

### Description

Model MS020440 is an octave high power amplifier operating from 2 to 4 GHz range with 46 W typical output power. It provides 56 dB of small signal gain with flatness  $\pm 1.5$  dB. MS020440 uses advanced GaN microwave device technology and provides long term reliability and high ruggedness. Hermetically sealed package implements reliable operation in various harsh environments.



### Features:

- 40 Watts RF Output Power
- 50 Ohm Input / Output Impedance
- Digital 5 – bit gain control (0.9dB – 27.9dB)
- Built-in output power detector
- High switching speed (300 ns)
- Gain – temperature compensation
- High reliability and ruggedness

### Applications:

- Communications Systems
- Test Instrumentation
- Broadband RF Telemetry
- Point To Point Radio
- Fiber Optics

### Electrical Specifications @ T=25°C, VDC = +27 V, Z<sub>s</sub>=Z<sub>L</sub>=50Ω

Parameters	Symbol	Min	Typ	Max	Units
Operating Frequency	BW	2		4	GHz
RF Saturated Output Power	P <sub>sat</sub>	45	48		W
RF Output Power@ at P <sub>in</sub> =0 dBm	P <sub>0dBm</sub>	40	46		W
Small Signal Gain	G <sub>ss</sub>	48	56	58	dB
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
VSWR Input / Output	VSWR In/Out		1.3 / 1.2	2.0 / 2.0	
Operating Voltage	VDC	26	27	30	V
Operating Current @ P <sub>sat</sub>	I <sub>DD</sub>			6	A

### Mechanical Specifications

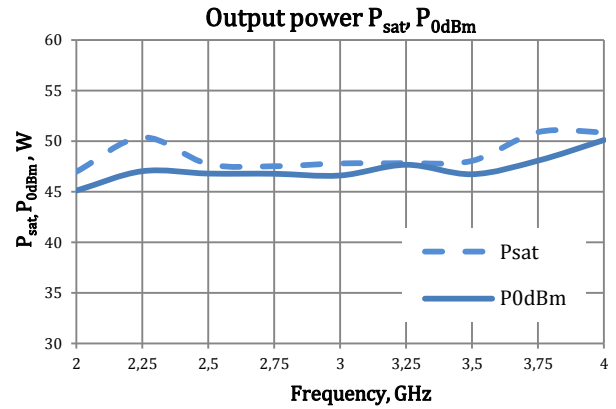
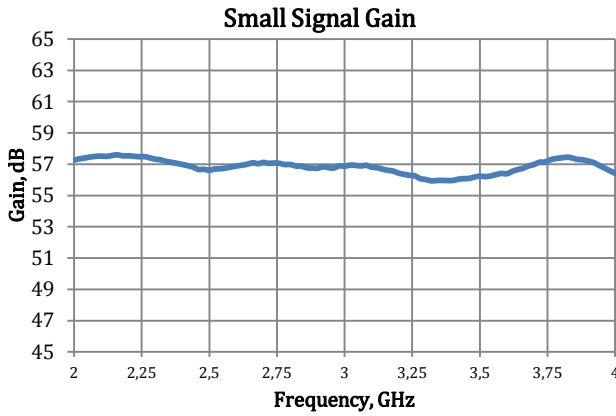
Parameters	Value	Unit	Limits
Dimensions	187.7 x 75.4 x 23 (7.39x 2.97 x 0.91)	mm (inch)	Max
Weight	0.62 (1.37)	kg (lb)	Max
RF Connectors, Input / Output	SMA Female		
Interface connectors	X1: Harwin M80-5101022		
	X2 : Harwin M80-5T10222M2-01-331-01-331		
Cooling	External Heatsink		

### Environmental Specifications

Parameters	Symbol	Min	Max	Unit
Operating Temperature (ambient)	T <sub>a</sub>	-55	+60	°C
Operating Temperature (baseplate)	T <sub>c</sub>	-55	+75	°C
Storage temperature	T <sub>stg</sub>	-65	+85	°C
Relative Humidity	RH		98	%

### Performance Plots

Test Conditions :  $T=25^{\circ}\text{C}$ ,  $Z_s=Z_L=50\Omega$



### DC Interface Connectors

Connector	Pin#	Description	Specification
X1 Harwin M80-5101022	1	14.4	Bit 14.4 dB control
	2	7.2	Bit 7.2 dB control
	3	3.6	Bit 3.6 dB control
	4	1.8	Bit 1.8 dB control
	5	0.9	Bit 0.9 dB control
	6	DOUT	Power Detector Output
	7,10	G	Ground
	8	T	Analog Voltage Relative Temperature@10mV/°C
X2 Harwin M80-5T10222M2-01- 331-01-331	9	Mod	RF Enable (0V or GND=RF Off, +5V or NC=RF On)
	A	+27	DC Power (+26... +30VDC)
	B	G(-27)	Ground
	1,2	N/C	No Connection

### Mechanical Outline

(All dimensions in millimeters)

