

Y Series

2-100kΩ, 300-100kHz, 600mW Max. @ 1kHz+ Audio Transformer

PICO
Electronics, Inc.

PRODUCT OVERVIEW

The Y series are ultra-miniature transformers in an encapsulated package with through hole design. They can operate over a wide temperature range of -55°C to +130°C. Our materials and methods allow extreme temperatures of vapor phase, IR or other reflow procedures without degrading the high reliability of their physical form and electrical performance.

Typical applications:

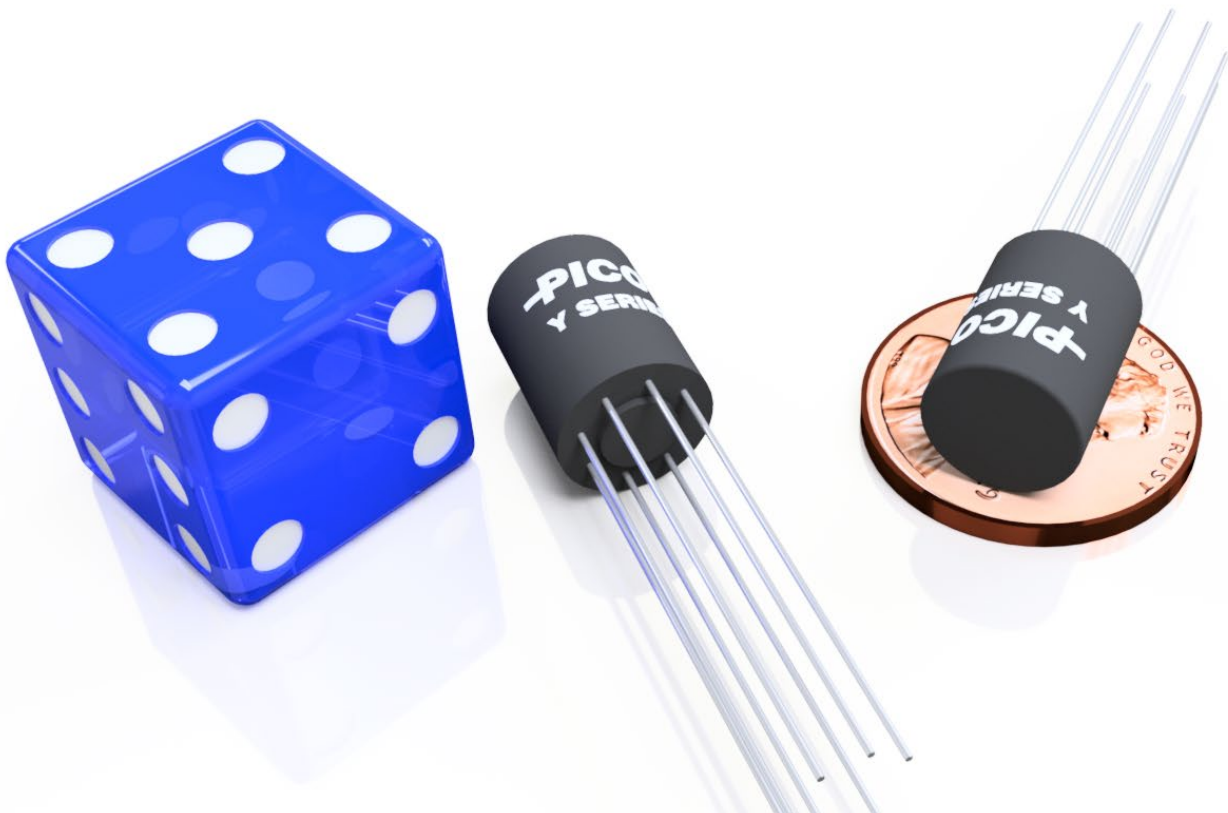
- Sensors
- Radars
- Avionic flight controls
- Airborne systems
- Naval electronics
- Military, aerospace, or commercial aircraft

FEATURES

- Extreme resistance to impact, shock, and vibration
- Manufactured to MIL-PRF-27, Class S, Grade 5
- High reliability for space and mission critical applications
- Ultra miniature in size and minimalistic design
- Design layout in through-hole type
- Available with magnetic shielding and/or electrostatic shielding

Contact Pico for part number of available options:

- Screening and qualification criteria to flight standard
- Capability to thermal shock up to 300 cycles
- Extra layers of magnetic shielding
- Fully RoHS compliant or with exemption 7(a)
- Modifications to mechanical design and electrical characteristics
- Custom new design and parameters



SPECIFICATIONS

Part Number	Primary Impedance [Ω]	Secondary Impedance with Split Windings		Power			Primary Unbalanced DC Current [mA]	Primary DCR [Ω]	Secondary DCR		Turns Ratio PRIM:SEC	
		Series [Ω]	Parallel [Ω]	1kHz+ [W]	400Hz+ [W]	300Hz+ [W]			Series [Ω]	Parallel [Ω]	Series	Parallel
Y-27003	10 CT	10 CT	2.5	.6	.2	.1	31.6	1	1.25	.32	1:1	2:1
Y-27005	20 CT	8 CT	2	.6	.2	.1	22.3	2	.9	.23	1.58:1	3.16:1
Y-27010	20 CT	20 CT	5	.6	.2	.1	22.3	2.7	2.25	.56	1:1	2:1
Y-27015	32 CT	32 CT	8	.6	.2	.1	17.6	3.4	4	1	1:1	2:1
Y-27020	40 CT	40 CT	10	.6	.2	.1	15.8	4.2	4.5	1.13	1:1	2:1
Y-27025	48 CT	16 CT	4	.6	.2	.1	14.4	5	1.8	.45	1.73:1	3.46:1
Y-27030	50 CT	50 CT	12.5	.6	.2	.1	14.1	5.25	5.6	1.4	1:1	2:1
Y-27035	80 CT	32 CT	8	.6	.2	.1	11.1	8.4	4	1	1.58:1	3.16:1
Y-27040	100 CT	40 CT	10	.6	.2	.1	10	10	4.5	1.13	1.58:1	3.16:1
Y-27045	100 CT	100 CT	25	.6	.2	.1	10	11	11.25	2.8	1:1	2:1
Y-27050	120 CT	12.8 CT	3.2	.6	.2	.1	9.1	14.4	1.8	.45	3.06:1	6.12:1
Y-27055	120 CT	60 CT	15	.6	.2	.1	9.1	14.4	8.4	2.1	1.41:1	2.83:1
Y-27060	120 CT	120 CT	30	.6	.2	.1	9.1	14.4	16.8	4.2	1:1	2:1
Y-27065	150 CT	12 CT	3	.6	.2	.1	8.2	15	1.5	.38	3.54:1	7.08:1
Y-27070	150 CT	50 CT	12.5	.6	.2	.1	8.2	15	6	1.5	1.73:1	3.46:1
Y-27075	150 CT	100 CT	25	.6	.2	.1	8.2	15	12	3	1.22:1	2.45:1
Y-27080	150 CT	150 CT	37.5	.6	.2	.1	8.2	15	18	4.5	1:1	2:1
Y-27085	150 CT	600 CT	150	.6	.2	.1	8.2	15	72	18	1:2	1:1
Y-27090	200 CT	200 CT	50	.6	.2	.1	7	22	24	6	1:1	2:1
Y-27095	300 CT	12 CT	3	.6	.2	.1	5.8	30	1.4	.35	5:1	10:1
Y-27100	300 CT	50 CT	12.5	.6	.2	.1	5.8	30	6	1.5	2.45:1	4.9:1
Y-27105	300 CT	150 CT	37.5	.6	.2	.1	5.8	30	18	4.5	1.41:1	2.83:1
Y-27110	300 CT	300 CT	75	.6	.2	.1	5.8	30	36	9	1:1	2:1
Y-27115	300 CT	600 CT	150	.6	.2	.1	5.8	30	72	18	1:1.41	1.41:1
Y-27120	320 CT	12.8 CT	3.2	.6	.2	.1	5.6	36	1.8	.45	5:1	10:1
Y-27125	400 CT	40 CT	10	.6	.2	.1	5	40	4.8	1.2	3.16:1	6.32:1
Y-27130	400 CT	120 CT	30	.6	.2	.1	5	40	14.5	3.6	1.83:1	3.65:1
Y-27135	400 CT	200 CT	50	.6	.2	.1	5	40	24	6	1.41:1	2.83:1
Y-27140	400 CT	400 CT	100	.6	.2	.1	5	40	48	12	1:1	2:1
Y-27145	400 CT	1000 CT	250	.6	.2	.1	5	40	125	31	1:1.58	1.26:1
Y-27150	400 CT	2000 CT	500	.6	.2	.1	5	40	240	60	1:2.24	1:1.12
Y-27155	400 CT	4000 CT	1000	.6	.2	.1	5	40	480	120	1:3.16	1:1.58
Y-27160	500 CT	12.8 CT	3.2	.6	.2	.1	4.5	50	1.5	.38	6.25:1	12.5:1
Y-27165	500 CT	16 CT	4	.6	.2	.1	4.5	50	1.9	.48	5.6:1	11.2:1
Y-27170	500 CT	50 CT	12.5	.6	.2	.1	4.5	50	6	1.5	3.16:1	6.32:1
Y-27175	500 CT	150 CT	37.5	.6	.2	.1	4.5	50	18	4.5	1.83:1	3.65:1

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		Series [Ω]	Parallel [Ω]	1kHz+ [W]	400Hz+ [W]	300Hz+ [W]			Series [Ω]	Parallel [Ω]	Series	Parallel
(1) Y-27180	500 CT	500 CT	125	.6	.2	.1	4.5	50	60	15	1:1	2:1
(1) Y-27185	500 CT	500 CT	-	.6	.2	.1	4.5	50	60	-	1:1	-
Y-27190	500 CT	600 CT	150	.6	.2	.1	4.5	50	72	18	1:1.1	1.83:1
Y-27195	600 CT	12.8 CT	3.2	.6	.2	.1	4.1	60	1.5	.38	6.85:1	13.7:1
Y-27200	600 CT	30 CT	7.5	.6	.2	.1	4.1	60	3.6	.9	4.47:1	8.94:1
Y-27205	600 CT	48 CT	12	.6	.2	.1	4.1	60	5.8	1.45	3.54:1	7.07:1
Y-27210	600 CT	200 CT	50	.6	.2	.1	4.1	60	24	6	1.73:1	3.46:1
Y-27215	600 CT	600 CT	150	.6	.2	.1	4.1	60	72	18	1:1	2:1
(1) Y-27220	600 CT	600 CT	-	.6	.2	.1	4.1	60	72	-	1:1	-
Y-27225	600 CT	1200 CT	300	.6	.2	.1	4.1	60	144	36	1:1.41	1.41:1
Y-27230	640 CT	12.8 CT	3.2	.6	.2	.1	3.9	64	1.5	.38	7.07:1	14.14:1
Y-27235	700 CT	100 CT	25	.6	.2	.1	3.8	70	12	3	2.65:1	5.29:1
Y-27240	800 CT	12.8 CT	3.2	.6	.2	.1	3.5	80	1.5	.38	7.9:1	15.8:1
Y-27245	800 CT	48 CT	12	.6	.2	.1	3.5	80	5.8	1.45	4.08:1	8.16:1
Y-27250	800 CT	800 CT	200	.6	.2	.1	3.5	80	96	24	1:1	2:1
Y-27255	900 CT	600 CT	150	.6	.2	.1	3.3	90	72	18	1.22:1	2.45:1
Y-27260	1000 CT	12 CT	3	.6	.2	.1	3.2	100	1.4	.35	9.13:1	18.3:1
Y-27265	1000 CT	50 CT	12.5	.6	.2	.1	3.2	100	6	1.5	4.47:1	8.94:1
Y-27270	1000 CT	1000 CT	250	.6	.2	.1	3.2	100	120	30	1:1	2:1
Y-27275	1060 CT	12.8 CT	3.2	.6	.2	.1	3.1	106	1.5	.38	9.1:1	18.2:1
Y-27280	1200 CT	12.8 CT	3.2	.6	.2	.1	2.9	120	1.5	.38	9.68:1	19.4:1
Y-27285	1200 CT	500 CT	125	.6	.2	.1	2.9	120	60	15	1.55:1	3.1:1
Y-27290	1200 CT	1200 CT	300	.6	.2	.1	2.9	120	144	36	1:1	2:1
(1) Y-27295	1200 CT	1200 CT	-	.6	.2	.1	2.9	120	144	-	1:1	-
Y-27300	1500 CT	12 CT	3	.6	.2	.1	2.6	150	1.44	.36	11.2:1	22.4:1
Y-27305	1500 CT	500 CT	125	.6	.2	.1	2.6	150	60	15	1.73:1	3.46:1
(1) Y-27310	1500 CT	600 CT	-	.6	.2	.1	2.6	150	72	-	1.58:1	-
(1) Y-27315	1500 CT	1500 CT	-	.6	.2	.1	2.6	150	180	-	1:1	-
Y-27320	1600 CT	12.8 CT	3.2	.6	.2	.1	2.5	160	1.5	.38	11.2:1	22.4:1
Y-27325	2000 CT	8 CT	2	.6	.2	.1	2.2	200	.96	.24	15.8:1	31.6:1
Y-27330	2000 CT	2000 CT	500	.6	.2	.1	2.2	200	240	60	1:1	2:1
(1) Y-27335	2000 CT	2000 CT	-	.6	.2	.1	2.2	200	240	-	1:1	-
Y-27340	2000 CT	8000 CT	2000	.6	.2	.1	2.2	200	960	240	1:2	1:1
Y-27345	2500 CT	2500 CT	625	.6	.2	.1	2	250	300	75	1:1	2:1
Y-27350	3000 CT	3000 CT	725	.6	.2	.1	1.8	300	360	90	1:1	2:1
(1) Y-27355	3000 CT	3000 CT	-	.6	.2	.1	1.8	300	360	-	1:1	-

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		Series [Ω]	Parallel [Ω]	1kHz+ [W]	400Hz+ [W]	300Hz+ [W]			Series [Ω]	Parallel [Ω]	Series	Parallel
Y-27360	3600 CT	3600 CT	900	.6	.2	.1	1.7	360	432	108	1:1	2:1
Y-27365	4000 CT	16 CT	4	.6	.2	.1	1.6	400	1.92	.48	15.8:1	31.6:1
Y-27370	4000 CT	600 CT	150	.6	.2	.1	1.6	400	72	18	2.58:1	5.16:1
Y-27375	4000 CT	1000 CT	250	.6	.2	.1	1.6	400	120	30	2:1	4:1
(1) Y-27380	4000 CT	8000 CT	-	.6	.2	.1	1.6	400	960	-	1:1.41	-
Y-27385	5000 CT	500 CT	125	.5	.2	.1	1.4	500	60	15	3.16:1	6.32:1
Y-27390	5000 CT	5000 CT	1250	.5	.2	.1	1.4	500	600	150	1:1	2:1
Y-27395	7500 CT	50 CT	12.5	.33	.2	.1	1.2	750	6	1.5	12.2:1	24.5:1
Y-27400	7500 CT	100 CT	25	.33	.2	.1	1.2	750	12	3	8.66:1	17.3:1
Y-27405	7500 CT	600 CT	150	.33	.2	.1	1.2	750	72	18	3.54:1	7.07:1
Y-27410	7500 CT	2500 CT	625	.33	.2	.1	1.2	750	300	75	1.73:1	3.46:1
(1) Y-27415	7500 CT	7500 CT	-	.33	.2	.1	1.2	750	900	-	1:1	-
Y-27420	8000 CT	12.8 CT	3.2	.3	.2	.1	1.1	800	1.5	.38	25:1	50:1
Y-27425	8000 CT	1000 CT	250	.3	.2	.1	1.1	800	120	30	2.83:1	5.66:1
(1) Y-27430	8000 CT	1200 CT	-	.3	.2	.1	1.1	800	144	-	2.58:1	-
(1) Y-27435	9000 CT	9000 CT	-	.27	.2	.1	1.1	900	1080	-	1:1	-
Y-27440	10,000 CT	12.8 CT	3.2	.25	.2	.1	1.0	1000	1.5	.38	28:1	56:1
Y-27445	10,000 CT	16 CT	4	.25	.2	.1	1.0	1000	1.92	.48	25:1	50:1
Y-27450	10,000 CT	100 CT	25	.25	.2	.1	1.0	1000	12	3	10:1	20:1
Y-27455	10,000 CT	200 CT	50	.25	.2	.1	1.0	1000	24	6	7.07:1	14.14:1
Y-27460	10,000 CT	500 CT	125	.25	.2	.1	1.0	1000	60	15	4.47:1	8.94:1
Y-27465	10,000 CT	600 CT	150	.25	.2	.1	1.0	1000	72	18	4.08:1	8.16:1
Y-27470	10,000 CT	1000 CT	250	.25	.2	.1	1.0	1000	120	30	3.16:1	6.32:1
Y-27475	10,000 CT	1200 CT	300	.25	.2	.1	1.0	1000	144	36	2.89:1	5.77:1
Y-27480	10,000 CT	1500 CT	375	.25	.2	.1	1.0	1000	180	45	2.58:1	5.16:1
Y-27485	10,000 CT	2000 CT	500	.25	.2	.1	1.0	1000	240	60	2.24:1	4.47:1
Y-27490	10,000 CT	5000 CT	1250	.25	.2	.1	1.0	1000	600	150	1.41:1	2.83:1
Y-27495	10,000 CT	7500 CT	1875	.25	.2	.1	1.0	1000	900	225	1.15:1	2.3:1
Y-27500	10,000 CT	10,000 CT	2500	.25	.2	.1	1.0	1000	1200	300	1:1	2:1
(1) Y-27505	10,000 CT	10,000 CT	-	.25	.2	.1	1.0	1000	1200	-	1:1	-
Y-27510	15,000 CT	400 CT	100	.16	.16	.1	.82	1500	48	12	6.12:1	12.24:1
Y-27515	15,000 CT	500 CT	125	.16	.16	.1	.82	1500	60	15	5.48:1	10.95:1
Y-27520	15,000 CT	600 CT	150	.16	.16	.1	.82	1500	72	18	5:1	10:1
Y-27525	15,000 CT	10,000 CT	2500	.16	.16	.1	.82	1500	1200	300	1.22:1	2.45:1
(1) Y-27530	15,000 CT	15,000 CT	-	.16	.16	.1	.82	1500	1800	-	1:1	-
Y-27535	15,000 CT	15,000 CT	3750	.16	.16	.1	.82	1500	1800	450	1:1	2:1

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		Series [Ω]	Parallel [Ω]	1kHz+ [W]	400Hz+ [W]	300Hz+ [W]			Series [Ω]	Parallel [Ω]	Series	Parallel
Y-27540	16,000 CT	1000 CT	250	.15	.15	.1	.8	1600	120	30	4:1	8:1
Y-27545	20,000 CT	500 CT	125	.125	.125	.1	.7	2000	60	15	6.33:1	12.65:1
Y-27550	20,000 CT	600 CT	150	.125	.125	.1	.7	2000	72	18	5.77:1	11.55:1
Y-27555	20,000 CT	800 CT	200	.125	.125	.1	.7	2000	96	24	5:1	10:1
Y-27560	20,000 CT	1000 CT	250	.125	.125	.1	.7	2000	120	30	4.47:1	8.94:1
Y-27565	20,000 CT	5000 CT	1250	.125	.125	.1	.7	2000	600	150	2:1	4:1
Y-27570	20,000 CT	10,000 CT	2500	.125	.125	.1	.7	2000	1200	300	1.41:1	2.83:1
(1) Y-27575	20,000 CT	20,000 CT	-	.125	.125	.1	.7	2000	2400	-	1:1	-
Y-27580	25,000 CT	500 CT	125	.1	.1	.1	.63	2500	60	15	7.07:1	14.14:1
Y-27585	25,000 CT	1000 CT	250	.1	.1	.1	.63	2500	120	30	5:1	10:1
Y-27590	30,000 CT	50 CT	12.5	.08	.08	.08	.58	3000	6	1.5	24.5:1	49:1
Y-27595	30,000 CT	1200 CT	300	.08	.08	.08	.58	3000	144	36	5:1	10:1
Y-27600	30,000 CT	500 CT	125	.08	.08	.08	.58	3000	60	15	7.75:1	15.5:1
Y-27605	30,000 CT	200 CT	50	.08	.08	.08	.58	3000	24	6	12.25:1	24.5:1
Y-27610	30,000 CT	5000 CT	1250	.08	.08	.08	.58	3000	600	150	2.45:1	4.9:1
Y-27615	30,000 CT	10,000 CT	2500	.08	.08	.08	.58	3000	1200	300	1.73:1	3.46:1
(1) Y-27620	30,000 CT	30,000 CT	-	.08	.08	.08	.58	3000	3600	-	1:1	-
Y-27625	40,000 CT	400 CT	100	.06	.06	.06	.5	4000	48	12	10:1	20:1
Y-27630	40,000 CT	2000 CT	500	.06	.06	.06	.5	4000	240	60	4.47:1	8.94:1
Y-27635	40,000 CT	4000 CT	1000	.06	.06	.06	.5	4000	480	120	3.16:1	6.32:1
Y-27640	40,000 CT	20,000 CT	5000	.06	.06	.06	.5	4000	2400	600	1.41:1	2.83:1
(1) Y-27645	40,000 CT	40,000 CT	-	.06	.06	.06	.5	4000	4800	-	1:1	-
Y-27650	50,000 CT	200 CT	50	.05	.05	.05	.45	5000	24	6	15.8:1	31.6:1
Y-27655	50,000 CT	500 CT	125	.05	.05	.05	.45	5000	60	15	10:1	20:1
Y-27660	50,000 CT	600 CT	150	.05	.05	.05	.45	5000	72	18	9.13:1	18.26:1
Y-27665	60,000 CT	15,000 CT	3750	.04	.04	.04	.41	6000	1800	450	2:1	4:1
Y-27670	62,500 CT	50 CT	12.5	.04	.04	.04	.4	6250	6	1.5	35.4:1	70.7:1
Y-27675	80,000 CT	15,000 CT	3750	.03	.03	.03	.35	8000	1800	450	2.3:1	4.6:1
Y-27680	90,000 CT	10,000 CT	2500	.028	.028	.028	.33	9000	1200	300	3:1	6:1
Y-27685	95,000 CT	15,000 CT	3750	.026	.026	.026	.32	9500	1800	450	2.52:1	5.03:1
Y-27690	100,000 CT	60 CT	15	.025	.025	.025	.31	10,000	7.2	1.8	40.8:1	81.6:1
Y-27695	100,000 CT	100 CT	25	.025	.025	.025	.31	10,000	12	3	31.6:1	63.2:1
Y-27700	100,000 CT	500 CT	125	.025	.025	.025	.31	10,000	60	15	14.1:1	28.3:1
Y-27705	100,000 CT	10,000 CT	2500	.025	.025	.025	.31	10,000	1200	300	3.16:1	6.32:1

Note 1: Includes electrostatic shield

SPECIFICATIONS

GENERAL

Parameter	Condition	Min.	Typ.	Max.	Units
Dielectric Strength	60Hz	-	200	-	V _{RMS}
Insulation Resistance	300VDC	10	-	-	GΩ
Distortion	300Hz, 400Hz & 1kHz @ Rated Power	-	-	5	%
Frequency Response	300 - 100kHz @ 1mW	-3	-	3	dB
Operating Temperature Range	Ambient with temperature rise	-55	-	+130	°C
Storage Temperature Range	Ambient	-55	-	+105	°C
Size	Diameter x Height	0.35 x 0.46 (8.89 x 11.684)			inches (mm)
Weight		-	3	-	grams
Case	Epoxy Insulated Metal				
Potting	Vacuum Impregnated Epoxy				
Box Packaging (L x W x H)		10.79 x 2.48 x 0.39 (274.066 x 62.992 x 9.906)			inches (mm)

OPTIONAL DESIGN CRITERIA

Test	Standard	Description
Vibration	MIL-STD-202	Method 204, Vibration, High Frequency
Shock	MIL-STD-202	Method 213, Shock (Specified Pulse)
Immersion	MIL-STD-202	Method 104, Immersion
Moisture Resistance	MIL-STD-202	Method 106, Moisture Resistance
Flammability	MIL-STD-202	Method 111, Flammability (External Flame)
Thermal Shock	MIL-STD-202	Method 107, Thermal Shock

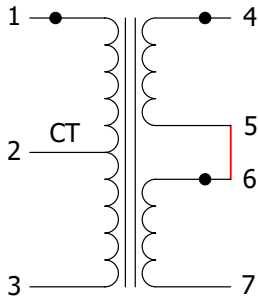
OPTIONAL SCREENING AND QUALIFICATION

Standard	Screening & Qualification	Test ⁽²⁾
MIL-PRF-27	a.) Group A inspection Level-T - Table VII b.) Qualification inspection, Grade 5 - Table V	I. Thermal Shock II. Vibration III. Burn-in IV. Induced Voltage V. Shock VI. Dielectric Withstanding Voltage (at reduced pressure) VII. Insulation Resistance VIII. Electrical Characteristics IX. Visual and Mechanical Examination (External) X. Life XI. Radiographic Inspection
MIL-STD-981	a.) Group A screening tests - Table VI b.) Group B tests - Table XII, Class S	
EEE-INST-002, Section M1	a.) Magnetics Screening Req. - Table 2 b.) Magnetics Part Qual. - Table 3	

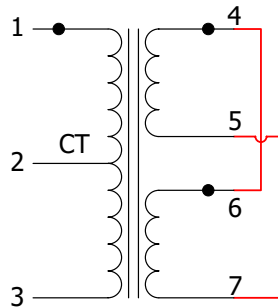
Note 2: Screening and qualification tests are not limited to the options in the chart above. Each standard may also be stringent or exclude certain tests from one another. Please contact Pico for specific application needs and for Pico part number.

ELECTRICAL SCHEMATIC

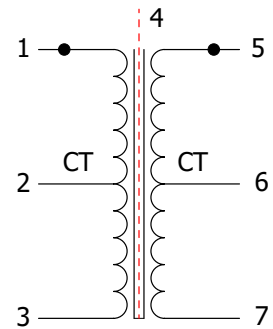
**SPLIT SECONDARIES
SERIES CONNECTION**



**SPLIT SECONDARIES
PARALLEL CONNECTION**

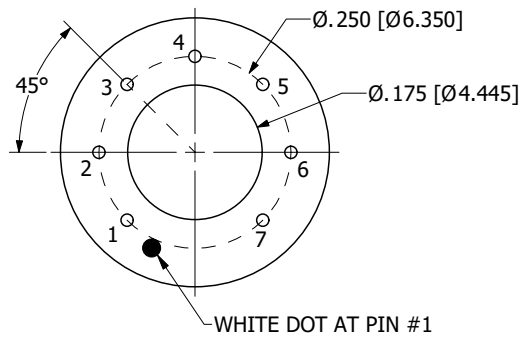
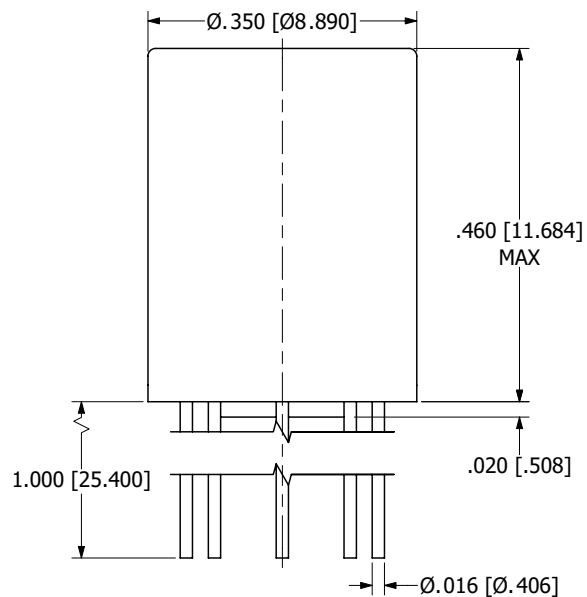


ELECTROSTATIC SHIELD



NOTE: CT STANDS FOR "CENTER-TAP", WHERE THE TOTAL NUMBER OF TURNS IS EVENLY SPLIT BETWEEN THE TOP HALF AND BOTTOM HALF OF A COMPLETE WINDING.

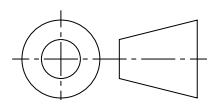
MECHANICAL DRAWINGS



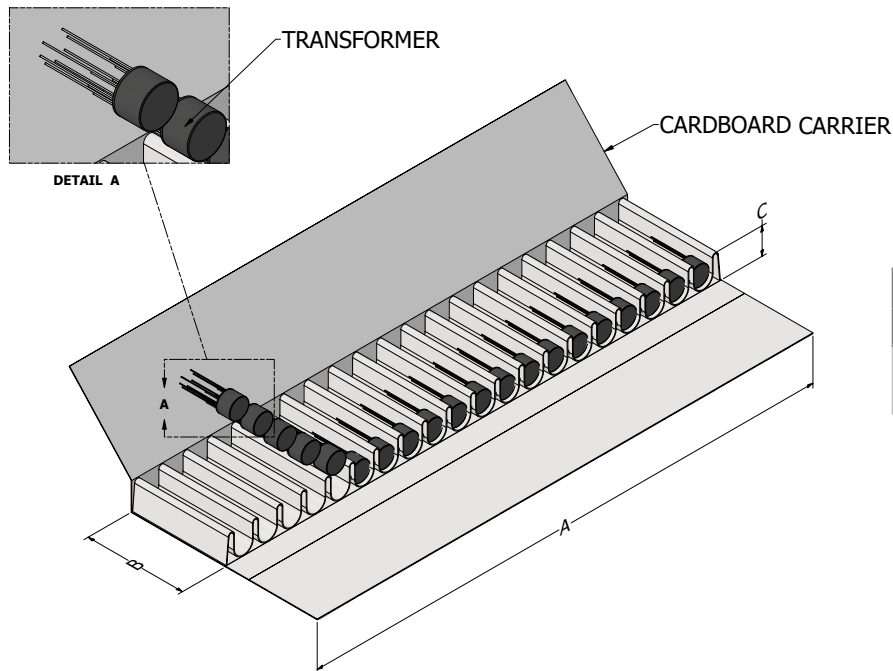
BOTTOM VIEW

NOTES

- a. ALL DIMENSIONS ARE IN INCHES, [] = MM
- b. TERMINALS ARE CLOCKWISE FROM PIN #1



BOX PACKAGING



Dimension		
A	B	C
10.79	2.48	0.39
[274.066]	[62.992]	[9.906]

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