PA38 / SMPA38

Cascadable Amplifier
200 to 2000 MHz

Rev. V4

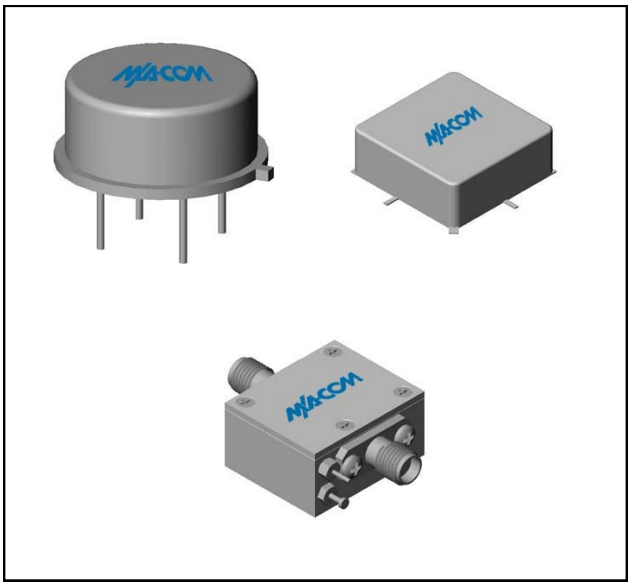
Features

- WIDE BANDWIDTH: 200-2400 MHz (TYP.)
- HIGH OUTPUT LEVEL: +23.0 dBm (TYP.)
- LOW NOISE FIGURE: 4.0 dB (TYP.)
- HIGH THIRD ORDER I.P.: +34 dBm (TYP.)

Description

The PA38 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.
This two stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Product Image



Ordering Information

Part Number	Package
PA38	TO-8
SMPA38	Surface Mount
CPA38 **	SMA Connectorized

** The connectorized version is not RoHs compliant.

Electrical Specifications: Z_0 = 50Ω, V_{CC} = +15 V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	GHz	0.2-2.4	0.2-2.0	0.2-2.0
Small Signal Gain (min)	dB	10.0	8.5	8.0
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	17		
Noise Figure (max)	dB	4.0	4.7	5.2
Power Output @ 1 dB comp. (min)	dBm	23.0	21.5	21.0
IP3	dBm	+34		
IP2	dBm	+55		
Second Order Harmonic IP	dBm	+60		
VSWR Input / Output (max)		1.7:1 / 1.5:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	150	158	160

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	85ºC
DC Voltage	+16 V
Continuous Input Power	+17 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 µsec max.)	1 W
"S" Series Burn-In Temperature (case)	85ºC

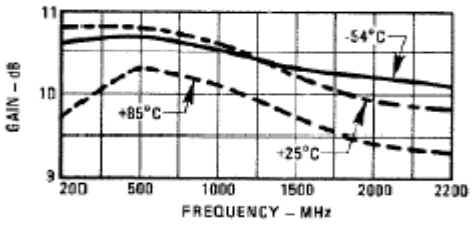
Thermal Data: V_{CC} = +15 V_{DC}

Parameter	Rating
Thermal Resistance θ_{jc}	125.8ºC/W
Transistor Power Dissipation P_d	0.578 W
Junction Temperature Rise Above Case T_{jc}	72ºC

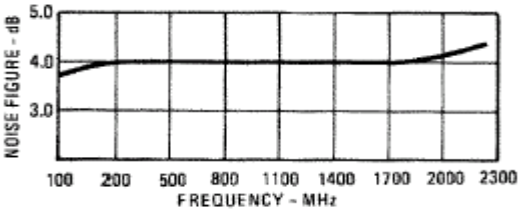
* Over temperature performance limits for part number CPA38, guaranteed from 0°C to +50°C only.

Typical Performance Curves at +25°C

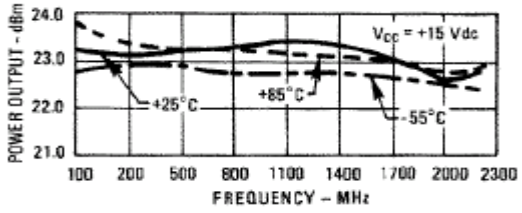
Gain



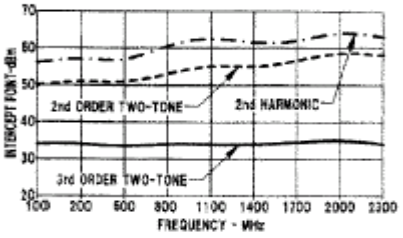
Noise Figure



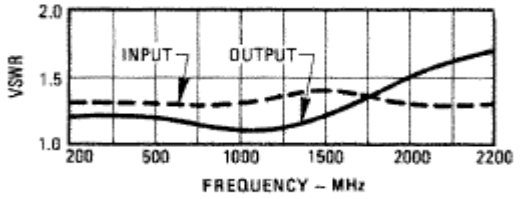
Power Output



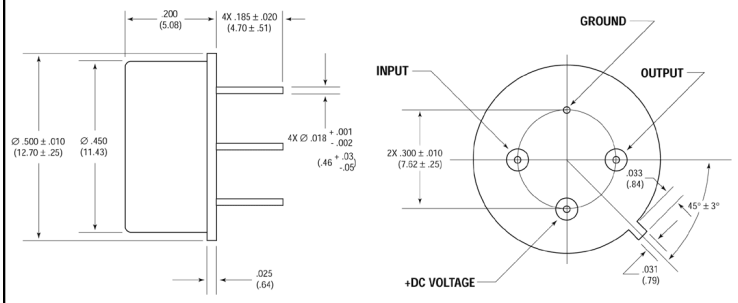
Intercept Point



VSWR

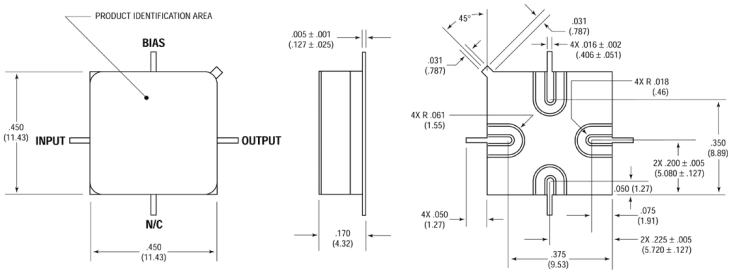


Outline Drawing: TO-8 *



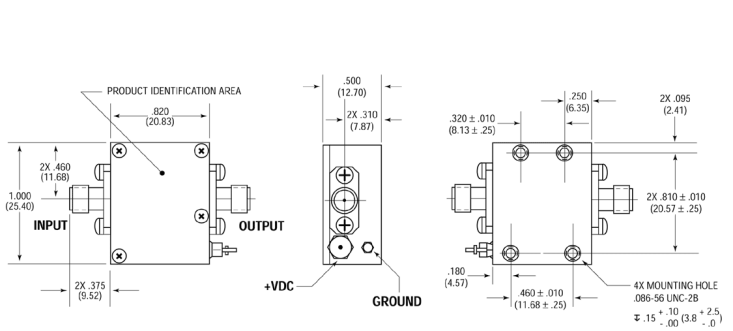
WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 19 grams (0.67 oz.) max

* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.