

ELECTRONIC TUBE REFERENCE

EM1051

Specialized - Traveling Wave electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
TRAVELINGWAVE

Rugged lightweight metal-ceramic traveling-wave power amplifier for 8-12 GHz, designed for severe shock, vibration, altitude, and temperature environments.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 TravelingWave
<i>No fixed ratings recorded.</i>
<i>Promoted fields populated only where the published value maps directly to the schema; device-specific values retained as parameters.</i>

TENTATIVE DATA FOR EIMAC EM1051 TRAVELING WAVE TUBE The EIMAC EM1051 is a very rugged, light weight power-amplifier traveling wave tube designed to operate under severe environmental extremes of shock, vibration, altitude and temperature. The EM1051 utilizes ceramic and metal construction and is focused by a fully temperature- compensated periodic permanent magnet array. This tube will provide a minimum output power of 3 watts CW over the frequency range of 8.0 to

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 Eimac

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1962 EIMAC

Section 1 · TravelingWave

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value	30 dB	30 db Gain
The EIMAC EM1	51	The EIMAC EM1051 is a very rugged, light weight power-amplifier
extremes of shock, vibration, altitude and temperature. The EM1	51	extremes of shock, vibration, altitude and temperature. The EM1051 utilizes
minimum output power of [1]	3 W	minimum output power of 3 watts CW over the frequency range of 8.0 to
minimum output power of [2]	8 W	minimum output power of 3 watts CW over the frequency range of 8.0 to
Published value [1]	12 GHz	12.0 GHz with a nominal small signal gain of 30 db.
Published value [2]	30 GHz	12.0 GHz with a nominal small signal gain of 30 db.
temperatures of +	85	temperatures of +85°C without additional cooling. Flexible leads provide
Minimum Heating Time	60 s	Minimum Heating Time - 60 seconds
Heater: Voltage	6.3 V	Heater: Voltage - - - 6.3 volts
Current	600 mA	Current - - - 0.6 amperes
Noise Figure [1]	25 dB	Noise Figure - - - - 25 to 34 decibels
Noise Figure [2]	34 dB	Noise Figure - - - - 25 to 34 decibels
Minimum Tangential Sensitivity (Broadband)	-50	Minimum Tangential Sensitivity (Broadband) - - - -50 dbm
Minimum Saturated Output Power	3 W	Minimum Saturated Output Power - 3 watts
Frequency Range [1]	8 GHz	Frequency Range - - - - 8.0 to 12.0 gigahertz
Frequency Range [2]	12 GHz	Frequency Range - - - - 8.0 to 12.0 gigahertz

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input and Output Impedence	50 ohm	Input and Output Impedence - - 50 ohms nominal
DC Beam Voltage*	3500 V	DC Beam Voltage* - - - - 3500 volts
DC Cathode Current - - - ~	30 mA	DC Cathode Current - - - ~ - 30 milliamperes
Frequency - - - - = - = [1]	80	Frequency - - - - = - = - - - - - 80to12.0gigahertz
Frequency - - - - = - = [2]	2	Frequency - - - - = - = - - - - - 80to12.0gigahertz
Minimum Output Power - - - - - . - - . _	3 W	Minimum Output Power - - - - . - - . _ . 3.0 watts
Small Signal Gain S T	30 dB	Small Signal Gain S T 30 decibels
DC Beam Voltage*	3300 V	DC Beam Voltage* - - - - . - - - . . 3300 volts
DC Cathode Current	28 mA	DC Cathode Current - - - - - - - . - 28 milliamperes
DC Focus Electrode Voltage*	-40 V	DC Focus Electrode Voltage* - - - - . - - - - -40 volts
DC Focus Electrode Current	0 mA	DC Focus Electrode Current - - - - - - . . . 0 milliamperes
Cathode: The heater voltage should be maintained within + [1]	5 V	Cathode: The heater voltage should be maintained within +5 per cent of the rated value of 6.3 volts
Cathode: The heater voltage should be maintained within + [2]	6.3 V	Cathode: The heater voltage should be maintained within +5 per cent of the rated value of 6.3 volts
Focus Electrode: The focus electrode power supply must be regulated within +=	2	Focus Electrode: The focus electrode power supply must be regulated within +=2 per cent to mini-
Temperature' - - - - - - - - - - - - - - -b5 [1]	4	Temperature' - - - - - - - -b54°Cto +85°C
Temperature' - - - - - - - - - - - - - - -b5 [2]	85	Temperature' - - - - - - - -b54°Cto +85°C
ANODE VOLTAGE [1]	3300 V	ANODE VOLTAGE 3300 Vdc FOCUS VOLTAGE -40 Vdc
ANODE VOLTAGE [2]	-40 V	ANODE VOLTAGE 3300 Vdc FOCUS VOLTAGE -40 Vdc
CATHODE CURRENT [1]	28	CATHODE CURRENT 28 mAdc FILAMENT VOLTAGE 6.3 Vac
CATHODE CURRENT [2]	6.3	CATHODE CURRENT 28 mAdc FILAMENT VOLTAGE 6.3 Vac

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value	9	9 SATURATED OUTPUT POWER
Published value	0	0 BROADBAND TANGENTIAL SENSITIVITY

TUBE TINKER

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and their source documents.

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