

OBJECTIVE TECHNICAL INFORMATION

These ratings represent the design objective for this product. Refer to the Preliminary Technical Information sheet for ratings currently achieved in the progression towards design objectives. If PTI sheets do not exist, consult your local Power Tube Department Regional Sales Office.

DEVELOPMENTAL

TYPE

ZM-3212

OTI-84

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This technical information is proprietary and is furnished only as a service to customers.

ZM-3212

TRAVELING-WAVE TUBE

9 db Noise Figure, Maximum
25 db Gain, Minimum

Metal-Ceramic
Single Reversal PM Focused

4 to 8 Gigacycles
3 Milliwatts Output

The ZM-3212 is a ruggedized, low-noise, low-power, broadband traveling-wave tube with noise figure, gain, and power performance specifications which apply over the entire frequency rating. The tube is of metal-and-ceramic construction and is supplied as a completely packaged assembly which includes a single-reversal permanent-magnet focusing structure, connectors, and housing. The entire assembly weighs approximately 9.5 pounds.

The broad bandwidth, low noise, high gain, freedom from tuning adjustments, and rugged construction are important features for application in military systems. Applications include radar transmitters and receivers, electronic countermeasures equipment, microwave relay systems, radiometry, and instrumentation.

Since this tube is single-reversal permanent-magnet focused and magnetically shielded, it is well suited to applications requiring close physical spacing with magnetic materials or other tubes.

PERFORMANCE*

	Minimum	Nominal	Maximum	
Frequency	4	--	8	Gigacycles
Noise Figure	--	7.5	9.0	Decibels
Small Signal Gain	25	--	--	Decibels
Saturation Power Output	1	3	--	Milliwatts
VSWR, Input and Output	--	--	2.5:1	

MECHANICAL

Mounting Position - Any

Connectors

DC Socket - Cannon KPT-02H12-10PN

RF Input and Output - Coaxial Type N, Female

Dimensions, approximate

Length, including r-f connectors 13.5 Inches

Diameter 4.0 Inches

Weight, approximate 9.5 Pounds

THERMAL

Cooling - Convection

ENVIRONMENTAL

Shock (energized) 50 g for 11 milliseconds on each of three mutually perpendicular axes.

Vibration (operating) 0.062 inch double amplitude from 5 to 55 cycles per second and 15 g from 55 to 2000 cycles per second, with sweep over 5 to 2000 cycles per second for 100 minutes on each of three mutually perpendicular axes.

ENVIRONMENTAL (Continued)

Humidity (non-operating)	MIL-E-5272 C, Paragraph 4.4.1 (Procedure I); i.e., non-operating tube in 95 percent relative humidity atmosphere for 10 days with temperature cycled slowly from approximately 30 C to 71 C each day.
Acoustic Noise (operating)	150 decibels above 2×10^{-4} dynes/second ² , 25 to 12,000 cycles per second random noise.
Altitude (operating)	100,000 feet mean sea level.
Temperature, ambient (operating)	-65 to +65 C.

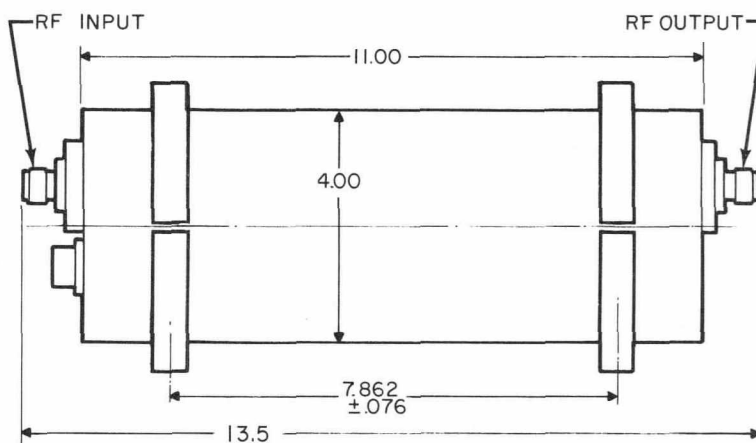
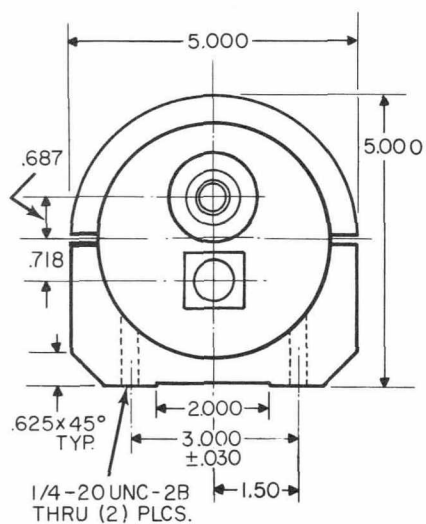
OPERATING CONDITIONS†	Minimum	Nominal	Maximum	
Heater Voltage (regulate to $\pm 2\%$ for optimum performance) .	--	6.3	--	Volts AC or DC
Heater Current	--	--	0.5	Amperes
Electrode 1 (Grid) Voltage	0	--	-35	Volts
Electrode 2 (Anode) Voltage	25	--	75	Volts
Electrode 3 Voltage	25	--	150	Volts
Electrode 4 Voltage	50	--	350	Volts
Helix Voltage	530	--	640	Volts
Helix Current	--	--	100	Microamperes
Collector Voltage	750	--	900	Volts
Collector Dissipation	--	--	0.9	Watts
Cathode Current	400	--	1000	Microamperes

* Increased gain and power ratings are possible when this tube is optimized for narrow frequency band.

† Voltages shown are measured with respect to cathode. All voltages may be isolated from ground. For minimum noise and optimum gain characteristics, voltages should be adjusted to values specified by instructions accompanying each tube. These values will be within the ranges given above.

KPT-02HI2-IOPN CANNON CONNECTIONS

CONNECTED TO	PIN
ELECTRODE 1	A
ELECTRODE 2	B
ELECTRODE 3	C
ELECTRODE 4	D
HELIX	E
COLLECTOR	F
CATHODE-HEATER	G
HEATER	J
NO CONNECTION	K
NO CONNECTION	H



DIMENSIONS ARE IN INCHES

