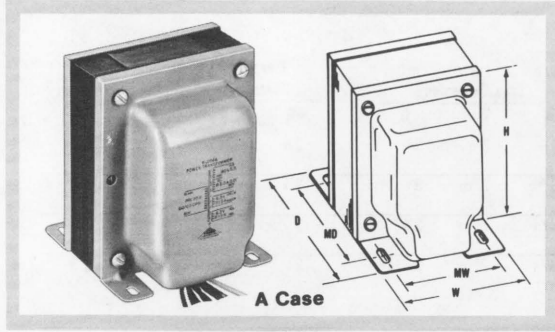
Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
▲F-27U	10 CT 2.5 CT	10 10	115	1500 7500	U	Leads	4 3/8	3 1/2	3 3/4	2 3/4	2 3/16	3/16 x 3/16	6.2
▲F-30A	6.3 CT 5 CT	8 3	115	1500	A	2-Leads	3 1/2	2 1/2	3 1/4	2 1/4	2 1/8	3/16 x 3/16	4
F-32A	6.3 CT* 6.3 CT*	3 3	115	1500	A	1-Leads	3 3/16	2 1/2	2 3/8	2	1 1/16	3/16 x 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 3/16	2 1/2	3	2	2 1/16	3/16 x 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 3/8	3 3/2	3 1/2	2 1/2	2 3/8	3/16 x 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 3/8	3 3/2	3 3/4	2 1/2	2 3/8	3/16 x 3/16	6
☛ F-234Z#	12 CT 12 CT	.1 .1	115	1500	Z	Lugs	1 3/8	2	1 1/16	1 3/4		3/16	.3
☛ F-235Z#	12 CT 12 CT	.25 .25	115	1500	Z	Lugs	2	2 3/8	1 1/16	2		3/16	.6
☛ F-236Z#	12 CT 12 CT	.5 .5	115	1500	Z	Lugs	2 3/16	2 1/8	1 3/8	2 3/8		3/16	.9
☛ F-237Z#	12 CT 12 CT	1 1	115	1500	Z	Lugs	2 3/8	2 1/16	2 1/16	2 3/8		3/16	1.1
☛ F-238U#	12 CT 12 CT	2 2	115	1500	U	Lugs	2 1/2	3	2 3/16	2 1/2	2	3/16 x 3/16	2.2
☛ F-239U#	12 CT 12 CT	4 4	115	1500	U	Lugs	3 3/8	3 3/4	2 3/4	3 3/8	2 1/4	3/16 x 3/16	4.25
☛ F-240U#	12 CT 12 CT	6 6	115	1500	U	Lugs	3 1/2	4 1/8	3 1/16	3 3/16	2 1/4	3/16 x 3/16	5.4
☛ F-293X#	12 12	.5 .5	277	Pri. Sec. 2500 Sec. Core 1500	X	Leads	2	3 1/4	1 3/16	2 1/16		3/16	.8
☛ F-294X#	12 12	1 1	277	1500	X	Leads	2	3 1/4	2	2 1/16		3/16	1.2
F-42A	12.6 CT* 12.6*	2.5 2.5	115	1500	A	1-Leads	3 1/2	2 1/2	3 3/8	2 1/4	2	3/16 x 3/16	3.7
F-83M#	12.6 CT* 12.6 CT*	5 5	115	Pri. Sec. 1500 Sec. Core 2500	A	2-Leads	3 3/8	3 3/2	3 3/4	2 1/2	2 3/8	3/16 x 3/16	6
☛ F-295Z	15 12 12 CT	.1 .1 .1	115	1500	Z	Leads	1 3/4	2	1 1/2	1 3/4		3/16	.4
☛ F-3295Z	15 12 12 CT	.1 .1 .1	230	1500	Z	Leads	1 3/4	2	1 1/2	1 3/4		3/16	.41
☛ F-296Z#	15 12 12 CT	.15 .15 .15	115	1500	Z	Leads	1 15/16	2 3/8	1 1/2	2		3/16	.6
☛ F-297Z#	15 12 12 CT	.25 .25 .25	115	1500	Z	Leads	1 15/16	2 1/16	1 3/8	2		3/16	.7
☛ F-3297Z	15 12 12 CT	.25 .25 .25	115/230	1500	Z	Leads	2 3/8	2 3/8	1 3/8	2 3/8		3/16	.8
☛ F-298Z	15 12 12 CT	.5 .5 .5	115	1500	Z	Leads	2 1/4	3 3/4	1 3/8	2 3/8		3/16	1.25
☛ F-3298Z	15 12 12 CT	.5 .5 .5	115/230	1500	Z	Leads	2 3/8	2 1/16	2	2 3/8		3/16	1.25
☛ F-299X	15 12 12 CT	1.5 1.5 1.5	115	1500	X	Leads	2 3/16	4	2 1/4	3 3/16		3/16	2.3
☛ F-241U#	18 CT 18 CT	1 1	115	1500	U	Lugs	2 1/2	3	2 1/2	2 1/2	2	3/16 x 3/16	2.2
☛ F-242U#	18 CT 18 CT	2 2	115	1500	U	Lugs	3 3/8	3 3/4	2 1/16	3 3/8	2 3/8	3/16 x 3/16	4.0
☛ F-243U#	18 CT 18 CT	4 4	115	1500	U	Lugs	3 1/2	4 1/8	3 3/4	3 3/16	2 1/4	3/16 x 3/16	5.2
☛ F-244U#	18 CT 18 CT	8 8	115	1500	U	Lugs	3 3/4	4 1/2	4	3 3/4	2 3/4	3/16 x 3/16	8.3
☛ F-245U#	18 CT 18 CT	12 12	115	1500	U	Lugs	4 3/8	5 3/16	4 1/4	4 1/2	2 3/4	3/16 x 3/16	11.9
F-194X	32.0 CT 15.5 CT	.050 .20	115	1500	X	Leads	1 3/8	2 3/8	1 3/8	2 3/8		3/16	.45
F-195X	32.0 CT 15.5 CT	.250 .750	115	1500	X	Leads	2 1/4	3 3/4	1 3/8	3 3/8		3/16	1.3
F-196U	32.0 CT 15.0 CT	1 2	115	1500	U	Leads	3 3/8	2 1/16	2 3/8	2 1/4	2 1/4	3/16 x 3/16	4.0
F-197U	32.0 CT 15.0 CT	1 4	115	1500	U	Leads	3 3/4	3 3/8	2 15/16	2 1/2	2 1/4	3/16 x 3/16	4.7
F-198U	32.0 CT 15.0 CT	1 6	115	1500	U	Leads	3 3/4	3 3/8	3 3/16	2 1/2	2 3/4	3/16 x 3/16	6.2
F-199U	32.0 CT 15.0 CT	1 10	115	1500	U	Leads	4 1/8	3 3/16	3 1/2	2 3/4	2 3/4	3/16 x 3/16	7.4

* 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.

☛ New item. ☛ Tapped primary 105-115-125. # 60 cycle operation. ▲ Discontinued item, available until stock depleted.



for Power Supply, Control and Rectifier Circuits



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

Type No.	Primary Volts	Secondary AC		DC Volts		RMS Test Voltage	Case Type	Conne- tions	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		AC Volts	DC Amps*	Half Wave	FW Bridge				H	W	D	MW	MD		
F-94X	115†	10-20 CT-40 CT	.035	15	30	1500	X	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.5
F-394X	230†														
F-90X	115†	10-20 CT-40 CT	.1	15	30	1500	X	Leads	1 3/8	2 13/16	1 3/8	2 3/8		3/16	.7
F-390X	230†														
F-91X	115†	10-20 CT-40 CT	.3	15	30	1500	X	Leads	2 3/32	3 11/16	2	3 3/8		3/16	1.5
F-391X	230†														
F-93X	115†	10-20 CT-40 CT	.75	15	30	1500	X	Leads	2 13/32	4	2 1/4	3 3/16		3/16	2.4
F-393X	230†														
F-92A	115†	10-20 CT-40 CT	1	15	30	1500	A	Leads (2 Holes)	3 3/16	2 21/32	3	2	2 1/16	3/16 x 3/16	3.25
F-392A	230†														

SIGNALING / 50-60 Hz

* FWB Rectifier Circuit

NOTE: 230 volt primaries can also be used with 277v.

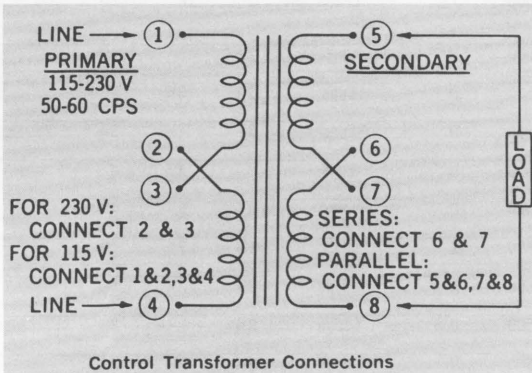
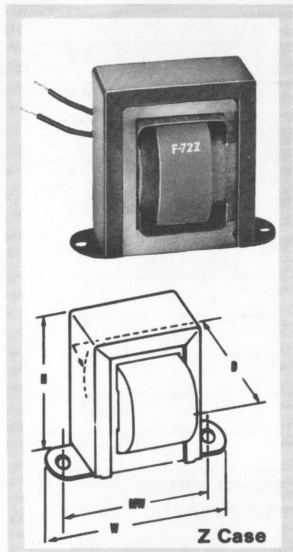
Type No.	Primary Volts	Secondary AC Volts	Amps	RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
							H	W	D	MW	MD		
F-102X	115	4-8-12-16-20-24	2	2500	X	Leads	2 3/32	3 11/16	2 1/2	3 3/8		3/16	1.75
F-104U	115	4-8-12-16-20-24	4	2500	U	Leads	3 1/2	2 3/8	2 3/16	2 1/4	2 1/16	3/16 x 3/16	3.13

CONTROL TRANSFORMERS / 6, 12, 24 volt secondaries

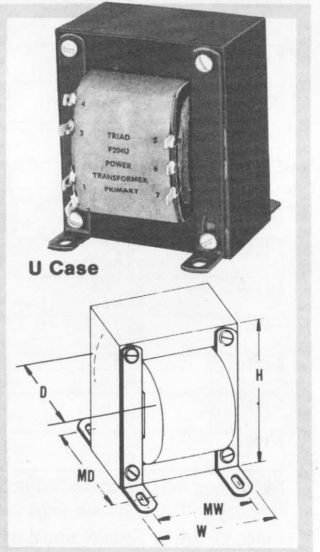
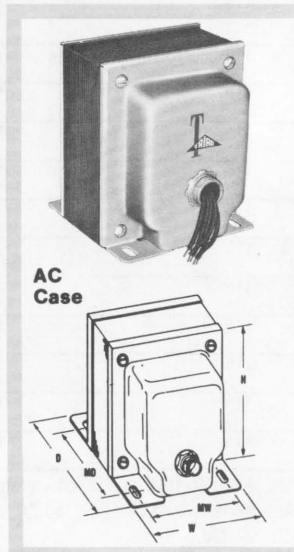
For use with relays, solenoids, small motors, speed changers, pumps, heating elements, control valves for fluids and gases, fans and blowers,

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

Type No.	Primary	Secondary		VA Rating	Case Type	Conne- tions	Height Overall	Base Area	Mtg. Dim.	Mtg. Hole Size	Shpg. Wt. in Lbs.
		Parallel	Series								
F-105Z		6V @ 2A	12V @ 1A	12	Z	Lugs	2 3/8	2 1/8 x 1 3/4	2 3/8	3/16	1
F-106Z	115V/230V	6V @ 4A	12V @ 2A	24	Z	Lugs	2 3/4	3 1/8 x 2	2 13/16	3/16	1 1/2
F-107Z	50/60 CPS	12V @ 4A	24V @ 2A	48	Z	Lugs	3 3/8	3 3/8 x 2 3/8	3 3/8	3/16	2 1/2
F-108U	on all	12V @ 8A	24V @ 4A	96	U	Lugs	3 1/2	2 1/8 x 3	2 1/4 x 2 1/4	3/16 x 3/16	4 1/4
F-109U		12V @ 16A	24V @ 8A	192	U	Lugs	4 1/8	3 3/4 x 3 1/8	3 x 2 3/4	3/16 x 3/16	8
F-211Z		24V @ .5A	48V @ .25A	12	Z	Lugs	2 9/16	2 13/16 x 1 1/2	2 3/8	3/16	6.78
F-212Z		24V @ 1.0A	48V @ .50A	24	Z	Lugs	2 3/4	3 1/8 x 2 1/4	2 13/16	3/16	1.05
F-213Z		24V @ 2.0A	48V @ 1.0A	48	Z	Lugs	3 1/16	3 3/8 x 2 3/8	3 3/8	3/16	1.55
F-214U		24V @ 4.0A	48V @ 2.0A	96	U	Lugs	3 31/32	3 3/8 x 2 3/16	2 1/4 x 2 3/8	3/16 x 3/16	3.24
F-215U		24V @ 8.0A	48V @ 4.0A	192	U	Lugs	4 3/32	3 3/4 x 3 1/16	2 3/4 x 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 5, 6 and 7. They are listed in order of increasing secondary voltages. Low voltage, low current plug-in types will be found on pages 10 and 11, in single and dual primaries, dual and triple secondaries.



POWER TRANSFORMERS



COMMERCIAL GRADE

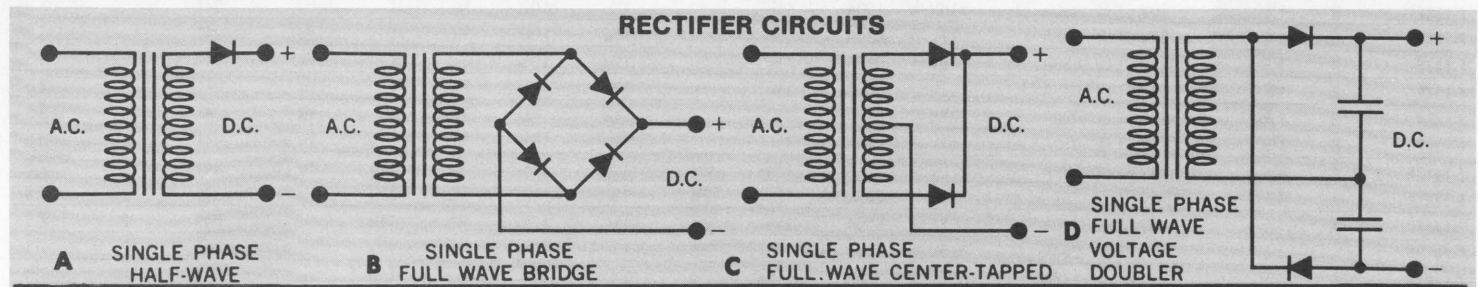
Triad Universal Rectifier Power Transformers are designed for solid-state rectifier supplies. The DC voltage shown is for circuits A and B. Higher voltage can be obtained through the use of capacitor input filters; in that

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		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Volts	Amps	Half Wave	Bridge				H	W	D	MW	MD		
F-47U F-347U	115 115/230	0-17-18	3	6-7	13-14	1500	U	Leads	3	2½	2¼	1½	2½	¼x¼	3.2
F-48U	115	0-17-18	6	6-7	13-14	1500	U	Leads	3⅜	3⅜	3⅜	2½	2½	⅝x⅜	5.5
F-49U	115	36* 36*	3 3	13 13	26 26	1500	U	Leads	4½	3⅜	3¼	3	3⅜	⅝x⅜	9.75
F-60U ● F-360U	115 115/230	0-6.5-13-19.5-26	3	9	18	1500	U	Leads	3¾	2⅜	2½	2¼	2⅜	⅝x⅜	3.5
F-61U F-361U	115 115/230	0-24-27-30-33-36	3	13	26	1500	U	Leads	3¾	3¾	3¼	2½	2½	⅝x⅜	5.65
F-67U#	110-120	0-24-27-30-33-36	8	13	26	1500	U	Leads	4½	3⅜	4½	3	3⅜	⅝x⅜	10.75
F-63U	115	0-8-9* 0-8-9*	2 2	- -	6-7 6-7	1500	U	Leads	3½	2⅜	2⅜	2	2⅜	⅝x⅜	2.3
F-64U F-364U	115 115/230	0-7-8-9	7	-	5-6-7	1500	U	Leads	3¾	2⅜	2¼	2¼	2⅜	⅝x⅜	3.5
F-62U#	105-115-125	9* 9* 9 9*	10 10 10 10	- - - -	7 7 7 7	1500	U	Leads	4½	3⅜	5¼	3	4½	⅝x⅜	16
F-68U#	115	9CT* 9* 9* 9*	3.5 3.5 3.5 3.5	- - - -	7 7 7 7	1500	U	Leads	3⅜	3⅜	3⅜	2½	2⅜	⅝x⅜	5
F-65U	110-120	0-140-150-160	.75	60	115	1500	U	Leads	3⅜	3⅜	3¾	2½	2⅜	⅝x⅜	5.8
F-74U	117	28CT* 28CT*	2 2	- -	- -	1500	U	Lugs	3⅜	3⅜	3¼	2½	2½	⅝x⅜	5.7
F-75U	117	28CT* 28CT*	4 4	- -	- -	1500	U	Lugs	4½	3⅜	4¾	2¾	3¾	⅝x⅜	10
F-79U#	115	0-24-26-28-30	15	11.4	22.8	1500	U	Leads, Lugs	3⅜	4¾	5½	3¾	4¾	16x⅜	18.5
F-80U#	115†	0-12-13.5-15-16.5-18* 0-12-13.5-15-16.5-18*	20 20	- -	13 13	1500	U	Leads	5¾	4⅜	5½	2¾	4½	⅝Dia.	25
F-86U	115	12CT	10	-	-	1500	U	Leads	3¾	3½	3½	2½	2½	⅝x⅜	6.2
F-84AC#	115 or 230\$	12CT* 12CT*	10 10	- -	8.5 8.5	2000	AC	Leads (2 Holes)	4¾	3⅜	5¾	3	3¾	⅝x⅜	12.7
F-85U	115†	5-7.5* 5-7.5*	20 20	- -	8-12.5	1500	U	Leads	4½	3¾	4½	3	3½	⅝x⅜	12

*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.



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.

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	Bridge	AC Volts	DC Amps				H	W	D	MW	MD		
F-200A	13 or 18 @ .9 ADC	-	-	13 or 18 @ .9 ADC	-	1500	A	Leads	3½	2½	2½	2	2	-	2.7
F-202U	11.0 to 29.5	2.0	1.25	-	-	1500	U	Lugs	3	2½	3	2	2½	⅝x⅜	2.5
F-203U	12.0 to 30.0	4.0	2.0	-	-	1500	U	Lugs	3¾	2⅜	3¼	2¼	2½	⅝x⅜	3.8
F-204U	11.5 to 29.0	8.0	4.0	-	-	1500	U	Lugs	3¾	3¾	4½	2½	2½	⅝x⅜	6.1
F-205U	12.0 to 29.5	12.0	6.0	-	-	1500	U	Lugs	4½	3⅜	5½	2¾	3¾	⅝x⅜	9.1
F-206U	12.1 to 29.2	15.0	8.0	-	-	1500	U	Lugs	4⅜	3¾	5	2⅜	3¾	⅝x⅜	12.6
F-207U	12.2 to 29.0	22.5	12.0	-	-	1500	U	Lugs	5½	4¾	5½	3½	4¼	⅝x⅜	20.5



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

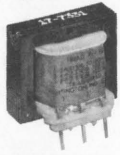
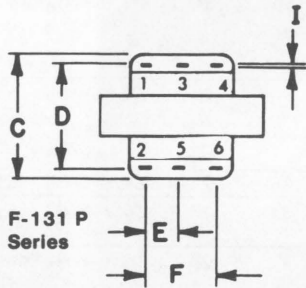
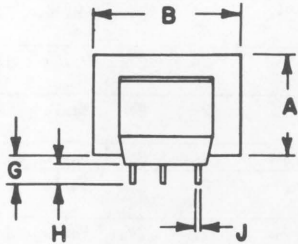
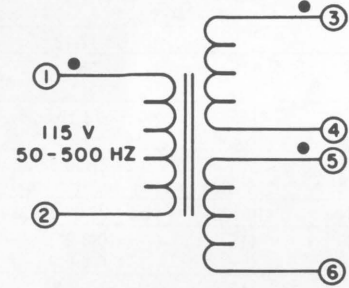


Fig. B



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 at 4 to 58 volts 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

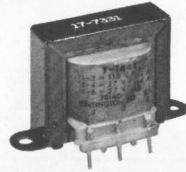
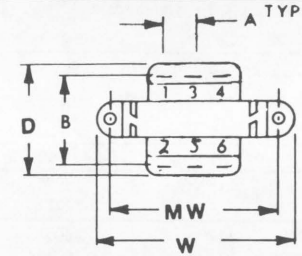
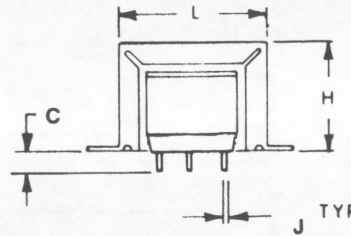


Fig. A



F-141XP Series

115 volts, 50-60 Hz Primary, Dual Secondaries

Cat. No.	Fig.	Output Watts	SECONDARY		H.	Dimensions				C.	J.	MW	Wt. Oz.	
			Series Conn.	Parallel Conn.		W.	D.	L.	A.					B.
F-131P	B	1½	8V CT @ .188A	4V @ .376A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-139P	B	1½	12.6V CT @ .12A	6.3V @ .24A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-132P	B	1½	15V CT @ .100A	7.5V @ .200A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-150P	B	1½	17V CT @ .085A	8.5V @ .170A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-138P	B	1½	25.2V CT @ .06A	12.6V @ .12A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-133P	B	1½	30V CT @ .050A	15V @ .100A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-160P	B	1½	34V CT @ .045A	17V @ .090A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-137P	B	1½	40V CT @ .038A	20V @ .076A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-134P	B	1½	54V CT @ .028A	27V @ .056A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-135P	B	1½	76V CT @ .020A	38V @ .040A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-136P	B	1½	116V CT @ .013A	58V @ .026A	1½	1½	1¾	1½	1	⅜	.041	3.5		
F-141XP	A	4½	8V CT @ .562A	4.0V @ 1.124A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-149XP	A	4½	12.6V CT @ .35A	6.3V @ .70A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-142XP	A	4½	15V CT @ .300A	7.5A @ .600A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-161XP	A	4½	17V CT @ .264A	8.5V @ .528A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-148XP	A	4½	25.2V CT @ .178A	12.6V @ .356A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-143XP	A	4½	30V CT @ .150A	15V @ .300A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-162XP	A	4½	34V CT @ .132A	17V @ .264A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-147XP	A	4½	40V CT @ .112A	20V @ .224A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-144XP	A	4½	54V CT @ .084A	27V @ .168A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-145XP	A	4½	76V CT @ .060A	38V @ .120A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-146XP	A	4½	116V CT @ .033A	58V @ .066A	1⅝	2¾	1¼	1¼	1¾	1¾	⅜	.041	2	7.5
F-151XP	A	7½	8V CT @ .940A	4.0V @ 1.880A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-159XP	A	7½	12.6V CT @ .60A	6.3V @ 1.2A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-152XP	A	7½	15V CT @ .500A	7.5V @ 1.000A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-163XP	A	7½	17V CT @ .441A	8.5V @ .882A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-158XP	A	7½	25.2V CT @ .30A	12.6V @ .60A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-153XP	A	7½	30V CT @ .250A	15V @ .500A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-164XP	A	7½	34V CT @ .220A	17V @ .440A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-157XP	A	7½	40V CT @ .188A	20V @ .376A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-154XP	A	7½	54V CT @ .140A	27V @ .280A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-155XP	A	7½	76V CT @ .100A	38V @ .200A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5
F-156XP	A	7½	116V CT @ .065A	58V @ .130A	1⅞	2⅞	1½	1½	1¾	1¾	⅜	.041	2½	10.5

POWER TRANSFORMERS



COMMERCIAL GRADE

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.

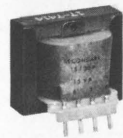
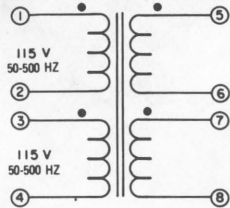
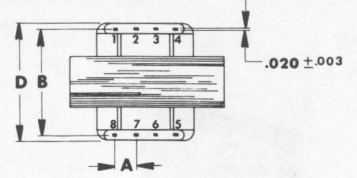
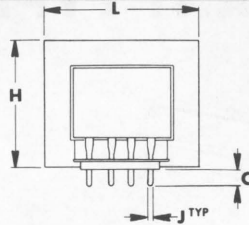


Fig. B-1



Dual Primary

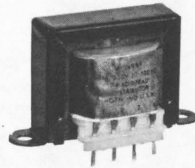
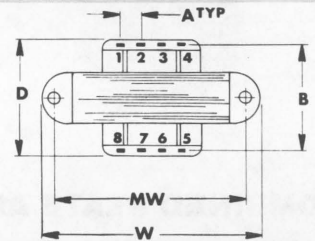
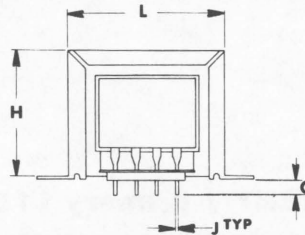


Fig. A-1, A-2



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

Cat. No.	Fig.	Output Watts	SECONDARY		Dimensions									Wt. Oz.	
			Series Conn.	Parallel Conn.	H.	W.	D.	L.	A.	B.	C.	J.	MW		
F-3132P	B-1	1½	15V CT @ .1A	7.5V @ .2A	1½	1¾	1½	1¾	1¾	¼	1	⅜	.041	-	4.0
F-333P	B-1	1½	30V CT @ .050A	15V @ .100A	1½	-	1½	1¾	1¾	¼	1	⅜	.041	-	4.0
F-348XP	A-1	4½	12.6V CT @ .350A	6.3V @ .700A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-3142XP	A-1	4½	15V CT @ .3A	7.5V @ .6A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-349XP	A-1	4½	16V CT @ .280A	8V @ .560A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-350XP	A-1	4½	24V CT @ .180A	12V @ .360A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-358XP	A-1	4½	20V CT @ .225A	10V @ .450A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-3143XP	A-1	4½	30V CT @ .15A	15V @ .3A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-363XP	A-1	4½	230V CT @ .020A	115V @ .040A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	6.5
F-3152XP	A-1	7½	15V CT @ .5A	7.5V @ 1.0A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	11.0
F-3153XP	A-1	7½	30V CT @ .25A	15V @ .5A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	11.0
F-359XP	A-2	10	24V CT @ .450A	12V @ .900A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	11.0
F-362XP	A-2	10	20V CT @ .500A	10V @ 1.0A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	11.0
F-365XP	A-2	10	12.6V CT @ .800A	6.3V @ 1.6A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	11.0
F-366XP	A-2	10	16V CT @ .640A	8V @ 1.28A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	11.0

115 volts, 50-60 Hz Primary / Triple Output Secondaries for ± 15V and + 5V DC

Cat. No.	Fig.	Output Watts	SECONDARY		Dimensions									Wt. Oz.	
			Secondary # 1	Secondary # 2	H.	W.	D.	L.	A.	B.	C.	J.	MW		
F-165P	C-1	1½	24V CT @ .025A	9V CT @ .100A	1½	1¾	1½	1¾	1¾	¼	1	⅜	.041	-	3.5
F-167P	C-1	1½	32V CT @ .020A	15V CT @ .060A	1½	1¾	1½	1¾	1¾	¼	1	⅜	.041	-	3.5
F-168XP	D-1	4½	32V CT @ .050A	15V CT @ .195A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2	7.5
F-166XP	D-1	7½	24V CT @ .125A	9V CT @ .500A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	10.5
F-169XP	D-1	7½	32V CT @ .100A	15V CT @ .287A	1¾	2¾	1¼	1¾	1¾	¼	1¼	⅜	.041	2½	10.5

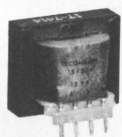


Fig. C-1

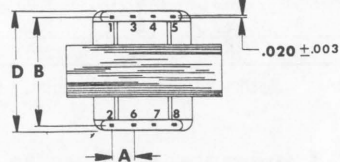
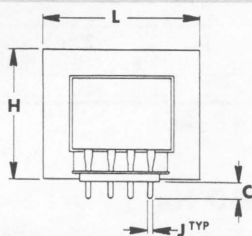
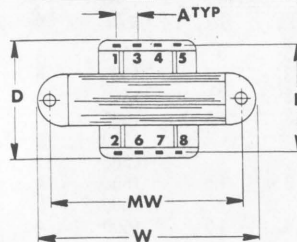
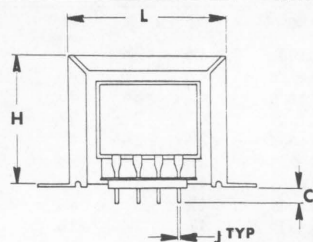
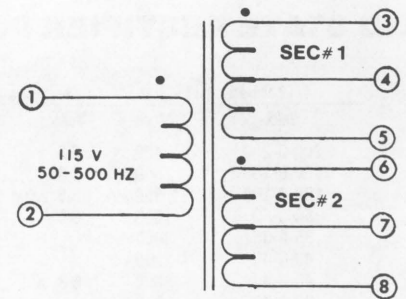


Fig. D-1



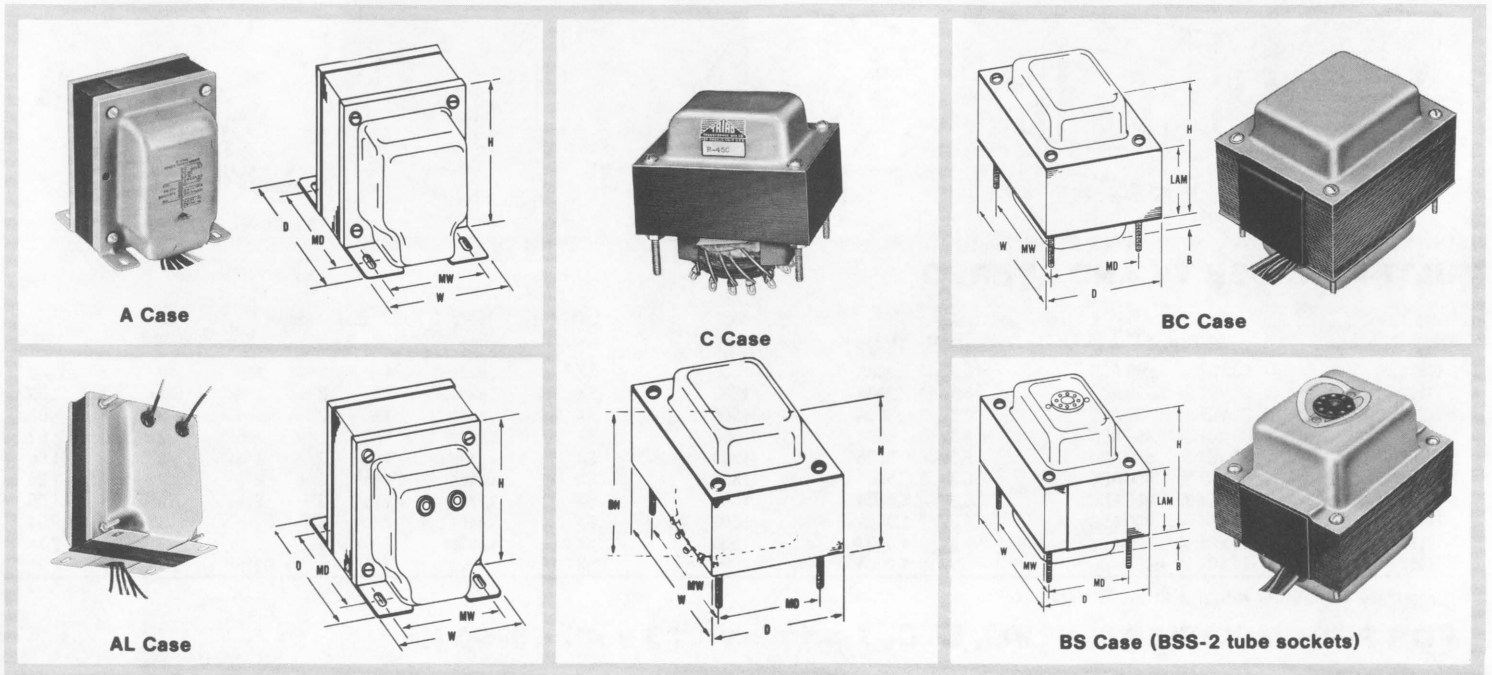
Other transformers for logic and op-amp power supplies in open construction (cases X and U) with 6-inch color-coded leads are listed on page 7. See catalog nos. F-194X, F-195X, F196U, F-197U, F-198U and F-199U.



Dual Tapped Secondaries



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	Case Type	Connections or Lead Holes Used	Case Dimension			Dimension Mounting		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	158	5 2.5* 2.5*	3 1.75 1.75	6.3	.6	(2.5V & 6.3V)—3500 Others—1500	C	Lugs	3¼	4½	3½	3¼	2¼	7.5
R-45C	400-0-400-800	30	38	5* 5*	2 2	6.3 6.3 CT 6.3	.6 3 1	Pri. & 6.3 CT 1500 Others—3000	C	Lugs	2½	3¼	3½	3¼	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	2½	3¼	2½	2½	2	3.5
▲R-83A●#	400-0-400-650	70	-	125*	.3	6.3 CT 6.3	3.5 .6	6.3V.6A—3000 Others—1500	A	2-Sides	3¼	2½	3¼	2¼	2½	5
R-84K●●	-	-	-	-	-	6.3	.6	3500	K	2-Sides	2¼	2¼	2¼	2½	1½	1.5

● Direct Replacement For Power Transformer in Model 0-12 Heathkit Scope. ●● CRT Filament Transformer for Heathkit Model QP-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 ohm 2W resistor in series with filament when IV2 is used.

PLATE POWER / primary 115 volt, 50-60 Hz

Type No.	Primary AC Volts	Secondary AC Volts† ± 5%		DC MA—Choke Input		Rectifier Filament		RMS Test Voltage	Case Type	Load Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		CCS	ICAS	Volts ± 5%	Amps	H	W				D	MW	MD			
P-1A†#	115	220-110-0-110-220	160	192	5	3	1500	A	1	3¼	2½	3¼	2¼	2¼	4	
P-3A†	115	300-150-0-150-300	300	360	5	4	1500	A	1	3½	3½	3½	2½	2¼	6.25	
P-5A†#	115	550-0-550	250	300	5	4	2500	A	1	4¼	3¼	3¼	3	2½	8	
P-7A†#	115	617.5-0-617.5	250	300	5	4	2500	A	1	4¼	3¼	4¼	3	3¼	9	
▲P-30A†	117	600 CT 105	500** 80	6.3* Bias Wdg.	4.0 6.3*	4.0	3000	A	1	6½	5½	5¼	4¼	3¼	25	
P-11A†#	115	727.5-0-727.5	250	300	-	-	2500	A	1	4¼	3¼	3¼	3	2½	8.5	
P-14A††	115	890-712.5-0-712.5-890	250	300	-	-	3000	A	2	5¼	4½	4¼	3½	3¼	13.5	
P-215AL†	115-230	1170-0-1170	250	300	-	-	3500	AL	1 + 2□	5¼	4½	4¼	3½	3¼	13.5	
P-217AL†	115-230	1440-0-1440	250	300	-	-	4000	AL	1 + 2□	5¼	4½	4¼	3½	3¼	14.75	
PR-21AL†#	115-230	1650-0-1650	500	600	-	-	4500	AL	1 + 2□	6½	5½	6¼	4¼	4¼	29	

*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 series to obtain the combined current. Example: two 6.3V windings @ 2A in parallel would be 6.3V. @ 4A.

CT for Center Tap. □ Plate leads out side of case for rectifiers. † Static shield. # 60 cycle operation. † Tapped primary to produce lower voltages.

†† Secondary CT must be grounded. **Full Wave bridge capacitor input. Secondary CT need not be grounded.

▲ Discontinued item, available until stock depleted.



PLATE AND FILAMENT TYPES

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

Type No.	Secondary AC Volts ± 5%	DC Ma.		Rectifier Filament		Other Filaments		RMS Test Voltage	Case Type	Connections or Lead 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	3 ¹ / ₁₆	3 ³ / ₃₂	3 ³ / ₈	2 ¹ / ₂	2 ¹ / ₄	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	4 ³ / ₈	3 ¹ / ₁₆	4 ³ / ₈	3	3 ³ / ₁₆	12
▲R-28A‡	625-0-625	236	300	5	6	6.3 CT 6.3* 6.3*	8 3 3	2500	A	2	5 ¹ / ₁₆	4 ¹ / ₂	5 ¹ / ₂	3 ¹ / ₂	4 ³ / ₈	20
▲R-46A‡	625-0-625 130	278 50	350	5	4	6.3 6.3* 6.3*	4 1 1	2500	A	2	5 ¹ / ₁₆	4 ¹ / ₂	5 ¹ / ₂	3 ¹ / ₂	4 ³ / ₈	20

SPECIAL POWER / multiple filament industrial, primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts ± 5%	DC Ma.		Rectifier Filaments		Other Filaments		RMS Test Volts	Case Type	Lead 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-40BC‡	390-0-390 or 220-0-220	300	380	5 5 5	3 3 2	6.3 6.3	8.5 3.5	2000	BC	1	3 ³ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	14
R-42BC‡	337.5-0-337.5	185	235	5	3	6.3 6.3	7 2(d)	1500 4000(d)	BC	1	2 ¹ / ₂	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	8
▲R-50BC‡	395-0-395 or 325-0-325	310	395	5 5 5	3 2 3	6.3* 6.3* 6.3	5 5 2.6	2000	BC	1	4 ¹ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	15
▲R-50A‡	395-0-395 or 325-0-325	310	395	5 5 5	3 2 3	6.3* 6.3* 6.3	5 5 2.6	2000	A	1	4 ¹ / ₈	3 ¹ / ₁₆	5 ¹ / ₂	3	4 ³ / ₈	15
▲R-49BS‡	325-0-325	240	305	5	3	6.3 6.3 6.3	9 .9 1.2(d)	1500 1500 4000(d)	BS	1	3 ³ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	13
R-52BC‡	300-0-300	270	340	5	3	6.3* 6.3* 6.3	5 5 1.2(d)	1500 1500 4000(d)	BC	1	3 ³ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	13
R-67BC‡ #	300-0-300	250	318	5	3	6.3	9	1500	BC	1	3 ³ / ₈	4 ¹ / ₈	3 ³ / ₁₆	3 ³ / ₁₆	2 ¹ / ₄	9
▲R-76BC‡ #	325-0-325	350	445	5	6	6.3* 6.3 6.3	8 5 2(d)	1500 1500 4000(d)	BC	1	3 ³ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	13
R-77BS‡ #	275-0-275	350	445	5 CT	6	6.3 6.3 6.3	8 6 2(d)	1500 1500 4000(d)	BSS	1	3 ³ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	12
R-78BC‡ #	350-0-350	200	254	5	3	6.3 6.3 6.3	6 4 2(d)	1500 1500 5000(d)	BC	1	2 ¹ / ₂	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	9
▲R-81BS‡ #	295-0-295	350	445	5	6	6.3 6.3 6.3	8 5 2(d)	1500 1500 4000(d)	BSS	1	3 ³ / ₈	4 ¹ / ₂	3 ³ / ₈	3 ³ / ₄	3	12
R-675A‡ #	330-0-330	270	340	5	6	6.3 6.3	9.35 1.2(d)	1500 4000(d)	A	1	4 ¹ / ₈	3 ¹ / ₁₆	4 ¹ / ₈	3	3 ³ / ₈	10

‡ Static shield. (d) Damper winding. CT for Center Tap. # 60 cycle operation. ▲ Discontinued item, available until stock depleted.

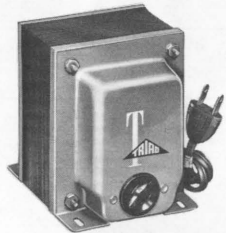
*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: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



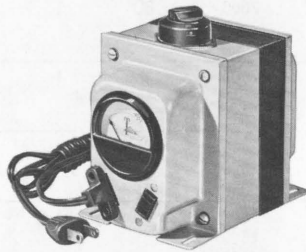
ISOLATION / 50-60 Hz

All units on this page have static shields

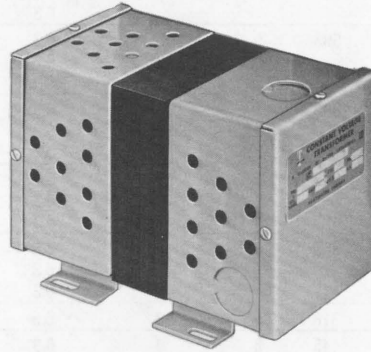
Type No.	Output Watts (VA)	Primary Volts	Secondary AC		RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Volts ±5%	Amps					H	W	D	MW	MD		
N-48X	15	115	115	.13	1500	X	Leads	-	1 1/16	3 1/16	2	2 1/16	-	3/16	1.35
N-49X	35	115	57.5-115§	.3	1500	X	Leads	-	2 3/32	3 1/16	2 1/2	3 1/8	-	3/16	1.9
N-51X	35	115	115	.3	1500	X	Leads	-	2 3/32	3 1/16	2 1/2	3 1/8	-	3/16	1.7
N-68X	50	115-230§	115	.435	1500	X	Leads	-	2 3/32	3 1/16	2 1/2	3 1/8	-	3/16	1.7
N-53M	85	115	115	.74	1500	M	6' Cord, Plug & Socket	-	3 1/32	2 3/32	3 3/8	2 1/4	2 3/8	3/16x3/16	4.7
N-53MG*										4 1/2		3			
N-54M	150	115	115	1.3	1500	M	6' Cord, Plug & Socket	-	3 3/8	3 3/32	4 1/4	2 1/2	3	3/16x3/16	7
N-54MG*										5 1/4		3 1/2			
N-73A	150	115	115-230§	.65	1500	A	Leads	1	3 3/8	3 3/32	3 3/8	2 1/2	2 3/4	3/16x3/16	7
N-74A	150	115	57.5-115§	1.3	1500	A	Leads	1	3 3/8	3 3/32	3 3/8	2 1/2	2 3/4	3/16x3/16	7
N-67A	150	115-230§	115	1.3	1500	A	Leads	2	3 3/8	3 3/32	4 1/4	2 1/2	3	3/16x3/16	7
N-55M	250	115	115	2.17	1500	M	6' Cord, Plug & Socket	-	4 3/8	3 1/16	5	3	3 3/8	3/16x3/16	11
N-55MG*		115													
N-255MG*		230													
N-66A	250	115-230§	115	2.17	1500	A	Leads	2	4 3/8	3 1/16	4 3/8	3	3 3/8	3/16x3/16	11
N-57M	500	115	115	4.35	1500	M	6' Cord, Plug & Socket	-	5 1/16	4 1/2	6 1/4	3 1/2	5 1/8	1/2x1/4	23.75
N-57MG*		115													
N-257MG*		230													
N-59M	1000	115	115	8.7	1500	M	6' Cord, Plug & Socket	-	5 1/16	4 1/2	8	3 1/2	6 3/8	1/2x1/4	34
N-59MG*		115													
N-259MG*		230													
▲N-56M#	150	95-130 5V Steps	115	1.3	250	MM	Detachable 6' Cord, Plug, Switch, Socket & Meter	-	4 3/8	3 1/16	5 3/8	3	4 1/4	3/16x3/16	7
N-52M	350	95-130 5V Steps	115	3.04	250	MM	Detachable 6' Cord, Plug, Switch, Socket & Meter	-	4 3/8	3 1/16	7 3/4	3	6 3/8	3/16x3/16	17
N-469A#	50	220-440§	115	.435	1500	A	Leads	1	3 3/16	2 1/32	2 1/2	2	1 1/16	3/16x3/16	2.3
N-470A#	150	220-440§	115	1.3	2000	A	Leads	1	3 3/8	3 3/32	3 3/8	2 1/2	2 1/2	3/16x3/16	5.5
N-471A#	300	220-440§	115	2.6	2000	A	Leads	1	4 3/8	3 1/16	4 3/8	3	3 3/8	3/16x3/16	10.25



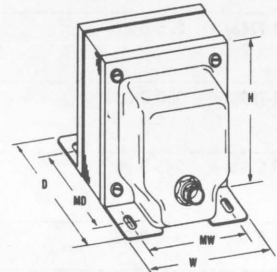
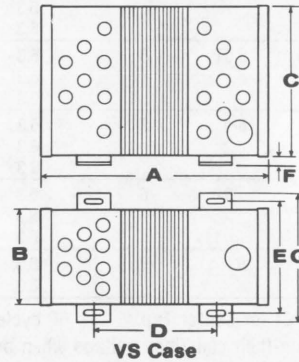
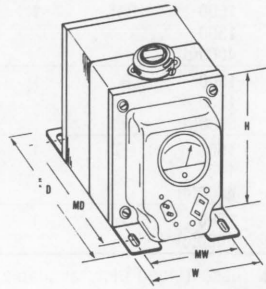
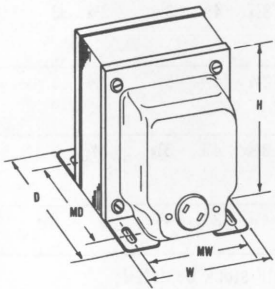
M Case



MM Case



AC Case



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		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Isolation	Autotransformer					H	W	D	MW	MD		
N-64AC	500	1000	1500	AC	Leads	1 Conduit	5 1/8	4 1/2	5 1/2	3 1/2	3 3/8	1/2x1/4	15
N-62U	1000	2000	1500	U	Leads	1 Conduit	6 1/2	5 1/2	6 3/4	4 1/4	4	3/4x3/16	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	5/32	56

16 *Has 3-wire plug, cord and socket. § Split winding. # 60 cycle operation. ▲ Discontinued item, available until stock depleted.

POWER TRANSFORMERS



COMMERCIAL GRADE

STEPDOWN AUTOFORMERS / 50-60 Hz

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 ± 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 3/8		3/16	1.7
N-1X	50	230	115	.435	1500	X	Leads	2 3/32	3 1/16	2	3 3/8		3/16	1.5
N-39X	50	0-100-115-127-135	115	.43	1500	X	Lugs	1 1/16	3 3/4	2 1/16	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 1/8	2 1/4	1 3/8	3/16 x 3/16	3
N-3MG†										3 3/4		2 1/4		
F-300X#	100	277	115	.87	2500	X	Leads	2 3/16	4	2 1/16	3 3/16		3/16	2.3
N-2X	100	230	115	.87	1500	X	Leads	2 3/8	4	2 1/16	3 3/8		3/16	2.1
N-40X	100	0-100-115-127-135	115	.87	1500	X	Lugs	1 1/16	3 3/4	2 3/16	2 1/16		3/16	1.2
F-302U#	150	277	115	1.3	2500	U	Leads	2 1/16	3 3/8	2 1/4	2 1/16	2	3/16 x 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	3/16 x 3/16	4.7
N-4MG†										4 1/2		3		
N-34X	150	0-95-105-115-125-135	115	1.3	1500	X	Lugs	2 1/32	4	2 1/4	3 3/16	-	3/16	2.2
N-33MG†	150	65/75/90/100/115/130/145	115	1.3	500	MM	6' Cord, Plug, Switch, Socket & Meter	5 1/16	3 1/16	5 1/2	3	4 1/16	3/16 x 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	3/16 x 3/16	3.6
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	3/16 x 3/16	7
N-5MG†										5 1/8		3 1/2		
N-36MG†	350	65/75/90/100/115/130/145	115	3.04	500	MM	6' Cord, Plug, Switch, Socket & Meter	5 1/16	3 1/16	6 1/4	3	5 1/16	3/16 x 3/16	10.5
N-37MG†	500	65/75/90/100/115/130/145	115	4.35	500	MM	6' Cord, Plug, Switch, Socket & Meter	5 1/16	3 1/16	7	3	5 1/16	3/16 x 3/16	15.0
N-7M	600	230	115	5.22	1500	M	6' Cord, Plug & Socket	4 3/8	3 1/16	5	3	3 3/8	3/16 x 3/16	12
N-7MG†														
N-38MG†	750	65/75/90/100/115/130/145	115	6.5	500	MM	6' Cord, Plug, Switch, Socket & Meter	6 3/16	4 3/16	6 1/8	3 1/2	6 3/8	3/16 x 3/16	19.0
N-9M	1250	230	115	10.85	1500	M	6' Cord, Plug & Socket	5 1/16	4 1/2	6 1/4	3 1/2	5 1/8	1/2 x 1/4	24
N-9MG†														
N-11M	2000	230	115	17.4	1500	M	6' Cord, Plug & Socket	5 1/16	4 1/2	8	3 1/2	6 3/8	1/2 x 1/4	33.25
N-11MG†														

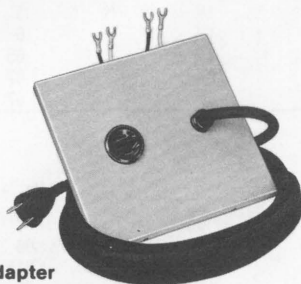
† Has 3-wire cord, plug and socket. #60Hz operation.

VOLTAGE STABILIZERS

Triad No.	Rating Va.	Input volts	Output volts	Case Style	Dimensions							Wt. Lbs
					A	B	C	D	E	F	G	
K-100A	30	95-130	118	VS	5 3/8	3 3/16	3 13/16	3	3 1/2	3/16	4	4.8
K-101A	60	95-130	118	VS	6	3 3/16	3 13/16	3	3 1/2	3/16	4	6.2
K-102	120	95-130	118	VS	6 1/2	3 3/8	5 1/8	3	3 1/2	1/8	4	10.6
K-103A	250	95-130	118	VS	9 1/16	5 1/8	5 1/8	4 3/8	6 1/8	1/2	6 13/16	21
K-104A	500	95-130	120	VS	10 3/16	5 1/8	5 1/8	4 3/8	6 1/8	1/2	6 15/16	33
K-105A	750	95-130	120	VS	14 3/16	5 1/2	5 1/8	4 3/8	6 1/8	1/2	6 15/16	46
K-106A	1000	95-130	120	VS	15 3/16	5 1/8	5 1/8	4 3/8	6 1/8	1/2	6 15/16	60

ADAPTER KITS

- KA-1 Used with K-100A, K-101A
- KA-2 Used with K-102
- KA-3 Used with K-103A, K-104A, K-105A, K-106A



KA Adapter

Many of the electrical and electronic devices operating from 120-volt line power cannot operate reliably and efficiently with the variations present in commercial power sources. Computers, data processing equipment, machine controls, and many measuring instruments demand a constant input voltage. They may operate erratically even when the input stays within an allowable ten percent variation.

TRIAD VOLTAGE STABILIZERS provide instant, automatic regulation for voltage-sensitive equipment. These rugged, compact units are available from stock in standard volt-amp ratings from 30 VA to 1 KVA. Output voltage is constant within one percent with input of 95 to 130 volts. Because of their low response time, most damag-

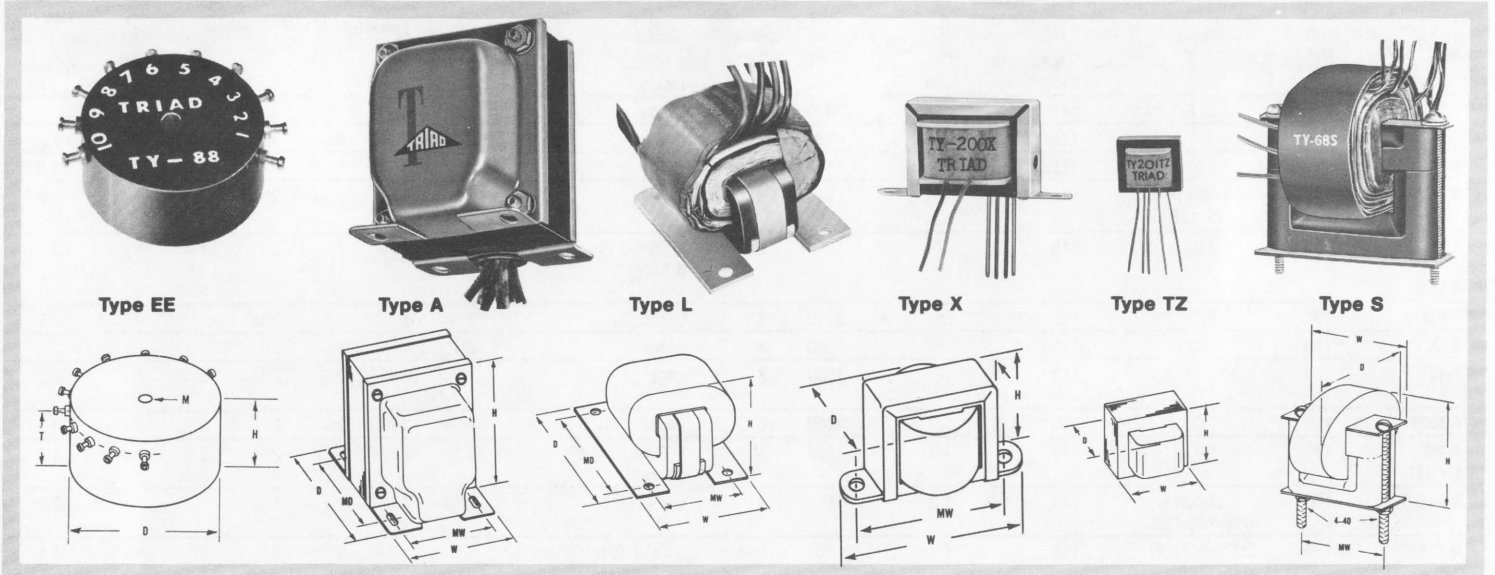
ing transients are removed. Since there are no moving parts, they require no periodic maintenance and provide greater reliability than is usually provided by mechanical regulating devices.

Besides continuous regulation, the transformers provide isolation between primary and secondary windings. The secondary may be short-circuited—even for extended periods of time—with no damage to the transformer.

Triad voltage stabilizers may be mounted as accessories on many types of machines and equipment, or may be designed as an integral part of the equipment. Adapter plates are available to provide any size with a line cord and outlet socket for added versatility in the lab or on the service bench.



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.

tion 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. Millamps. 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 3/4	1 1/16	1 1/4	.35
TY-79	12.6	300	150	200	EE	3/4	1 3/4	1	1 1/4	.35
▲TY-80	12.6	325	162.5	150	EE	3/4	1 3/4	1	1 1/4	.35
TY-81	12.6	375	187.5	200	EE	3/4	2	1	1 1/4	.50
TY-82	12.6	450	225	150	EE	3/4	2	1	1 1/4	.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 1/2	1 1/8	3/16	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 1/32	1 1/8	9/16	7/64	.25
TY-89	28	300	150	100	EE	1/2	1 3/4	1 1/16	1 1/4	.35
TY-90	28	325	162.5	200	EE	3/4	1 3/4	1	1 1/4	.35
TY-91	28	375	187.5	200	EE	3/4	2	1	1 1/4	.50
TY-92	28	450	225	200	EE	3/4	2	1	1 1/4	.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 1/4	.35
TY-100	6	325	162.5	150	EE	3/4	2	1	1 1/4	.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 1/8	2 1/4	2	1 1/8	1 3/8	1/2
TY-462	12	110-115-125v 400cps 60 watts	L	1 1/8	2 1/4	2	1 1/8	1 3/8	1/2
TY-75A	12	110-115-125v 60cps 115 watts	A	3 1/8	3 3/32	3 1/2	2 1/2	2 3/8	5
TY-76A	12	110-115-125v 60cps 60 watts	A	3 3/16	2 7/32	2 3/8	2	1 11/16	3

OPEN TYPE / 12 volt dc to dc

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

OPEN TYPE / dc to dc converter

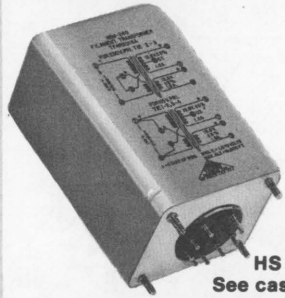
Type No.	* Typical operation		Case Type	Dimensions—Inches				Weight Lbs.
	Input	Output		H	W	D	MW	
TY-200X	3 v.DC @ 20 ma.	1050 v.DC @ 25 μa.	X	1 1/16	1 1/8	7/8	1 3/8	.08
TY-201TZ	4 v.DC @ 15 ma.	500 v.DC @ 50 μa.	TZ	7/16	1/2	7/16	—	.015
TY-202X	4 v.DC @ 45 ma.	550 v.DC @ 80 μa.	X	1 1/16	1 1/8	7/8	1 3/8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

* May vary with circuit components, load requirements, etc.

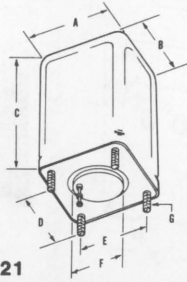
† Has additional winding for bias in SSB transmitters. Replacement for Triad-Utrad Nos. 5965 and



Designed and Constructed to meet MIL-T-27B



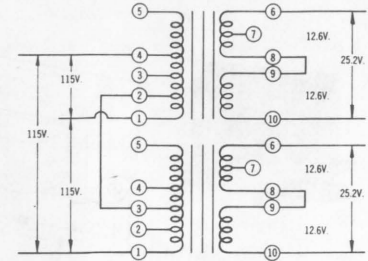
HS & HSM Case
See case chart, page 21



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



COMBINED PLATE AND FILAMENT / primary 115 volt / 50-60 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
▲ HSM-200#	TF4RX03FA	120‡	100	127	6.3 CT	1.6	1500	7/8	FA	2
▲ HSM-203	TF4RX03JB	300-0-300‡	50	63.5	6.3 CT 5	2.5 2	1500	1 1/2	JB	4.85
▲ HSM-205	TF4RX03JA	350-0-350‡	70	89	6.3 CT 5	3 3	1500 2000	1 1/2	JA	6.1
▲ HSM-207	TF1RX03KA	350-0-350‡	120	153	6.3 CT 5	5 3	1500	1 1/2	KA	8.75
▲ HSM-208	TF1RX03KA	313-0-313‡	200	254	6.3/5.0 6.3 CT	3 5	1500	1 1/2	KA	9.2
HSM-241	TF1RX03LA	350-70-0-350‡	150	190	6.3 CT 6.3 5	6 2 3	1500	1 1/2	LA	10.75
▲ HSM-212	TF1RX03LA	500-400-0-400-500‡	117	150	6.3 CT* 6.3* 6.3/5*†	4 4 4	2000 1500	1 1/2	LA	11
HSM-245	TF1RX03MA	400-350-0-70-350-400‡	200	254	6.3 CT 6.3 5	6 4 6	1500	1 1/2	MA	15
▲ HSM-216	TF1RX03MA	500-400-0-400-500‡	157	200	6.3 CT* 6.3* 6.3/5*†	5 5 4	2000	1 1/2	MA	14.5

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-225#	TF4RX01EA	0-105-115-125	6.3 CT	2	1500	7/8	EA	1.25
▲ HSM-226#	TF4RX01FA	0-105-115-125	6.3 CT	3.6	1500	7/8	FA	2
▲ HSM-224	TF4RX01HB	0-105-115-125	6.3 CT	5.5	2500	7/8	HB	4.5
HSM-229	TF4RX01JB	0-105-115-125	6.3 CT	8	2500	1 1/16	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 1/2	GA	3.25
▲ HSM-236	TF4RX01JB	0-105-115-125	12.6 CT* 12.6*	2 2	2500	1 1/2	JB	6.5
▲ HSM-228	TF4RX01JA	0-105-115-125	6.3 CT* 6.3*	6 6	Pri. 1500 Sec. 2500	1 1/2	JA	6.3
HSM-231	TF4RX01JB	0-105-115-125	6.3 CT 5 CT	5 3	2500	1 1/2	JB	4.9
▲ HSM-232	TF4RX01HA	0-105-115-125	2.5 CT	10	Pri. 1500 Sec. 7500	Special Hi-Voltage	HA	4
HSM-238#	TF4RX01JA	0-105-115-125	26 CT* 26*	2 2	2500	1 1/2	JA	7

▲ Discontinued item, available until stock depleted.

*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. □□ See case chart, page 22 CT for Center Tap. † Tapped for 5-Volt rectifier use. ‡ Static shield.

60 cycle operation.

POWER TRANSFORMERS

Designed and Constructed to meet MIL-T-27B

380-1500
CYCLE



MILITARY GRADE

	AH	AJ	EA	EB	FA	FB	GA
A	1 1/8	1 1/8	1 1/8	1 1/8	2 1/8	2 1/8	2 3/8
B	1 1/8	1 1/8	1 1/8	1 1/8	2 1/8	2 1/8	2 1/4
C	1 1/4	2 3/8	2 1/4	2 1/8	3 1/8	2 1/2	3 1/8
D	1 1/4	1 3/8	1 1/4	1 3/8	1 1/4	1 1/4	2 1/4
E		1 3/8	1 1/4	1 1/4	1 1/8	1 1/8	1 1/4
G		3/8	3/8	3/8	3/8	3/8	3/8
I	6-32	6-32	6-32	6-32	6-32	6-32	6-32
Wt. (ave.) lbs.	4 oz.	9 oz.	1	15 oz.	1 1/4	1 1/2	2

	GB	HA	HB	JA	JB	KA	KB
A	2 3/8	2 3/8	2 3/8	3 1/8	3 1/8	3 3/8	3 3/8
B	2 3/8	3 1/8	3 1/8	3 1/8	3 3/8	3 1/8	3 1/8
C	2 1/8	4 1/4	3 1/8	4 3/8	3 7/8	5 1/4	4 3/8
D	2 1/8	2 1/8	2 1/8	2 3/8	2 3/8	3	3
E	1 3/4	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8
G	3/8	3/8	3/8	3/8	3/8	1/2	1/2
	6-32	8-32	8-32	8-32	8-32	10-32	10-32
Wt. (ave.) lbs.	1 1/4	2 1/2	2 1/4	4 1/2	4	7 1/4	7

	LA	LB	MA	MB	NA	NB	OA
A	3 1/8	3 1/8	4	4	4 3/8	4 3/8	5 1/2
B	4 3/8	4 3/8	4 1/8	4 1/8	5 1/8	5 1/8	4 1/2
C	5 1/8	4 1/2	6	4 1/8	6 1/8	5 1/2	6 1/2
D	3 3/8	3 3/8	3 1/8	3 1/8	4 1/8	4 1/8	3 3/4
E	2 1/8	2 1/8	3	3	3 3/8	3 3/8	3
G	1/2	1/2	3/8	3/8	3/8	3/8	3/8
	10-32	10-32	1/4-20	1/4-20	1/4-20	1/4-20	1/4-20
Wt. (ave.) lbs.	9 1/4	8 1/2	13 1/2	12 1/2	18	16	21

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	3/8	EB	1.2
HS-400	TF4RX03AH	125†	25	31.7	6.3 CT	.8	1500	23/32	AH	.344
▲HS-407	TF4RX03JB	300-0-300†	120	152	6.3 CT* 6.3* 6.3/5†	3.5 3.5 3	1500	1 1/8	JB	4.65
▲HS-409	TF4RX03HA	350-0-350†	150	190	6.3 CT 6.3/5†	4 3	1500	1 1/8	HA	3.75
▲HS-413	TF4RX03JA	225-0-225†	200	254	6.3 CT* 6.3* 6.3/5†	6 6 4	1500	1 1/8	JA	5.5
▲HS-415	TF1RX03KB	400-300-0-300-400†	200	254	6.3 CT* 6.3* 6.3/5†	6 6 6	2500	1 1/8	KB	7.5
▲HS-417	TF1RX03LA	400-300-0-300-400†	300	380	6.3 CT* 6.3* 6.3/5†	6 6 6	1500 1500 2500	1 1/8	LA	10

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	3/8	EA	1.5
▲HS-471†	TF4RX01FA	115	.7A.	80	1500	3/8	FA	2
HS-472†	TF4RX01GA	115	1.39A.	160	1500	3/8	GA	3.1
HS-474†	TF4RX01JA	115	2.6A.	300	1500	3/8	JA	6.25
HS-475†	TF1RX01KA	115	4.4A.	500	1500	3/8	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	23/32	AH	.3
HS-425	TF4RX01YY	0-105-115-125	6.3 CT	2	1500	3/8	AJ-2□□	.65
HS-427	TF4RX01EA	0-105-115-125	6.3 CT	5	Pri. 500 Sec. 2500	3/8	EA	1.12
▲HS-445	TF4SX01EA	0-105-115-125	12.6 CT	3	2500	1	EA	1.2
HS-438	TF4RX01EA	0-105-115-125	24CT	1.5	1500	3/8	EA	1.2
HS-433	TF4RX01FA	0-105-115-125	6.3 CT* 6.3*	5 5	Pri. 1500 Sec. 2500	1 1/8	FA	2
▲HS-435	TF4RX01FA	0-105-115-125	6.3 CT* 6.3* 6.3/5†	3.5 3.5 3	2000	1 1/8	FA	1.85
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	3/8	AJ-2□□	.75
HS-442	TF4RX01EA	0-57.5-99.7-115-120	12.6 CT* 12.6*	2 2	1500	3/8	EA	1.25
F-439U		115	26	3.85	2000	(Dim.) 3 3/8 H 2 1/2 W 2 1/4 D	Spl (Non-Mil)	2.25
HS-444	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	3/8	EA	1.25

▲ Discontinued item, available until stock depleted.

*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. □ □ See case chart, page 22. † Tapped for 5-Volt rectifier use. CT for Center Tap. ‡ Static shield

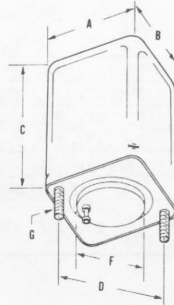
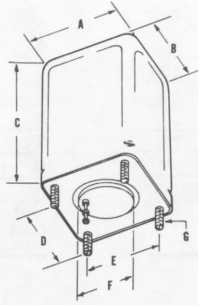
MILITARY GRADE



POWER TRANSFORMERS FILTER REACTORS



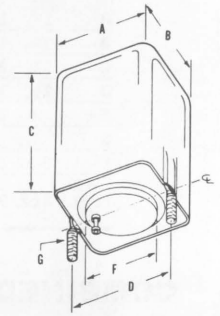
HS
HSM
Case



AJ-2 Case

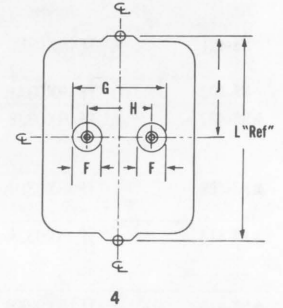
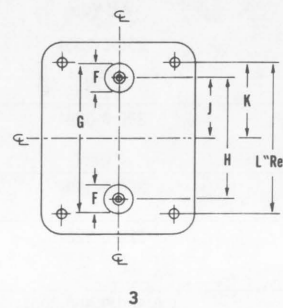
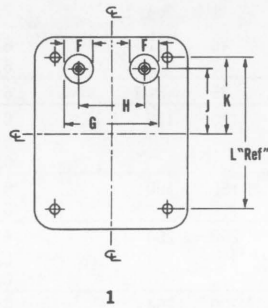
	AH-2	AJ-2
A	1 1/16	1 1/8
B	1 1/16	1 1/8
Bw	1 11/32	
C	1 3/4	2 3/8
D	*1 11/32	*1 1/8
F	7/8	7/8
G	6-32	6-32
Unit	5 1/4	11
Wt.	oz.	oz.

AH-2 Case



Terminal locations—Filter Reactors

	AH	AJ	EB	FA	FB	GB	HA	JA	JB	KA
A	1 1/16	1 1/8	1 13/16	2 1/16	2 1/16	2 3/8	2 5/8	3 1/16	3 1/16	3 3/8
B	1 1/16	1 1/8	1 15/16	2 1/16	2 1/16	2 3/4	3 1/16	3 1/16	3 1/16	3 15/16
C	1 3/4	2 3/8	2 1/16	3 1/8	2 1/2	2 13/16	4 1/4	4 1/8	3 3/8	5 1/4
D	1 1/4	1 3/16	1 3/8	1 11/16	1 11/16	2 1/8	2 19/64	2 5/8	2 5/8	3
E		1 3/16	1 1/4	1 1/16	1 1/8	1 3/4	1 59/64	2 1/8	2 1/8	2 7/16
G	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	1/2
I	6-32	6-32	6-32	6-32	6-32	6-32	8-32	8-32	8-32	10-32
Wt. (ave.)	4 oz.	9 oz.	15 oz.	1 3/4	1 1/2	1 3/4	2 1/2	4 1/2	4	7 3/4
lbs.										



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-249	TF4SX02AH	115	8.25—40.5	.02— .065 DC	1500	6.6-24	6-53	AH	5 oz.
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

* Primary taps can modify nominal AC voltages by -6%, +6% and +12% on types HSM-249 through HSM-252

FILTER REACTORS/inductance tolerance + 50%-20%

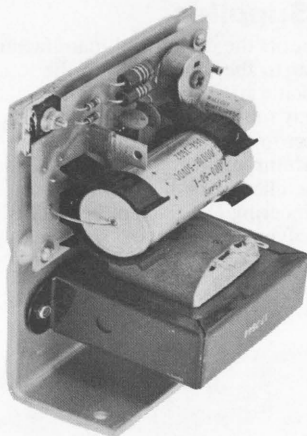
Type No.	Mil Type Number	DC MA	Inductance Henries	DC Resistance	RMS Test Voltage	Terminal Dwg No.	Drawing Dimensions						Mil Case Type	Max. Unit Wt. Lbs.
							F	G Max	H	J	K	L ± 1/64		
▲ HSM-301	TF4RX04EB	20	30	1000	1500	1	1/4	2 7/32	7/16	3/8	1 1/16	1 3/8	EB	1.2
HS-331	TF4RX04YY	40	4	375	1500	4	1/4	2 3/32	1/2	4 3/64	1 11/32 ± 1/32		AH-2	.35
HSM-305	TF4RX04GB	70	15	300	2500	3	7/16	2 13/32	1 3/4	7/8	1 1/16	2 1/8	GB	2.4
▲ HS-335	TF4RX04EB	120	3	150	1500	1	1/4	2 7/32	7/16	9/16	1 1/16	1 3/8	EB	1.12
▲ HSM-307	TF1RX04JB	120	15	185	2500	1	7/16	1 11/32	1 1/16	1 1/8	1 5/16	2 3/8	JB	5.25
HS-339	TF4RX04FB	200	3	105	2000	1	1/4	2 3/64	1/2	2 7/32	2 7/32	1 11/16	FB	1.75
▲ HSM-315	TF4RX04JA	200	10	100	2500	1	7/16	1 11/32	1 1/16	1 1/8	1 5/16	2 3/8	JA	6.6
HS-341	TF4RX04GB	300	2	48	2000	1	1/4	2 3/32	1/2	1	1 1/16	2 1/8	GB	2.5

▲ Discontinued item, available until stock depleted.

DC POWER SUPPLIES



COMMERCIAL & MIL GRADE



P Series

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 2½" x 4" x 4½"
(Weight: 2 lbs. net, 2¼ 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%

Cat. No.	Output Voltage	Output 40°C	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

Wide range, adjustable regulated 40-watt power supplies for OEM's

Input: 115V ± 10%, 47-440Hz

Regulation: Line: ±0.1%
Load: ±0.2% 50% load change

Ripple: 2MV RMS, 6MV pk to pk
Temperature Range (Operating): 0°C to +40°C to +65°C derated

Temperature coefficient: 3%/°C typical

Transient response: 100 microseconds max. 50 microseconds typical

Grounding: Floating output either positive or negative may be grounded

Size: 4" x 4 15/16" x 6 1/2". **Weight:** 4 1/2 lbs. net, 5 3/8 lbs. shipping.

Catalog No.	Voltage Range		Current		
	47-70Hz	70-440Hz	40°C	50°C	65°C
▲ WR-48	4-8V	4-7V	5.0	4.0	3.0
▲ WR-1116	11-16V	11-15V	2.5	2.2	1.5
▲ WR-2126	21-26V	21-25V	1.5	1.4	1.3
▲ WR-2630	26-30V	26-30V	1.4	1.3	1.2



WR Series



PS-2001, 20 amp DC power source for amateur, CB and marine communications

Provides the CB operator, amateur or boat owner an easy method of converting his mobile transceiver or other battery-operated automotive or marine equipment to "base station" use. Capable of handling a complete ham, CB or marine mobile station, including large SSB amplifiers up to 400 watts PEP output.

The output voltage of the Powerhouse remains constant at 12.5 volts ±.5 volts at 20 amps, and for line voltage variations from 90 to 135 volts. Ripple voltage, 1.25 peak-to-peak at 12.8 volts, 20 amps continuous duty. 35 amps at 11.6 volts intermittent duty. In order to assure ruggedness and reliability under varying electrical and environmental conditions, Triad uses a Class H (180°) ferro-resonant transformer, thoroughly proven in computer power supplies, microwave ovens, color TV and other applications.

In case of overheating due to inadequate ventilation, a thermal switch automatically shuts the unit off. The ferro-resonant transformer automatically limits the output current to 35 amps.

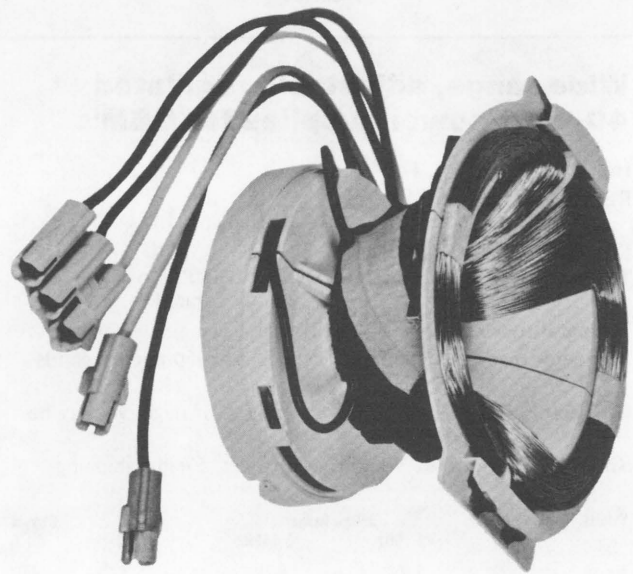
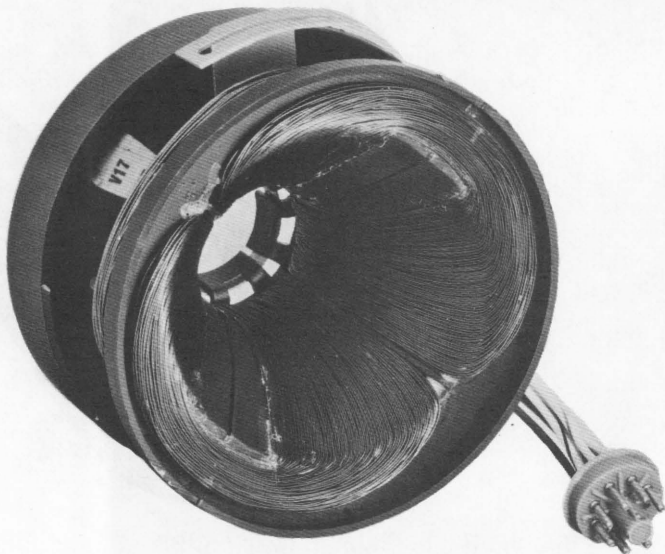
Another plus—this versatile Triad power source will charge a completely dead car battery and is automatically protected in case of an overload. Case dimensions: 7½H by 9½D by 6¼W. Shipping weight, 27 lbs.



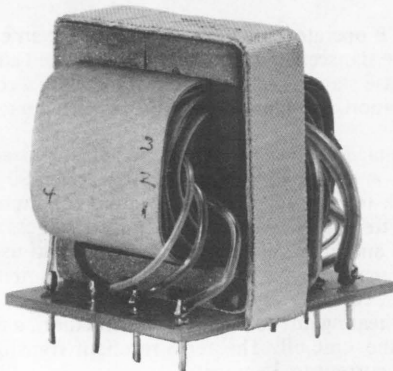
High Voltage Power Supplies

One of Triad-Utrad's major activities is the design and manufacture of high voltage power supplies, similar to the unit shown at the left, for electrostatic photocopying, electrostatic air cleaning, static elimination, electrostatic charging and cathode ray tube anodes. Regulation and current limiting is accomplished by a ferro-resonant transformer or by solid state circuitry. Transformers are vacuum impregnated with 100% solids epoxy resin. Metal enclosures are filled with high-temperature wax composition. The Triad-Utrad Engineering Department is qualified and ready to offer you assistance in specifying the unit most suitable to your individual needs.

Deflection yoke for color television receivers



Toroidal deflection yoke for black-and-white television sets—and CRT terminals



SWITCHING REGULATOR TRANSFORMERS

Triad-Utrad manufactures to custom requirements switching regulator transformers for various high frequency applications. These are built to meet UL & CSA requirements as well as stringent VDE requirements for European Markets. Featuring .040" diameter pins for Plug-in capability to PC Boards, G-10 Terminal Board Material, all soldered connections and terminal identification as option. Extensive Engineering in this area has been accomplished with Life testing as well as in-field use indicating high reliability.

Triad-Utrad—the magnetic components division of Litton Industries—had its inception in 1956 when Arnold Kaufman and others purchased transformer equipment and inventory from the Utah Radio Products Company of Huntington. The company name, UTRAD, was derived from a contraction of UTah and TRIAD Transformer Manufacturing Corporation, a Los Angeles transformer producer whose owner had a financial interest in the new company. Later in 1956, both Utrad and Triad were acquired by Litton Industries. This association has provided improved marketplace recognition of a large company name and management support while maintaining the responsibility and rewards of an independently-operated medium-sized company.

From its modest beginning in 1956, Triad-Utrad has expanded into one of the most modern and efficient transformer facilities in the country, with plant and warehouse space totaling 150,000 square feet and a work force of over 700 employees.

Triad-Utrad's integrated plants are now producing hundreds of thousands of such varied products as those shown on these pages. They are representative of the types we make for our customers in the fields of microwave cooking, electrostatic air filtering and photocopying, home entertainment, lighting, battery charging, power conversion, military and broad industrial usage.

Triad-Utrad employs a versatile staff of design engineers and technicians whose sole purpose is to work directly with you in the initial stages of your equipment development. In addition, Triad-Utrad supports the design activity with a model shop to effect the most expeditious handling of engineering prototypes and pilot line runs. Triad-Utrad has unique machines and methods in all departments; a temperature-controlled room for the winding and assembly of miniature fine-wire components, toroidal inductors and transistor power supply transformers; an in-plant machine shop with tool and die making facilities; and automated conveyor system for large-scale production of ferro-resonant transformers.

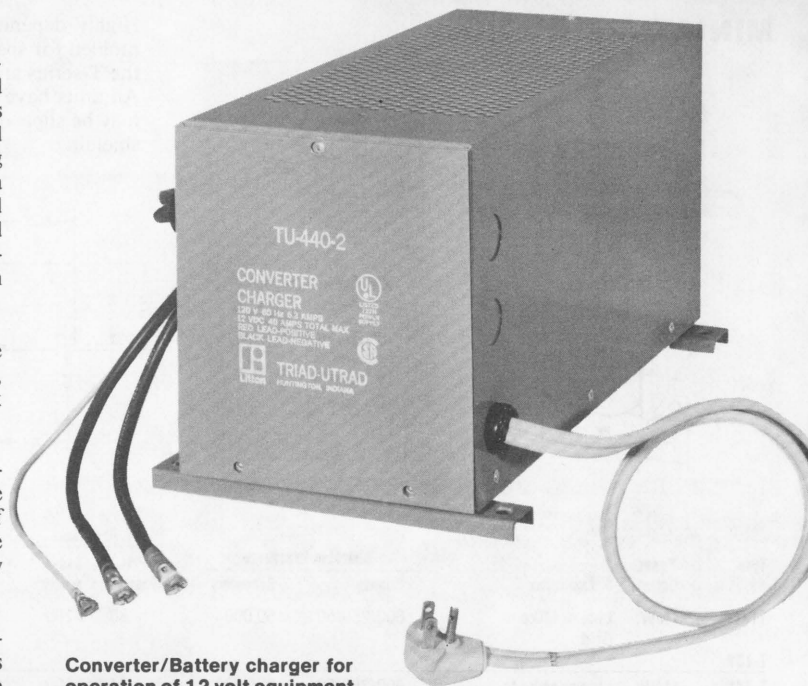
A quick look at the varied types of magnetic components shown on these pages could make your engineering and purchasing problems noticeably simpler and faster. Write, or give us a call.



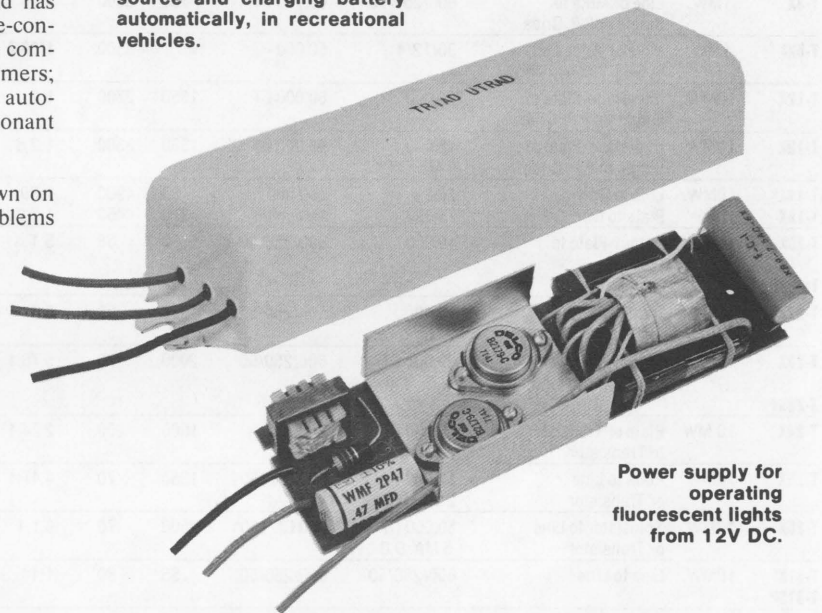
TRIAD-UTRAD

Litton 305 N. Briant Street, Huntington, Indiana 46750

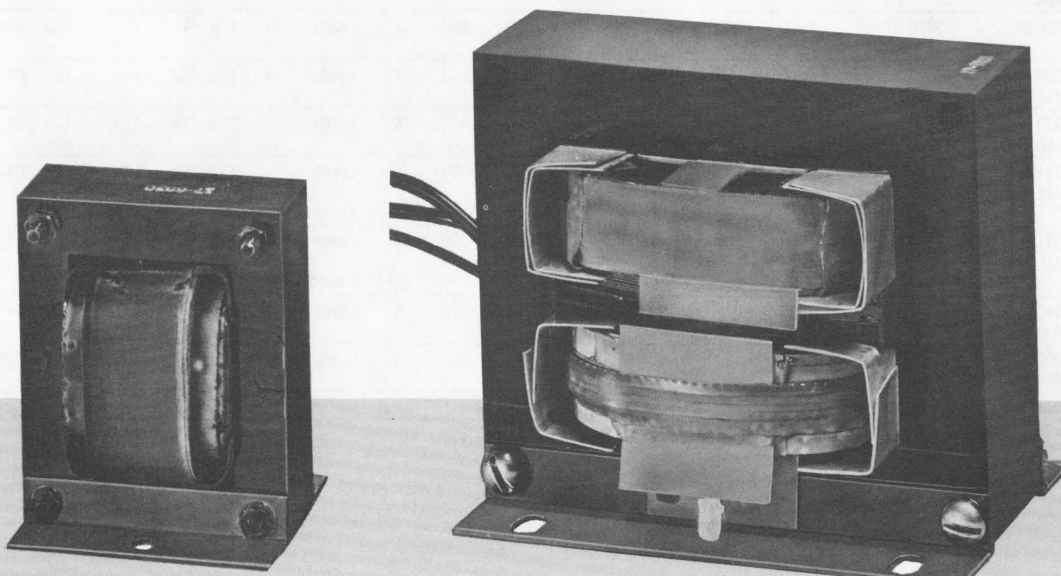
Phone: 219-356-7100 • TWX: 810-333-1532



Converter/Battery charger for operation of 12 volt equipment and lighting from 110 volt source and charging battery automatically, in recreational vehicles.



Power supply for operating fluorescent lights from 12V DC.

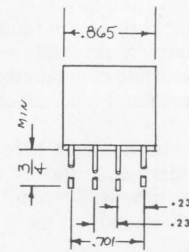
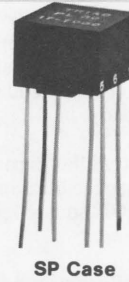
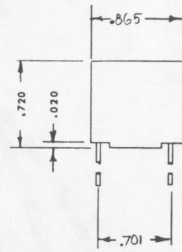
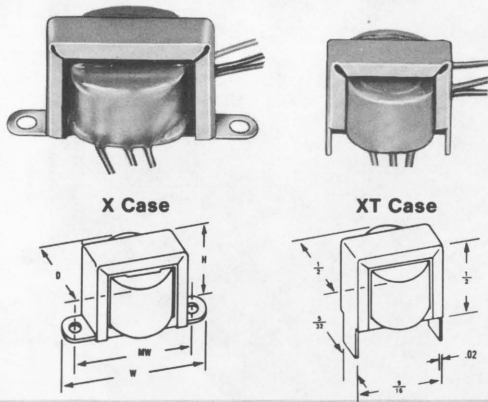


Ferroresonant transformers for micro-wave cooking and data processing applications.



MINIATURE AUDIO

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.



Type No.	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response $\pm 3\text{dB}$	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension MW	Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						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 1/2	3/4	1	.100	.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 1/2	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 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.045
▲T-14X‡	10MW.	Line to Grid	200	500,000	63	4900	1:50	300-3,000	500	X	Leads	5/8	1 1/2	3/4	1	.100	.045
▲T-15X	10MW.	Plate to Grid	15,000	1Megohm	370	4450	1:8.2	150-15,000	500	X	Leads	5/8	1 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.045
T-20SP											SP	Tinned Copper Leads					
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 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.045
T-23SP											SP	Tinned Copper Leads					
T-24X	10 MW	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 1/2	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 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.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 1/2	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 1/2	3/4	1	.100	.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 1/2	1 1/16	1 1/16	.125	.04
▲T-42X	1MW.	Transistor-Output-Single to Voice Coil	9800 2 MA. D.C.	15	855	1.73	25.5:1	200-50,000	500	X	Leads	5/8	1 1/2	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 1/2	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 1/2	3/4	1	.100	.045
T-35SP											SP	Tinned Copper Leads					
T-101X	-	Audio Choke	50 HY .75 MA. D.C.	-	4000	-	-	-	500	X	Leads	5/8	1 1/2	3/4	1	.100	.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 1/2	3/4	1	.100	.045
T-300	Magnetic shield for T-SP series. Dimensions, .091 x .091 x 0.754																

§ Split winding. CT for Center Tap. ‡ Static shield. ▲ Discontinued item, available until stock depleted.



PLUG-IN PRINTED CIRCUIT AUDIO TRANSFORMERS

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

CT for Center Tap. § Split winding.

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

FIG. A

FIG. B

FIG. C

FIG. D

TELEPHONE COUPLING TRANSFORMERS

Frequency Response: 300-3500 Hz ± 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.
 Send for Engineering Bulletin TCT-74

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

* Two required for hybrid operation.

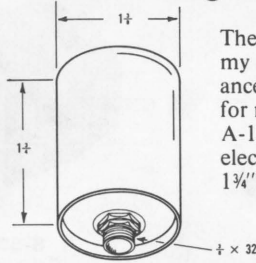
** Split winding; one wide band, one narrow band.

AUDIO TRANSFORMERS



COMMERCIAL GRADE

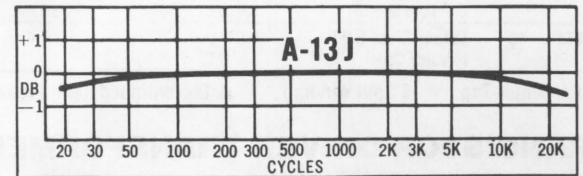
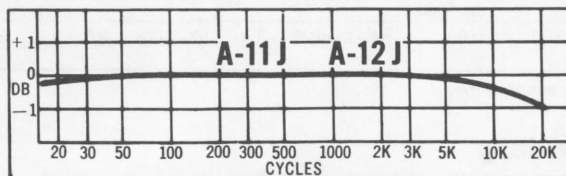
J SERIES / low level high fidelity



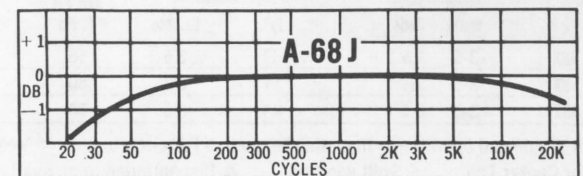
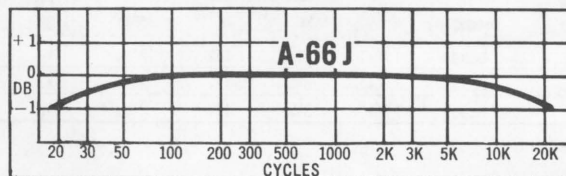
The flexibility of Triad J Series transformers permits amplifiers to exceed broadcast standards. Although economy in construction places them in a lower price class, these units approach and closely approximate the performance characteristics of more costly hermetically sealed units. Features: single-hole 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 and A-74J) . . . wide frequency ranges . . . flexible leads for ease of mounting . . . input units electrostatically and magnetically shielded . . . light weight . . . smooth, baked enamel cases, 1 1/2" diameter, 1 1/4" above chassis . . . legible circuit diagrams permanently affixed to every case.

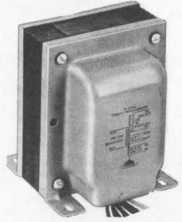
Type No.	Power Output	Application	Matching Impedance		D. C. Resistance		Overall Turns Ratio	Freq. Resp. \pm 3DB	RMS Test Voltage	Case Type	Connections	Case Dim		Mtg. Hole Diameter	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	D		
A-9J†	1MW	Line or Mike to Grid	600/250/50	85,000	32.7	3450	1:12	30-15,000	500	J	Leads	1 1/4"	1 1/4"	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 1/4"	1 1/4"	3/8"	.35
▲A-80J	1MW	Balanced Line or Mike to Single Grid	900/225 \$\$\$	60,000	53.4	4178	1:8.7	30-15,000	500	J	Leads	1 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	3/8"	.35
▲A-70J	100MW	Line or Transistor to Line or Transistor	500 CT/125 \$\$\$	100 CT/25 \$\$\$	50	10	2.24:1	30-15,000	500	J	Leads	1 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	3/8"	.35
A-55J	100MW	Plate to Line	15,000	600/250/50	1020	46	5:1	30-15,000	500	J	Leads	1 1/4"	1 1/4"	3/8"	.35
A-61J	50MW	Line to 2 simultaneously loaded lines or transistors	600/150 \$\$\$	600/150 \$\$\$	47	40	1.4:1:1	60-15,000	500	J	Leads	1 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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 1/4"	1 1/4"	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	20-15,000	500	J	Leads	1 1/4"	1 1/4"	3/8"	.35
A-57J	50MW	Line or Transistor to Line	600/250/50	600/250/50	40	44	1:1	30-30,000	500	J	Leads	1 1/4"	1 1/4"	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 1/4"	1 1/4"	3/8"	.35

CT for Center Tap. † Static shield. \$\$\$ Split winding. ▲ Discontinued item, available until stock depleted.

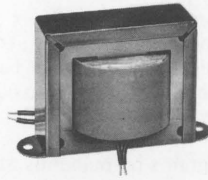
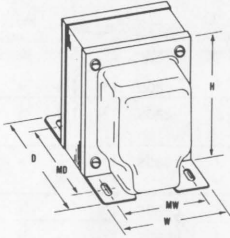


PERFORMANCE CURVES
 A-11J
 A-12J
 A-13J
 A-66J
 A-68J

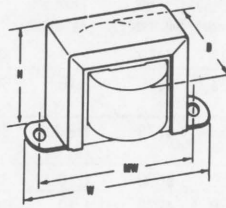




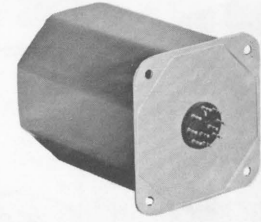
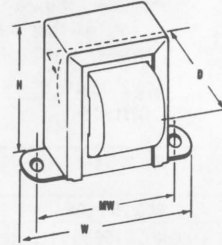
A-Case



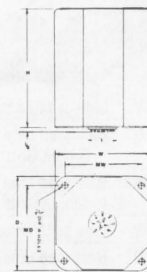
X Case



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.

OUTPUT AND DRIVER TRANSISTOR TRANSFORMERS / medium and high level

Type No.	Power Output Watts	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Freq. Response ± 3 DB	RMS Test Voltage	Case Connections	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary					H	W	D	MW	MD	
TY-29X	8	Output-Push-Pull to V.C.	24 CT 500MA D.C. Bal.	8/4	2.57	2.2	1.73:1	30-20,000	1000	X Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆		1.1
TY-31X	2	Output-Sgl. or P.P. to V.C.	200 CT 50MA D.C. Bal.	8/4	27	1.4	5:1	50-10,000	500	X Leads	1 ¹⁵ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄		.21
TY-48X	.5	Output-Class B P.P. to V.C.	100 CT 40MA D.C.	16/8/4	14	4	2.5:1	50-20,000	500	X Leads	1 ⁹ / ₁₆	1 ¹ / ₈	1	1 ³ / ₈		.08
TY-30X	2	Output-Sgl. or P.P. to V.C.	100 CT 100MA D.C. Bal.	8/4	14.4	1.1	3.54:1	50-10,000	500	X Leads	1 ¹⁵ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄		.2
TY-18X	.5	Driver-Sgl. or P.P. to Sgl. or P.P.	500 CT 50MA D.C.	200 CT	36.5	15.5	1.6:1	35-20,000	500	X Leads	1 ¹ / ₄	2 ¹ / ₈	1 ¹ / ₄	1 ³ / ₄		.30
TY-53X	.6	Driver-Sgl. or P.P. to Sgl. or P.P.	200 CT 10MA D.C.	400 CT	26.5	58.6	1:1.4	20-20,000	1000	X Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ¹ / ₄	2 ¹³ / ₁₆		1
TY-61X	.5	Driver-Sgl. to Sgl. or P.P.	100 100MA D.C.	100 CT	10.6	10	1:1	50-10,000	1000	X Leads	1 ¹ / ₈	2 ¹³ / ₁₆	1 ¹ / ₂	2 ³ / ₈		.6
TY-63X	5	Output-P.P. 2N68's to V.C.	48 CT 275MA D.C. Bal.	16/8	4.5	1.4	1.72:1	50-10,000	1000	X Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ¹ / ₄	2 ¹³ / ₁₆		1
TY-152X	10	Output P.P. to Voice Coil	20 CT 500MA D.C.	8	.55	.35	1.6:1	300-10,000	500	X Leads	1 ¹ / ₈	2 ³ / ₈	1 ¹ / ₈	2		.47
TY-64X	10	Output-P.P. to Voice Coil	32 CT 575MA D.C. Bal.	16/8/4	2.24	1.3	1.44:1	300-10,000	1000	X Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ¹ / ₄	2 ¹³ / ₁₆		1
TY-20Z	10	Output P.P. to Voice Coil	100 CT 500MA D.C. Bal.	16/8/4	6	1.5	2.5:1	300-10,000	1500	Z Leads	2 ³ / ₈	2 ¹ / ₈	1 ¹ / ₄	1 ³ / ₈		1
TY-65Z	10	Modulation-P.P. Class B to Modulation	32 CT 575MA D.C. Bal.	6K/4K/ 3K	1.9	275	1:13.7	300-3000	1500	Z Leads	2 ³ / ₁₆	2 ¹ / ₈	2	2 ³ / ₈		1.3
▲TY-66A	40	Modulation-Class B-P.P. to Modul.	6 CT 5A. D.C.	6K/4K/ 3K	.158	80	1:31.6	300-3000	Pri 1500 Sec 3000	A Leads-2	3 ¹⁵ / ₁₆	3 ³ / ₃₂	3 ³ / ₈	2 ¹ / ₂	2 ¹ / ₄	5.2
TY-67A	40	Output-Class B P.P. to Voice Coil	6 CT 5A. D.C.	16/8/4	.174	.24	1:1.63	300-3000	1500	A Leads-2	3 ¹⁵ / ₁₆	3 ³ / ₃₂	3 ³ / ₈	2 ¹ / ₂	2 ¹ / ₄	5

CT for Center Tap. § Split winding. ▲ Discontinued item, available until stock depleted. ▣ New item.

TRANSISTOR DRIVER TRANSFORMERS / split secondary

Type No.	Power Output Watts	Turns Ratio	D.C. Resistance		Max. Pri. D.C. Ma.*	Min. Pri. Inductance**	RMS Test Voltage	Case Type	Connections	Case Dimensions				Mtg. Hole Size	Max. Unit Wt. Lbs.
			Pri.	Es. Sec.						H	W	D	MW		
TY-158X	3-5	1.5:1:1	3	3.6	50	.2H	500	X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆	3 ¹ / ₁₆	1.2
TY-159X	3-5	3:1:1	11	3.6	50	.8H	500	X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆	3 ¹ / ₁₆	1.2
TY-160X	3-5	6:1:1	45	3.6	50	3.5H	500	X	Leads	1 ¹⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆	3 ¹ / ₁₆	1.2

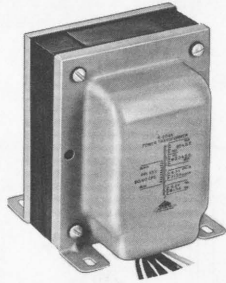
* For single end operation — may also be used in P.P.circuits. ** Measured at 3V, 60 CPS and rated D.C.

CT for Center Tap. § Split winding. ▲ Discontinued item, available until stock depleted.

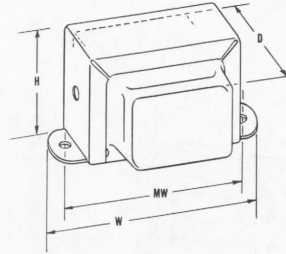
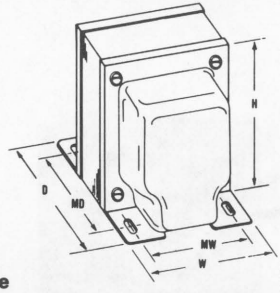
AUDIO TRANSFORMERS



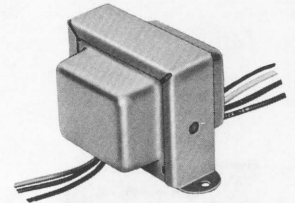
COMMERCIAL GRADE



A Case



SX Case



HIGH FIDELITY OUTPUT / tube to line or voice coil

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary							H	W	D	MW	MD	
S-31A	15	P.P. 6V6's, EL84's, etc. to Speaker	8000 CT	16/8/4	470	.33	40	22.2:1	30-20,000	1500	A	1	3 $\frac{3}{16}$	2 $\frac{1}{2}$ $\frac{1}{2}$	3 $\frac{3}{8}$	2	2 $\frac{1}{16}$	3.8
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 $\frac{3}{16}$	2 $\frac{1}{2}$ $\frac{1}{2}$	3 $\frac{3}{8}$	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 $\frac{3}{16}$	2 $\frac{1}{2}$ $\frac{1}{2}$	3 $\frac{3}{8}$	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 $\frac{3}{4}$ $\frac{1}{2}$	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 $\frac{1}{2}$ $\frac{1}{2}$	4 $\frac{3}{8}$	2 $\frac{3}{4}$	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 $\frac{3}{4}$ $\frac{1}{2}$	3 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$ $\frac{1}{16}$		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 $\frac{3}{16}$	2 $\frac{1}{2}$ $\frac{1}{2}$	3 $\frac{3}{8}$	2	2 $\frac{5}{8}$	4

OUTPUT / tube to voice coil & line

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 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-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 $\frac{3}{16}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$ $\frac{1}{16}$		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 $\frac{3}{16}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$ $\frac{1}{16}$		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 $\frac{1}{2}$ $\frac{1}{2}$	2 $\frac{1}{2}$ $\frac{1}{2}$	2 $\frac{1}{8}$	1 $\frac{3}{4}$	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 $\frac{1}{2}$ $\frac{1}{2}$	2 $\frac{1}{2}$ $\frac{1}{2}$	2 $\frac{1}{8}$	1 $\frac{3}{4}$	1 $\frac{1}{8}$	2.5
S-80E	20	P.P. Plates to Line or Speaker	8000 CT	500/200/16/ 8/5/3/1.5	199	21.33 .504	200	22.2:1:5.5	40-10,000	1500	Spl.	-	3 $\frac{3}{4}$	3	3	2 $\frac{3}{8}$	2 $\frac{3}{8}$	3.50
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 $\frac{3}{8}$	3 $\frac{3}{16}$	3 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	4

HIGH FIDELITY OUTPUT / for "low profile" amplifiers / case type SX

Give maximum performance in low-height limited-space amplifiers—particularly those which incorporate high-gain preamplifier stages, and which are prone to hum pickup. All SX units are in cases 2 $\frac{1}{2}$ " high, 3" wide and

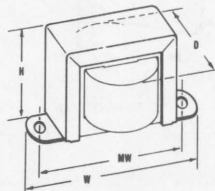
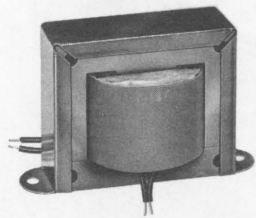
2 $\frac{3}{4}$ " deep, with mounting dimension of 3 $\frac{3}{16}$ " (mtg. hole size $\frac{3}{16}$ "). Weight 2 $\frac{1}{2}$ lbs.

Type No.	Output Watts	Application	Matching Impedance		Overall Turns Ratio	Frequency Response ± 2 DB	RMS Test Volt
			Primary	Secondary			
▲ SX-201	10-15	Williamson circuit	3300 CT	4/8/16	13.3:1	20-20,000	1500
SX-202	10-15	Williamson circuit	4500 CT	4/8/16	15.5:1	20-20,000	1500

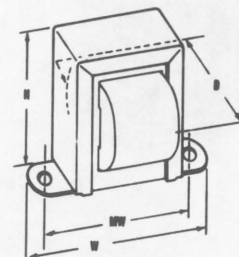
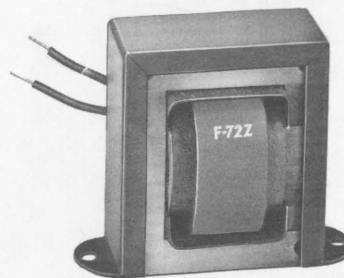
▲ Discontinued item, available until stock depleted.

□ Williamson type circuit may be used. Taps on primary for proper screen operation.

CT for Center Tap.



X Case



Z Case

Triad output transformers for replacement are designed wherever possible to fit into the exact location of the original. For this reason, they are furnished in a wide range of sizes and mounting characteristics. Each unit was designed to deliver the best response which could be built into its specific size. Quality of workmanship and materials is identical with more expensive audio transformers. You'll get better performance and longer life with these replacements.

Triad's Output Transformer Replacement Chart for the selection of the

proper output transformer—both standard or universal—is available from your distributor or the Triad Distributor Division, Huntington, Ind. This chart shows types of tubes, use, class, power in watts and impedance in ohms, with the correct Triad replacement to use in various mounting centers. Ask for your copy. For finest response in minimum space . . . coverage of all important impedance and wattage ranges . . . premium quality at economy prices . . . insist on Triad!

REPLACEMENT OUTPUT / single tube to standard voice coil / 3-4 ohms

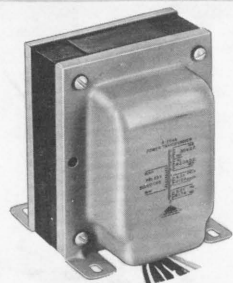
Type No.	Output Watts	Primary D.C. MA	Matching Impedance		DC Resistance		Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimension			Mtg. Dim.	Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary				H	W	D			
S-40X	.25	5.5	14,000	3-4	1380	.63	65.8:1	500	X	1 ³ / ₁₆	1 ¹ / ₂	1	1 ³ / ₈	.120	.08
▲S-37X	.25	4	25,000	3-4	2350	.63	88.4:1	500	X	1 ³ / ₁₆	1 ¹ / ₂	1	1 ³ / ₈	.120	.08
S-20X	2-3	50	2000	3-4	97	.5	22.4:1	1500	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
▲S-20Z	2-3	50	2000	3-4	97	.5	22.4:1	1500	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
S-12X	2-3	50	2500	3-4	138	.52	26.8:1	1000	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
S-12Z	2-3	50	2500	3-4	138	.52	26.8:1	1000	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
S-16X	2-3	50	3000/5% tap	3-4	207	.31	27.3:1	1000	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
S-14Z	2-3	50	4000	3-4	332	.31	35:1	1500	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
S-6X	2-3	35	5000	3-4	440	.42	39:1	1000	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
S-6Z	2-3	35	5000	3-4	440	.42	39:1	1000	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
▲S-48Z	2-3	35	6500	3-4	540	.31	45:1	1500	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
S-8X	2-3	30	8000	3-4	477	.34	48:1	1000	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
S-11X	2-3	30	10,000	3-4	670	.32	53.7:1	1000	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
S-11Z	2-3	30	10,000	3-4	670	.32	53.7:1	1000	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
S-13X	2-3	10	25,000	3-4	1780	.36	84.6:1	1000	X	1 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	³ / ₁₆	.21
▲S-13Z	2-3	10	25,000	3-4	1780	.36	84.6:1	1000	Z	1 ⁷ / ₁₆	1 ¹³ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	³ / ₁₆	.21
S-2X	3-5	55	2000	3-4	150	.5	23.8:1	1000	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.45
S-1X	3-5	60	2500	3-4	150	.5	27:1	1000	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.45
S-30X	3-5	60	3000	3-4	187	.5	30.5:1	1000	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.45
S-41X	3-5	50	4000	3-4	300	.34	35.4:1	1500	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.45
S-3X	3-5	40	5000	3-4	495	.5	40:1	1000	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.45
S-7X	3-5	30	7500	3-4	740	.53	46.6:1	1000	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.45
S-17X	3-5	30	10,000	3-4	600	.38	53.3:1	2000	X	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	³ / ₁₆	.5
▲S-50X	4-6	60	2500	3-4	117	.32	24.9:1	1500	X	1 ³ / ₈	2 ¹³ / ₁₆	1 ¹ / ₂	2 ³ / ₈	³ / ₁₆	.6
▲S-67X	4-6	60	3200	3-4	155	.35	27.9:1	1500	X	1 ³ / ₈	2 ¹³ / ₁₆	1 ¹ / ₂	2 ³ / ₈	³ / ₁₆	.6
S-4X	5-8	70	3000	3-4	130	.26	55:1	1000	X	1 ¹³ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆	³ / ₁₆	1
S-5X	5-8	50	5000	3-4	283	.275	30.7:1	1000	X	1 ¹³ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆	³ / ₁₆	1
S-5Z	5-8	50	5000	3-4	283	.275	39.2:1	1000	Z	2 ⁵ / ₁₆	2 ⁷ / ₁₆	1 ³ / ₄	2 ³ / ₈	³ / ₁₆	1
S-9X	5-8	50	7500	3-4	635	.17	46.7:1	1000	X	1 ¹³ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ¹³ / ₁₆	³ / ₁₆	1
▲S-9Z	5-8	50	7500	3-4	635	.17	46.7:1	1000	Z	2 ⁵ / ₁₆	2 ⁷ / ₁₆	1 ³ / ₄	2 ³ / ₈	³ / ₁₆	1

▲ Discontinued item, available until stock depleted.

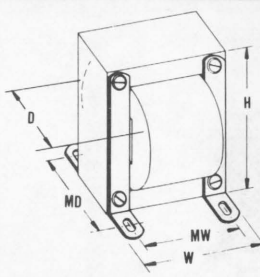
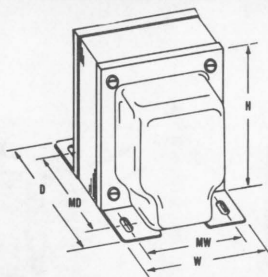
AUDIO TRANSFORMERS



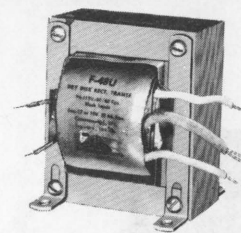
COMMERCIAL GRADE



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 Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Total	Each Side	Primary	Secondary	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 3/8	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 3/8	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 3/16	2 3/8	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 3/8	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 3/8	2	2 13/16	3/16	1.6	

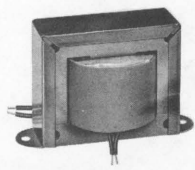
UNIVERSAL OUTPUT / single or push-pull tubes to voice coil

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.
			P.P. Total	Single Total	Primary	Secondary	Primary	Secondary				H	W	D	MW	MD	
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 3/16	2 1/16	1 1/4	1 3/4	.21	
S-52X	4	Single or P.P. Plates	50	25	4000 to 24,000	1.3 to 24.5	930	.745	32.7:1	1500	X	1 3/8	2 3/8	1 3/8	2	.45	
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 3/8	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 3/8	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 3/8	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 3/8	1 3/4	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 3/8	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 3/8	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 3/8	2 1/8	2 13/16	1.8	

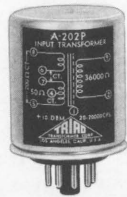
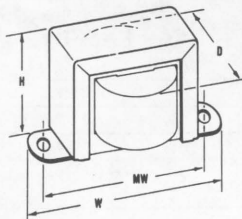
OUTPUT / line to voice coil

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Sec. Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							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 3/16	2 1/16	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 3/16	2 1/16	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 3/16	2 3/8	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 3/8	2 1/8	2 13/16	1.8	
S-77U	30	High Level Line to Line or Speaker Matching Transformer	500 CT/ 125 S	32/16/8/4/2	36	2.05	-	3.96:1	40-15,000	1500	U	Leads & Lugs	3 3/16	2 13/16	4 3/16	2 1/4	3 3/8	5

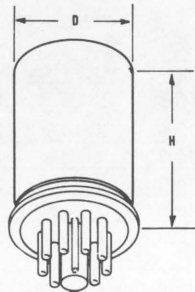
CT for Center Tap. S Split winding. ▲ Discontinued item, available until stock depleted.



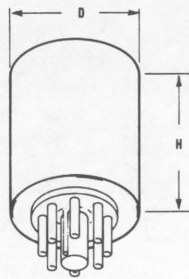
X Case



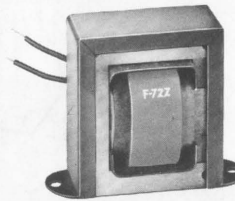
A-202P



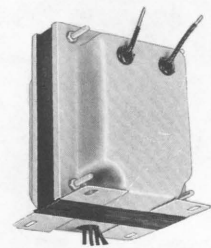
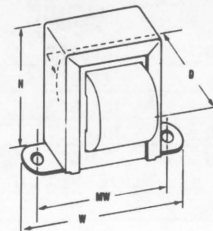
P Case, 9 Pin



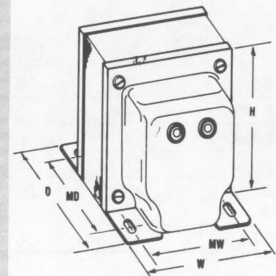
P Case, 8 Pin



Z Case



AL Case



INPUT / line or microphone to grid

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD		
A-1X	1	Mike or Line to Grid	100	98,500	4.44	1455	-	1:31.4	100-15,000	500	X	Leads	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	.21	
A-3X	1	Line or Mike to Grid	400 CT	195,000	5	1290	-	1:22.1	200-10,000	500	X	Leads	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	.21	
A-4X	1	Line to Single Grid	500 CT/333/ 200 CT/125/ 67.5 CT/50	72,000	32.6	1290	-	1:12	100-20,000	500	X	Leads	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	.21	
▲A-5X	5	Mike or Line to Single or P.P. Grid	100	700,000 CT	1.1	3600	-	1:83.3	100-15,000	500	X	Leads	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	1 $\frac{1}{2}$ "	2 $\frac{3}{16}$ "	3 $\frac{1}{16}$ "	.6	
A-6X	1	Intercom-Speaker V.C. to Grid	8/4	50,000	.74	1420	-	1:79.6	150-20,000	500	X	Leads	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	.21	

PLUG-IN INPUT

Type No.	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Freq. Resp. ± 3 DB	RMS Test Voltage	Mag. Shielding	Case Type	Case Dimension		Max. Unit Wt. Lbs.
		Primary	Secondary	Primary	Secondary						H	D	
▲A-200P	Line or Mike to Grid	200 CT/50 CT $\frac{5}{8}$	36,000	40	2300	1:13.6	50-15,000	500	70 DB	P 9 Pin	2 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	.25
▲HS-273P	Line or Mike to Grid	200 CT/50 $\frac{5}{8}$	80,000	14	3460	1:20	30-20,000	500	70 DB	Octal 8 Pin	1 $\frac{1}{4}$ "	1 $\frac{3}{8}$ "	.35

Note: All items have electrostatic shield between primary and secondary plus magnetic shielding.

INTERSTAGE / plate to grid

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD	
A-31X	3	Plate to Single or P.P. Grids	10,000	90,000 CT	885	2660	10	1:3	100-10,000	500	X	Leads	1 $\frac{3}{16}$ "	2 $\frac{3}{16}$ "	1 $\frac{3}{16}$ "	2		.45
A-33X	6	Plate to Single or P.P. Grids	10,000	90,000 CT	1250	3750	20	1:3	70-10,000	1000	X	Leads	1 $\frac{15}{16}$ "	3 $\frac{3}{16}$ "	1 $\frac{3}{4}$ "	2 $\frac{13}{16}$ "		1
▲A-42Z	6	Multi-Ratio Single or P.P. Plates to Single or P.P. Grids	15,000 CT 15,000 CT 3750	135,000 CT 33,750 135,000 CT	1310	3910	20	1.3 1:1.5 1:6	70-10,000	1500	Z	Leads	2 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	1 $\frac{3}{4}$ "	2 $\frac{3}{8}$ "		1

AUDIO TRANSFORMERS



COMMERCIAL GRADE

DRIVER

Type No.	Power Output Watts	Application	Matching Impedance		Overall Turns Ratio	Freq. Resp. \pm 3 DB	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary						H	W	D	MW	MD		
A-81X	.5	Driver-Plate to Single or P.P. Grids	15,000 15 MA D.C.	8500 CT	1:33.1	300-3000	1000	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		$\frac{3}{16}$.21
A-85X	5	Driver-Plate to Class B P.P. Grids	7000 40 MA D.C.	4000 CT	1:33:1	50-10,000	1000	X	Leads	1 $\frac{15}{16}$	3 $\frac{1}{16}$	1 $\frac{3}{4}$	2 $\frac{13}{16}$		$\frac{3}{16}$	1
▲A-89A	15	Univ. Driver-P.P. Plates to AB or B Grids	4K/8K 100 MA D.C. Per Side	4.4K/8.8K Split Winding	1:1.1	50-10,000	1500	A	Leads	3 $\frac{3}{16}$	2 $\frac{21}{32}$	2 $\frac{1}{2}$	2	1 $\frac{11}{16}$	$\frac{3}{8} \times \frac{3}{16}$	3.5
TY-61X	.5	Transistor Driver	100 100 MA D.C.	100 CT	1:1	50-10,000	1000	X	Leads	1 $\frac{1}{2}$	2 $\frac{13}{16}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$		$\frac{3}{16}$.6

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 Holes 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 $\frac{1}{2}$	2 $\frac{13}{16}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$		$\frac{3}{16}$.6
S-58X	1	Line to Line	600 CT/ 150 \S	600 CT/ 150 \S	46	47.2	-	1:1	100-10,000	500	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		$\frac{3}{16}$.21
S-81X	1	Line to Line	600	600	46	47.2	-	1:1	100-10,000	500	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		$\frac{3}{16}$.20
S-84X	10	Line to Line	500/333/ 200/125/ 50	500/333/ 200/125/ 50	-	-	-	-	50-20,000	1000	X	Lugs	2	3 $\frac{1}{4}$	1 $\frac{1}{2}$	2 $\frac{13}{16}$		$\frac{3}{16}$	1

SPECIAL TRANSCEIVER / voice frequencies

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Freq. Resp. \pm 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	W	D	MW	MD		
▲A-21X	.75	Mike or Plate to Grid (2 Primaries)	100 10,000	100,000 340	3	1300	1:31.5 1:3	200-20,000	500	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		$\frac{3}{16}$.21

MODULATION / tube to rf load

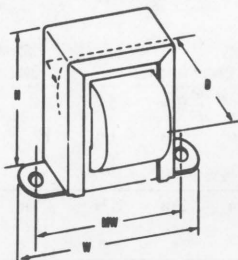
Type No.	Output Watts	Matching Impedance		DC Resistance		Sec. D.C. MA	Over-All Turns Ratio	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		Primary	Secondary	Primary	Secondary						H	W	D	MW	MD	
▲M-1X	5	10,000 CT	5K/8K/ 10K	710	965	50	1:1	1000	X	Leads	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$.45
TY-65Z	10	32 CT	3K/4K/ 6K/	2	275	100	1:13.7	1500	Z	Leads	2 $\frac{1}{16}$	2 $\frac{1}{16}$	2	2 $\frac{3}{8}$		1.3
▲M-3X	20	10,000 CT	3K/5K/8K	523	471	100	1:11:1	1500	X	Leads	2 $\frac{3}{32}$	3 $\frac{11}{16}$	2	3 $\frac{1}{8}$		1.6
▲M-6X	20	10,000 CT	3K/5K/8K 4(VC)	523	471	100	1:11:1	2000	X	Leads	2 $\frac{3}{32}$	3 $\frac{11}{16}$	2	3 $\frac{1}{8}$		1.6
▲TY-66A	40	6CT 5A	3K/4K/6K	.16	81	200	1:31.7	3000	A	Leads-2	3 $\frac{1}{8}$	3 $\frac{3}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	4.5
▲M-7AL	60	4250 CT	3K/5K/8K	90	120	200	1:1.37	3500	AL	Leads-2°	4 $\frac{1}{4}$	3 $\frac{13}{32}$	3 $\frac{1}{8}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	6.5

* Plate leads out side of case.

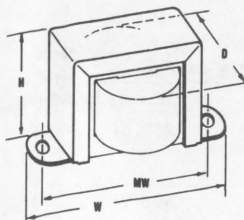
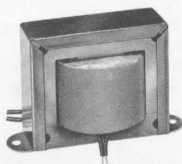
CT for Center Tap

▲ Discontinued item, available until stock depleted.

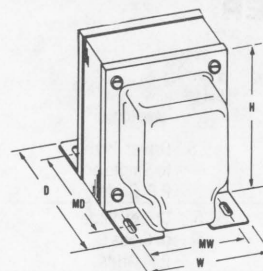
§ Split winding.



Z Case



X Case



A Case

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 provided in each box.

Type No.	Output Watts	Secondary Impedance	Case Type	H	Dimensions—Inches			Wt. Lbs.
FOR 70.7-VOLT CONSTANT VOLTAGE LINE								
					W	D	MW	
S-7010	10/5/2.5	8 ohms	X	1 1/8	2 3/4	1 3/8	2 3/8	.50
S-7005	5/2.5/1.25	8 ohms	X	1 1/8	2 3/8	1 3/8	2	.37
S-7002	2/1/0.5	8 ohms	X	1 1/8	2 3/8	1 3/8	2	.37
S-7001	1/0.63/0.32	8 ohms	X	1 3/16	2 1/16	1 1/8	1 3/4	.25
FOR 25-VOLT CONSTANT VOLTAGE LINE								
S-2510	10/5/2.5	8 ohms	X	1 1/8	2 3/4	1 3/8	2 3/8	.50
S-2505	5/2.5/1.25	8 ohms	X	1 1/8	2 3/8	1 3/8	2	.37
S-2502	2/1/0.5	8 ohms	X	1 1/8	2 3/8	1 3/8	2	.37
S-2501	1/0.63/0.32	8 ohms	X	1 3/16	2 1/16	1 1/8	1 3/4	.25

OUTPUT / 70.7 volt line to voice coil

Type No.	Output Watts	Type	Secondary Impedance	D. C. Resistance		Freq. Resp. ± 3 DB	RMS Test Voltage	Case Type	Case Dimension				Mtg. Hole Size	Max. Unit Wt. Lbs.	
				Primary	Secondary				H	W	D	MW			MD
S-73X	5/2.5/1.25/.625/.31	Isolation	16/8/4	838	1.17	40-15,000	1500	X	1 3/8	2 3/8	1 3/8	2	3/16	.45	
S-70Z	5/2.5/1.25/.625/.31	Autoformer	8/4	580	.65	40-15,000	1000	Z	1 1/16	2	1 3/8	1 23/32	3/16	.45	
S-47Z	8/4/2/1/1.5	Isolation	16/8/4	515	.93	30-20,000	1500	Z	1 15/16	2 3/8	1 3/8	2	3/16	.67	
S-85X	5/4/3/2/1	Isolation	16/8	320	1.5	50-20,000	1000	X	1 3/8	2 3/8	1 3/8	2	3/16	.4	
S-78Z	10/5/2.5/1.25	Isolation	16/8/4	157	.84	40-20,000	1000	Z	1 15/16	2 3/8	1 1/2	2	3/16	.6	
S-86Z	16/8/4/2/1/1.5	Isolation	16/8/4	570	1.15	40-15,000	1000	Z	2 3/4	3 3/8	2 1/4	2 13/16	3/16	1.5	
S-25Z	10/5/2.5/1.25	Autoformer	8/4	120	.475	30-20,000	1000	Z	2 5/16	2 3/8	1 3/4	2 3/8	3/16	1	
S-71Z	10/5/2.5/1.25	Autoformer	16/8/4	148	.835	40-20,000	1000	Z	1 15/16	2 3/8	1 1/2	2	3/16	.6	
SR-45Z	10/5/2.5/1.25	Autoformer	16/8/4	267	.866	20-20,000	1000	Z	2 23/32	3 3/8	2 1/8	2 13/16	3/16	1.8	
S-79Z	20/10/5/2.5	Isolation	16/8/4	69	.7	40-20,000	1000	Z	2 5/16	2 3/8	1 3/4	2 3/8	3/16	1	
S-72Z	20/10/5/2.5	Autoformer	16/8/4	56.5	.5	40-20,000	1000	Z	2 5/16	2 3/8	1 3/4	2 3/8	3/16	1	
S-46A	20/10/5/2.5	Autoformer	16/8/4	88.7	.82	30-15,000	1000	A	3 3/16	2 23/32	3 3/8	2	2 7/16	3/16 x 3/16	4
S-43Z	30/20/10/5	Isolation	16/8/4	40	1.0	40-20,000	1500	Z	2 5/16	2 3/8	1 3/4	2 3/8	3/16	1.6	
S-44Z	50/40/25/15	Isolation	16/8/4	25	1.5	40-20,000	1500	Z	2 5/16	2 3/8	2	2 3/8	3/16	1.5	

OUTPUT / 25 volt line to voice coil

Type No.	Output Watts	Type	Secondary Impedance	D. C. Resistance		Freq. Resp. ± 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	2/1/1.5	Isolation	8/4	63	.67	50-20,000	1500	X	1 3/8	2 3/8	1 3/8	2	3/16	.45	
S-132X	5/2.5/1.25/.625	Isolation	16/8/4	37.6	.76	30-20,000	1500	X	1 3/8	2 13/16	1 3/8	2 3/8	3/16	.8	
S-133Z	10/5/2.5/1.25	Isolation	16/8/4	12.5	.66	20-20,000	1500	Z	2 23/32	3 3/8	2	2 13/16	3/16	1.6	

MATCHING / 25 or 70.7 volt line

Type No.	Output Watts	Matching Impedance		D. C. Resistance		Freq. Resp. ± 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.)	1.9	16.9	20-15,000	1500	Z	3 3/32	3 3/8	2 1/4	3 3/8	3/16	2.3	

CT for Center Tap. ▲ Discontinued item, available until stock depleted.

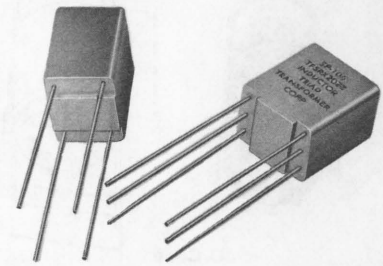
AUDIO TRANSFORMERS



MILITARY GRADE

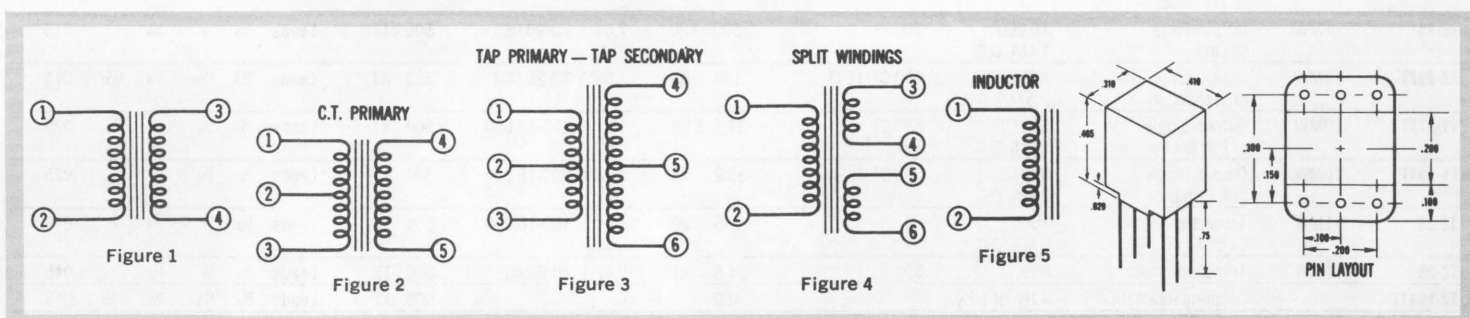
RED SPEC TRANSISTOR TRANSFORMERS

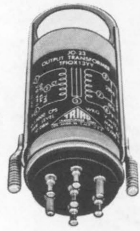
All Red Spec transformers are designed and constructed to conform to the rigid requirements of Specification MIL-T-27D. Features are: solid epoxy molded case . . . legible, permanent circuit data on every unit . . . base mounting pad for ready inspection of all solder joints . . . high-strength .020-diameter 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: 1/10 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.



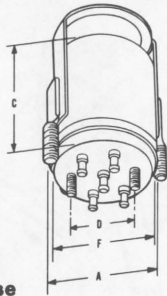
Type No.	Mil Type Number	Power Level In MW	Application	Matching Impedance		Max MA DC Unbalanced In Primary	DC Resistance		Overall Turns Ratio	Fig. No.
				Primary	Secondary		Primary	Secondary		
SP-4	TF5SX21ZZ	10	Input	200,000 CT	1,000 CT	0	5300	100	14.1:1	3
SP-5	TF5SX21ZZ	25	Input	50,000 CT	1,000 CT	0	3800	75	7.1:1	3
SP-7	TF5SX21ZZ	10	Input	200,000	1,000	0	5300	100	14.1:1	1
SP-11	TF5SX21ZZ	40	Interstage	25,000/20,000	1,000/800	.5	1700	115	5:1	1
SP-13	TF5SX21ZZ	40	Interstage	25,000 CT/20,000 CT	1,000 CT/800 CT	.5	1700	115	5:1	3
SP-15	TF5SX21ZZ	50	Interstage	10,000 CT	1,500 CT	1	1050	300	2.57:1	3
SP-20	TF5SX21ZZ	50	Driver	10,000 CT	1,200 CT	1	1050	200	2.88:1	3
SP-21	TF5SX21ZZ	50	Driver	10,000 CT	2,000 CT	1	1050	330	2.24:1	3
SP-22	TF5SX21ZZ	50	Driver	10,000	2,000 CT/500Ω	1	1050	146/168Ω	4.48:1:1	4
SP-29	TF5SX21ZZ	50	Driver	10,000 CT	500 CT	1	1050	80	4.47:1	3
SP-32	TF5SX21ZZ	50	Output	605	50	3	60	8	3.16:1	1
SP-33	TF5SX21ZZ	50	Output	1,000	50	3	145	8	4.4:1	1
SP-34	TF5SX21ZZ	50	Output	600	3.2	3	70	.76	13.6:1	1
SP-35	TF5SX21ZZ	50	Output	1,200	3.2	2	131	.76	19.3:1	1
SP-36	TF5SX21ZZ	50	Output	10,000	3.2	1	1160	.81	55.8:1	1
SP-42	TF5SX21ZZ	50	Output	150 CT	12	10	18	2.7	3.54:1	2
SP-47	TF5SX21ZZ	50	Output	1,500 CT	12	3	179	2.9	11.2:1	2
SP-48	TF5SX21ZZ	50	Output	7,500 CT	12	1	796	2.9	25:1	2
SP-49	TF5SX21ZZ	50	Output	300	600	7	41	98	1:1.42	2
SP-50	TF5SX21ZZ	50	Output	500 CT	600	3	67	98	1:1.1	2
SP-51	TF5SX21ZZ	50	Output	900 CT	600	4	104	96	1.22:1	2
SP-52	TF5SX21ZZ	50	Output	1,500 CT	600	3	168	92	1.58:1	2
▲ SP-64	TF5SX21ZZ	50	Output	1,600 CT	3.2	2.5	186	.8	22.3:1	2
SP-65	TF5SX21ZZ	50	Output	8,000 CT	3.2	1	790	.76	50:1	2
SP-66	TF5SX21ZZ	50	Output-Isolation	10,000 CT	10,000 CT	1	1000	1300	1:1	3
SP-67	TF5SX21ZZ	50	Output-Isolation	600 CT	600 CT	3	72	92	1:1	3
SP-68	TF5SX21ZZ	50	Output-Isolation	10,000	10,000 CT/2500Ω	1	1000	565/650Ω	2:1:1	4
SP-69	TF5SX21ZZ	50	Output-Isolation	600	600 CT/150Ω	3	72	40/45Ω	2:1:1	4
SP-70	TF5SX21ZZ	50	Output-Isolation	600	600	3	72	92	1:1	1
SP-106	TF5SX20ZZ	—	Audio Choke	6HY	—	2	1700	—	—	5
SP-107	TF5SX20ZZ	—	Audio Choke	1.25HY	—	2	180	—	—	5
SP-108	TF5SX20ZZ	—	Audio Choke	3.5HY	—	2	1100	—	—	5
SP-117	TF5SX20ZZ	—	Audio Choke	.9HY	—	2	110	—	—	5
SP-118	TF5SX20ZZ	—	Audio Choke	.3HY	—	4	42	—	—	5
SP-128	TF5SX20ZZ	—	Audio Choke	.1HY	—	5	15	—	—	5

CT for Center Tap. § Split Secondary. ▲ Discontinued item, available until stock depleted.

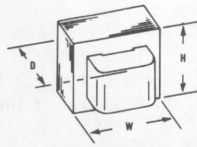




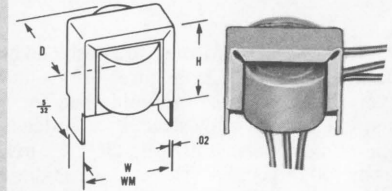
JO Case



	JOA	JOB
A	1 3/16 dia.	1 3/16 dia.
B	Round	Round
C	1 13/32	1 23/32
D	3/16	3/16
E	7/8	7/8
Unit Wt.	2 oz.	2 1/2 oz.



TZ Core & Coil only



XT Case

JO SERIES

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inches		Max. Unit Wt. Lbs.
				Primary	Secondary	Primary	Sec-ondary					Case	Case	
JO-1‡	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	50,000	100	3180	1:9.16	60-15,000	500	45 DB	3/8	JOA	.17
JO-3	TF1QX10YY	1MW.	Line or Mike to Single or P.P. Grids	600/250/50	60,000 CT	125	3600	1:10	60-15,000	500	45 DB	3/8	JOA	.17
▲ JO-5‡	TF1QX10YY	1MW.	Mike or Voice Coil to Grid	30/12/4	50,000	6	3500	1:39.7	50-12,000	500	45 DB	3/8	JOA	.17
▲ JO-11	TF1QX10YY	10MW.	Plate to Grid	15,000 0 MA D.C.	60,000	1100	2860	1:2	50-15,000	500	45 DB	3/8	JOB	.17
▲ JO-12	TF1QX10YY	10MW.	Plate to Single or Push-Pull Grids	15,000 0 MA D.C.	60,000 CT	1350	2700	1:2	50-15,000	500	45 DB	3/8	JOB	.17
▲ JO-13	TF1QX15YY	10MW.	Plate to Single or P.P. Grids	15,000 3 MA D.C.	95,000 CT	1330	3330	1:2.3	300-7,000	500	45 DB	3/8	JOB	.17
JO-21	TF1QX16YY	10MW.	Plate to Line	15,000 0 MA D.C.	600/250/50	1330	58	4.98:1	50-15,000	500	45 DB	3/8	JOB	.17
JO-22	TF1QX13YY	10MW.	Plate to Line	15,000 3 MA D.C.	600/250/50	1330	58	5:1	300-7,000	500	45 DB	3/8	JOB	.17
JO-23	TF1QX13YY	10MW.	Single or P.P. Plates to Line	20,000 CT 0 MA D.C.	600/250/50	2000	70	5.76:1	50-15,000	500	45 DB	3/8	JOB	.17
JO-31‡	TF1QX16YY	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	50-15,000	500	45 DB	3/8	JOB	.17
JO-101	TF1QX20YY	-	Coupling Reactor	50 HY 2 MA D.C.	-	3400	-	-	-	500	45 DB	3/8	JOB	.17

SUB-MINIATURE AUDIO / open frame

Type No.	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension MW	Max. Unit Wt. Lbs.
			Primary	Secondary	Pri-ary	Sec-ondary						H	W	D		
TZ-1	1MW.	Input-Line or Mike to Grid	600/250/50	60,000	350	4100	1:10	70-20,000	500	TZ	Leads	3/16	1/2	3/16	.015	
▲ TZ-2XT	1MW.	Line or Mike to Grid	200 CT	200,000	35	5000	1:31.6	100-20,000	500	XT	Leads	3/16	1 1/32	3/16	1 1/32	.015
TZ-5	1MW.	Input-Mike or V.C. to Grid	30/12/4	50,000	6	3500	1:40.5	70-20,000	500	TZ	Leads	3/16	1/2	3/16	.015	
TZ-7	1MW.	Input-Mike or V.C. to Transistor	30/12/4	1000	5	480	1:5.73	40-20,000	500	TZ	Leads	3/16	1/2	3/16	.015	
TZ-13	1MW.	Interstage-Plate to Single or P.P. Grids	15,000 1 MA. D.C.	135,000 CT	985	4400	1:3	70-15,000	500	TZ	Leads	3/16	1/2	3/16	.015	
TZ-15	1MW.	Transistor Interstage	20,000 .5 MA. D.C.	1200/600/100	2700	350	4.08:1	70-15,000	500	TZ	Leads	3/16	1/2	3/16	.015	
TZ-24XT	1MW.	Plate or Transistor to Line or Transistor	25,000 CT .5 MA. D.C.	500 CT	2000	60	6.48:1	100-15,000	500	XT	Leads	3/16	1 1/32	3/16	1 1/32	.015
TZ-17XT	1MW.	Plate or Transistor to Transistor	10,000 CT	2000 CT	1000	250	2.24:1	70-15,000	500	XT	Leads	3/16	1 1/32	3/16	1 1/32	.015
TZ-25	1MW.	Output-Plate to Line	10,000 1 MA. D.C.	200	1500	120	7.05:1	70-20,000	500	TZ	Leads	3/16	1/2	3/16	.015	
TZ-32XT	10MW.	Transistor to Line or Transistor	1500 CT 2.5 MA. D.C.	600 CT/150‡	160	65	1.58:1	70-20,000	500	XT	Leads	3/16	1 1/32	3/16	1 1/32	.015
TY-27XT	10MW.	Output-Single or P.P. to Line	500 CT 2 MA. D.C.	500 CT	37.5	51.5	1:1	300-15,000	500	XT	Leads	1/2	3/16	1/2	3/16	.025
▲ TY-28XT	10MW.	Output-Single or P.P. to Line	500 CT 2 MA. D.C.	200 CT	38.2	25	1.58:1	300-15,000	500	XT	Leads	1/2	3/16	1/2	3/16	.025
TZ-26	1MW.	Transistor Output	1000 5 MA. D.C.	50	355	20	4.5:1	100-10,000	500	TZ	Leads	3/16	1/2	3/16	.015	
TZ-28	1MW.	Transistor Input	600	50	94.5	11	3.47:1	40-60,000	500	TZ	Leads	3/16	1/2	3/16	.015	
▲ TZ-103XT	-	Coupling Reactor	4 Hy. or 1 Hy.	-	400	-	-	-	500	XT	Leads	3/16	1 1/32	3/16	1 1/32	.015

‡ Split winding. CT for Center Tap. † Static shield. ▲ Discontinued item, available until stock depleted.

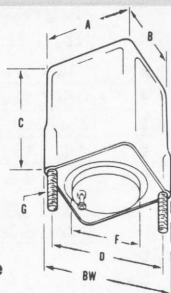
AUDIO & PULSE TRANSFORMERS



COMMERCIAL & MIL GRADE



AF Case



	AF	AH-2	AJ-2
A	3/4	1 1/8	1 3/8
B	3/4	1 1/8	1 3/8
Bw	1 1/4	1 1/2	
C	1 1/2	1 3/4	2 3/8
D	2 1/2	1 1/2	1 3/8
F	5/8	7/8	7/8
G	4-40	6-32	6-32
Unit Wt.	2 1/2 oz.	5 1/4 oz.	11 oz.



PL-4



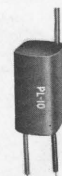
PL-20, PL-21, PL-22



PL-6



PL-30 through PL-34



PL-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 ± 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	3/16	AF	.1
▲JAF-2‡	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	250,000	48	3600	1:20.6	100-15,000	500	45 DB	3/16	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	3/16	AF	.1
JAF-11	TF1QX10YY	10MW.	Plate to Grid	15,000	50,000	1100	2860	1:1.81	60-15,000	500	45 DB	3/16	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	3/16	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	3/16	AF	.1
JAF-14‡	TF1QX10YY	1MW.	Line to Grid	200	500,000	63	4900	1:50	300-3,000	500	45 DB	3/16	AF	.1
JAF-15	TF1QX10YY	10MW.	Plate to Grid	15,000	1 Megohm	370	4450	1:8.2	350-5,000	500	45 DB	3/16	AF	.1
▲JAF-22	TF1QX13YY	10MW.	Plate to Line	15,000 3 MA. D.C.	600/250/50	1330	58.8	4.98:1	350-7,000	500	45 DB	3/16	AF	.1
JAF-23	TF1QX16YY	10MW.	Sgl. or P.P. Plates to Line	20,000 CT	600/250/50	2000	70	5.76:1	60-15,000	500	45 DB	3/16	AF	.1
▲JAF-24	TF1QX13YY	10MW.	Plate or Transistor to Transistor	10,000 CT 2 MA. D.C.	2000 CT	1000	200	2.24:1	50-20,000	500	45 DB	3/16	AF	.1
JAF-25	TF1QX13YY	10MW.	Transistor to Transistor or Line	12,000 CT 2 MA. D.C.	600 CT/150§	1350	70	4.47:1	50-15,000	500	45 DB	3/16	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	3/16	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	3/16	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	3/16	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	3/16	AF	.1
JAF-101	TF1QX20YY		Coupling Reactor	50 Henries .75 MA. D.C.		4000	-	-		500	45 DB	3/16	AF	.1
▲JAF-102	TF1QX20YY		Coupling Reactor	6HY. or 3 MA. D.C.	4 HY. 6 MA. D.C.	295	-	-		500	45 DB	3/16	AF	.1

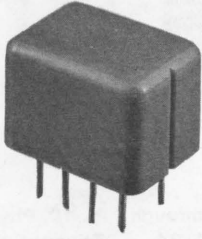
TRIGGER—PHOTOFLASH transformers

Type No.	Application	Turns Ratio	Primary Inductance	Leakage Inductance	Primary	D.C. Resistance	Secondary	Output Volts or Volt—μ Sec Rating	Dimensions	Weight Oz.		
									Di.	Length	Ht.	
PL-10	PHOTOFLASH	1:30	2 μH	1 μH	.2		115	6-8KV	1/2	3/4		1/2
PL-11	PHOTOFLASH	1:30	15 μH	1.5 μH	.2		115	10-12KV	1/2	3/4		1/2
PL-20	SCR TRIGGER	1:1	200 μH	8 μH	1.5		1.5	2000 VμSec	3/8	3/4		1
PL-21	SCR TRIGGER	1:1:1	200 μH	8 μH	1.5	1.5	1.5	2000 VμSec	3/8	3/4		1
▲PL-22	SCR TRIGGER	2:1:1	200 μH	15 μH	1.0	2	2	2000 VμSec	3/8	3/4		1
PL-30	SCR TRIGGER	1:1:1	7.5 μH	90 μH	2.5	2.5	2.5	130 VμSec	.562	.562	.450	1/2
PL-31	SCR TRIGGER	1:1	7.5 μH	90 μH	2.5	2.5		130 VμSec	.562	.562	.450	1/2
PL-32	SCR TRIGGER	2:1	7.5 μH	100 μH	2.5		1.8	130 VμSec	.562	.562	.450	1/2
PL-33	SCR TRIGGER	2:1:1	7.5 μH	100 μH	2.5	1.2	1.2	130 VμSec	.562	.562	.450	1/2
PL-34	SCR TRIGGER	5:1	7.5 μH	115 μH	2.5	1.3		130 VμSec	.562	.562	.450	1/2

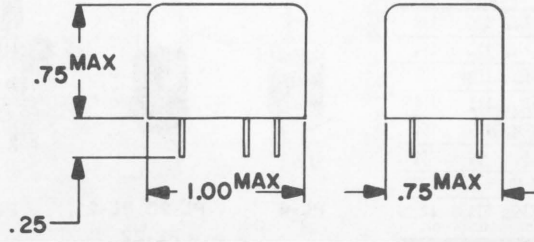
PULSE / blocking oscillator type

Type No.	Pulse Voltage per Winding	Pulse Duration—μ Sec.	Maximum Duty Ratio	Load Impedance—Ohms	Case Dimensions
					H D
▲PL-4	100-100	.54 to .66	.01	500	3/8 1 3/32
▲PL-6	100-100-100	.36 to .54	.01	2000	3/8 1 1/16

‡ Static shield. CT for Center Tap. § Split winding. ▲ Discontinued item, available until stock depleted.



SM-1
SM-2



	EB	FA	GA	JB	KB	LA
A	1 ¹ / ₁₆	2 ¹ / ₁₆	2 ³ / ₁₆	3 ¹ / ₁₆	3 ³ / ₁₆	3 ¹¹ / ₁₆
B	1 ¹ / ₁₆	2 ¹ / ₁₆	2 ³ / ₁₆	3 ¹ / ₁₆	3 ³ / ₁₆	4 ¹ / ₁₆
C	2 ¹ / ₁₆	3 ¹ / ₁₆	3 ¹ / ₁₆	3 ³ / ₁₆	4 ¹ / ₁₆	5 ¹ / ₁₆
D	1 ³ / ₁₆	1 ¹¹ / ₁₆	2 ¹ / ₁₆	2 ⁵ / ₁₆	3	3 ³ / ₁₆
E	1 ¹ / ₄	1 ¹ / ₁₆	1 ³ / ₄	2 ¹ / ₂	2 ¹ / ₁₆	2 ¹¹ / ₁₆
G	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈	1 ¹ / ₂	1 ¹ / ₂
I	6-32	6-32	6-32	8-32	10-32	10-32
Wt. (ave.) lbs.	15 oz.	1 ¹ / ₄	2	4	7	9 ¹ / ₄

LOW LEVEL AUDIO INPUT

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response ± 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\$/250\$/150/62.5	77,000	70	3640	1:11.3	20-20,000	500	90 DB P-5	3/8	GP-4	.75
HS-4‡	TF1QX10YY	10MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600\$/250\$/150/62.5	117,600 CT	70	4160	1:14	20-20,000	500	70 DB P-3	3/8	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	3/8	GP-4	.7

LOW LEVEL AUDIO INTERSTAGE

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
▲HS-35	TF1QX10YY	26MW	Sgl. Plate to Sgl. or P.P. Grid	15,000	111,000 CT\$\$\$	1440	3940	1:2.72	20-20,000	500	45 DB P-1	2 ³ / ₃₂	GP-2	.35
HS-27	TF1QX15YY	130MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grid	20,000 CT\$/5000	60,000 CT\$/15,000	1700	6420	1:1.72	20-20,000	1000	45 DB P-1	3/8	GP-4	.72
HS-29	TF1QX10YY	20MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT\$/5000	80,000 CT\$/20,000	2000	4,000	1:2	20-20,000	500	90 DB P-5	3/8	GP-4	.7
HSM-31	TF4RX19FA	3W.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT\$/5000	20,000 CT\$/5000 CT	2060	950	1:1	20-20,000	1500	-	1 ³ / ₈	FA	2
SM-1	TF5RX13ZZ	200MW.	Transistor Interstage	20K 30K	800 1,200	1144	32.8	5:1	200-20,000	500	+23 DBM			.05
HS-32	TF1QX15YY	200MW.	Sgl. Plate to Sgl. or P.P. Grids	15,000 (6MA. D.C.)	60,000 CT\$/15,000	5000	10,000	1:2	20-15,000	1000	45 DB P-1	3/8	GP-5	1.13

LOW LEVEL AUDIO OUTPUT / mixing, matching & bridging

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response ± 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\$/250\$/150/62.5	1020	52.6	5:1	20-20,000	500	70 DB P-3	3/8	GP-4	.75
HS-60	TF1QX16YY	20MW.	Sgl. Plate to Line	15,000	600\$/250\$/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\$/5000	600\$/250\$/150/62.5	815	30	5.6:1	20-20,000	1000	45 DB P-1	3/8	GP-4	.85
HS-54	TF1QX13YY	10MW.	Bridging or P.P. Plates to Line	20,000 CT\$/5000	600\$/250\$/150/62.5	1300	50	5.78:1	20-20,000	500	90 DB P-5	3/8	GP-4	.75
SM-2	TF5RX17ZZ	250MW.	Matching or Transistor Output	600 CT	600/150	35	60	1:1	200-20,000	500	+24 DBM			.05
HS-56W‡	TF1VX16YY	100MW.	Line to Line	600\$/250\$/150/62.5	600\$/250\$/150/62.5	60	60	1:1	10-30,000	500	70 DB P-3	3/8	GP-4	.75
HS-66‡	TF1QX16YY	100MW.	Line to Line	600\$/250\$/150/62.5	600\$/250\$/150/62.5	60	60	1:1	10-30,000	500	45 DB P-1	3/8	GP-3	.6

CT for Center Tap. \$ Balanced two windings. \$\$ Balanced parallel windings. ‡ Static shield. \$\$\$ Split winding. ▲ Discontinued item, available until stock depleted.

AUDIO TRANSFORMERS

Designed and Constructed to meet MIL-T-27B

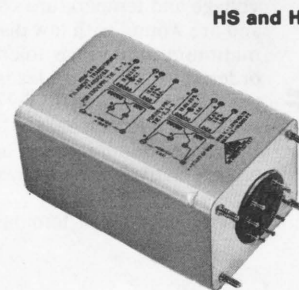
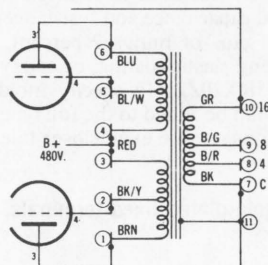


MILITARY GRADE

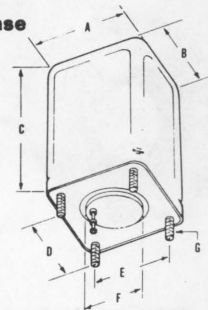


GP Case

SCREEN TAPPED ARRANGEMENT SHOWN, MAY BE USED TO INCREASE POWER. FREQUENCY RESPONSE AND DISTORTION REMAIN APPROXIMATELY THE SAME AS FOR TRIODE CIRCUIT.



HS and HSM Case



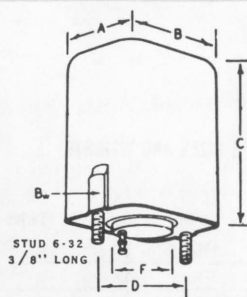
HIGH FIDELITY OUTPUT / high level / to line or voice coil

Type No.	Mil. Type Number	Output		Matching Impedance		Primary Ma. D.C.		D.C. Resistance		Overall Turns Ratio	Freq. Resp. ± 3 DB	RMS Test Voltage	F. Dim. Inch	Mil Case Type	Max. Unit Wt. Lbs.
		Watts	Application	Primary	Secondary	P.P. Single	Total	Pri-ary	Sec-ondary						
▲HSM-81	TF4RX13JB	15	P.p.6V6's, etc. to V.C	8000 CT §§§	16/8/4	100	420	.75	22.3:1	7-50,000	1500	1 3/8	JB	5.12	
▲HSM-85R	TF4RX13JB	20	As above—to line	5000 CT §§§	500/250/125	160	284	21	3.17:1	7-50,000	1500	1 3/8	JB	5	
▲HSM-189	TF1RX13KB	25	P.p. KT-66's, 807's, etc.—for Williamson Circuit	10,000 CT ■ or 2500 CT §§§	16/8/4	200	280	.9	24.8:1	7-50,000	Pri.2000 Sec.1500	1 1/8	KB	7.12	
▲HSM-94	TF1RX13LA	55	P.p. par. 6L6's to V.C.	4500 CT §§§	16/8/4	360	138	.46	17.5:1	7-50,000	2000	1 3/8	LA	11.1	

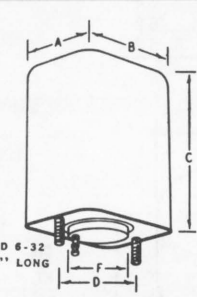
POWER OUTPUT / to line or voice coil

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Freq. Resp. ± 3 DB	RMS Test Voltage	F. Dim. Inches	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Primary	Secondary						
▲HS-71	TF1QX13YY	2W	Plate to Line	10,000 10 MA DC	600 CT/ 150 §§§	800	46	4.1:1	150-15,000	1000	2 3/32	AH-2 ■ ■	.4
▲HS-73	TF1RX13YY	5W	Plate to Line or Voice Coil	5000 40 MA DC	500/250/ 16/8/4	273	40	3.15:1	70-15,000	1500	7/8	AJ-2 ■ ■	.75
▲HS-75	TF4RX13EB	10W	Single or P.P. Plates to Line or V.C.	10,000 CT 50 MA DC	500/250/ 16/8/4	325	13.8	4.48:1	100-25,000	1500	7/8	EB	1.12
▲HS-77	TF4RX13GA	25W	Single or P.P. Plates to Line or V.C.	9000 CT 120 MA DC	500/250/ 16/8/4	157	9.1	4.24:1	70-20,000	2000	1 3/8	GA	3.12

▲ Discontinued item available until stock depleted. §§§ Split winding. CT for Center Tap. ■ Williamson type circuit may be used. Taps on primary for proper screen operation ■ ■ See case chart, page 22.



GP-1
GP-2
GP-3



GP-4
GP-5

	GP-1	GP-2	GP-3	GP-4	GP-5
A	7/8	1 1/16	1 1/4	1 7/16	1 5/8
B	1 1/16	1 1/4	1 9/16	1 3/4	2
Bw	1 1/16	1 11/32	1 21/32		
C	1 11/16	2 1/4	2 3/8	2 1/2	2 3/4
D	1 3/32	1 3/16	1 13/32	1 1/2	1 1/2
F	3/4	3/4	15/16	19/16	15/16
Wt.	3 oz.	5 1/2 oz.	8 oz.	12 oz.	17 oz.

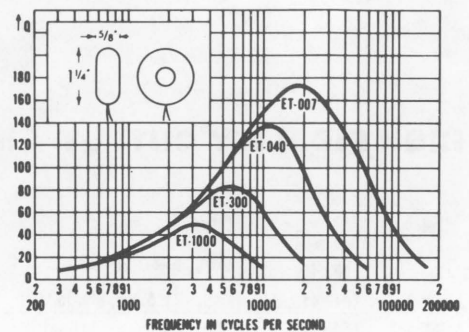
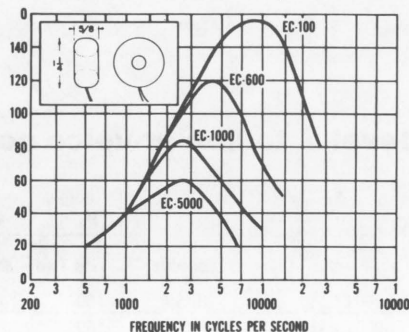
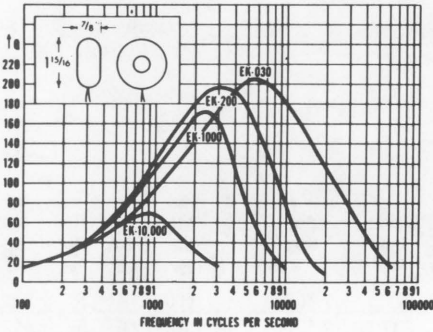
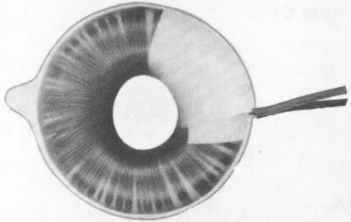
SHIELDING

- 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.



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; TFSRX20ZZ. To specify molded toroids with gold-plated 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-010	10 mh	.82	262
▲EK-020A	20 mh	1.10	185
EK-030	30 mh	1.40	150
EK-040	40 mh	1.90	130
▲EK-050	50 mh	2.4	116
EK-200	200 mh	7.50	58
EK-250	250 mh	9.0	52
▲EK-300A	300 mh	12.00	47
▲EK-500A	500 mh	19.0	37
EK-700	700 mh	27.0	31
EK-1000	1000 mh	45.00	26
▲EK-1500A	1500 mh	67.00	21
EK-2000A	2000 mh	100.00	18.4
▲EK-2500	2500 mh	108	16.5
▲EK-3000	3000 mh	116	15
EK-4000	4000 mh	150	13
▲EK-5000	5000 mh	200	11.6
EK-7000	7000 mh	300	9.8
▲EK-20000	20000 mh	800	5.8
EK-30000	30000 mh	1250	4.7
EK-40000	40000 mh	2000	4.1

▲ Discontinued item, available until stock depleted.

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-003	3 mh	.70	300
▲EC-004	4 mh	.82	260
EC-005	5 mh	.92	233
EC-007	7 mh	1.05	195
EC-010	10 mh	1.30	165
▲EC-015	15 mh	1.60	134
EC-020	20 mh	1.85	116
EC-030	30 mh	2.85	95
▲EC-040A	40 mh	4.20	82
EC-050	50 mh	5.50	74
▲EC-070	70 mh	8.30	62
EC-100	100 mh	13.00	52
EC-200	200 mh	23.00	37
EC-250	250 mh	33.00	33
EC-300	300 mh	35.00	30
EC-400	400 mh	42.00	26
EC-500	500 mh	72.00	23
▲EC-600A	600 mh	80.00	21
▲EC-700	700 mh	68.00	19.5
EC-1000	1000 mh	134	16.5
EC-1500	1500 mh	200	13.5
EC-2000	2000 mh	220	11.6
EC-3000	3000 mh	370	9.5
▲EC-4000	4000 mh	550	8.2
EC-5000	5000 mh	780	7.4
EC-7000	7000 mh	700	6.2
EC-10000	10000 mh	1100	5.2

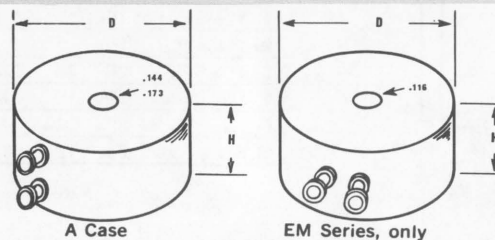
ET Series

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-002	2 mh	.50	480
ET-003	3 mh	.68	396
ET-004	4 mh	.81	342
ET-005	5 mh	1.10	306
ET-007	7 mh	1.50	260
ET-010A	10 mh	2	217
ET-015	15 mh	2.85	177
ET-020A	20 mh	4.0	153
ET-025	25 mh	4.8	137
ET-030	30 mh	6.5	125
ET-040	40 mh	9.2	108
ET-050	50 mh	10.3	97
ET-060	60 mh	14.5	88
▲ET-070A	70 mh	15.0	82
ET-100	100 mh	24	68
ET-150	150 mh	35	56
ET-200	200 mh	44.5	48
ET-250	250 mh	64	43
ET-300	300 mh	70	40
ET-400	400 mh	94	34
ET-500	500 mh	108	31
ET-700	700 mh	173	26
ET-1000	1000 mh	230	22

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 1/16	1 3/16	2	3/4
HT.	1/2	2 3/32	1	3/8
I.D.	3/4	3/4	3/4	7/16
WT. (oz.)	.8	2	6	.3

TOROIDAL INDUCTORS

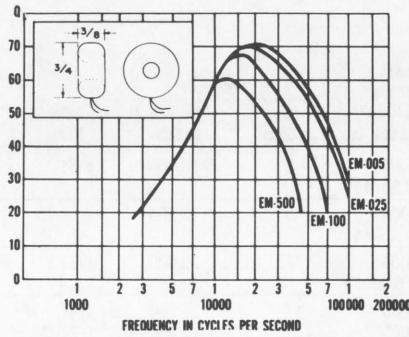
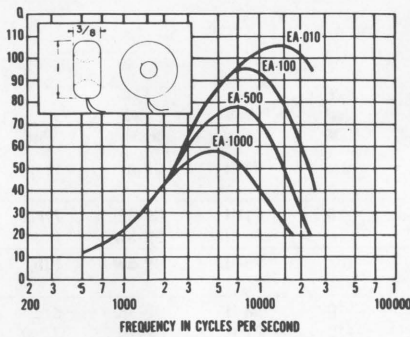


COMMERCIAL & MIL GRADE

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 alloy. 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 1/8 inch diameter by 1/4 inch high.



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-002	2 mh	.58	192
▲EA-003	3 mh	.73	157
▲EA-004	4 mh	.85	135
EA-005A	5 mh	1.10	121
▲EA-007A	7 mh	1.35	102
EA-010	10 mh	2.10	86
EA-015	15 mh	3.10	70
EA-020	20 mh	4.25	60
EA-025	25 mh	4.80	54
EA-030	30 mh	6.70	50
EA-040	40 mh	9.50	43
▲EA-050	50 mh	11.0	38
EA-070	70 mh	16.0	32
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-300	300 mh	70.0	16
▲EA-400A	400 mh	95.0	14
EA-500	500 mh	115	12
EA-600	600 mh	150	11
▲EA-700A	700 mh	160	10
EA-1000	1000 mh	260	8.6

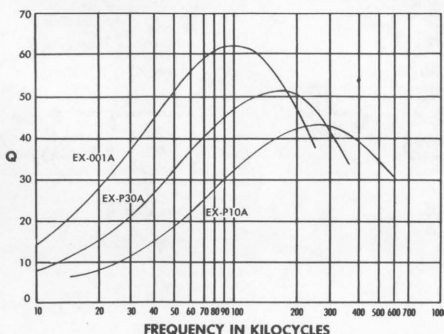
▲ Discontinued item, available until stock depleted.

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

$$Q = \frac{\omega L}{R_{eff}}$$

$\omega = 2\pi f$ where f is freq. in cps
 L = inductance in henries
 R_{eff} = effective resistance

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.



EM Series

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

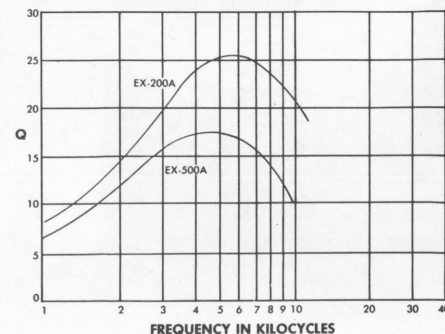
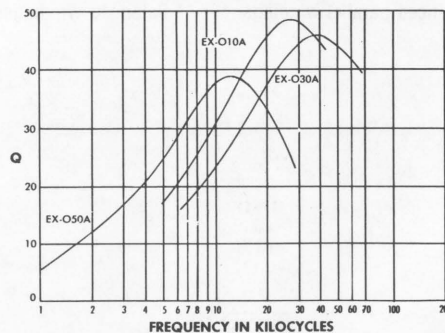
Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
EM-001	1 mh	1.25	150
EM-002	2 mh	1.70	108
EM-003A	3 mh	2.25	87
EM-004	4 mh	2.60	76
EM-005	5 mh	3.10	68
EM-007	7 mh	4.5	57
EM-010	10 mh	6.5	48
EM-015	15 mh	10.0	39
EM-025	25 mh	16.5	30
EM-030	30 mh	18	27.6
EM-050	50 mh	30	22
EM-060	60 mh	40	19.5
▲EM-070	70 mh	43	18
EM-100	100 mh	66	15
EM-150	150 mh	100	12.5
EM-200	200 mh	115	11
EM-250A	250 mh	155	9.6
EM-300	300 mh	180	8.8
EM-400	400 mh	265	7.6
▲EM-500	500 mh	295	7
▲EM-700	700 mh	400	5.8
EM-1000	1000 mh	650	4.8



Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
▲EX-P05A	50 μ h	1.2	75*
▲EX-001A	1 mh	4.3	75*
▲EX-001.5A	1.5 mh	4.9	60*
▲EX-002A	2 mh	8	60*
▲EX-002.5A	2.5 mh	5.3	60*
▲EX-003A	3 mh	6.5	60
▲EX-005A	5 mh	11	47
▲EX-006A	6.0 mh	11.5	43
▲EX-012.5A	12.5 mh	17.0	30
▲EX-015A	15.0 mh	23.0	27
▲EX-020A	20 mh	35	23
▲EX-030A	30 mh	55	19
▲EX-040A	40.0 mh	54.0	15
▲EX-060A	60.0 mh	82.0	12
▲EX-120A	120 mh	142.0	8
▲EX-200A	200 mh	139	6
▲EX-300A	300 mh	206	5
▲EX-400A	400 mh	310	4.5

* Will give less than 5% inductance drop but should not be exceeded under operating conditions.

Inductance tolerance of EX-P05A through EX-P50A is $\pm 5\%$; EX-001A through EX-400A is $\pm 2\%$.





INPUT TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60 CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In Ohms	DC Resistance			Frequency Response in C.P.S. ± 1DB	Max. Level DBM	Stray Fields Shield	Case and Mounting	Weight
				Primary In Ohms	Secondary In Ohms	Turns Ratio					
G-4‡	.9 h.	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	1 ½ 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 P5-H	GP-3P GP-5W	7¼ oz. 1 lb.
G-10‡	8 h.	500\$-333-233-200\$ 125\$-67½\$-50\$-17\$§	712,000\$ or 178,000\$§	72	20,000	1-37.7	10-1700	0	P5-H	GP-5W	1 lb.
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 P5-H	GP-1D GP-3R	3.2 oz. 10 oz.
G-202‡	8.3 h.	500\$-125\$§	392,000**	94	13,000	1-28	11-1800	-10	P1-H	GP-1F	3.2 oz.
G-301‡	3 h.	500\$-125\$§	145,000**	106	6500	1-17	30-3200	-10	P1-H	AF-1	1.5 oz.
G-306‡	7 h.	500\$-125\$§	60,000**	190	6500	1-11	15-12,000	-10	P1-H	AF-1	1.5 oz.
G-310‡	22.0 h	320\$-80\$§	175,000**	80	13,800	1-22.4	3-2500	-10	P1-H	GP-1F	3.2 oz.

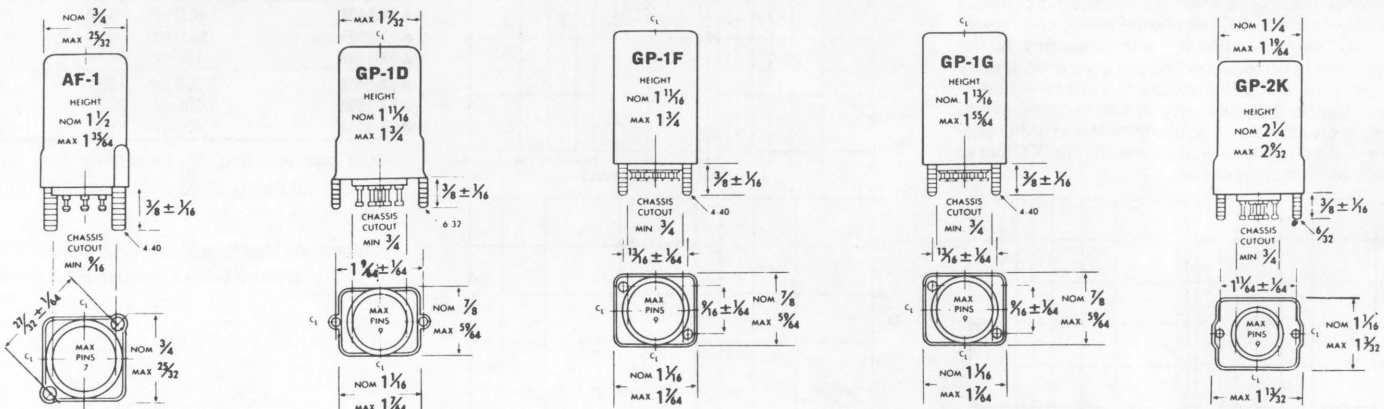
CHOPPER INPUT TRANSFORMERS

Type No.	Turns Ratio	Minimum Primary Inductance @ 1V-60 CPS	Maximum Primary Volts @ 60 CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In Ohms	DC Resistance		Stray Fields Shield	Case and Mounting	Weight
						Primary In Ohms	Secondary In Ohms			
G-20‡	1:8	120 h.	25	10,000 CT or 2500	640,000 CT	370	21,000	P5-H	GP-4T	1 ½ oz.
G-21‡	4:1	1200 h.	84	200,000 CT	12,500 CT	4000	1300	P1-H	GP-2L	5¼ oz.
G-22H‡	1:4	1000 h.	90	50,000 CT	800,000 CT	2200	19,000	P1-H	GP-3R	7¼ oz.
G-22‡								P5-H	GP-5W	1 lb.
G-25‡	2:1	800 h.	70	40,000 CT or 10,000 CT	10,000 CT	3200	2200	P1-H	GP-2L	5¼ oz.

TRANSISTOR TRANSFORMERS

Type No.	Min. Pri. Ind. @ 100MV-60 cy. With No Unbalanced D.C. Current	Impedance Ohms		Turns Ratio	D.C. Resistance (Ohms)		Frequency Response in Cycles Primary Signal of 1 Volt Unbalanced D.C. Secondary Current of								Max. Level DBM	Stray Fields Shield	Case & Mounting	Weight
		Pri.	Sec.		Pri.	Sec.	1 Ma.		2 Ma.		3 Ma.		5 Ma.					
		-3DB	-1DB		-3DB	-1DB	-3DB	-1DB	-3DB	-1DB	-3DB	-1DB	-3DB	-1DB				
G-18‡	60 h.	1000 or 250	125 or 31	2.83:1	500	44	5 to 20,000	8 to 7000	5 to 20,000	8 to 7000	6 to 20,000	9 to 7000	7 to 20,000	10 to 7000	+10	P1-H	GP-1F	3.2 oz.
G-30‡	20 h.	1000 CT	2500 CT	1:1.58	350	1800	20 to 8000	40 to 4200	22 to 8000	45 to 4200	40 to 8000	75 to 4200	70 to 8000	160 to 4200	+ 8	P1	GP-1F	3.2 oz.

‡ Static shield. § Balanced two windings. §§ Balanced parallel windings. ** Balanced Windings C.T. CT for Center Tap.
▲ Discontinued item, available until stock depleted.





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-60 CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In OHMS	DC Resistance		Turns Ratio	Frequency Response In C.P.S. ± 1DB	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	5¼ oz.
▲G-33‡	725 h.	10,000 § or 2500 §§	90,000 § or 22,500 §§	2100	14,000	1-3	3-3500	-10	P1-H	GP-3P	7¼ 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-135	300 h.	10,000 § or 2500 §§	75,000 § or 18,750 §§	2800	9000	1-2.75	6-5000	-15	P1-H	GP-1D	3.2 oz.
G-336	160 h.	10,000 § or 2500 §§	22,500**	2600	4200	1-1.5	12-20,000	-10	P-1H	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 P5-H	GP-1F GP-3R	3.2 oz. 10 oz.

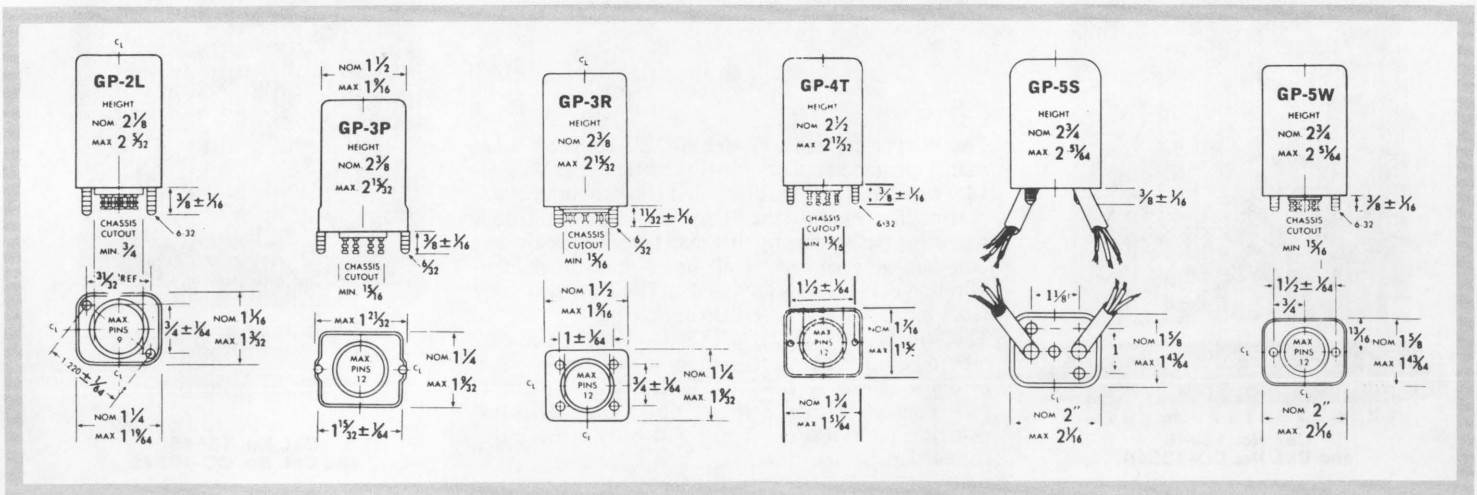
OUTPUT TRANSFORMERS / standard

Type No.	Primary Impedance In Ohms	Secondary Impedance In Ohms	Primary Inductance @ 100MV	Freq. Resp. In C.P.S. ± 1DB	Max. Level DBM	DC Resistance		Turns Ratio	Stray Fields Shield	Case and Mounting	Weight
						Primary In Ohms	Secondary In Ohms				
G-51	15,500 § or 3750 §§	500 §-125 §	915 h.	3-7000	-10	2600	80	5.47-1	P1-H	GP-2K	5¼ oz.
▲G-51A	15,500 § or 3750 §§	500 §-125 §§	65 h.	45-7000	+10	2600	80	5.47-1	P1-H	GP-2K	5½ oz.
G-53	16,000 § or 4000 §§	500 §-333-233 200 §-125 §-67½ § 50 §§-17 §§	1600 h.	2-3000	-10	4400	105	5.65-1	P1-H	GP-3P	7¼ oz.
▲G-59	600 §-150 §§	600 §-150 §§	15 h.	7-6000	+10	46	62	1-1 or 2:1 or 1:2	P3-H	GP-4T	11½ oz.

miniature and sub-miniature

▲G-64	500 or 125	500 or 125	3 h.	28-30,000	+10	80	80	1-1	P1	GP-1D	2¼ oz.
▲G-150	15,000 CT §	16 §-12-8 §-6½ 4 §§-2 §§-1½ §-35 §§	1000 h.	3-10,000	-20	6500	4.5	30.5-1	P1-H	GP-1D	3.2 oz.
▲G-455	20,000 § or 5000 §§	50 §-25-12.5-3	1450 h.	3-15,000	-10	4000	22	20-1	P1-H	GP-1F	3.2 oz.

§ Balanced Two windings. §§ Balanced, parallel windings. CT for Center Tap. ▲ Discontinued item, available until stock depleted. ‡ Static shield.

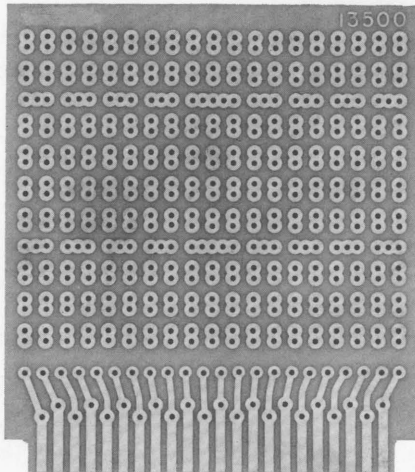




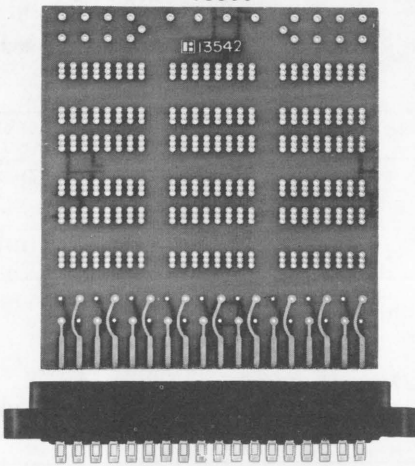
No. 13500-1 Board has 233 mounting pads of one or more holes each, front and back, for a total of 444 holes per card. Standard hole size, .052". Land pattern is compatible with standard .1 grid design. Placing of holes permits insertion of components directly into board. Has 22 fingers to fit any standard plug-in, right angle or swage-type connector with .156" spacing. May be sawed or sheared to adapt to any circuit. Size 4" x 4 1/2". Base material 1/16" paper epoxy.

No. 13500-2 Board is same as above but glass epoxy.

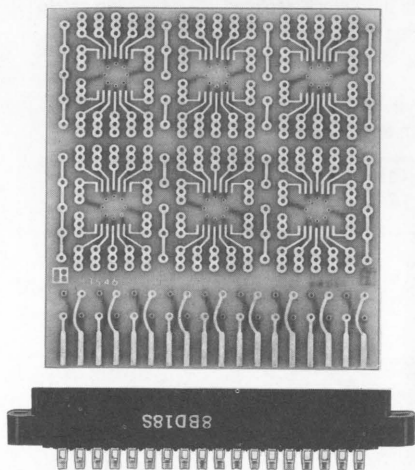
No. CO-13500-1 and No. CO-13500-2 Boards include 8BD22S connector.



Cat. No. 13500



Cat. No. 13542
and Cat. No. CO-13542



Cat. No. 13546
and Cat. No. CO-13546

For 14-lead or 16-lead dual in-line plug-in integrated circuits

Integrated circuit cards for breadboarding and testing of 14-lead or 16-lead dual in-line IC packages. Available with or without applicable Winchester connector. Both the 13542 and 13543 are two-sided cards of 1/16 inch G-10 glass epoxy, for mounting as many as nine plug-in IC's. All holes are .030 in. to accept most round or flat leads.

No. 13542 Board for Dual In-Line Packages. Overall dimensions, 2.976 in. by 3.273 in. **No. CO-13542 Board** with Winchester 8BD18S connector—an 18-contact double-side readout type with bifurcated contacts on .156 in. centers.

No. 13543 Board for Dual In-Line Packages. Overall dimensions, 3.000 in. by 3.187 in. **No. CO-13543 Board** with PCM25D62D24-1 connector—a 25-contact double-side readout type with contacts on .050 in. centers. Molding material is flame resistant per MIL-M-14 Type SDG-F. Contacts are beryllium copper gold plated.

For 8-pin TO-5 case type units and flat packs

Two double-sided circuit cards, furnished with or without connector, for prototypes or limited production runs of circuitry using 8-pin TO-5 case type units and flat packs. Base material of all boards is 1/16" G-10 glass epoxy. Whether you are working on high density packaging for specialized use or more economical medium packaging densities, there are versatile Triad boards for both integrated circuits and discrete components.

No. 13545 Board. Has six 8-pin TO-5 pads on one side and six 14-pin flat pack mounting pads on the other. **No. CO-13545 Board,** is furnished with a Winchester PCM25D62D24-1 connector—a 25-contact double-side readout type with contacts on .050 inch centers. Molding material is flame resistant per MIL-M-14, type SDG-F. Contacts are beryllium copper. Overall dimensions 3.00 inch by 3.187 inch.

No. 13546 Board. Same as No. 13545, but with overall dimensions 2.976 inch by 3.273 inch and different connector pattern. **No. CO-13546 Board** has Winchester 8BD18S connector—an 18-contact double-side readout type with bifurcated contacts on .156 inch centers.

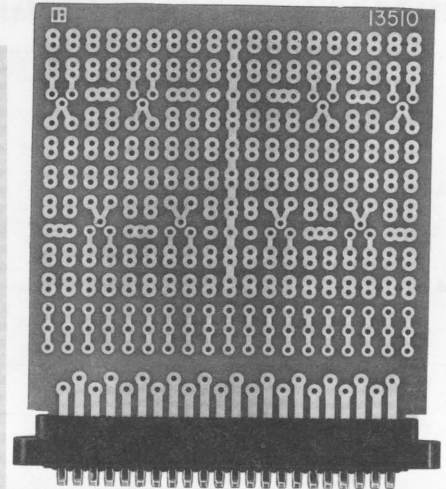
The Winchester 8BD18S and 8BD22S connectors are molded from phenolic type MFG material per MIL-M-14. Precision, uniform bifurcated contact surfaces are pressed firmly against the PC terminal area by the double-acting flat spring grip that maintains a constant and non-damaging contact at all times. Individual identification of contacts is provided on front and rear body faces for easier wiring and circuit tracing.

The Winchester PCM25D62D24-1 has straight contact tabs to permit lead insertion in through holes for wave or dip soldering applications. Exclusive design short-path contacts create a short, direct low resistance electrical path between board and back plane interconnection.

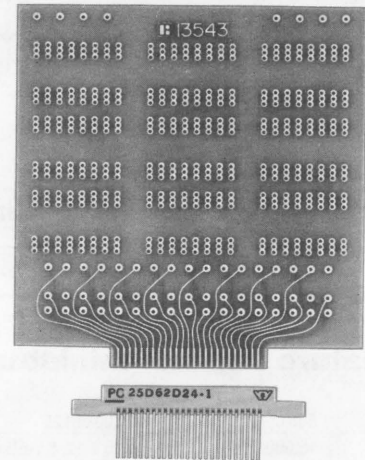
No. 13510-1 Board. An extension of the 13500 card, advanced design including specific transistor locating holes, a ground bus down the center of the card and more convenient location for pad rows. Has 190 mounting pads of one or more holes each, front and back, for a total of 421 holes per card. Has 22 fingers for any connector with .156" spacing, plus 22 pairs of pads located for installation of Elco-type connectors. Standard hole size, .052". Size 4" x 4 1/2" x 1/16" thick. Paper base epoxy.

No. 13510-2 Board same as above but glass epoxy.

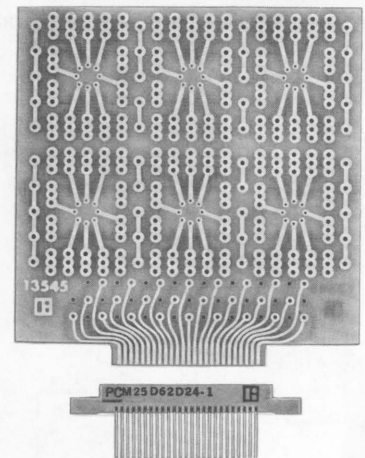
No. CO-13510-1 and CO-13510-2 Boards include 8BD22S connector.



Cat. No. 13510
and Cat. No. CO-13510



Cat. No. 13543
and Cat. No. CO-13543



Cat. No. 13545
and Cat. No. CO-13545

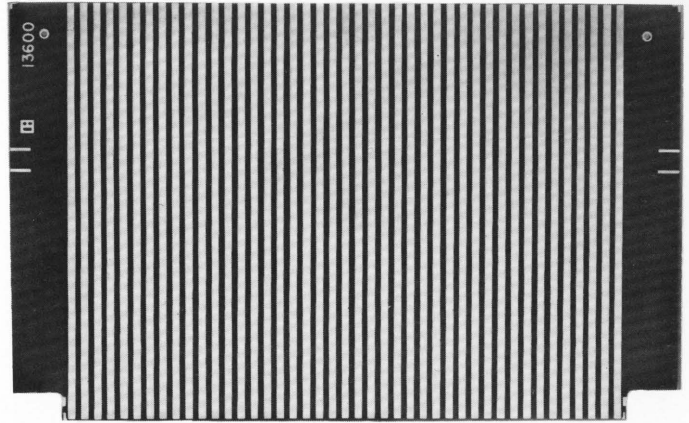


- No. MK-1
- No. MK-2
- No. MK-3
- No. MK-4
- No. MK-5

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 long-nose pliers are completely eliminated.

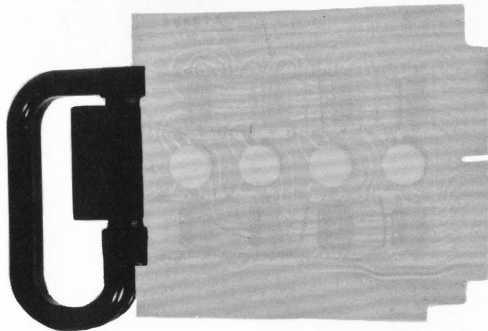
The MK-1 gauge (.375 to 1.50 centers) is designed for 1/4-watt resistors, although diodes, disc capacitors and other parts of similar size may be processed. The MK-2 gauge (.50 to 1.50 centers) is for 1/2-watt resistors and items of similar sizes. The MK-3 gauge (.75 to 2.50 centers) is designed for 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 1/8-watt resistors and diodes—standard RC05 and DO-35 type components. These methods are currently being employed to determine the correct component lead spacing:



NO. 13600-1 EXTENDER CARD

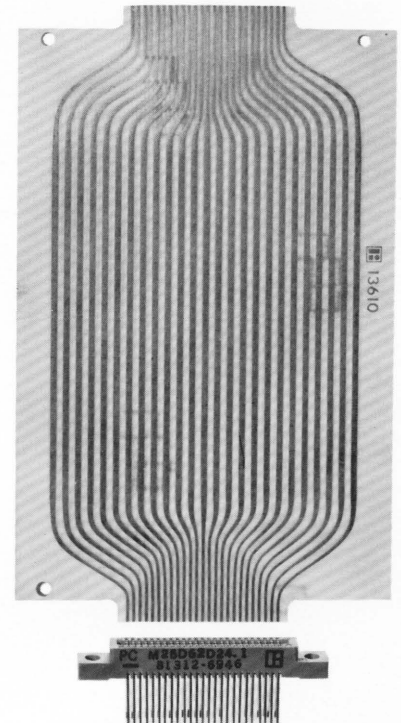
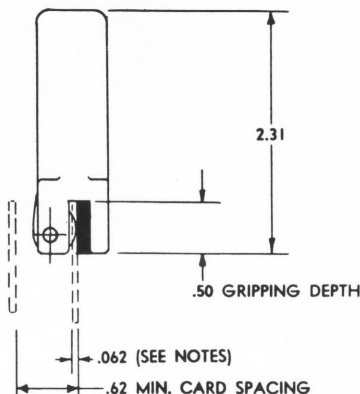
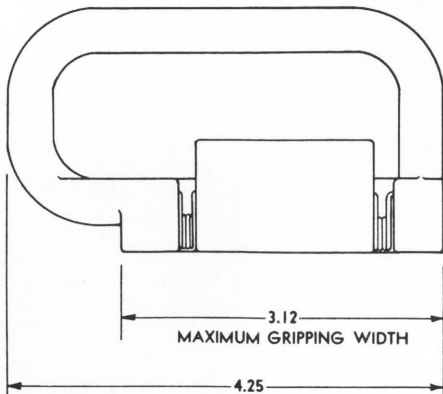
Used to extend the fingers of a circuit card to allow access to boards mounted in racks or panels. Frees both sides of electronic circuit for maintenance under operating conditions, engineering change testing during operation, and investigation of parameters or parameter changes during operation. Wire harness ends may be soldered to the card to provide a means for plug in. Measures 5" x 8" with 43 extension strips on each side of the board. Base material is 1/16" paper epoxy. Standard .156" spacing for most printed circuit connectors.

Also stocked in glass epoxy as No. 13600-2.



NO. CE-1 Card Extractor

Space requirements much less than finger-hole type. Becomes integral part of card until released. Cam action, quick release. One-handed operation with 60-lb. pull. Measures 4 1/4 x 2 1/2 inches. Sturdy plastic construction.



NO. 13610 EXTENDER CARD

Measures 3.000 x 4.860" with 25 extender strips on each side of the board. Base material is 1/16" glass epoxy. Standard .050" centers. Also stocked as CO-13610-A with one Winchester PCM25D62D24-1 Connector, and as CO-13610-B with two PCM25D62D24-1 connectors, a double-side readout type with beryllium copper gold-plated contacts. Molding material is flame resistant per MIL-M-14 type SDG-F.



(1) Distributor Representative (2) Triad-Utrad OEM (3) Warehouse

ALABAMA, Birmingham 35243

(1) Henry W. Phillips Co. Inc.
3237 Ridgley Ave.
(205) 967-5248

ALASKA, Anchorage 99503

(1) Harry J. Lang & Associates
1406 W. 47th Ave.
(907) 279-5741

ARIZONA, Phoenix 85001

(1) Shefler-Kahn Co. Inc.
2017 N. 7th St.
P.O. Box 1587
(602) 257-9015

ARKANSAS, El Dorado 71730

(1) Dick Bellew Sales Co., Inc.
P.O. Box 1835
(501) 863-8325

CALIFORNIA, Anaheim 92805

(2) Zaday Sales Co.
1911 E. Center St. Suite 103
(714) 533-7461

CALIFORNIA, No. Hollywood 91603

(1) (3) Jack Carter Associates
10825 Burbank Blvd.
(213) 980-3450

CALIFORNIA, Redwood City 94063

(1) Logan Sales Co.
463 Brewster Avenue, P.O. Box 1219
(415) 369-6726

COLORADO, Denver 80237

(1) (2) West, Inc.
3974 S. Tamarac Dr.
(303) 770-2030

CONNECTICUT, Madison 06433

(1) (2) A & M Electronic Representatives
11 Aileen Drive
(203) 421-4242

FLORIDA, Bradenton 33505

(1) Hutto-Hawkins-Perego, Inc.
4908-26th Ave. West
(813) 792-1727

FLORIDA, Miatland 32751

(1) Hutto-Hawkins-Perego, Inc.
139 Candace Drive
(305) 831-2474

FLORIDA, Ft. Lauderdale 33309

(1) Hutto-Hawkins-Perego, Inc.
1651 W. McNab Rd.
(305) 971-5750

GEORGIA, Roswell 30075

(1) Henry W. Phillips Co. Inc.
110 Mansell Circle
(404) 992-3070

HAWAII, Honolulu 96817

Hawaii Electronic Services
1305 Hart St.
(808) 845-8207

ILLINOIS, Wilmette 60091

(1) (2) J. Wasserman Associates, Inc.
500 Romona Road
(312) 256-3566

INDIANA, Indianapolis 46268

(1) Green-Wissler Sales Co., Inc.
6124 Morenci Trail, Suite 220
(317) 291-2232

INDIANA, Huntington 46750

(2) Triad-Utrad
305 N. Briant St.
(219) 356-7100

IOWA, Des Moines 50265

(1) Thomas L. Dowell & Assoc.
524 34th St.
(515) 225-1620

KANSAS, Overland Park 66204

(1) Thomas L. Dowell & Assoc.
7810 Foster St.
(913) 648-7373

LOUISIANA, Kenner 70062

(1) Dick Bellew Sales Co., Inc.
62 Lisa Ave.
(504) 443-3237

MARYLAND, Baltimore 21229

(1) Pecore Associates, Inc.
5226 Baltimore Nat'l Pike, Suite 3
(301) 744-4434

MASSACHUSETTS, Needham 02192

(1) (2) A & M Electronics
1492 Highland Ave., P.O. Box 278
(617) 444-8170

MICHIGAN, Southfield 48034

(1) R. C. Merchant & Co., Inc.
29260 Franklin
(313) 354-4300

MINNESOTA, Minnetonka 55343

(1) Clark R. Gibb Co.
11100 Bern Road West
(612) 932-3950

MISSISSIPPI, Jackson 39206

(1) Dick Bellew Sales, Inc.
140 Grove Loop
(601) 366-6728

MISSOURI, St. Louis 63119

(1) Thos. L. Dowell & Associates
8755 Big Bend Blvd., P.O. Box 23967
(314) 968-4234

NEW JERSEY, Medford 08055

(1) (2) Champion Electronic Sales Co.
1 Little John Dr., P.O. Box 401
(609) 654-0475

NEW MEXICO, Albuquerque 87112

(1) Shefler-Kahn Co. Inc.
10200 Menaul Blvd. N.E.
(505) 296-0749

NEW YORK, Rochester 14621

(1) Marchese, Marsey & Barden, Inc.
999 Ridge Rd. East
(716) 544-4300

NEW YORK, Rockville Centre 11570

Artie Wasserman Assoc., Inc.
22 North Forest Ave.
(516) 536-8666

NORTH CAROLINA, Charlotte 28212

(1) Henry Phillips Co., Inc.
5441 E. Springset Dr.
(704) 536-9797

OHIO, Cincinnati 45238

(1) (2) Frank E. Kahsar Sales
2119 Ferguson Road
(513) 471-9011

OHIO, Hudson 44236

(1) (2) Frank Kahsar Sales
47 W. Case Drive
(216) 653-6808

OKLAHOMA, Tulsa 74135

(1) J. Y. Schoonmaker Co., Inc.
P.O. Box 35792
(918) 936-1423

OREGON, Portland 97221

(1) (2) Jas. J. Backer Co.
2035 S.W. 58th St.
(503) 297-3776

OREGON, Salem 97302

Jas. J. Backer Co.
353 Reese Hill Rd. S.E.
(503) 362-0717

TENNESSEE, Memphis 38118

(1) Dick Bellew Sales Co., Inc.
3253 Estes
(901) 365-9437

TEXAS, Dallas 75238

(1) (3) J. Y. Schoonmaker Co. Inc.
10710 Sand Hill Rd.
(214) 349-1650

TEXAS, Houston 77088

(1) J. Y. Schoonmaker Co. Inc.
P.O. Box 38443
(713) 926-9510

WASHINGTON, Seattle 98119

(1) Jas. J. Backer Co.
221 W. Galer St., P.O. Box 9327
(206) 285-1300

CANADA, London, Ont. N6A4K8

Tequipment Ltd.
(Triad Stocking Distributor)
244 Adelaide St. So.
(519) 439-8871

EXPORT

(Europe)

(1) (2) Litton Precision Products
International
Gubelstrasse 28
8050 Zurich Switzerland
Puerto Rico
(1) (2) Electronic Sales Assoc.
Calle 203
GO11-C.C. 3rd Ext
Rio Pedras, Puerto Rico 00924
(809) 769-2911
South & Central America
Caribbean, Australia)
(1) Minthorne International
2200 Shames Drive
Westbury, N.Y. 11590
(516) 334-3303



TRIAD-UTRAD
Distributor Services

305 North Briant Street, Huntington, Indiana 46750

Catalog No TR 79/80