A6011 / SMA6011

Cascadable Amplifier
2000 to 6000 MHz

Rev. V5

Features

- Low Noise Figure: 1.5 dB
- Medium Output Power: +18 dBm
- High Efficiency: 58 mA @ +5 V_{DC}
- pHEMT Amplifier

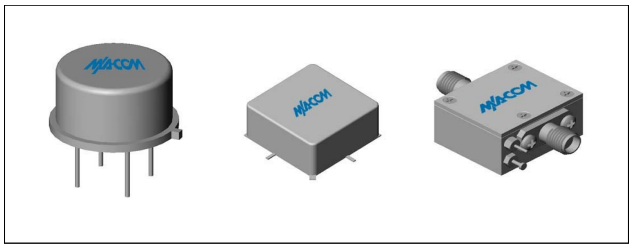
Description

The A6011 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range. An RF choke is used for DC power supply decoupling.

Both the TO-8 and surface mount packages are hermetically sealed, and environmental screening is available per MIL-STD-883.

Product Image



Ordering Information

Part Number	Package
A6011	TO-8
SMA6011	Surface Mount
CA6011 **	SMA Connectorized

** The connectorized version is not RoHS compliant.

Electrical Specifications: Z_0 = 50 Ω, V_{CC} = +5 V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	GHz	1.5 - 6.0	2.0 - 6.0	2.0 - 6.0
Small Signal Gain (min.)	dB	14.8	13.5	12.5
Gain Flatness (max.)	dB	±0.6	±0.9	±1.1
Reverse Isolation	dB	16	—	—
Noise Figure (max.)	dB	1.5	2.5	3.0
Power Output @ 1 dB comp. (min.)	dBm	18.0	16.5	16.0
IP3	dBm	+30	—	—
IP2	dBm	+45	—	—
Second Order Harmonic IP	dBm	+50	—	—
VSWR Input / Output (max.)	Ratio	1.9:1 / 1.9:1	2.1:1 / 2.1:1	2.2:1 / 2.2:1
DC Current @ 5 Volts (max.)	mA	58	65	70

* Over temperature performance limits for part number CA6011, guaranteed from 0°C to +50°C only.

Absolute Maximum Ratings

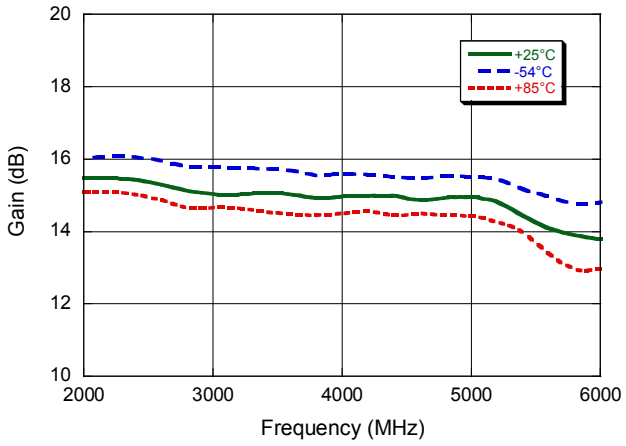
Parameter	Absolute Maximum
Storage Temperature	-62ºC to +150ºC
Case Temperature	125ºC
DC Voltage	+7 V
Continuous Input Power	+13 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 µsec max.)	0.25 W
"S" Series Burn-In Temperature (case)	125ºC

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

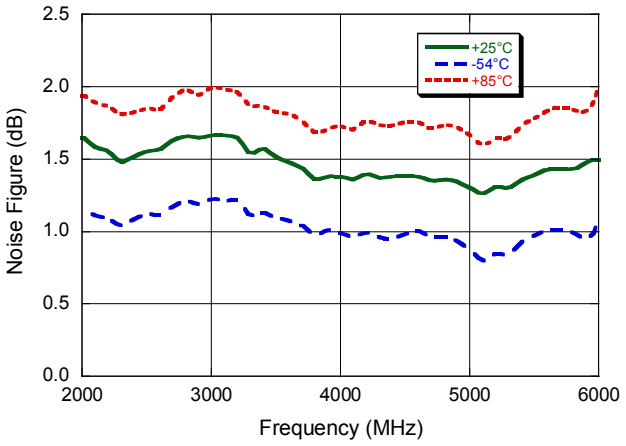
Parameter	Rating
Thermal Resistance θ_{jc}	47ºC/W
Transistor Power Dissipation P_d	0.2 W
Junction Temperature Rise Above Case T_{jc}	+9.4ºC

Typical Performance Curves

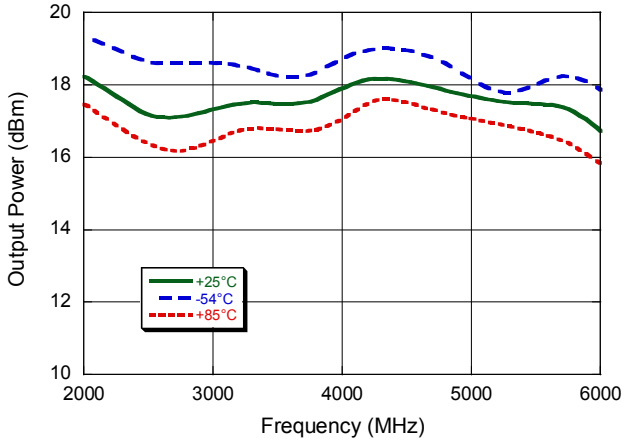
Gain



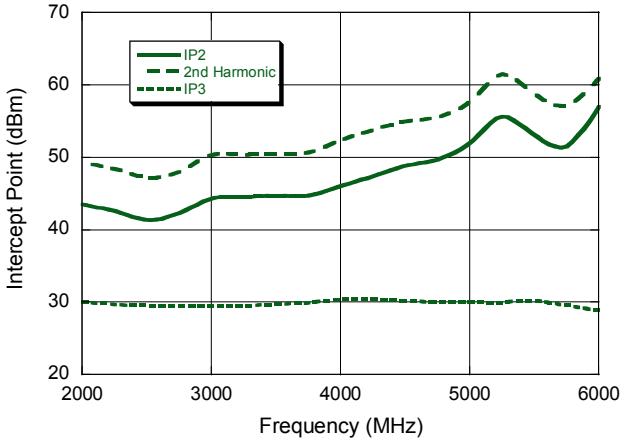
Noise Figure



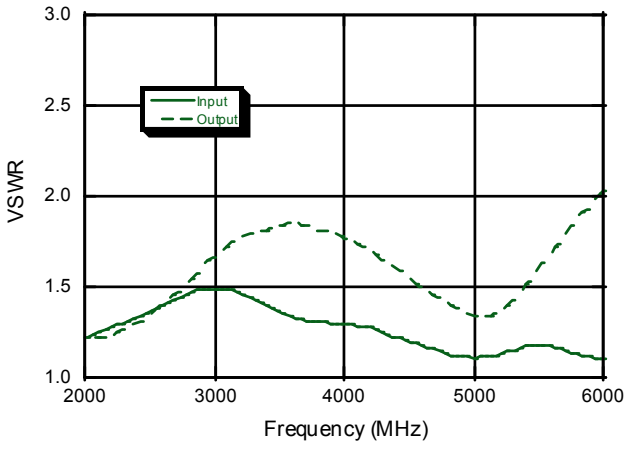
P_{OUT} @ 1 dB Gain Compression



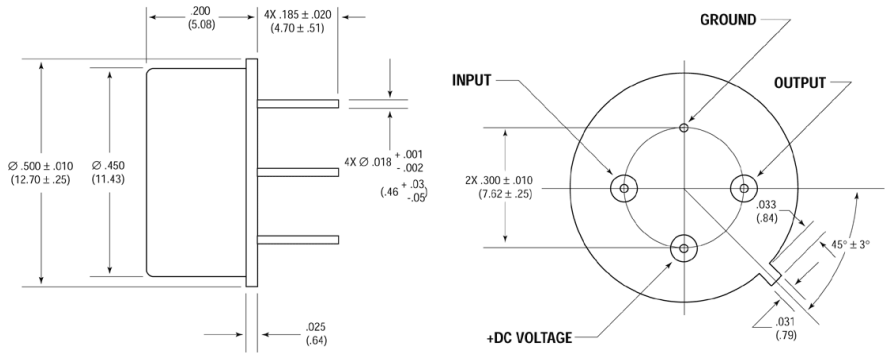
Intercept Points



VSWR

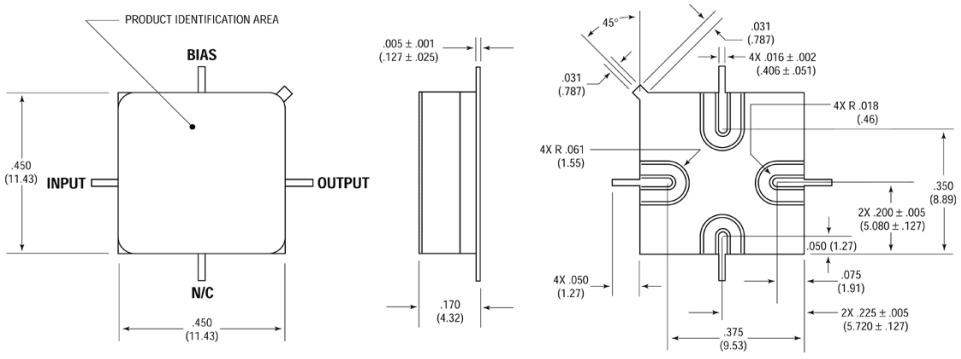


Outline Drawing: TO-8 *



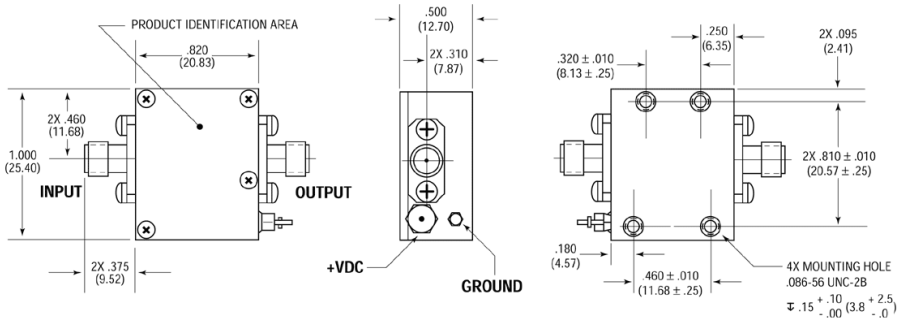
WEIGHT: 1 gram (0.04 oz.) max

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

MACOM:
SMA6011