

**Limiting Amplifier
50 to 500 MHz**

LA7 / SMLA7

V2

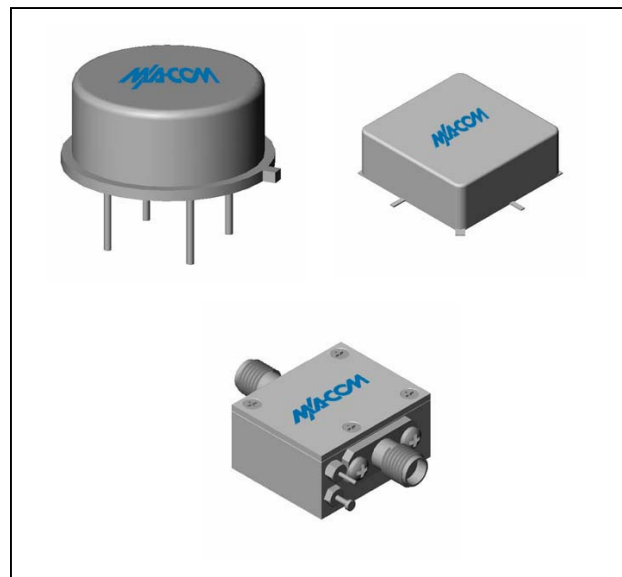
Features

- SYMMETRICAL CLIPPING
GOOD EVEN-ORDER SUPPRESSION
- HIGH OUTPUT LEVEL: +11.5 dBm (TYP.)
- HIGH THIRD-ORDER IP: +28 dBm (TYP.)
- FAST PULSE RECOVERY TIME: < 50 NSEC (TYP.)

Description

The LA7 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 single stage bipolar transistor feedback amplifier at the output. An RF choke is used for DC power supply decoupling. 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 |
|-------------|-------------------|
| LA7 | TO-8 |
| SMLA7 | Surface Mount |
| CLA7 ** | 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 | 20-550 | 50-500 | 50-500 |
| Small Signal Gain (min) | dB | 12.5 | 12.0 | 11.0 |
| Gain Flatness (max) | dB | ±0.2 | ±0.5 | ±0.7 |
| Noise Figure (max) 50-300 MHz | dB | 7.0 | 8.0 | 8.5 |
| Noise Figure (max) 300-500 MHz | dB | 7.5 | 8.5 | 9.0 |
| Power Output @ 1 dB comp. (min) 50-300 MHz | dBm | +12.0 | +11.0 | +8.0 |
| Power Output @ 1 dB comp. (min) 300-500 MHz | dBm | +11.5 | +10.0 | +7.0 |
| IP3 | dBm | +28 | | |
| VSWR Input / Output (max) | | 1.3:1 / 1.3:1 | 1.7:1 / 1.7:1 | 2.0:1 / 2.0:1 |
| DC Current @ 15 Volts (max) | mA | 54 | 56 | 58 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|-------------------------------------------|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°C |
| DC Voltage | +17 V |
| Continuous Input Power | +23 dBm |
| Short Term Input power (1 minute max.) | 400 mW |
| Peak Power (3 µsec max.) | 1 W |
| "S" Series Burn-In Temperature (case) | +125°C |

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

| Parameter | Rating |
|--------------------------------------------------|---------|
| Thermal Resistance θ_{jc} | 45°C/W |
| Transistor Power Dissipation P_d | 0.560 W |
| Junction Temperature Rise Above Case T_{jc} | +25.2°C |

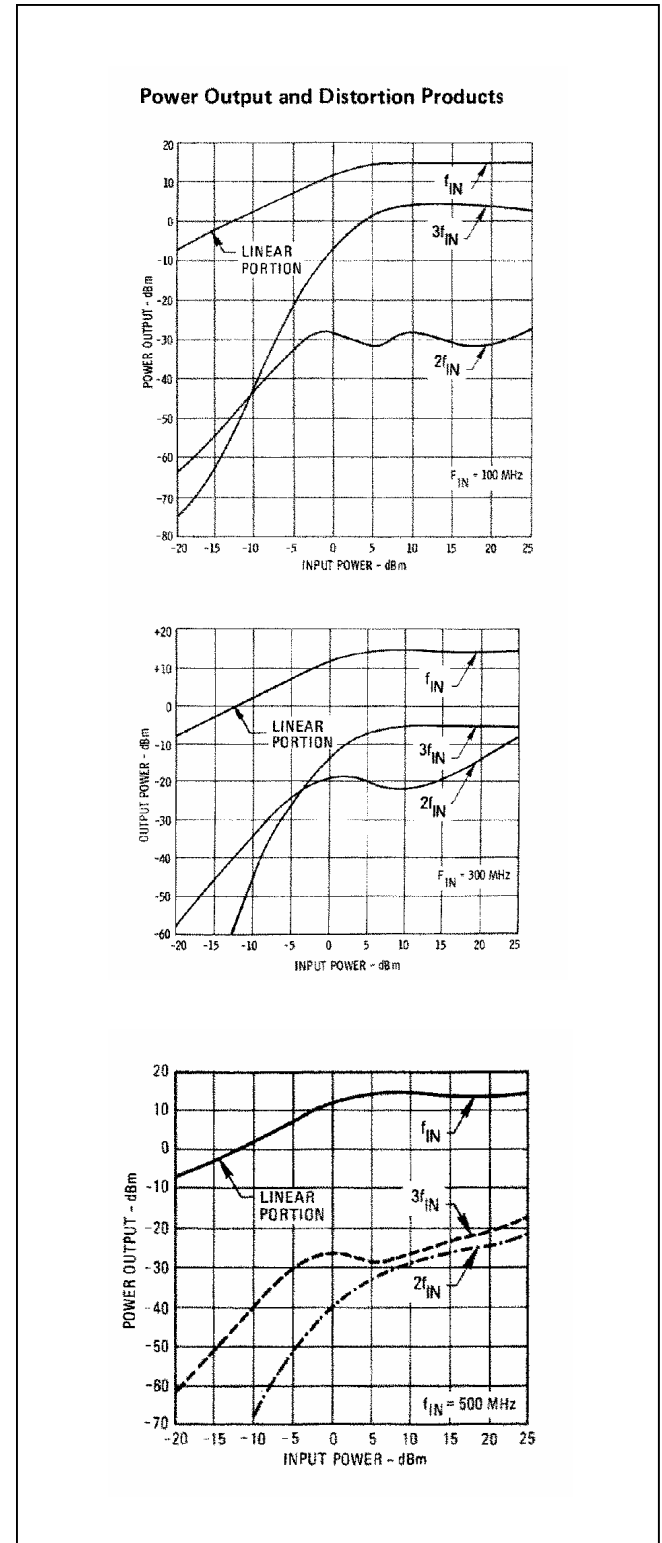
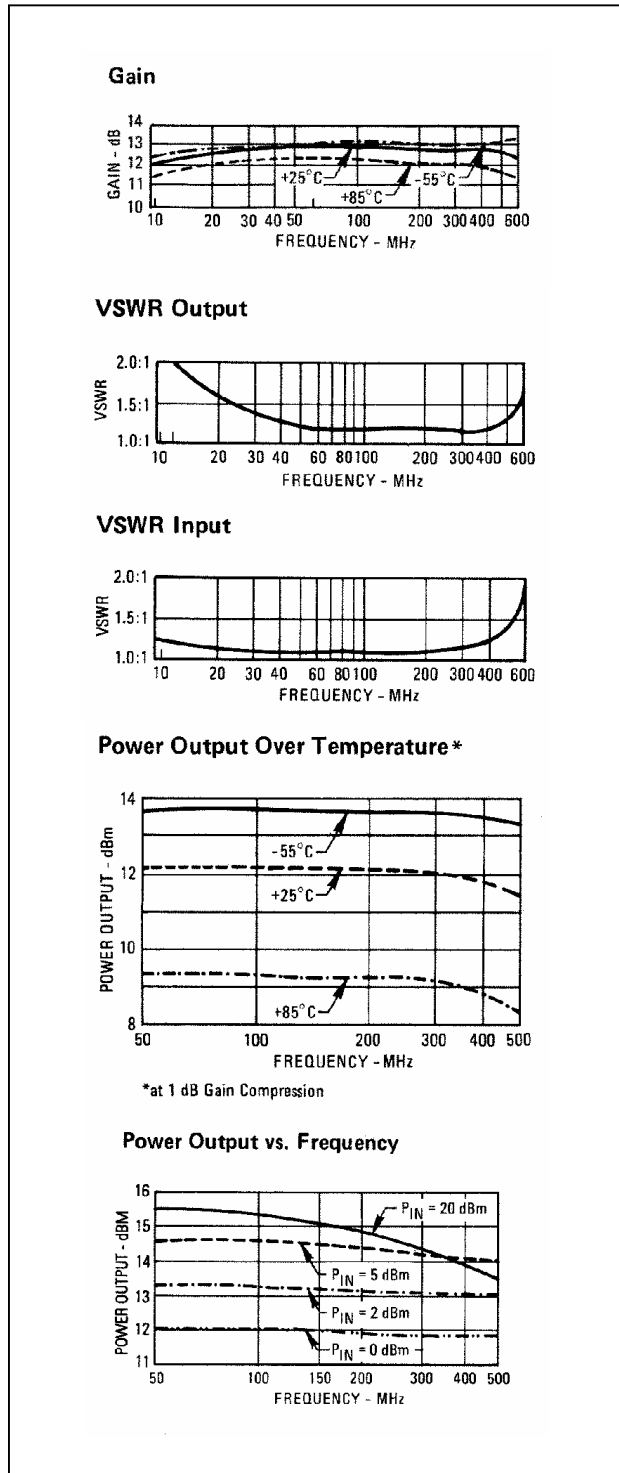
* Over temperature performance limits for part number CLA7, guaranteed from 0°C to +50°C only.

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Typical Performance Curves at +25°C



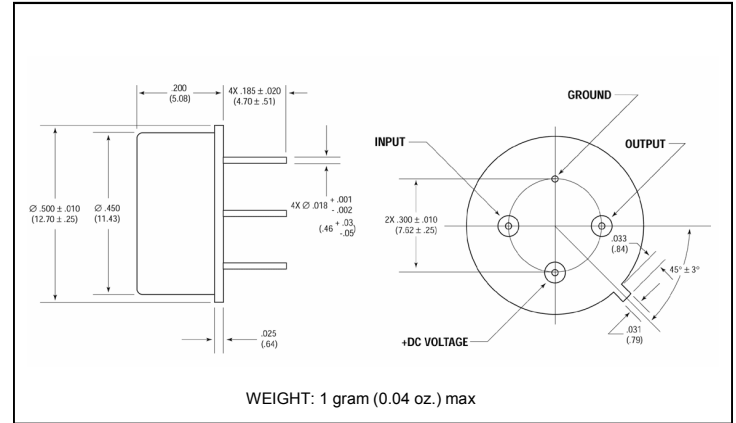
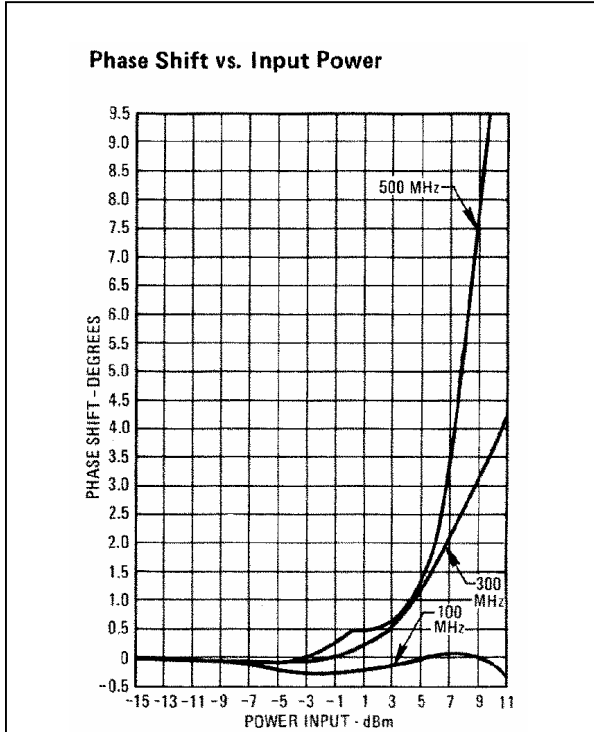
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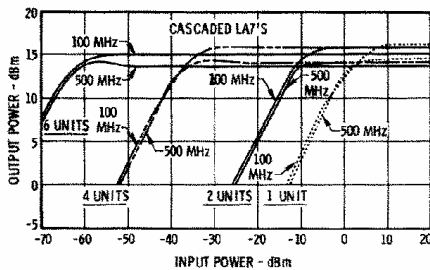
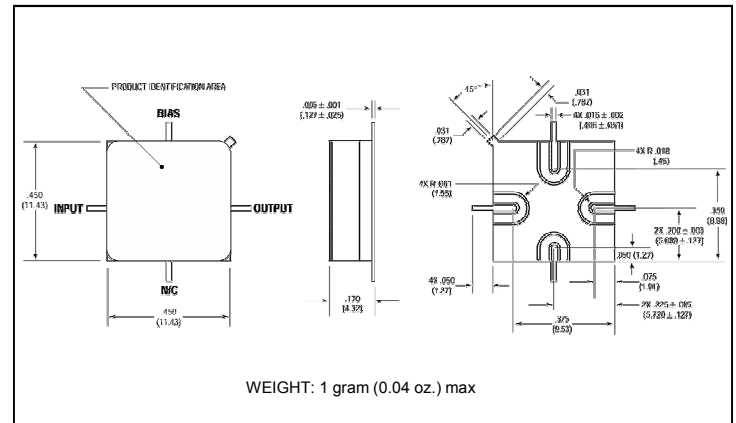
Typical Performance Curves at +25°C

Outline Drawing: TO-8 *



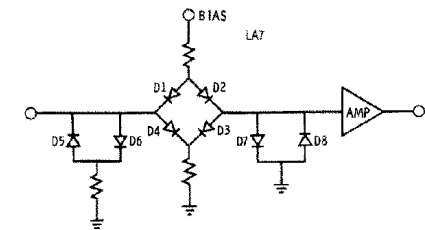
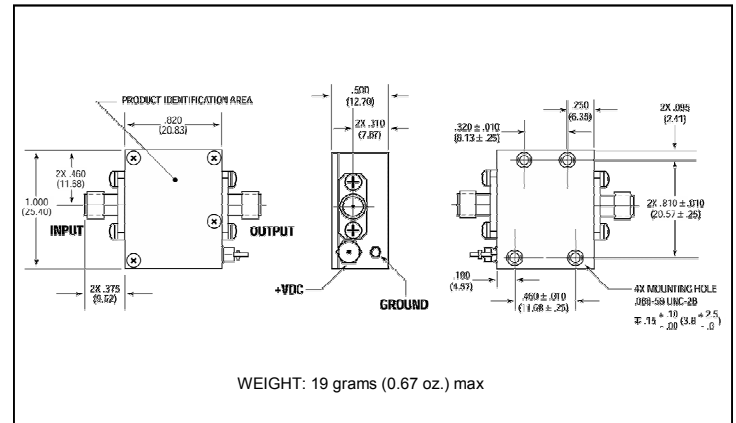
Outline Drawing: Surface Mount *

Limiting Characteristics



Outline Drawing: SMA Connectorized *

Schematic Diagram



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