INCH-POUND

MIL-PRF-1/299H
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SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, GAS SWITCHING
TYPE 5927

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

The requirements for acquiring the electron tube described herein shall consist of this document and the latest issue of MIL-PRF-1 .

DESCRIPTION: TR, bandpass, frequency range 3,100 to 3,500 MHz, incident power 825 kw.

ABSOLUTE RATINGS:

Parameter:	Incident power	Ii	Ebb	Du	Alt
Unit:	kw	μA dc	V dc	- - -	Ft
Maximum:	- - -	200	-700	0.001	10,000
Minimum:	100	- - -	-500	- - -	- - -

PHYSICAL CHARACTERISTICS:

Dimensions: See figure 1.
Mounting: 153-JAN (or equivalent) 268-JAN.
Mounting position: Any.

TEST CONDITIONS:

Parameter:	Incident power	Ii	tp1	tp2	F	Du
Unit:	kw	μA dc	μs	μs	- - -	- - -
Test condition 1:						
Maximum:	- - -	- - -	1.15	- - -	- - -	- - -
	50	- - -	1.00	- - -	F2	0.001
Minimum:	- - -	- - -	0.85	- - -	- - -	- - -
Test condition 2:						
Maximum:	220	- - -	1.15	0.60	- - -	- - -
	200	200	1.00	0.50	F2	0.001
Minimum:	180	- - -	0.85	0.40	- - -	- - -
Test condition 3:						
Maximum:	825	- - -	- - -	- - -	- - -	- - -
	750	200	- - -	- - -	F3	0.001
Minimum:	675	- - -	- - -	- - -	- - -	- - -

Frequency		
F	MHz	±
F1	3,100	0.1 %
F2	3,300	0.1 %
F3	3,425	0.1 %
F4	3,500	0.1 %

GENERAL:

Qualification - Required.

AMSC N/A

FSC 5960

TABLE I. Testing and inspection.

Inspection	Method MIL-STD-1311	Notes	Test	Conditions	Symbol	Limits		Units
						Min	Max	
Qualification inspection								
Degradation due to vibration	4021	- - -	- - -		- - -	- - -	- - -	- - -
Low-level VSWR	4473	2, 3	- - -	$\sigma' = 1.05$	σ	- - -	1.9	- - -
High-level VSWR	4474	4, 5	1		σ	- - -	1.15	- - -
Humidity	1011	- - -	- - -		- - -	- - -	- - -	- - -
Conformance inspection, part 1		1	- - -					
Ignitor voltage drop	4401	6	- - -		t	- - -	5.0	sec
Spike leakage energy	4406	6	- - -	Ii = 200 μA dc	Eid	-250	-400	V dc
Flat leakage power	4452	4	2		Ws	- - -	0.3	erg
	4452	3	2		pf	- - -	50	mw
Low-level VSWR	4473	3	- - -	$\sigma' = 1.05$ (max) F1 and F4 F2	 σ σ	 - - - - - -	 1.60 1.40	 - - - - - -
Conformance inspection, part 2								
Dielectric material strain	4401	- - -	- - -		- - -	- - -	- - -	- - -
Insertion loss (fixed tuned)	4416	3	- - -	F = F2; Ii = 0	Li	- - -	0.7	dB
Ignitor interaction (insertion loss)	4421	6	- - -	F = F2; Ii = 200 μA dc	ΔLi	- - -	0.3	dB
Recovery time	4471	4, 8	2		t	- - -	10	μs
Bump	1036	7	- - -	Hammer angle, 25°	- - -	- - -	- - -	- - -
Conformance inspection, part 3								
Life test	- - -	4	3	Group D; Ii = 150 μA dc	t	500	- - -	hrs
Life-test end points:	- - -	- - -	- - -					
Recovery time	4471	4, 8	3		t	- - -	30	μs
Flat leakage power	4452	3	2		pf	- - -	50	mW
Spike leakage energy	4452	4	2		Ws	- - -	0.3	erg
Insertion loss (fixed tuned)	4416	3	- - -	F = F2; Ii = 0	Li	- - -	1.2	dB

See notes at end of Table I.

NOTES:

1. This specification sheet uses accept on zero defect sampling plan in accordance with MIL-PRF-1, table III.
2. The input standing-wave ratio shall be measured at intervals of 30 MHz from F1 - 30 MHz to F4 + 30 MHz. At no frequency in this interval shall the voltage standing wave ratio be greater than the amount specified.
3. This test shall be performed using the flanges specified in Drawing 268-JAN.
4. This test shall be performed using the mount specified in Drawing 153-JAN (or equivalent).
5. With a load standing wave ratio of less than 1.05 the voltage standing ratio produced by the tube shall be less than the amount specified.
6. The ignitor power supply shall have an open circuit voltage of 600 V dc negative with respect to the tube body. The ignitor series resistance shall be 1.60 MegΩ. The ignitor shall fire within the specified time after application of voltage.
7. Anvil in accordance with Drawing 188-JAN. An equivalent test employing MIL-STD-202-213 may be used provided G level and pulse duration of shock pulse level are equivalent to that obtained using MIL-STD-1311, method 1036 with hammer angle of 25°
8. The recovery time shall be measured after 30 minutes of operation under the conditions specified.

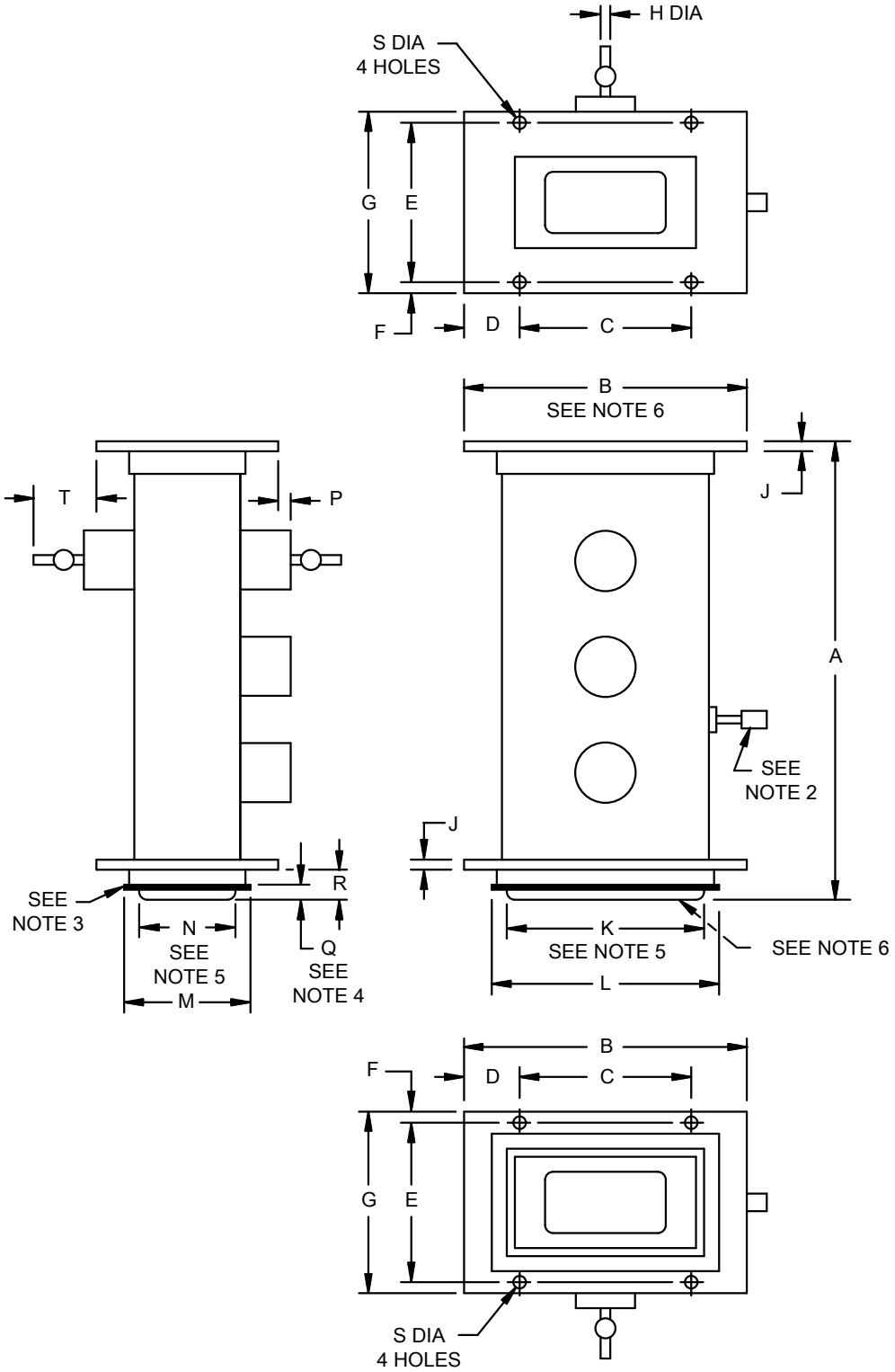

FIGURE 1. Outline drawing of electron tube type 5927.

See notes at end of Figure I.

Dimensions				
Ltr	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 1 (see note 1)				
A	4.828	4.888	122.63	124.16
K		3.008		76.40
P		.187		4.76
Q	.165	.195	4.19	4.95
R	.347	.377	8.81	9.58
T		.812		20.64
Conformance inspection, part 2				
C	2.490	2.510	63.25	63.75
E	2.240	2.260	56.90	57.40
L	3.203	3.233	81.36	81.85
M	1.703	1.733	43.26	44.02
N		1.508		38.30
Reference dimensions				
B	4.125		104.78	
D	.812		20.64	
F	.187		4.76	
G	2.625		66.68	
H	.250		6.35	
J	.125		3.18	
S	.218		5.56	

NOTES:

1. This specification sheet uses accept on zero defect sampling plan in accordance with MIL-PRF-1, table III.
2. Exhaust tube shall not extend beyond flange more than 0.25 (6.35 mm) inch.
3. Gasket in accordance with Drawing 189 JAN. Gasket to be securely attached.
4. Dimension Q shall be measured prior to the attachment of the gasket to the tube.
5. Edges may be rounded.
6. Nickel plating or Rhodium flash over silver plating optional. If nickel plating is required, it is recommended that it be used only when other platings cannot meet performance requirements. Surface plating shall meet and enable the Gas Switching tube to meet all interface and performance requirements.

FIGURE 1. Outline drawing of electron tube type 5927 - Continued.

Referenced documents. In addition to MIL-PRF-1, this document references the following:

MIL-STD-202-213
MIL-STD-1311
Drawing 153-JAN
Drawing 188-JAN
Drawing 189 JAN
Drawing 268-JAN

NOTE: To obtain copies of JAN drawings, please send a request via email to TubesAmps@dla.mil.

The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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(Project 5960-2016-011)

Reviewing activities:
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