

Cascadable Amplifier 2 to 1500 MHz

A25-1 / SMA25-1

V3

Features

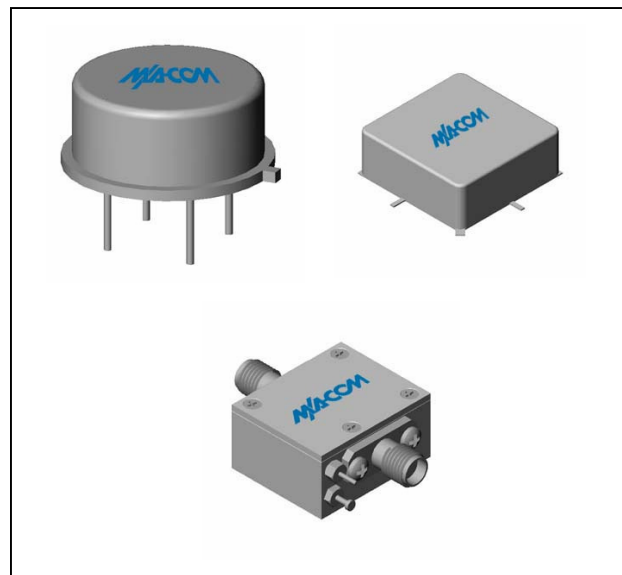
- LOW NOISE: <3.4 dB (TYP.)
- MEDIUM POWER OUT: +9.0 dBm (TYP.)
- LOW VSWR: <1.7:1 VSWR (TYP.)
- WIDE POWER SUPPLY RANGE: +5 TO +15 VOLTS

Description

The A25-1 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.

Product Image



Ordering Information

Part Number	Package
A25-1	TO-8
SMA25-1	Surface Mount
CA25-1	SMA Connectorized

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	1-1600	2-1500	2-1500
Small Signal Gain (min)	dB	13.5	13.0	12.5
Gain Flatness (max)	dB	±0.4	±0.5	±0.7
Reverse Isolation	dB	18		
Noise Figure (max)	dB	3.0	3.5	4.0
Power Output @ 1 dB comp. (min)	dBm	9.0	8.0	7.5
IP3	dBm	+22		
IP2	dBm	+30		
Second Order Harmonic IP	dBm	+36		
VSWR Input / Output (max)		1.7:1 / 1.2:1	1.9:1 / 1.9:1	2.0:1 / 2.3:1
DC Current @ 15 Volts (max)	mA	24	27	28

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+18 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: $V_{CC} = +15 V_{DC}$

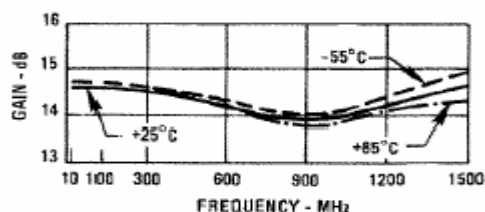
Parameter	Rating
Thermal Resistance θ_{jc}	185°C/W
Transistor Power Dissipation P_d	0.186 W
Junction Temperature Rise Above Case T_{jc}	+34°C

* Over temperature performance limits for part number CA25-1, guaranteed from 0°C to +50°C only.

A25-1 / SMA25-1

V3

Outline Drawing: TO-8 *

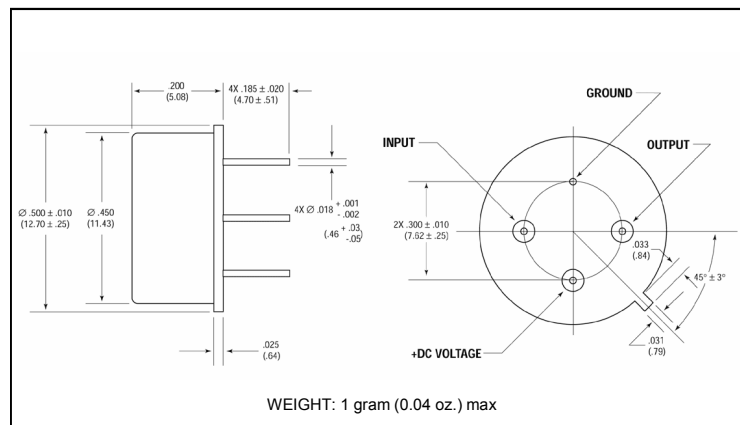


This graph shows the power output of the 2N3638 tube across a frequency range from 10 to 1500 MHz. The y-axis represents power output in dBm, ranging from 8 to 14. Three curves are plotted for different temperatures: +25°C, +85°C, and -55°C. The +25°C curve shows the highest power output, peaking around 10.5 dBm at 100 MHz and 1200 MHz. The +85°C and -55°C curves show lower power output, with the -55°C curve being the lowest, peaking around 9.5 dBm at 100 MHz and 1200 MHz. All curves show a slight dip in power output between 300 and 600 MHz.

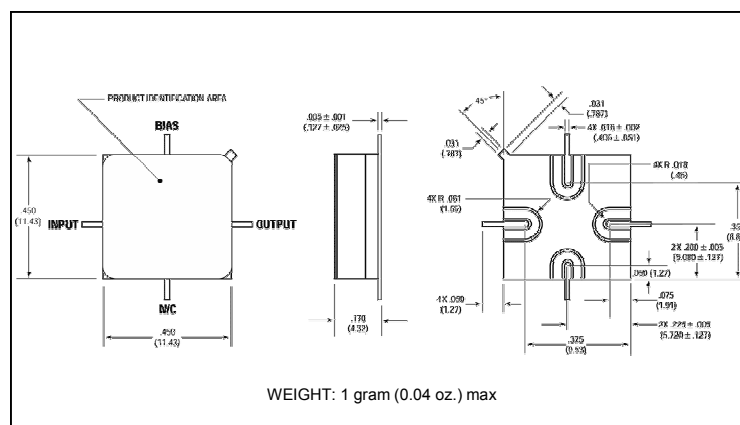
Frequency (MHz)	+25°C (dBm)	+85°C (dBm)	-55°C (dBm)
10	10.5	9.5	8.5
100	10.5	9.5	8.5
300	9.5	8.5	7.5
600	9.5	8.5	7.5
900	9.5	8.5	7.5
1200	10.5	9.5	8.5
1500	11.5	10.5	9.5

Frequency (MHz)	2nd Harmonic (dBm)	2nd Order Two-Tone (dBm)	3rd Order Two-Tone (dBm)
100	35	32	22
300	45	35	25
600	48	38	28
900	50	40	30
1200	52	42	32
1500	45	35	28

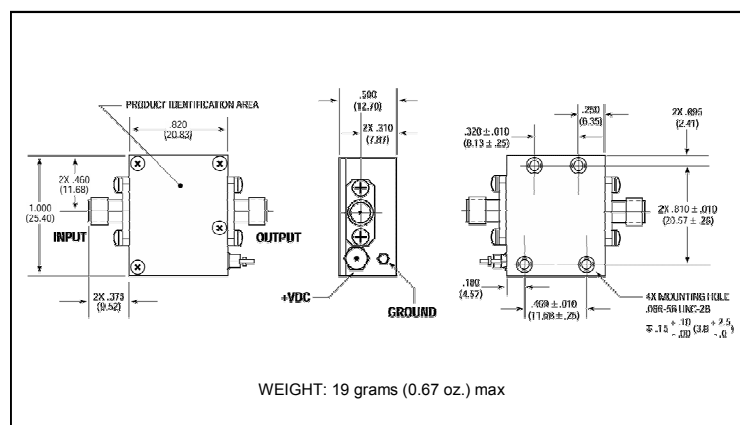
Frequency (MHz)	Input VSWR	Output VSWR
10	1.2	1.1
100	1.2	1.1
300	1.2	1.1
600	1.3	1.2
900	1.4	1.4
1200	1.5	1.7
1500	1.5	1.5



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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