tyco Electronics

RoHS Compliant

MACOM

Cascadable Amplifier
5 to 500 MHz

A59 / SMA59

V3

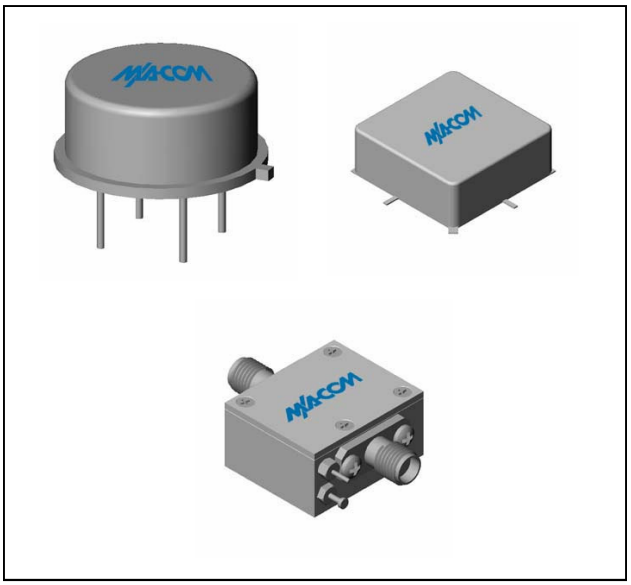
Features

- HIGH DYNAMIC RANGE: +118 DBM (1 MHz Band)
- HIGH OUTPUT POWER: +22 dBm (TYP.)
- HIGH THIRD ORDER I.P.: +36 dBM (TYP.)
- LOW NOISE FIGURE: 4.3 dB (TYP.)
- WIDE POWER SUPPLY RANGE: +5 to +15 VOLTS

Description

The A59 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. An active DC biasing network insures temperature-stable performance.
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
A59	TO-8
SMA59	Surface Mount
CA59 **	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	2-700	5-500	5-500
Small Signal Gain (min)	dB	11.5	10.5	10.0
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	16		
Noise Figure (max)	dB	4.3	5.5	6.0
Power Output @ 1 dB comp. (min)	dBm	22.0	20.5	20.0
IP3	dBm	+36		
IP2	dBm	+56		
Second Order Harmonic IP	dBm	+62		
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	88	93	98

* Over temperature performance limits for part number CA59, guaranteed from 0°C to +50°C only.

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)	+100ºC

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

Parameter	Rating
Thermal Resistance θ_{jc}	75ºC/W
Transistor Power Dissipation P_d	0.869 W
Junction Temperature Rise Above Case T_{jc}	+64ºC

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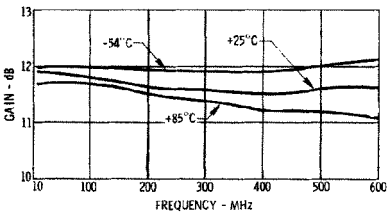
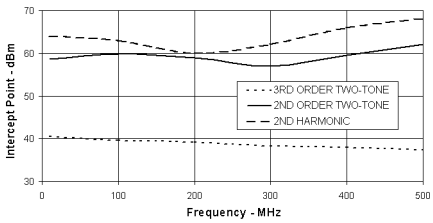
Typical Performance Curves at +25°C

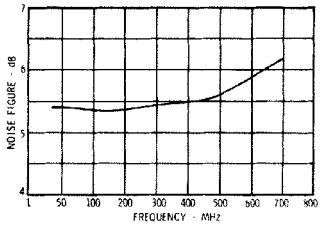
Gain



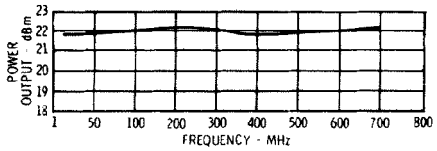
Intercept Point



Noise Figure

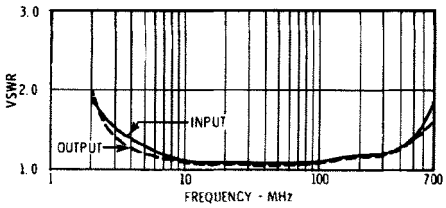


Power Output*

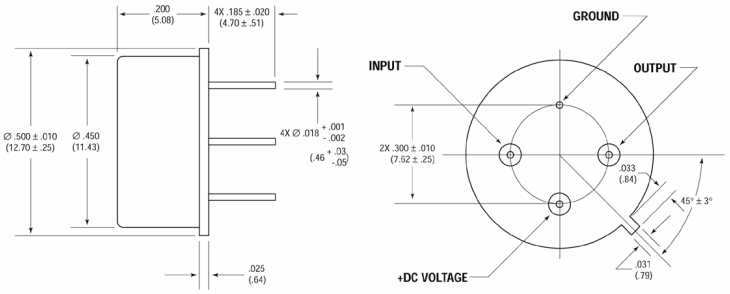


*at 1 dB Gain Compression

VSWR

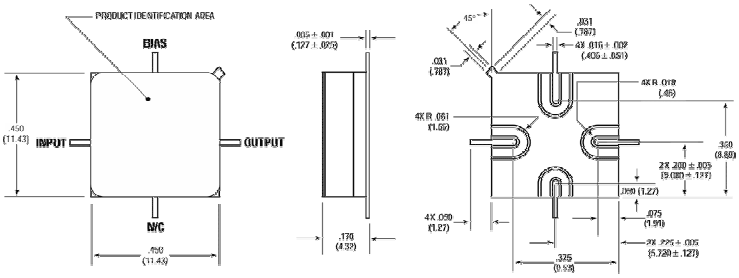


Outline Drawing: TO-8 *



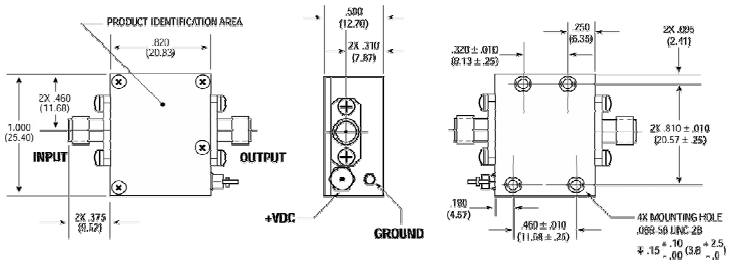
WEIGHT: 1 gram (0.04 oz.) max

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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