

# Limiting Amplifier 50 - 500 MHz

Rev. 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.)</li>

#### **Description**

The LA7 limiting amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

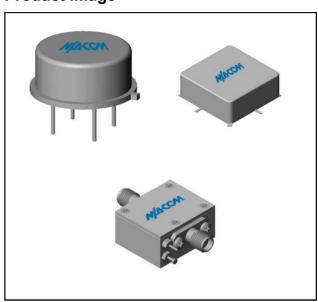
This design uses a Schottky diode limiter circuit at the input, and a single stage bipolar transistor feedback amplifier at the output. An RF choke is used for DC power supply decoupling. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

**Ordering Information** 

Part Number	Package	
LA7	TO-8	
SMLA7	Surface Mount	
CLA7 **	SMA Connectorized	

<sup>\*\*</sup> The connectorized version is not RoHs compliant.

#### **Product Image**



#### Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +15 V_{DC}$

Parameter	Units	Typical	Guaranteed	
Parameter		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 $\theta_{jc}$	45°C/W
Transistor Power Dissipation P <sub>d</sub>	0.560 W
Junction Temperature Rise Above Case T <sub>jc</sub>	+25.2°C

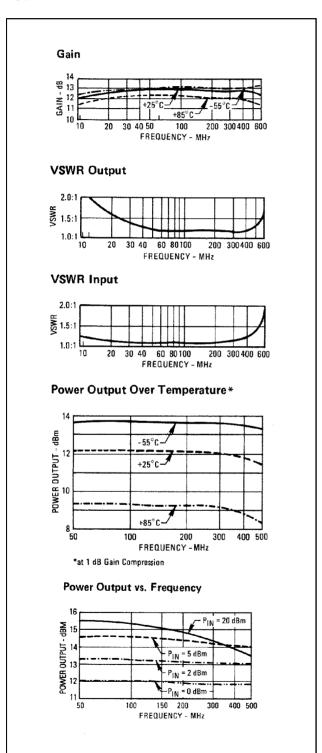
<sup>1 \*</sup> Over temperature performance limits for part number CLA7, guaranteed from 0°C to +50°C only.

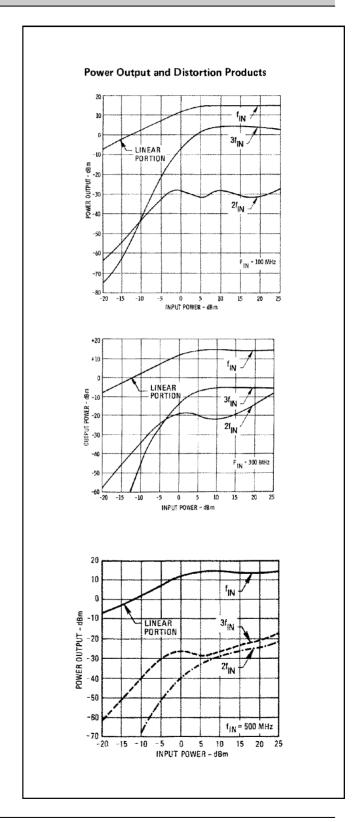


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### Typical Performance Curves at +25°C



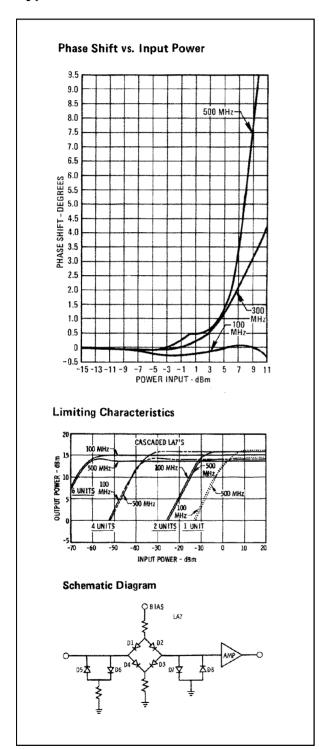




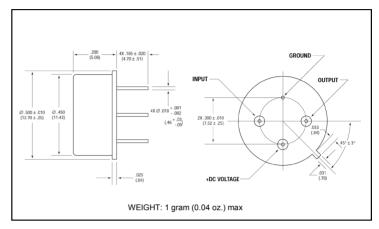
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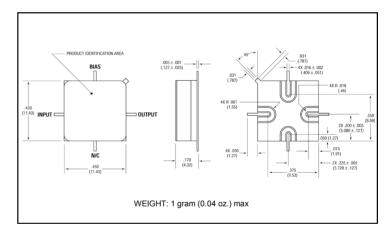
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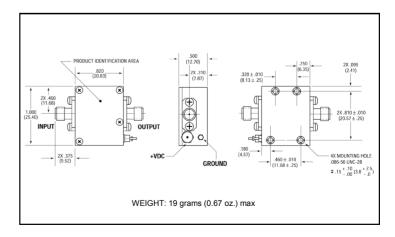
### Outline Drawing: TO-8



#### Outline Drawing: Surface Mount



### Outline Drawing: SMA Connectorized \*



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



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