

**Cascadable Amplifier  
1000 to 4000 MHz**
**LA45-1/ SMLA45-1**

V3

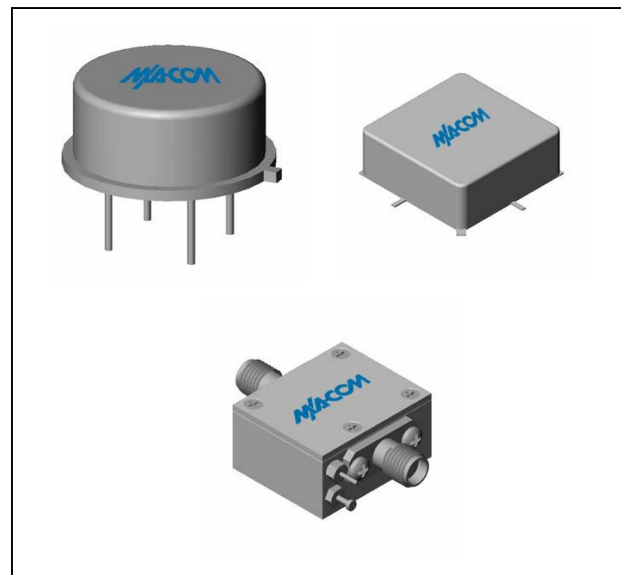
**Features**

- 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:  $Z_0 = 50\Omega$ ,  $V_{CC} = +15 V_{DC}$** 

| Parameter                                    | Units | Typical       | Guaranteed    |                |
|----------------------------------------------|-------|---------------|---------------|----------------|
|                                              |       | 25°C          | 0° to 50°C    | -54° to +85°C* |
| 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)<br>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                       | -62°C to +125°C  |
| Case Temperature                          | 85°C             |
| DC Voltage                                | +16 V            |
| Continuous Input Power                    | +17 dBm          |
| Short Term Input power<br>(1 minute max.) | 100 mW           |
| "S" Series Burn-In<br>Temperature (case)  | 85°C             |

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

| Parameter                                        | Rating    |
|--------------------------------------------------|-----------|
| Thermal Resistance $\theta_{jc}$                 | 108.9°C/W |
| Transistor Power Dissipation $P_d$               | 0.476 W   |
| Junction Temperature Rise<br>Above Case $T_{jc}$ | 52°C      |

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

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. M/A-COM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does M/A-COM assume any liability whatsoever arising out of the use or application of any product(s) or information.

• **North America** Tel: 800.366.2266 / Fax: 978.366.2266  
 • **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300  
 • **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

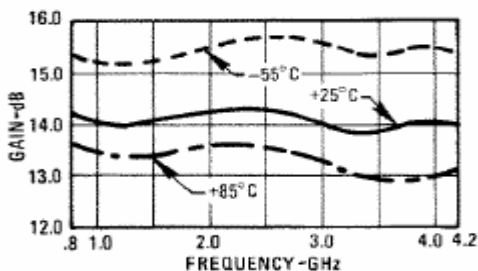
**Cascadable Amplifier  
1000 to 4000 MHz**

**LA45-1/ SMLA45-1**

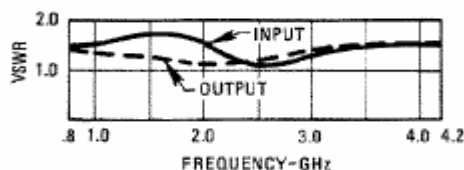
V3

**Typical Performance Curves at +25°C**

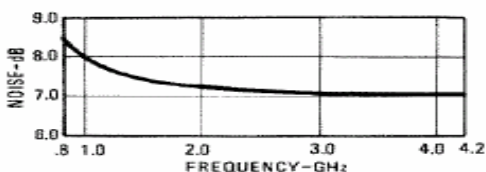
**Gain**



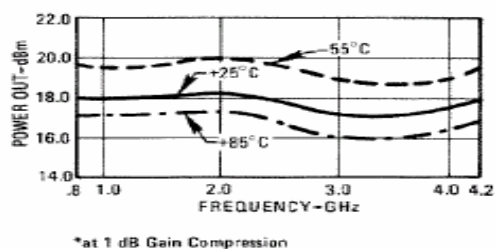
**VSWR**



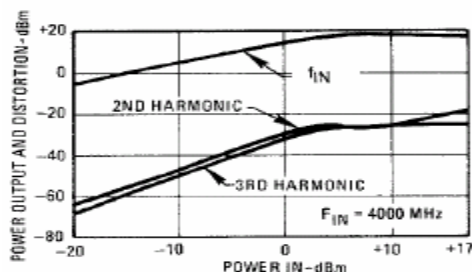
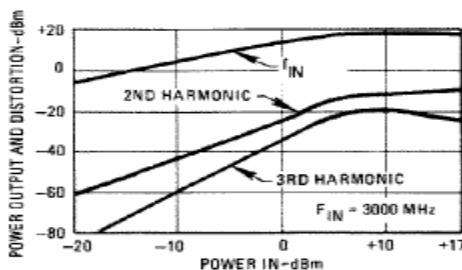
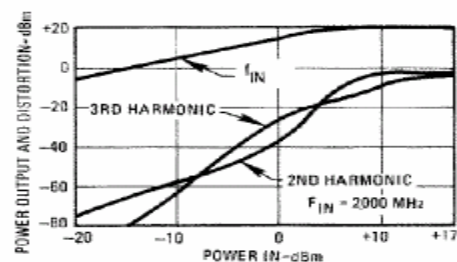
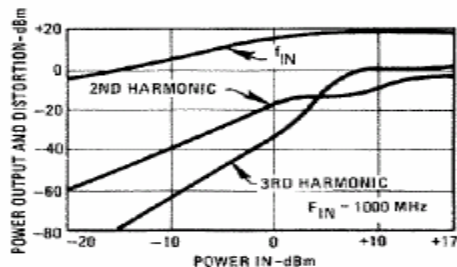
**Noise Figure**



**Power Output\***



**Power Output and Distortion**

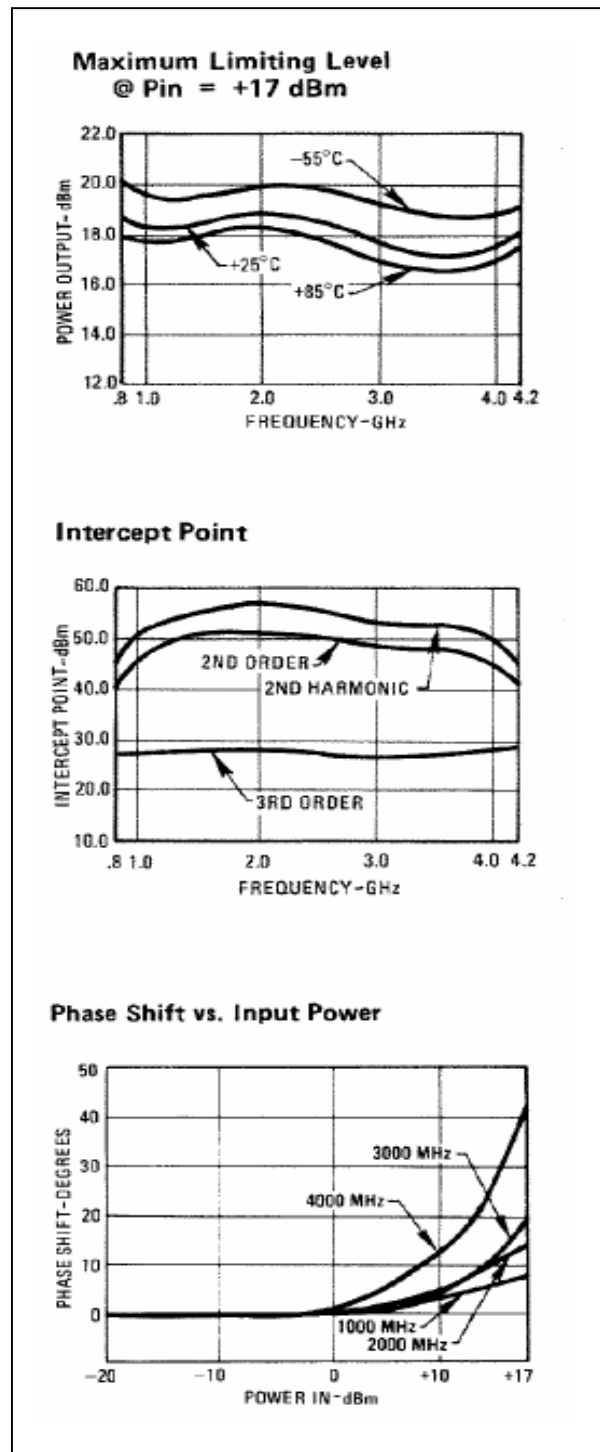


**Cascadable Amplifier  
1000 to 4000 MHz**

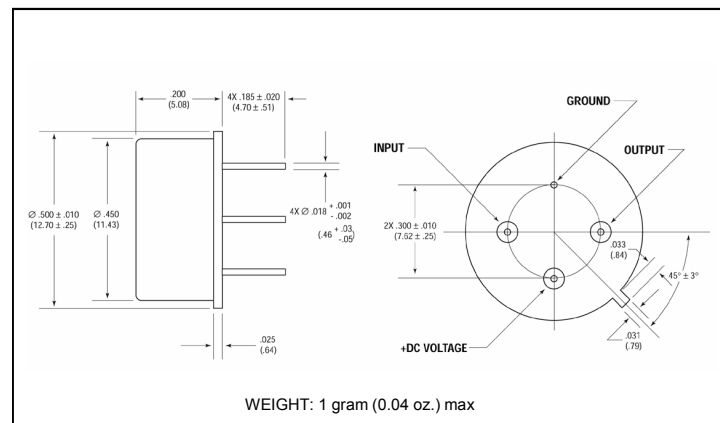
**LA45-1/ SMLA45-1**

V3

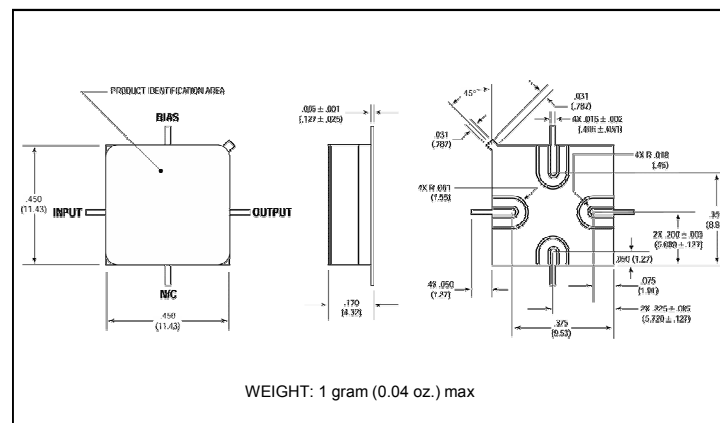
**Typical Performance Curves at +25°C**



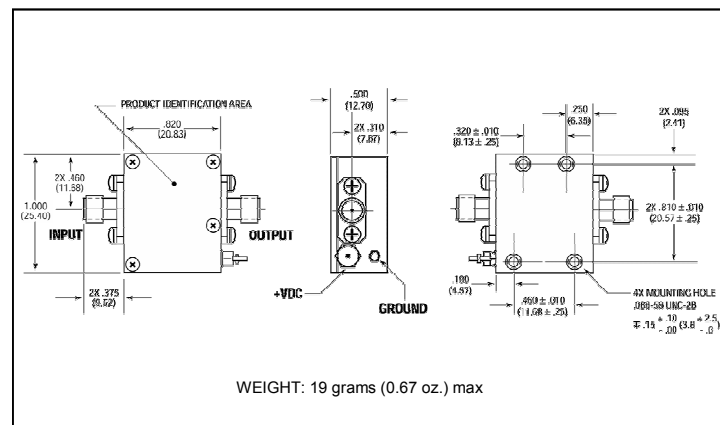
**Outline Drawing: TO-8 \***



**Outline Drawing: Surface Mount \***



**Outline Drawing: SMA Connectorized \***



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