

Traveling-Wave Tubes

ZM-3231
ZM-3289
ZM-3290

Technical Information

- MEDIUM POWER
- K_u-BAND
- PPM FOCUSING

RF PERFORMANCE

Tube Type	Frequency Range (Gc)	Min. CW Saturated Power Output (watts)	Minimum Small Signal Gain (db)	Minimum Saturated Gain (db)	Maximum Noise Figure (db)	VSWR (max)	Data Group
ZM-3231	12.0 - 18.0	5	35	30	30	2.5	1
ZM-3289	12.0 - 15.4	10	35	30	30	2.0	2
ZM-3290	11.0 - 20.0	1	30	25	30	3.0	1

FEATURES

high gain
broad bandwidth
periodic permanent magnet focusing
metal-ceramic construction
military environments
lightweight
air cooling
grid control

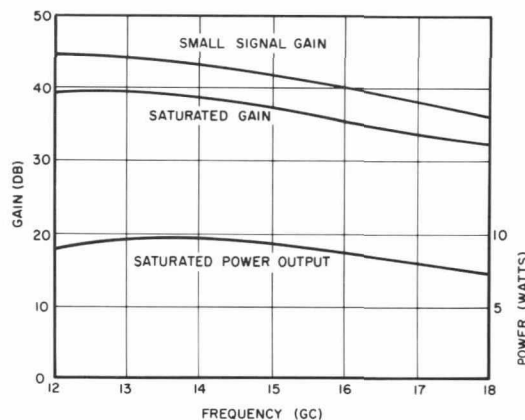
APPLICATIONS

radar
ecm
communications
instrumentation
radiometry

MECHANICAL & MISCELLANEOUS

Mounting position Any
Weight, lb. 2
Overall length, in. 9
Cooling Forced Air
Flow, cfpm# 30
Max. Inlet air temp. °C 90
Min. air press. in ft. (alt.) 10,000
Connectors
RF input UG-419/U
RF output UG-419/U
DC Flying leads

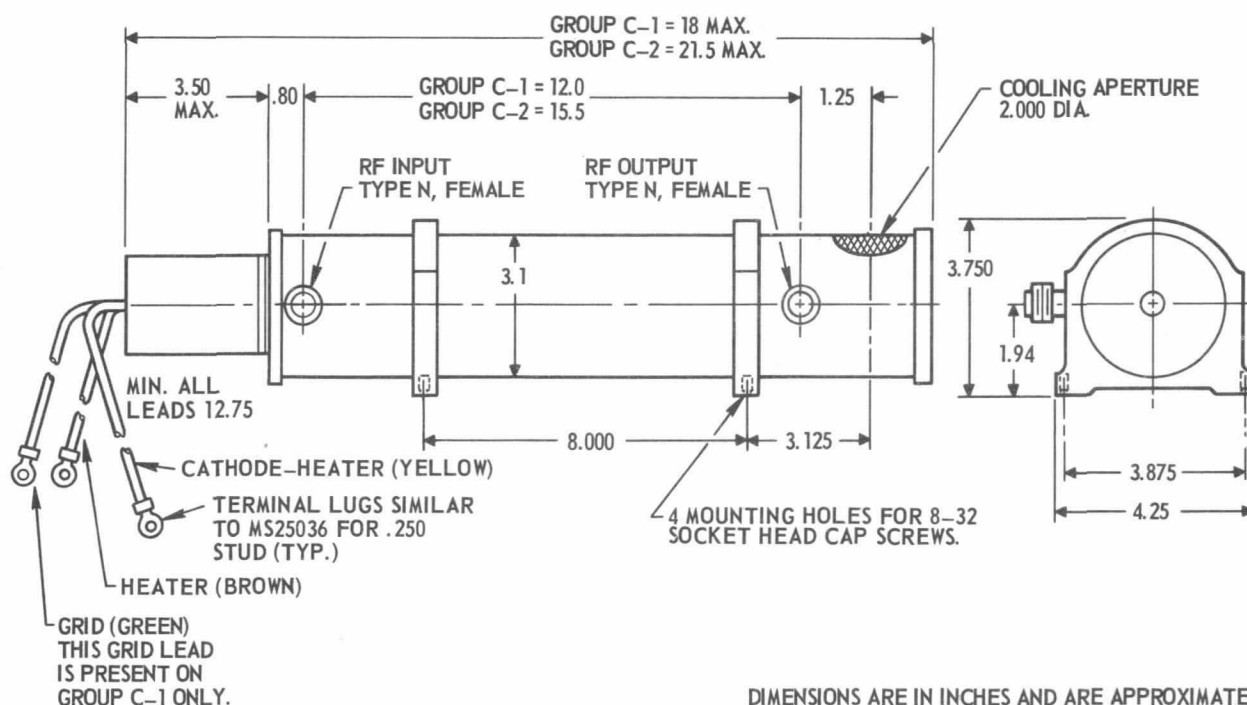
TYPICAL CHARACTERISTICS



OPERATING CONDITIONS *†

Data Group	C-1	C-2
Htr. dc.....	6.0 to 6.6	6.0 to 6.6
Htr. amp (max.).....	3.0	3.0
Cath. kv dc**, with		
resp. to anode	-15 to -18	-15 to -17
Peak cath. amp		
(max).....	5.0	4.5
Grid-bias vdc, with		
resp. to cath.	-300 to -400	---
Grid swing vdc, with		
resp. to grid-bias		
voltage	700 to 900	---
Peak grid amp		
(max).....	1.0	---

OUTLINE



DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE.

NOTES

- † Duty of ZM-3133 is 0.002 when forced-air cooling is used. With liquid cooling on collector and body, duty can be increased to 0.01.
 - # Duty of ZM-3282 is 0.002 when forced air cooling is used. With liquid cooling on collector and body, duty can be increased to 0.01. Convection cooling of collector may be used at duty cycle of 0.0008.
 - * For the performance ratings specified, voltages should be adjusted to values specified by instructions accompanying each tube. These values will be within the ranges given above.
 - † The cathode voltage may be set at various values between -15 to -18 kv to obtain different power and gain characteristics.
 - ** The anode, collector, and circuit are connected to the tube package which must be grounded when the tube is installed.
- These data are subject to change without notice.