

# PA38 / SMPA38

Cascadable Amplifier  
200 to 2000 MHz

Rev. V3

## 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.

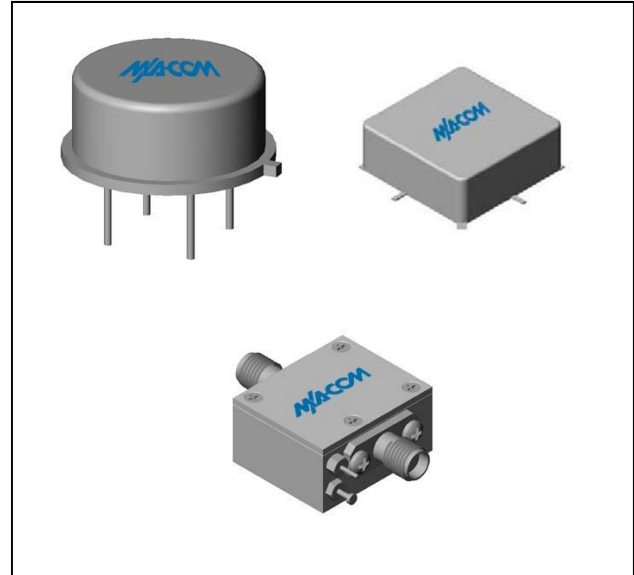
This two stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

## Ordering Information

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

\*\* The connectorized version is not RoHs compliant.

## Product Image



## Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +15 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
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	-62°C to +125°C
Case Temperature	85°C
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)	85°C

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

Parameter	Rating
Thermal Resistance $\theta_{jc}$	125.8°C/W
Transistor Power Dissipation $P_d$	0.578 W
Junction Temperature Rise Above Case $T_{jc}$	72°C

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

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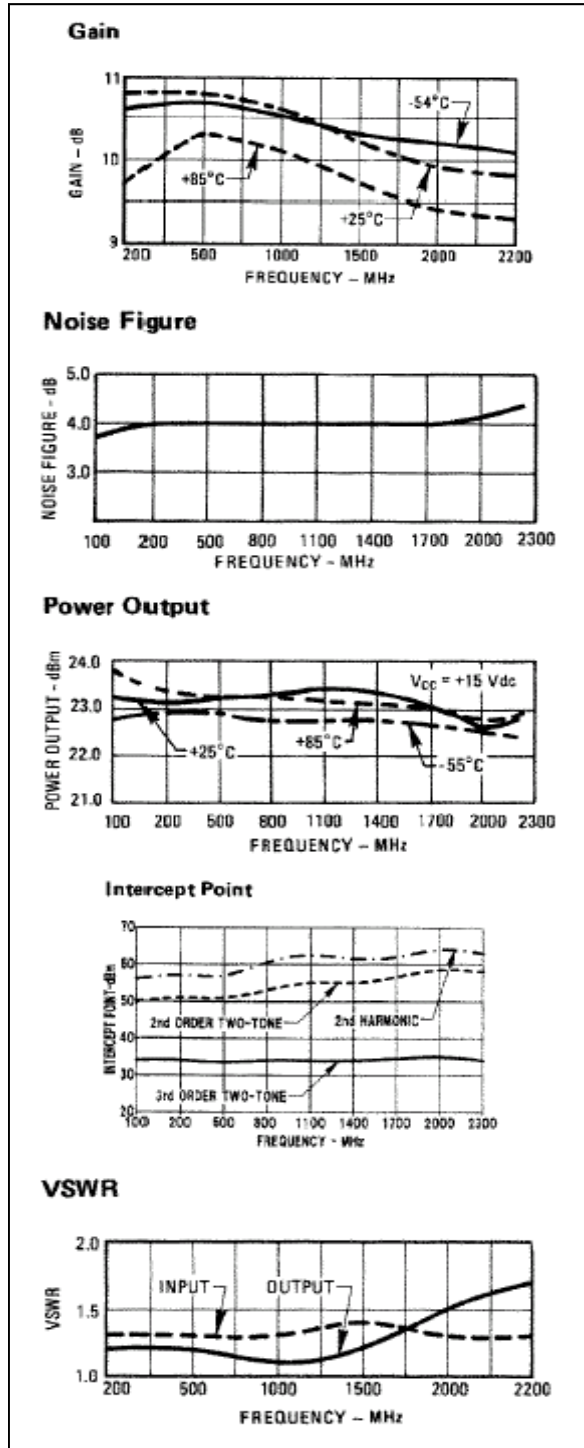
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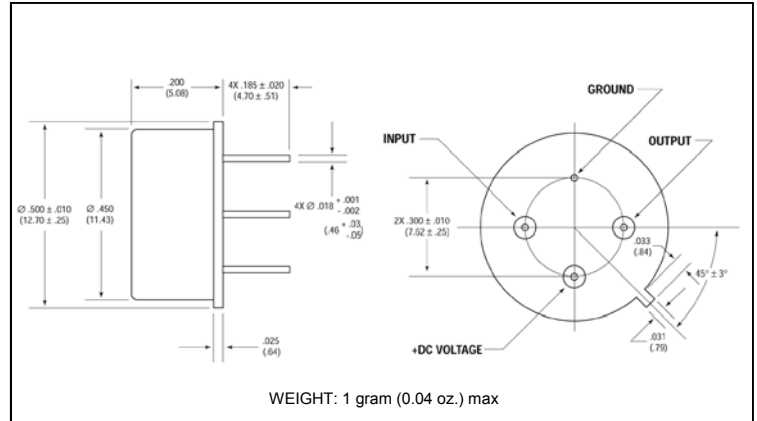
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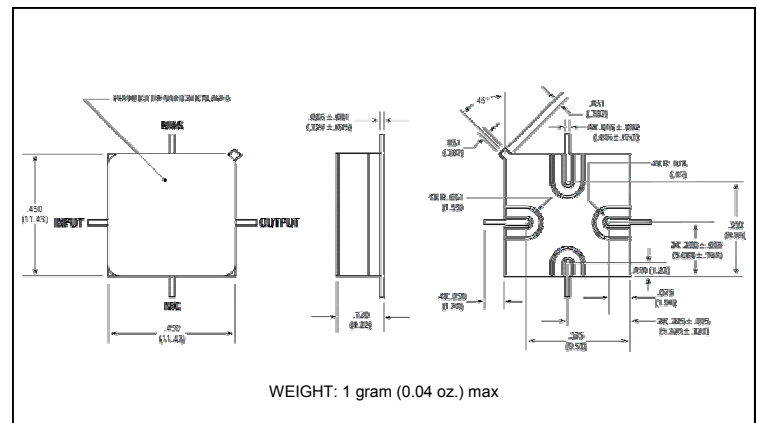
## Typical Performance Curves at +25°C



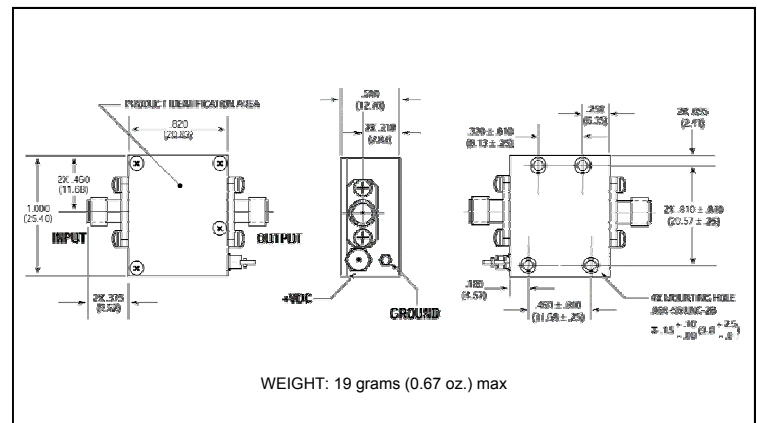
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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