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INCH-POUND

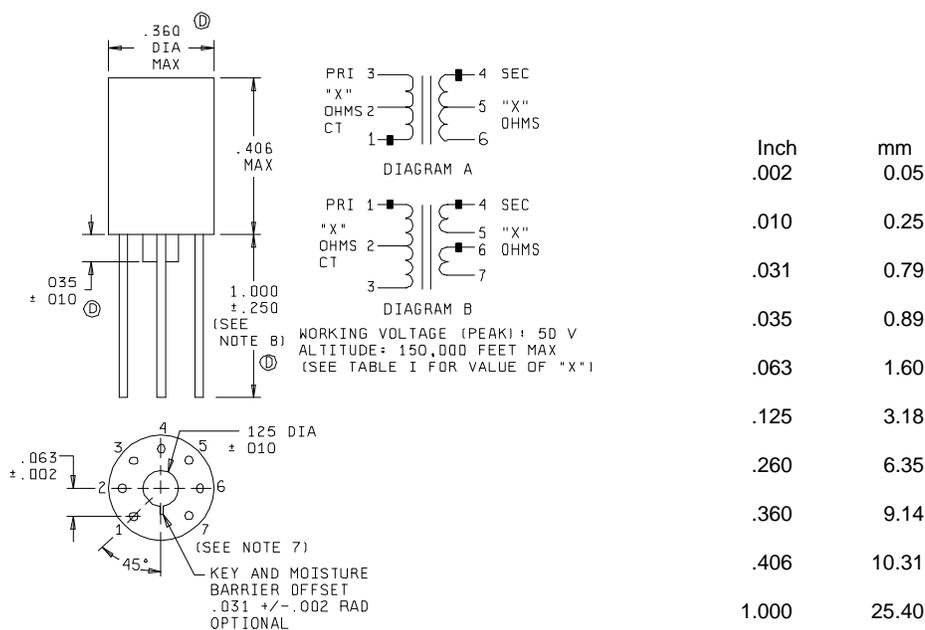
MIL-PRF-27/103D
6 June 1994
SUPERSEDING
MIL-T-27/103C
13 February 1981

PERFORMANCE SPECIFICATION SHEET

TRANSFORMER, AUDIO FREQUENCY, TF5R21ZZ

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 sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-T-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. Terminals are spaced the same as "TO-76" transistor and micrologic elements.
5. Terminal one located 45° from centerline, as noted.
6. Primary and secondary electrical values shall be marked as specified in table I, as applicable.
7. The number of terminals shall be as shown in circuit diagrams A and B.
8. Shorter lead lengths can be made down to .125 ± .010 inch (3.18 ± 0.25 mm) as measured from the moisture barrier offset.

FIGURE 1. Dimensions and configurations.

(D) denotes changes

MIL-T-27/103D

REQUIREMENTS: (When numbers in parentheses, i.e., (1-2) are used, they indicate the winding and the extreme terminals of the windings.)

Electrical ratings: See table I.

Working voltage (peak): 50 volts.

Frequency range: 400 hertz to 100 kilohertz.

Design and construction:

Dimensions and configuration: See figure 1.

Duty cycle: Continuous.

Case: Encapsulated.

Altitude: 150,000 feet, maximum.

Terminals: Dumet wire leads.

Material: Tin-lead plated type D4 in accordance with MIL-STD-1276.

Ⓓ Diameter: .016 ±.002 inch.

Length: 1.000 ±0.025 inch.

Ⓓ Weight: 0.11 ounces, maximum.

Operating temperature range: -55°C to +105°C.

Terminal strength: MIL-STD-202, method 211, test condition A, 2 pounds.

Dielectric withstanding voltage:

At sea level: 100 volts, rms.

At reduced barometric pressure: 100 volts, rms.

Electrical characteristics: See table II.

No load (centertap unbalance only): ±1 percent with 5 volts, 5 kilohertz across the primary.

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

Ⓓ Insertion loss: At the specified power level (see table I), the insertion loss shall be a maximum of 4 dB.

Frequency response: ±3 dB at the rated source and load impedances (see table II) with 1 milliwatt level output and a reference frequency of 1 kilohertz.

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

Shock (specified pulse): MIL-STD-202, method 213, test condition H.

Marking location: See figure 1.

Ⓓ Part or Identifying Number (PIN): M27/103-(dash number from table I).

Supersession data: MIL-T-27/103 supersedes the following MS sheets which are inactive for new design.

MS21394(USAF), MS21404(USAF), and MS53227

Superseding PIN's: See table III.

TABLE I. Electrical ratings. 1/ 2/

Dash number	Circuit diagram	Primary impedance (1-3) (ohms)	Secondary impedance (ohms)	Primary dc current (mA)	Power level at 1 kHz (max) (mW)	Primary dc resistance ± 25 percent (ohms)	Secondary dc resistance ± 25 percent (ohms)
01	A	10 k CT 12 k CT	10 k CT 12 k CT (4-6)	1	100	970	1220
02	A	20 k CT 30 k CT	800 CT 1200 CT (4-6)	0.5	50	815	140
03	B	10 k CT 12.5 k CT	2 k SPLIT 2.5 k SPLIT (4-7)	1	100	620	220
04	A	10 k CT 12 k CT	2 k CT 2.4 k CT (4-6)	1	100	870	180
05	A	10 k CT 12.5 k CT	1.2 k CT 1.5 k CT (4-6)	1	100	870	130
06	A	10 k CT 12 k CT	500 CT 600 CT (4-6)	1	100	870	50
07	B	2 k CT 2.5 k CT	8 k SPLIT 10 k SPLIT (4-7)	3	100	180	440
08	A	1.5 k CT	600 CT (4-6)	3	500	87	90
09	A	1000 CT 1200 CT	50 CT 60 CT (4-6)	3	500	110	9
10	A	500 CT	600 CT (4-6)	5.5	500	32	89
11	A	500 CT 600 CT	50 CT 60 CT (4-6)	3	500	65	9
12	B	400 CT 500 CT	400 SPLIT 500 SPLIT (4-7)	8 6	500	50	89
13	B	400 CT 500 CT	40 SPLIT 50 SPLIT (4-7)	8 6	500	50	6.5
14	A	300 CT	600 CT (4-6)	7	500	20	89
15	B	80 CT 100 CT	32 SPLIT 40 SPLIT (4-7)	12 10	500	11.5	4
16	A	600 CT	600 CT (4-6)	4	500	47	47

1/ Qualification testing and approval to M27/103-01 shall be sufficient to grant qualification to M27/103-02 through M27/103-16.

2/ Impedance values written one above the other indicate a range of matching impedances over which the parts will give satisfactory performance as long as the impedance ratio is maintained.

3/ Where windings are listed as SPLIT, one-fourth of the listed impedance is available by paralleling the winding.

TABLE II. Electrical characteristics.

Dash number	Frequency response: ± 3 dB at 400 Hz to 100 kHz and 1 mW		Resonance, second resonant frequency kHz (min)	Polarity: Additive with terminals (below) connected
	Z _S (ohms)	Z _L (ohms)		
01	10 k CT (1-3)	10 k CT (4-6)	750	3 and 4
02	20 k CT (1-3)	800 CT (4-6)	500	3 and 4
03	10 k CT (1-3)	2 k (4-7)	750	(3-4) and (5-6)
04	10 k CT (1-3)	2 k CT (4-6)	750	3 and 4
05	10 k CT (1-3)	1.2 k CT (4-6)	750	3 and 4
06	10 k CT (1-3)	500 CT (4-6)	750	3 and 4
07	2 k CT (1-3)	8 k (4-7)	750	(3-4) and (5-6)
08	1.5 k CT (1-3)	600 CT (4-6)	750	3 and 4
09	1000 CT (1-3)	50 CT (4-6)	750	3 and 4
10	500 CT (1-3)	600 CT (4-6)	750	3 and 4
11	500 CT (1-3)	50 CT (4-6)	750	3 and 4
12	400 CT (1-3)	400 (4-7)	1000	(3-4) and (5-6)
13	400 CT (1-3)	40 (4-7)	750	(3-4) and (5-6)
14	300 CT (1-3)	600 CT (4-6)	750	3 and 4
15	80 CT (1-3)	32 (4-7)	750	(3-4) and (5-6)
16	600 CT (1-3)	600 CT (4-6)	750	3 and 4

TABLE III. Supersession data.

Superseding military PIN	Superseded MS PIN
M27/103-03	MS53227-3
M27/103-07	MS53227-2
M27/103-08	MS53227-1
M27/103-10	MS21394-1
M27/103-14	MS21404-1

CONCLUDING MATERIAL

Custodians:

Army - ER
Navy - EC
Air Force - 85

Review activities:

Army - AR, ME, MI
Navy - AS, MC, OS, SH
Air Force - 19, 99

Preparing activity:
Army - ER

Agent:
DLA-ES

(Project 5950-0832)