

Cascadable Amplifier 5 to 300 MHz

Rev. 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 temperaturestable 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.

Ordering Information

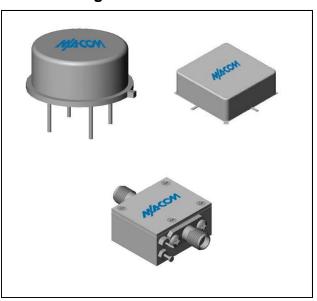
Part Number	Package	
A78	TO-8	
SMA78	Surface Mount	
CA78**	SMA Connectorized	

^{**} The connectorized version is not RoHs compliant.

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

Parameter	Units	Typical	Guaranteed	
		25°C	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

Product Image



Absolute Maximum Ratings

Parameter	Absolute Maximum	
Storage Temperature	-62°C to +125°C	
Case Temperature	125°C	
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)	125°C	

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

Parameter	Rating	
Thermal Resistance θ_{jc}	75°C/W	
Transistor Power Dissipation Pd	0.668 W	
Junction Temperature Rise Above Case T _{jc}	50°C	

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

Commitment to produce in volume is not guaranteed.

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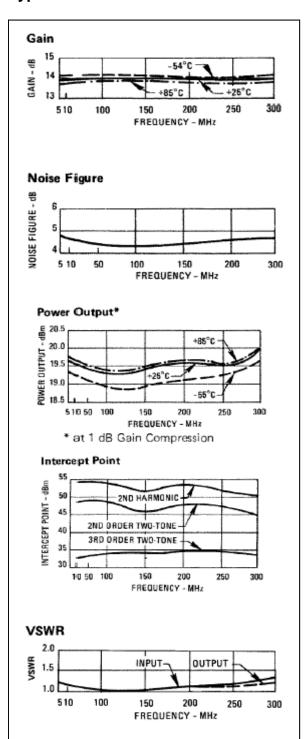
[•] India Tel: +91.80.4155721 · China Tel: +86.21.2407.1588 Visit www.macomtech.com for additional data sheets and product information.



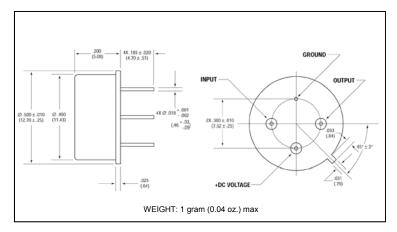
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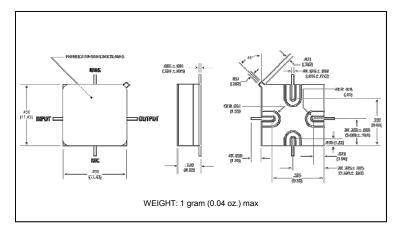
Typical Performance Curves at +25°C



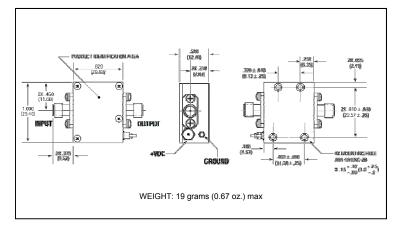
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount



Outline Drawing: SMA Connectorized *



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

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