tyco Electronics

RoHS Compliant

MACOM

Cascadable Amplifier 5 to 300 MHz

A78/ SMA78

V3

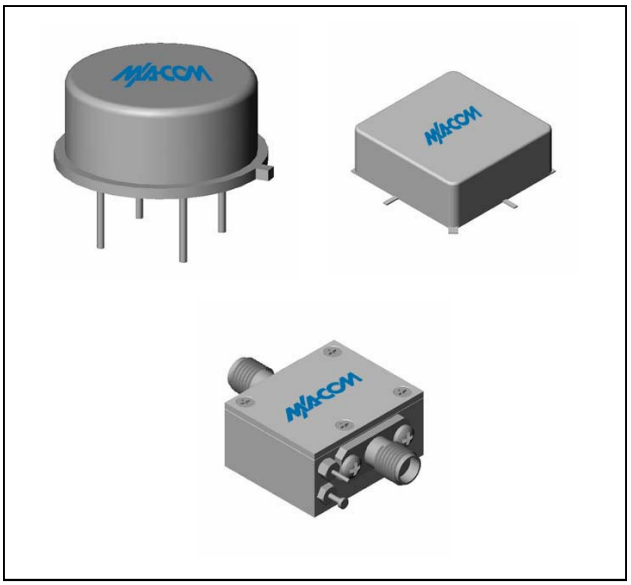
Features

- HIGH DYNAMIC RANGE: +114 dB/ 1 MHz
- HIGH OUTPUT: +19.0 dBm (TYP.)
- HIGH THIRD ORDER I.P.: +35 dBm (TYP.)
- LOW NOISE FIGURE: 3.5 dB (TYP.)

Description

The A78 RF amplifier is a discrete thin film hybrid design, which incorporates the use of thin film manufacturing processes for accurate performance and high reliability. This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network is used for temperature-stable performance, in addition to an RF Choke, used for power supply decoupling.
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
A78	TO-8
SMA78	Surface Mount
CA78**	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	MHz	2-350	5-300	5-300
Small Signal Gain (min)	dB	14.0	13.0	12.5
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	17		
Noise Figure (max)	dB	3.5	4.5	5.0
Power Output @ 1 dB comp. (min)	dBm	19.5	18.0	17.5
IP3	dBm	+35		
IP2	dBm	+49		
Second Order Harmonic IP	dBm	+55		
VSWR Input / Output (max)		1.5:1 / 1.5:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	65	69	72

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	125ºC
DC Voltage	+17 V
Continuous Input Power	+18 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 µsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	125ºC

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

Parameter	Rating
Thermal Resistance θ_{jc}	75ºC/W
Transistor Power Dissipation P_d	0.668 W
Junction Temperature Rise Above Case T_{jc}	50ºC

* Over temperature performance limits for part number CA78, guaranteed from 0°C to +50°C only.

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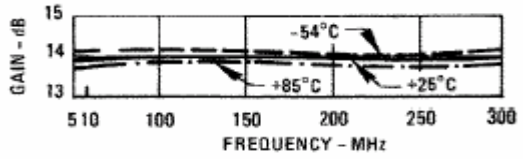
- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
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- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.

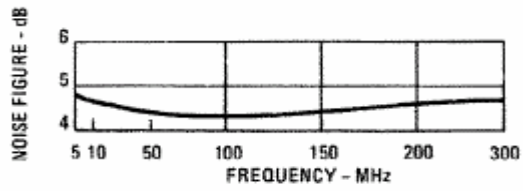
Cascadable Amplifier
5 to 300 MHz

Typical Performance Curves at +25°C

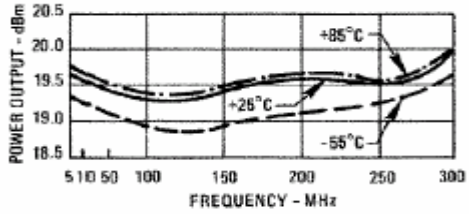
Gain



Noise Figure

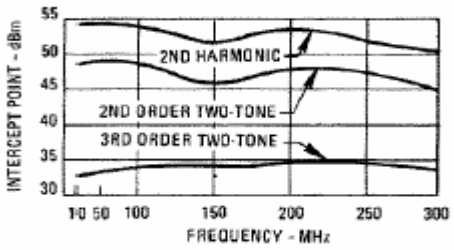


Power Output*

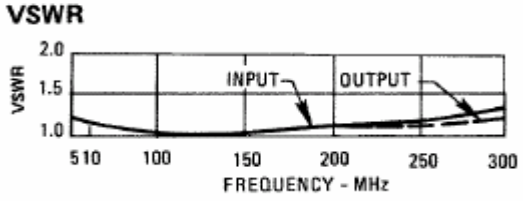


* at 1 dB Gain Compression

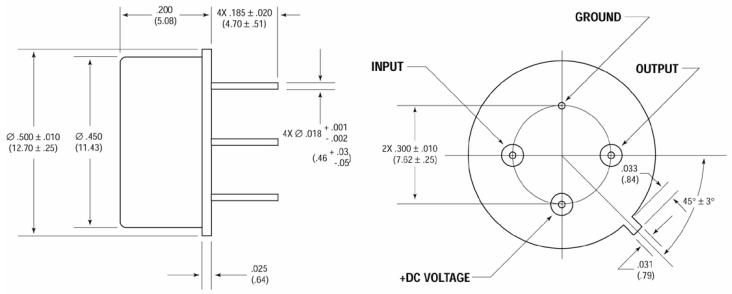
Intercept Point



VSWR

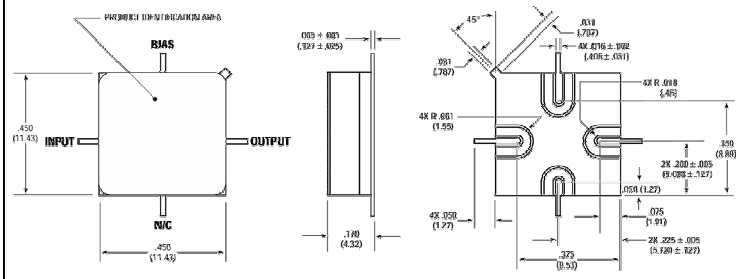


Outline Drawing: TO-8 *



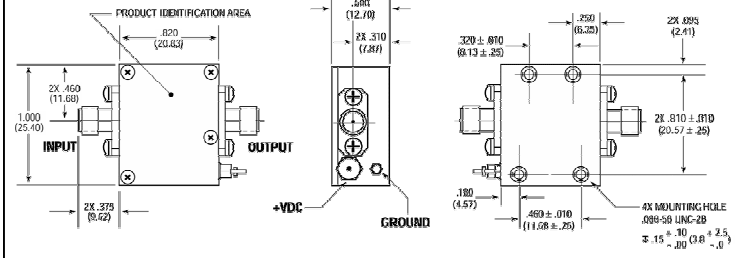
WEIGHT: 1 gram (0.04 oz.) max

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.

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