LA45-1 / SMLA45-1 / CLA45-1

Cascadable Amplifier
1000 - 4000 MHz

Rev. V3

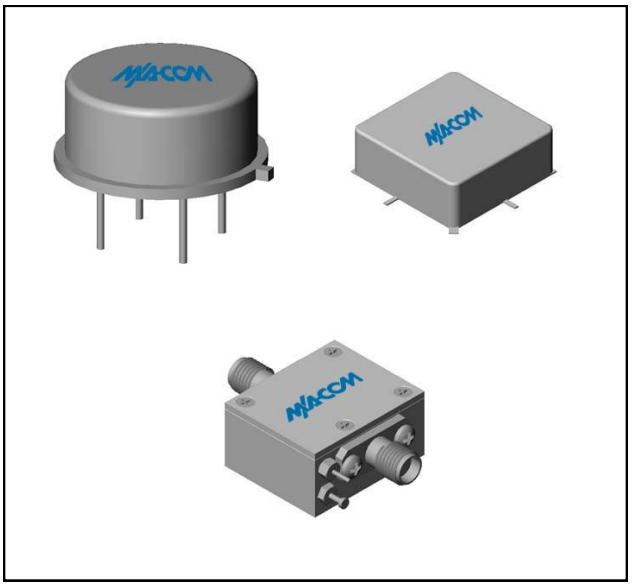
Features

- SYMMETRICAL CLIPPING:
  GOOD EVEN-ORDER SUPPRESSION
- HIGH OUTPUT LEVEL: +17.0 dBm (TYP.)
- MEDIUM GAIN: 14.0 dB (TYP.)
- WIDE BANDWIDTH: 0.8-4.2 GHz (TYP.)

Description

The LA45-1 limiting amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.
This design uses a Schottky diode limiter circuit at the input, and a two-stage GaAs FET feedback amplifier at the output. 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
LA45-1	TO-8
SMLA45-1	Surface Mount
CLA45-1 **	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	800-4200	1000-4000	1000-4000
Small Signal Gain (min)	dB	14.0	13.0	12.0
Gain Flatness (max)	dB	±0.5	±0.8	±1.0
Noise Figure (max)	dB	7.5	9.0	9.5
Power Output @ 1 dB comp. (max)	dBm	+17.0	+15.5	+14.5
Output Limiting Level (max) Pin = +17 dBm	dBm	+18.5	+20.5	+21.0
IP3/IP2	dBm	+27.0/+48.0		
Second Order Harmonic IP	dBm	+53.0		
VSWR Input / Output (max)		1.8:1 / 1.6:1	2.1:1 / 2.0:1	2.2:1 / 2.1:1
DC Current @ 15 Volts (max)	mA	110	115	120

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	85ºC
DC Voltage	+16 V
Continuous Input Power	+17 dBm
Short Term Input power (1 minute max.)	100 mW
"S" Series Burn-In Temperature (case)	85ºC

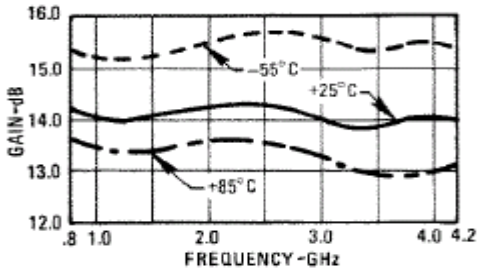
Thermal Data: V_{CC} = +15 V_{DC}

Parameter	Rating
Thermal Resistance θ_{jc}	108.9ºC/W
Transistor Power Dissipation P_d	0.476 W
Junction Temperature Rise Above Case T_{jc}	52ºC

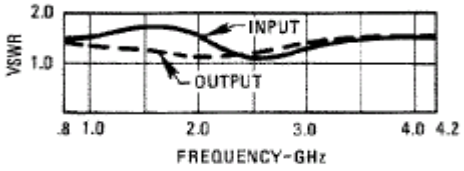
* Over temperature performance limits for part number CLA45-1, guaranteed from 0°C to +50°C only.

Typical Performance Curves at +25°C

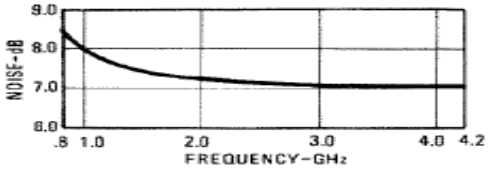
Gain



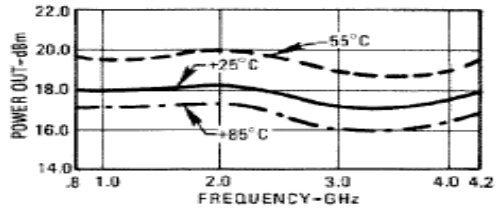
VSWR



Noise Figure

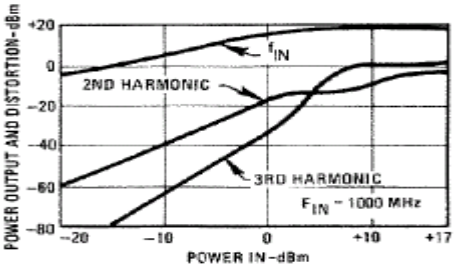


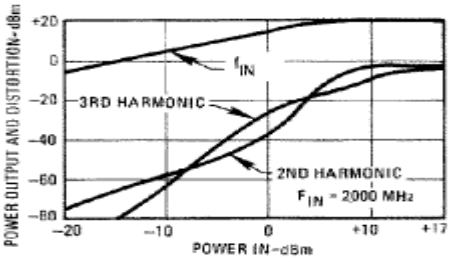
Power Output*

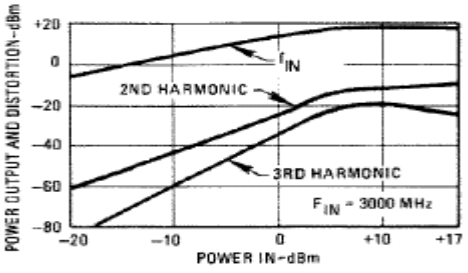


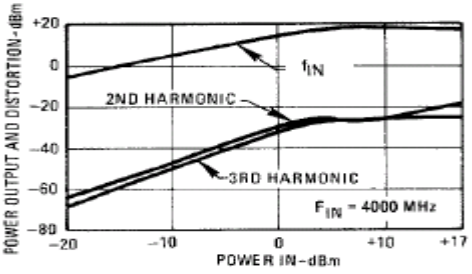
*at 1 dB Gain Compression

Power Output and Distortion



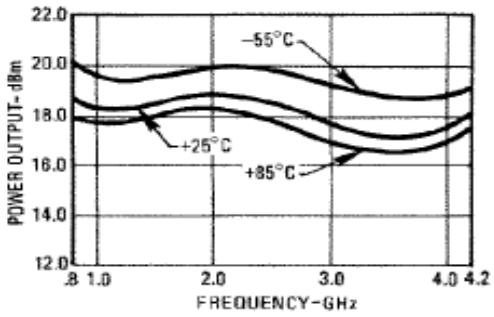




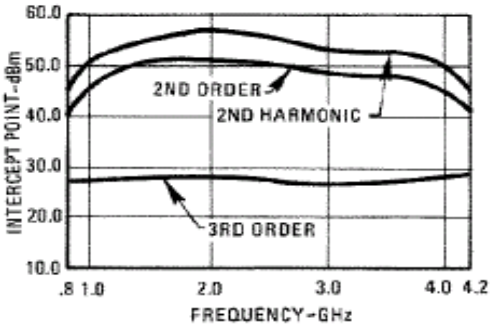


Typical Performance Curves at +25°C

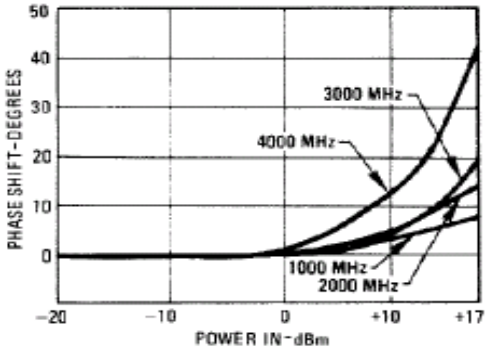
Maximum Limiting Level
@ Pin = +17 dBm



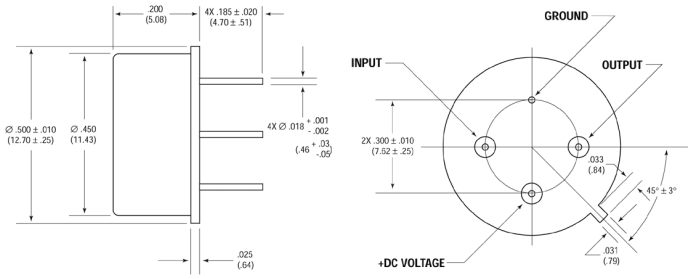
Intercept Point



Phase Shift vs. Input Power

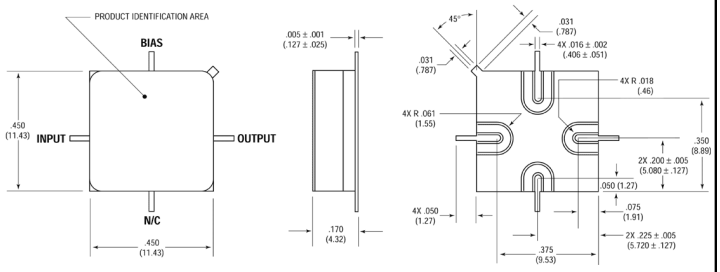


Outline Drawing: TO-8 *



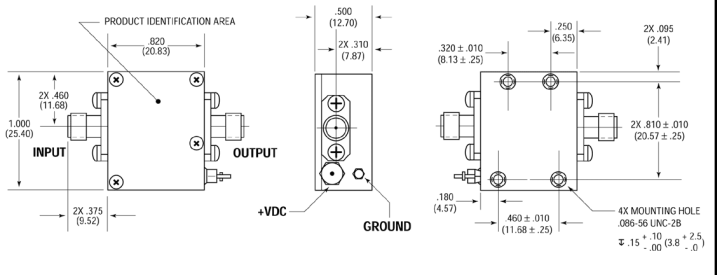
WEIGHT: 1 gram (0.04 oz.) max

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

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MACOM:

CLA45-1 LA45-1