

Cascadable Amplifier 10 to 500 MHz

Rev. V3

Features

HIGH GAIN-TWO STAGES: 32 dB (TYP.)
HIGH EFFICIENCY: 17 mA at +5 Vdc
LOW NOISE FIGURE: 2.0 dB (TYP.)
LOW POWER DRAIN: 85 mW at +5 Vdc

LOW VSWR: 1.3:1 (TYP.)

Description

The A531 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 temperature-stable 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	
A531	TO-8	
SMA531	Surface Mount	
CA531 **	SMA Connectorized	

Product Image



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	1-600	10-500	10-500
Small Signal Gain (min)	dB	31.7	30.0	29.0
Gain Flatness (max)	dB	±0.4	±0.8	±1.0
Reverse Isolation	dB	38		
Noise Figure (max)	dB	2.0	2.5	3.0
Power Output @ 1 dB comp. (min)	dBm	2.5	1.5	0.5
IP3	dBm	+14		
IP2	dBm	+30		
Second Order Harmonic IP	dBm	+36		
VSWR Input / Output (max)		1.3:1 / 1.3:1	1.8:1 / 1.8:1	2.0:1 / 2.0:1
DC Current @ 5 Volts (max)	mA	17	19	21

Absolute Maximum Ratings

Parameter	Absolute Maximum		
Storage Temperature	-62°C to +125°C		
Case Temperature	125°C		
DC Voltage	+10 V		
Continuous Input Power	+10 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: $V_{CC} = +5 V_{DC}$

Parameter	Rating	
Thermal Resistance θ _{jc}	185°C/W	
Transistor Power Dissipation P _d	0.048 W	
Junction Temperature Rise Above Case T _{jc}	9°C	

^{1 *} Over temperature performance limits for part number CA531, guaranteed from 0°C to +50°C only.

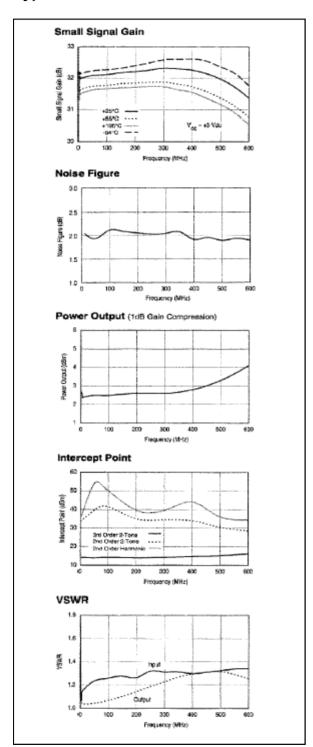
^{**} The connectorized version is not RoHs compliant.



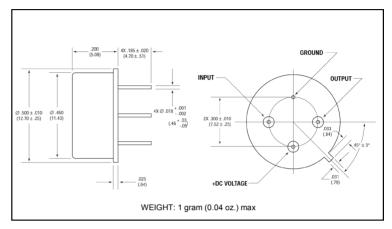
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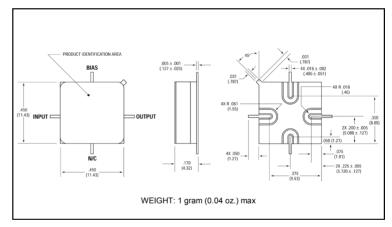
Typical Performance Curves at +25°C



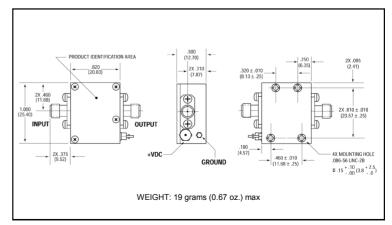
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount



Outline Drawing: SMA Connectorized *



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

A531 / SMA531



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