

INCH-POUND

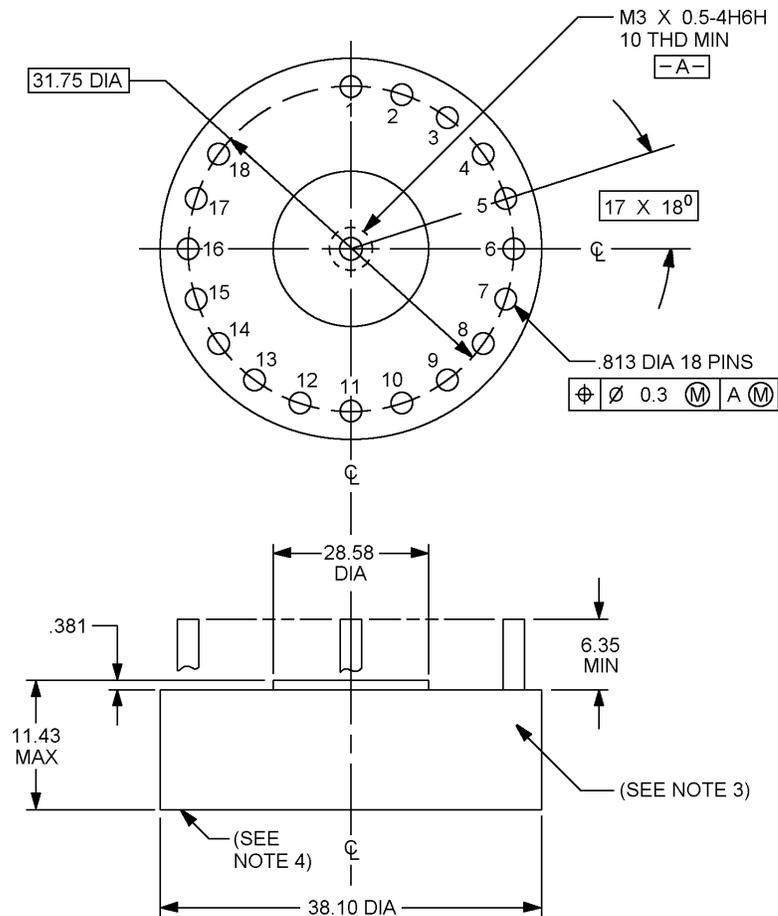
MIL-PRF-27/366  
18 February 2004

PERFORMANCE SPECIFICATION

TRANSFORMER, SWITCHING

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 latest issue of MIL-PRF-27.



NOTES:

1. Dimensions are in millimeters.
2. Tolerances: Two digit decimals =  $\pm 0.25$ , three-digit decimals =  $\pm 0.127$ , angles  $\pm 0.5$  degrees
3. Numbers for terminations 1 and 18, on this surface, are above the respective terminations.
4. Part marking shall be on the surface.

FIGURE 1. Switching transformer.

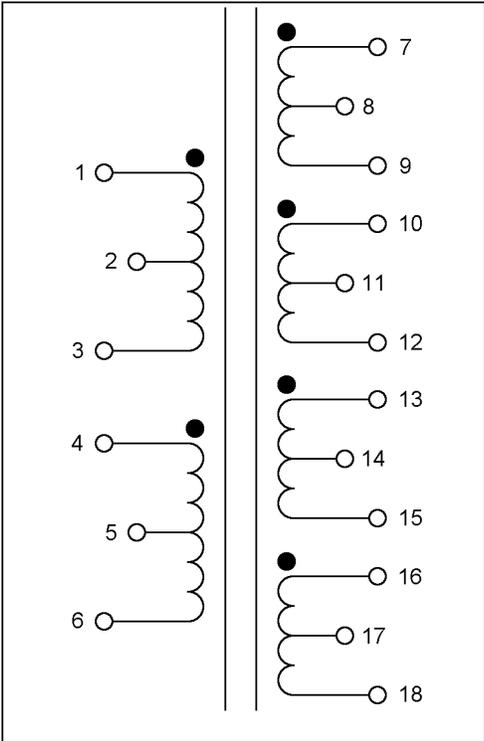
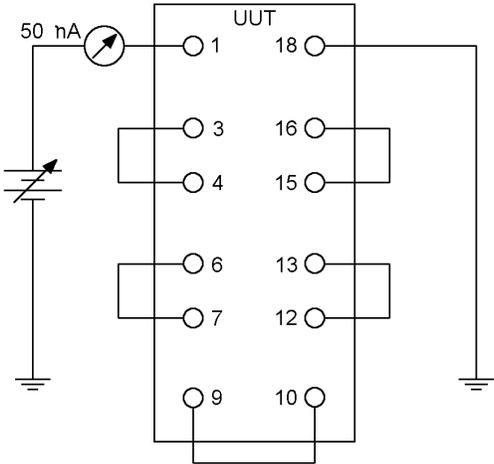


FIGURE 1. Switching transformer – Continued.



NOTE: Two or more devices may be connected in series.

FIGURE 2. Burn-in and life test circuit.

REQUIREMENTS:

Electrical ratings:

Design and construction:

Dimensions and configuration: See figure 1.

Coil winding data: Windings on the same layer shall be bifilar wound.

Winding No. 1:	1 strand X 55 turns of 30 AWG magnetic wire (1-2)
Winding No. 2:	1 strand X 55 turns of 30 AWG magnetic wire (2-3)
Winding No. 3:	1 strand X 7 turns of 30 AWG magnetic wire (4-5)
Winding No. 4:	1 strand X 7 turns of 30 AWG magnetic wire (5-6)
Winding No. 5:	1 strand X 36 turns of 30 AWG magnetic wire (7-8)
Winding No. 6:	1 strand X 36 turns of 30 AWG magnetic wire (8-9)
Winding No. 7:	1 strand X 36 turns of 30 AWG magnetic wire (10-11)
Winding No. 8:	1 strand X 36 turns of 30 AWG magnetic wire (11-12)
Winding No. 9:	1 strand X 36 turns of 30 AWG magnetic wire (13-14)
Winding No. 10:	1 strand X 36 turns of 30 AWG magnetic wire (14-15)
Winding No. 11:	1 strand X 36 turns of 30 AWG magnetic wire (16-17)
Winding No. 12:	1 strand X 36 turns of 30 AWG magnetic wire (17-18)

DC resistance: The DC resistance measured at, or corrected to +20°C. See table I.

Turns ratio: The turns ratio shall be as shown below ( $N_P/N_S$ ). See table II.

Weight: 34 grams, maximum.

Altitude: 39,996.72 feet above sea level.

Operating temperature range: -40°C to +125°C.

Terminals: Solid wire. Internal design shall incorporate antirotational features. All terminals shall be pre-tinned with solder.

Composition: Steel, copper clad.

Diameter: .813 mm

Length: 0.2106299 inches, minimum.

Final finish: Copper, electrodeposited.

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

Electrical characteristics:

Dielectric withstanding voltage (at sea level): With 500 volts ac rms and 60 Hz applied for 15 seconds minimum between primary and secondary windings, or between primary windings and insert, or between primary windings and case, there shall be no evidence of arcing, flashover, breakdown of insulation, leakage current in excess of 0.5 mA, or damage. With 375 volts ac rms and 60 Hz applied for 15 seconds minimum between secondary windings, or between secondary windings and insert, or between secondary windings and case, there shall be no evidence of arcing, flashover, breakdown of insulation, leakage of current in excess of 0.5mA, or damage.

Excitation current: When measure at 24 V ac rms and 50 kHz (sinusoid), the excitation current at terminals 1-3 shall be 3 mA rms maximum at 25°C.

Insulation resistance: The insulation resistance between all windings, and between windings and insert, and between windings and case, shall be 10 kM ohms minimum after 40 seconds to 60 seconds electrification at 100 V dc. When measured at -40°C, insulation resistance shall be 1 kM ohm minimum.

Temperature rise: The temperature rise of the device at sea level shall be such that under burn-in conditions, the maximum internal temperature shall not exceed +155°C.

Vibration: The device shall meet all requirements herein during and after exposure to the levels and duration in accordance with method 214 of MIL-STD-202, test condition I through test condition J as modified herein.

Mounting. Method of mounting shall be equivalent to the actual application and shall dynamically duplicate the directional orientation as specified on figure 1.

Test duration. The test duration shall be three hours per axis.

Temperature. The temperature environment shall be +95°C ±5°C.

Shock: The device shall meet all requirements herein during and after exposure to the level and duration in accordance with method 213 of MIL-SDT-202, test condition C as modified herein.

Mounting: Method of mounting shall be equivalent to the actual application and shall dynamically duplicate the directional orientation as specified on figure 1.

Number of shocks: The number of shocks shall be 6 in each of 3 orthogonal axes (18 total).

Temperature: The temperature environment shall be +95°C ±5°C.

Burn-in and life test circuit: See figure 2.

TABLE I. DC resistance.

Terminal Number	DCR (ohms)	Tolerance (percent)
1-2	0.310	±20
2-3	0.310	±20
4-5	0.065	±20
5-6	0.065	±20
7-8	0.220	±20
8-9	0.220	±20
10-11	0.240	±20
11-12	0.240	±20
13-14	0.260	±20
14-15	0.260	±20
16-17	0.260	±20
17-18	0.260	±20

TABLE II. Turns ratio.

Terminal Number	Turns ratio	Tolerance (percent)
1-2:2-3	1.000	±1
1-2:4-5	7.857	±1
1-2:5-6	7.857	±1
1-2:7-8	1.527	±1
1-2:8-9	1.527	±1
1-2:10-11	1.527	±1
1-2:11-12	1.527	±1
1-2:13-14	1.527	±1
1-2:14-15	1.527	±1
1-2:16-17	1.527	±1
1-2:17-18	1.527	±1

Referenced documents. In addition to MIL-PRF-27, this document references the following:

MIL-STD-202

Custodians:

Army - CR  
Navy - EC  
Air Force - 11

Preparing activity:  
DLA - CC

(Project 5950-1150)

Review activities

Army - AR, AT, AV, MI  
Navy - MC, OS  
Air Force - 19