

INCH-POUND

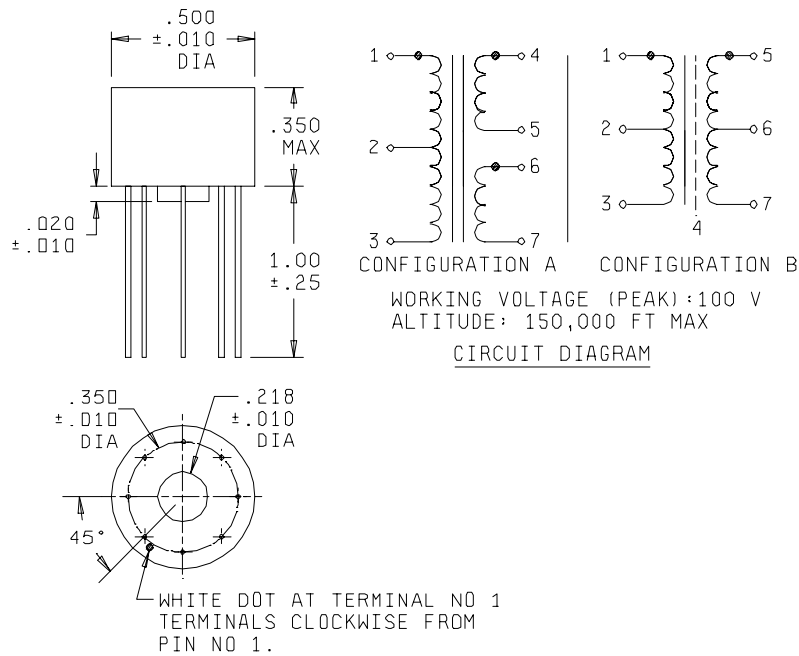
MIL-PRF-27/357C
5 September 2002
SUPERSEDING
MIL-PRF-27/357B
14 June 1988

PERFORMANCE SPECIFICATION SHEET

TRANSFORMERS, AUDIO FREQUENCY, ULTRA-MINIATURE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-27.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Marking shall be on the side of the case.
4. Primary and secondary electrical values, specified in table I, shall be marked as applicable.
5. Dots on circuit diagram indicate polarity.

FIGURE 1. Dimensions and configuration.

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REQUIREMENTS:

Electrical ratings: See table I.

Working voltage (peak): 100 volts.

Frequency range: 300 Hz to 75 kHz.

Design and construction:

Dimensions and configuration: See figure 1.

Duty cycle: Continuous.

Terminals: Solid wire.

Composition: Copper clad steel.

Diameter: 0.016 inch ± 0.001 (0.41 ± 0.03 mm).

Length: 1.00 inch ± 0.25 (25.4 ± 6.35 mm).

Final finish: Tinned, 100 percent, electroplated in accordance with ASTM B 545.

Weight: 5 grams max.

Altitude: 150,000 feet, maximum.

Operating temperature range: -55°C to $+130^{\circ}\text{C}$.

Terminal strength: MIL-STD-202, method 211, test condition A, 2.0 pounds.

Thermal shock: 25 cycles, method 107, MIL-STD-202, test condition A-1.

Vibration (high frequency): MIL-STD-202, method 204, test condition B.

Dielectric withstanding voltage:

At sea level: 200 V rms.

At barometric pressure: 200 V rms.

Electrical characteristics:

No load (center tap unbalanced): ± 1 percent at 1 volt, 5 kHz across the primary.

Harmonic distortion: Total harmonic content of output shall be a maximum of 5 percent at the specified power level (see table I).

Insertion loss: At the specified power level (see table I), the insertion loss shall be a maximum of 3.0 dB at 1 kHz.

Frequency response: ± 3 dB at the rated source and load impedances (see table 1) with 1.0 mW level output and a reference frequency of 1 kHz over a frequency range of 300 Hz to 75 kHz.

Polarity: Additive when appropriate terminals are connected. For configuration A, connect terminals 3 and 4, 5 and 6. For configuration B, connect terminals 3 and 5 (see figure 1, configurations A and B).

TABLE I. Electrical ratings. 1/

Dash no.	Primary impedance (ohms)	Secondary Impedance (ohms)		Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio Primary:secondary		Circuit diagram configuration
		Series connection	Parallel connection			Series connection	Parallel connection	Secondary series connection	Secondary parallel connection	
001	20 ct	8 ct	2	30.0	2	1.2	.3	1.58:1	3.16:1	A
002	20 ct	20 ct	5	30.0	2	2.8	.7	1:1	2:1	"
003	32 ct	32 ct	8	23.0	3.3	4.5	1.13	1:1	2:1	"
004	40 ct	40 ct	10	21.0	3.7	5	1.25	1:1	2:1	"
005	48 ct	16 ct	4	19.0	3.75	3	.75	1.73:1	3.46:1	"
006	50 ct	50 ct	12.5	19.0	5	7	1.75	1:1	2:1	"
007	80 ct	32 ct	8	15.0	7.6	4.3	1.13	1.58:1	3.16:1	"
008	100 ct	40 ct	10	13.0	10.8	5	1.25	1.58:1	3.16:1	"
009	100 ct	100 ct	25	13.0	10.8	12	3	1:1	2:1	"
010	120 ct	12.8 ct	3.2	12.0	9.3	2.2	.55	3.06:1	6.12:1	"
011	120 ct	60 ct	15	12.0	9	7.2	1.8	1.41:1	2.83:1	"
012	120 ct	120 ct	30	12.0	11.6	13	3.3	1:1	2:1	"
013	150 ct	12 ct	3	11.0	11.2	2.2	.55	3.54:1	7.08:1	"
014	150 ct	50 ct	12.5	11.0	13	6.8	1.7	1.73:1	3.46:1	"
015	150 ct	100 ct	25	11.0	13	11.8	3	1.22:1	2.45:1	"
016	150 ct	150 ct	37.5	11.0	13	18.3	4.6	1:1	2:1	"
017	150 ct	600 ct	150	11.0	13	75	19	1:2	1:1	"
018	200 ct	200 ct	50	10.0	19	21.3	5.4	1:1	2:1	"
019	300 ct	12 ct	3	8.0	24	1.7	.43	5:1	10:1	"
020	300 ct	50 ct	12.5	8.0	30	6.8	1.7	2.45:1	4.9:1	"
021	300 ct	150 ct	37.5	8.0	30	18	4.6	1.41:1	2.83:1	"
022	300 ct	300 ct	75	8.0	30	34	8.5	1:1	2:1	"
023	300 ct	600 ct	150	8.0	30	60	15	1.1:41	1.41:1	"
024	320 ct	12.8 ct	3.2	7.5	31	1.7	.43	5:1	10:1	"
025	400 ct	40 ct	10	7.0	41	4.5	1.13	3.16:1	6.23:1	"
026	400 ct	120 ct	30	7.0	41	12	3	1.83:1	3.65:1	"
027	400 ct	200 ct	50	7.0	41	21.3	5.4	1.41:1	2.83:1	"
028	400 ct	400 ct	100	7.0	41	37.5	9.4	1:1	2:1	"
029	400 ct	1000 ct	250	7.0	41	96	24	1:1.58	1.26:1	"
030	400 ct	2000 ct	500	7.0	41	212	53	1:2.24	1:1.12	"
031	400 ct	4000 ct	1000	7.0	41	375	94	1:3.16	1:1.58	"
032	500 ct	12.8 ct	3.2	6.0	48	1.7	.43	6.25:1	12.5:1	"
033	500 ct	16 ct	4	6.0	48	1.9	.5	5.6:1	11.2:1	"
034	500 ct	50 ct	12.5	6.0	39	6.8	1.7	3.16:1	6.32:1	"
035	500 ct	150 ct	37.5	6.0	48	18	4.6	1.83:1	3.65:1	"

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See footnotes at end of table.

TABLE I. Electrical ratings – Continued. 1/

Dash no.	Primary impedance (ohms)	Secondary impedance (ohms)		Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio Primary:secondary		Circuit diagram configuration
		Series connection	Parallel connection			Series connection	Parallel connection	Secondary series connection	Secondary parallel connection	
036	500 ct	500 ct	125	6.0	48	54	13.5	1:1	2:1	A
037	500 ct	500 ct	---	6.0	48	68	---	1:1	---	B <u>2/</u>
038	500 ct	600 ct	150	6.0	48	59	15	1:1.1	1.83:1	A
039	600 ct	12.8 ct	3.2	5.5	53	1.7	.43	6.85:1	13.7:1	"
040	600 ct	30 ct	7.5	5.5	53	4.2	1.1	4.47:1	8.94:1	"
041	600 ct	48 ct	12	5.5	53	6.8	1.7	3.54:1	7.07:1	"
042	600 ct	200 ct	50	5.5	53	21.3	5.3	1.73:1	3.46:1	"
043	600 ct	600 ct	150	5.5	57	79	20	1:1	2:1	"
044	600 ct	600 ct	---	5.5	53	75	---	1:1	---	B <u>2/</u>
045	600 ct	1200 ct	300	5.5	53	105	26	1.1:41	1.41:1	A
046	640 ct	12.8 ct	3.2	5.5	66	1.7	.43	7.07:1	14.14:1	"
047	700 ct	100 ct	25	5.0	69	12	3	2.65:1	5.29:1	"
048	800 ct	12.8 ct	3.2	5.0	75	1.7	.43	7.9:1	15.8:1	"
049	800 ct	48 ct	12	5.0	75	6.8	1.7	4.08:1	8.16:1	"
050	800 ct	800 ct	200	5.0	75	105	26	1:1	2:1	"
051	900 ct	600 ct	150	4.5	79	75	19	1.22:1	2.45:1	"
052	1000 ct	12 ct	3	4.5	103	1.6	.4	9.13:1	18.3:1	"
053	1000 ct	50 ct	12.5	4.5	103	6.4	1.5	4.47:1	8.94:1	"
054	1000 ct	1000 ct	250	4.5	103	115	29	1:1	2:1	"
055	1060 ct	12.8 ct	3.2	4.0	108	1.7	.43	9.1:1	18.2:1	"
056	1200 ct	12.8 ct	3.2	4.0	113	1.7	.43	9.68:1	19.4:1	"
057	1200 ct	500 ct	125	4.0	113	54	13.5	1.55:1	3.1:1	"
058	1200 ct	1200 ct	300	4.0	113	126	31.6	1:1	2:1	"
059	1200 ct	1200 ct	---	4.0	111	125	---	1:1	---	B <u>2/</u>
060	1500 ct	12 ct	3	3.5	126	1.6	.4	11.2:1	22.4:1	A
061	1500 ct	500 ct	126	3.5	126	68	17	1.73:1	3.46:1	"
062	1500 ct	600 ct	---	3.5	126	94	---	1.58:1	---	B <u>2/</u>
063	1500 ct	1500 ct	---	3.5	126	176	---	1:1	---	B <u>2/</u>
064	1600 ct	12.8 ct	3.2	3.5	130	1.7	.43	11.2:1	22.4:1	A
065	2000 ct	8 ct	2	3.0	210	1.2	.3	15.8:1	31.6:1	"

See footnotes at end of table

TABLE I. Electrical ratings – Continued. 1/

Dash no.	Primary impedance (ohms)	Secondary impedance (ohms)		Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio Primary:secondary		Circuit diagram configuration
		Series connection	Parallel connection			Series connection	Parallel connection	Secondary series connection	Secondary parallel connection	
066	2000 ct	2000 ct	500	3.0	198	218	55	1:1	2:1	A
067	2000 ct	2000 ct	---	3.0	198	218	---	1:1	---	B <u>2/</u>
068	2000 ct	8000 ct	2000	3.0	198	850	213	1:2	1:1	A
069	2500 ct	2500 ct	625	2.5	220	305	76	1:1	2:1	"
070	3000 ct	3000 ct	750	2.5	243	335	84	1:1	2:1	"
071	3000 ct	3000 ct	---	2.5	304	335	---	1:1	---	B <u>2/</u>
072	3600 ct	3600 ct	900	2.5	330	366	92	1:1	2:1	A
073	4000 ct	16 ct	4	2.0	350	3	.75	15.8:1	31.6:1	"
074	4000 ct	600 ct	150	2.0	350	76	19	2.58:1	5.16:1	"
075	4000 ct	1000 ct	250	2.0	350	115	29	2:1	4:1	"
076	4000 ct	8000 ct	---	2.0	350	1062	---	1:1.41	---	B <u>2/</u>
077	5000 ct	500 ct	125	2.0	350	67	17	3.16:1	6.23:1	A
078	5000 ct	5000 ct	1250	2.0	390	538	135	1:1	2:1	"
079	7500 ct	50 ct	12.5	1.5	600	7	1.75	12.2:1	24.5:1	"
080	7500 ct	100 ct	25	1.5	600	12	3	8.66:1	17.3:1	"
081	7500 ct	600 ct	150	1.5	600	78	19.5	3.54:1	7.07:1	"
082	7500 ct	2500 ct	625	1.5	600	305	77	1.73:1	3.46:1	"
083	7500 ct	7500 ct	---	1.5	750	828	---	1:1	---	B <u>2/</u>
084	8000 ct	12.8 ct	3.2	1.5	750	1.7	.43	25:1	50:1	A
085	8000 ct	1000 ct	250	1.5	750	115	29	2.83:1	5.66:1	"
086	8000 ct	1200 ct	---	1.5	750	158	---	2.58:1	---	B <u>2/</u>
087	9000 ct	9000 ct	---	1.4	796	1100	---	1:1	---	B <u>2/</u>
088	10,000 ct	12.8 ct	3.2	1.4	1048	1.7	.43	28:1	56:1	A
089	10,000 ct	16 ct	4	1.4	1048	3	.75	25:1	50:1	"
090	10,000 ct	100 ct	25	1.4	839	12	3	10:1	20:1	"
091	10,000 ct	200 ct	50	1.4	839	27	6.7	7.07:1	14.14:1	"
092	10,000 ct	500 ct	125	1.4	850	67	17	4.47:1	8.94:1	"
093	10,000 ct	600 ct	150	1.4	850	74	18.5	4.08:1	8.16:1	"
094	10,000 ct	1000 ct	250	1.4	850	115	29	3.16:1	6.32:1	"
095	10,000 ct	1200 ct	300	1.4	850	158	39.5	2.89:1	5.77:1	"

See footnotes at end of table.

TABLE I. Electrical ratings - Continued. 1/

Dash no.	Primary impedance (ohms)	Secondary impedance (ohms)		Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio Primary:secondary		Circuit diagram configuration
		Series connection	Parallel connection			Series connection	Parallel connection	Secondary series connection	Secondary parallel connection	
096	10,000 ct	1500 ct	375	1.4	850	177	44	2.58:1	5.16:1	A
097	10,000 ct	2000 ct	500	1.4	850	255	64	2.24:1	4.47:1	"
098	10,000 ct	5000 ct	1250	1.4	850	630	158	1.41:1	2.83:1	"
099	10,000 ct	7500 ct	1875	1.4	850	772	193	1.15:1	2.3:1	"
100	10,000 ct	10,000 ct	2500	1.4	866	1215	304	1:1	2:1	"
101	10,000 ct	10,000 ct	---	1.4	1060	1215	---	1:1	---	B <u>2/</u>
102	15,000 ct	400 ct	100	1.0	1305	47	12	6.12:1	12.24:1	A
103	15,000 ct	500 ct	125	1.0	1305	53	13	5.48:1	10.96:1	"
104	15,000 ct	600 ct	150	1.0	1305	72.5	18	5:1	10:1	"
105	15,000 ct	10,000 ct	2500	1.0	1305	1215	304	1.22:1	2.45:1	"
106	15,000 ct	15,000 ct	---	1.0	1305	1800	---	1:1	---	B <u>2/</u>
107	15,000 ct	15,000 ct	3750	1.0	1305	1800	450	1:1	2:1	A
108	16,000 ct	1000 ct	250	1.0	1343	115	29	4:1	8:1	"
109	20,000 ct	500 ct	125	1.0	1560	68	17	6.33:1	12.65:1	"
110	20,000 ct	600 ct	150	1.0	1560	75	19	5.77:1	11.55:1	"
111	20,000 ct	800 ct	200	1.0	1560	108	27	5:1	10:1	"
112	20,000 ct	1000 ct	250	1.0	1560	121	30.5	4.47:1	8.94:1	"
113	20,000 ct	5000 ct	1250	1.0	1560	672	168	2:1	4:1	"
114	20,000 ct	10,000 ct	2500	1.0	1560	1520	380	1.41:1	2.83:1	"

1/ Qualification testing and approval to M27/357-043 and M27/357-114 shall be sufficient to grant approval to M27/357-001 through M27/357-114.

2/ Includes electrostatic shield. Shield terminal shall be 4. Voltage ratio shall be 2 to 1 at 20 kHz.

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Self-resonance: The self-resonant frequency shall be greater than 150 kHz when measured with the secondaries carrying the specified load and the secondary voltage observed.

Power output in watts (max): .3 at 300 Hz and higher, .4 at 400 and higher, .6 at 1 kHz and higher.

Marking location: See figure 1.

Part or Identifying Number (PIN): M27/357- (dash number from table I)

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5950-1093)

Review activities:
Army - AR, CR4
Navy - AS, MC, OS
Air Force - 99