

**Cascadable Amplifier  
1000 to 5000 MHz**

**RA53 / SMRA53**

V2

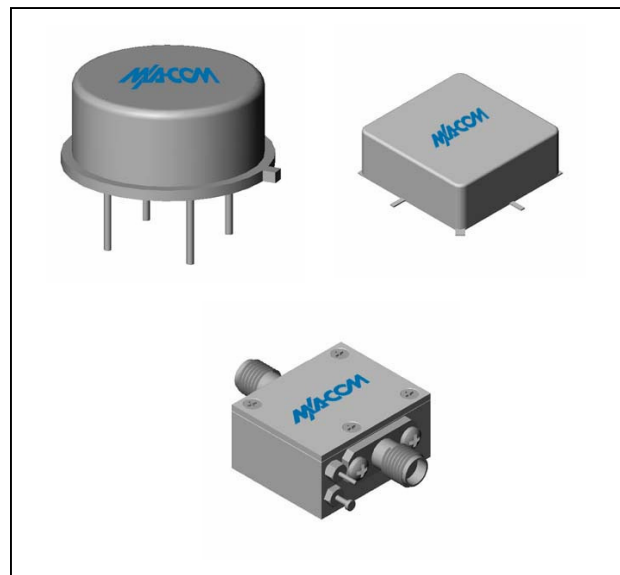
**Features**

- AVAILABLE IN SURFACE MOUNT
- ULTRAWIDE BANDWIDTH: 0.8-5.0 GHz (TYP.)
- HIGH GAIN: 21.0 dB (TYP.)
- LOW NOISE: 4.5 dB (TYP.)
- MEDIUM OUTPUT POWER: +11.5 dBm (TYP)

**Description**

The RA53 microwave 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
RA53	TO-8B
SMRA53	Surface Mount
CRA53	SMA Connectorized

**Electrical Specifications:  $Z_0 = 50\Omega$ ,  $V_{CC} = +5 V_{DC}$**

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	800-5000	1000-5000	1000-5000
Small Signal Gain (min)	dB	21.0	19.5	18.0
Gain Flatness (max)	dB	±0.7	±0.9	±1.2
Noise Figure (max)	dB	4.5	5.3	5.8
Power Output @ 1 dB comp. (min)	dBm	+11.5	+10.5	+9.5
VSWR Input / Output (max)		1.7:1	2.1:1	2.3:1
DC Current @ 5 Volts (max)	mA	115	140	150

**Absolute Maximum Ratings**

Parameter	Absolute Maximum
Storage Temperature	-64°C to +125°C
Case Temperature	85°C
DC Voltage	+6 V
Continuous Input Power	+7 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 µsec max.)	0.25 W
"S" Series Burn-In Temperature (case)	85°C

**Thermal Data:  $V_{CC} = +5 V_{DC}$**

Parameter	Rating
Thermal Resistance $\theta_{jc}$	97.8°C/W
Transistor Power Dissipation $P_d$	0.176 W
Junction Temperature Rise Above Case $T_{jc}$	17°C

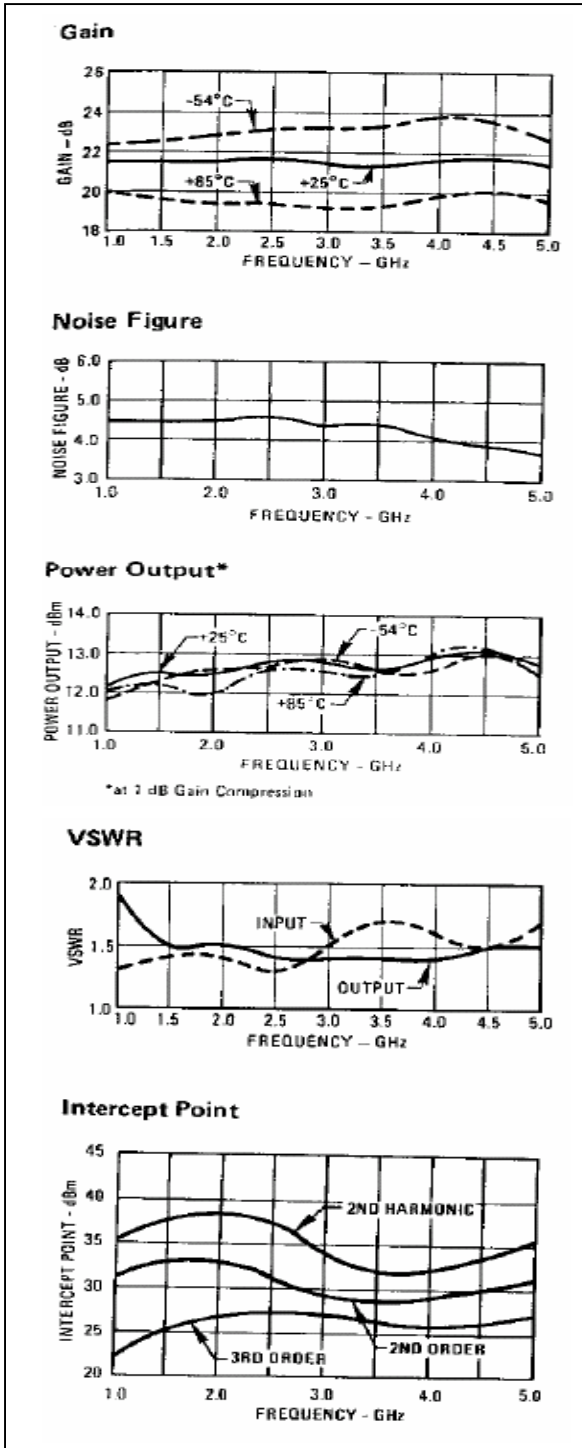
\* Over temperature performance limits for part number CRA53, guaranteed from 0°C to +50°C only.

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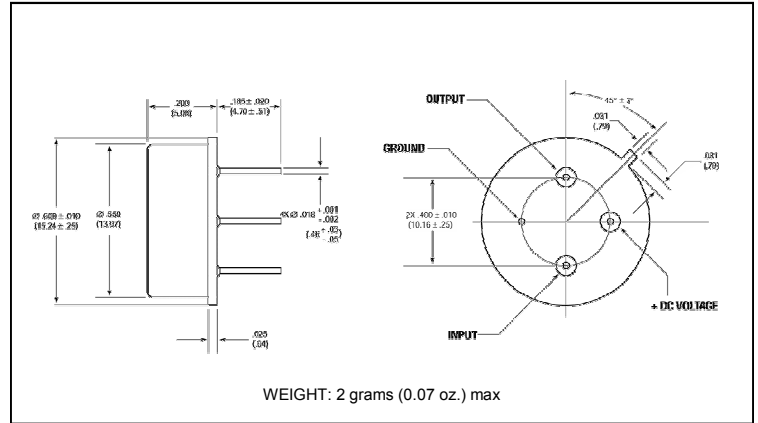
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V2

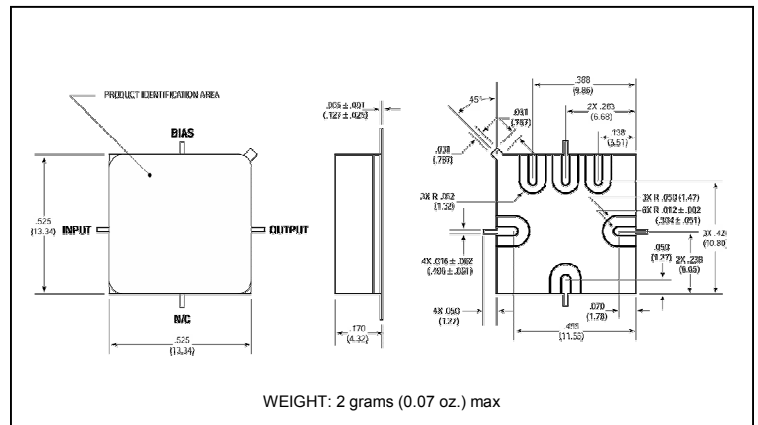
**Typical Performance Curves at +25°C**



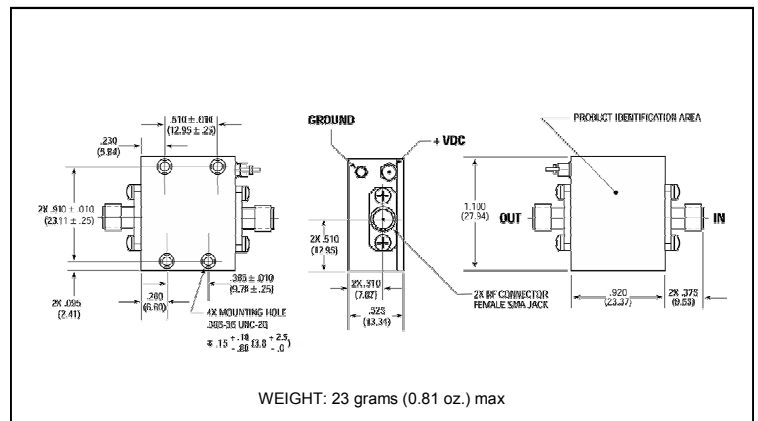
**Outline Drawing: TO-8B \***



**Outline Drawing: Surface Mount \***



**Outline Drawing: SMA Connectorized \***



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

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