



# Cascadable Amplifier 10 to 500 MHz

A53/ SMA53

V2

#### **Features**

- AVAILABLE IN SURFACE MOUNT
- LOW NOISE: 3.0 dB (TYP.)
- MEDIUM THIRD ORDER I.P.: +16 dBm (TYP.)
- MEDIUM GAIN 15 dB (TYP.)

### **Description**

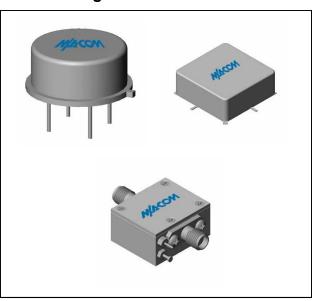
The A53 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Both TO-8 and Surface Mount packages are Hermetically sealed, and MIL-STD-883 environmental screening is available.



Part Number	Package	
A53	TO-8	
SMA53	Surface Mount	
CA53	SMA Connectorized	

#### **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	MHz	5-600	10-500	10-500
Small Signal Gain (min)	dB	15.0	14.0	13.5
Gain Flatness (max)	dB	±0.5	±0.8	±1.0
Reverse Isolation	dB	20		
Noise Figure (max)	dB	3.0	3.5	4.0
Power Output @ 1 dB comp. (min)	dBm	3.5	2.0	1.5
IP3	dBm	+16		
IP2	dBm	+22		
Second Order Harmonic IP	dBm	+28		
VSWR Input / Output (max)		1.5:1 / 1.5:1	2.0:1 / 2.0:1	2.1:1 / 2.1:1
DC Current @ 15 Volts (max)	mA	12	15	17

## **Absolute Maximum Ratings**

Parameter	Absolute Maximum	
Storage Temperature	-62°C to +125°C	
Case Temperature	125°C	
DC Voltage	+17 V	
Continuous Input Power	+13 dBm	
Short Term Input power (1 minute max.)	50 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 $\theta_{jc}$	45°C/W
Transistor Power Dissipation P <sub>d</sub>	0.111 W
Junction Temperature Rise Above Case T <sub>jc</sub>	5°C

<sup>\*</sup> Over temperature performance limits for part number CA53, guaranteed from 0°C to +50°C only.

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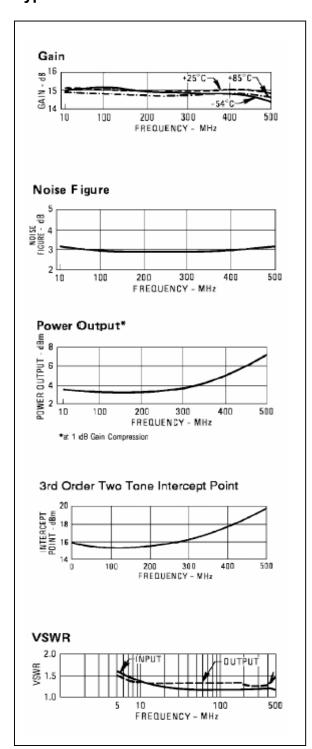




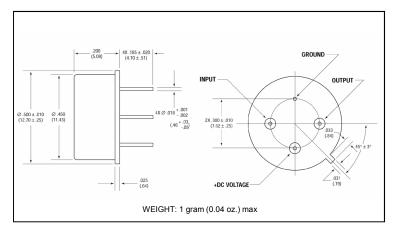
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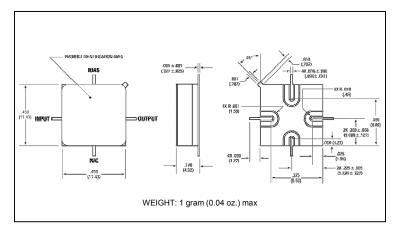
## Typical Performance Curves at +25°C



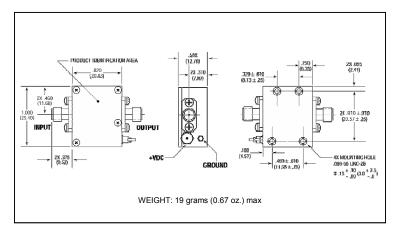
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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