

**Cascadable Amplifier  
50 to 500 MHz**

**AL7 / SMAL7**

V3

**Features**

- SYMMETRICAL CLIPPING:  
GOOD EVEN-ORDER SUPPRESSION
- HIGH GAIN: 13 dB (TYP.)
- LOW VSWR: < 1.5:1 (TYP.)
- FAST PULSE RECOVERY TIME: < 50 NSEC (TYP.)

**Description**

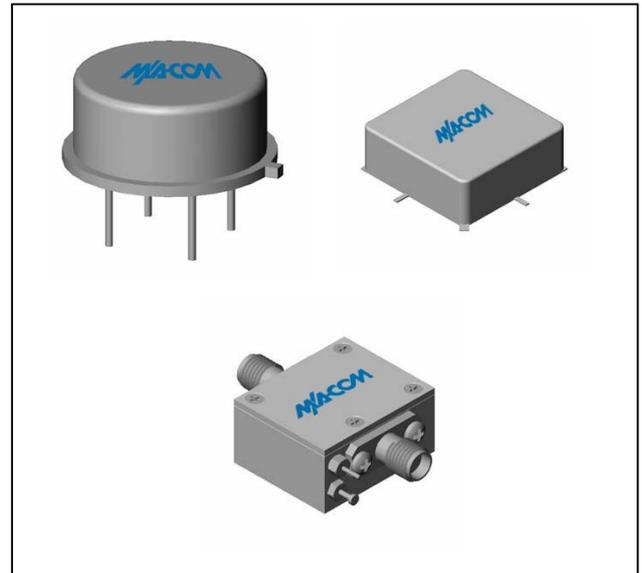
The AL7 limiting amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. This design uses a Schottky diode limiter circuit at the output, and a single stage bipolar transistor feedback amplifier at the output. An RF choke is used 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
AL7	TO-8
SMAL7	Surface Mount
CAL7 **	SMA Connectorized

\*\* The connectorized version is not RoHs compliant.

**Product Image**



**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	13.0	12.0	11.0
Gain Flatness (max)	dB	±0.2	±0.5	±0.7
Noise Figure (max)	50-300 MHz	5.0	6.0	6.5
	300-500 MHz	5.5	6.5	7.0
Power Output @ 1 dB comp. (min)	dBm	-1.5	-5.0	-7.0
Output Limiting Level (max) Pin = +10 dBm	dBm	+0.5	+1.5	+2.5
VSWR Input / Output (max)		1.1:1 / <1.5:1	1.7:1 / 2.0:1	1.8:1 / 2.1:1
DC Current @ 15 Volts (max)	mA	54	57	59

**Absolute Maximum Ratings**

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+17 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 $\theta_{jc}$	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 CAL7, guaranteed from 0°C to +50°C only.

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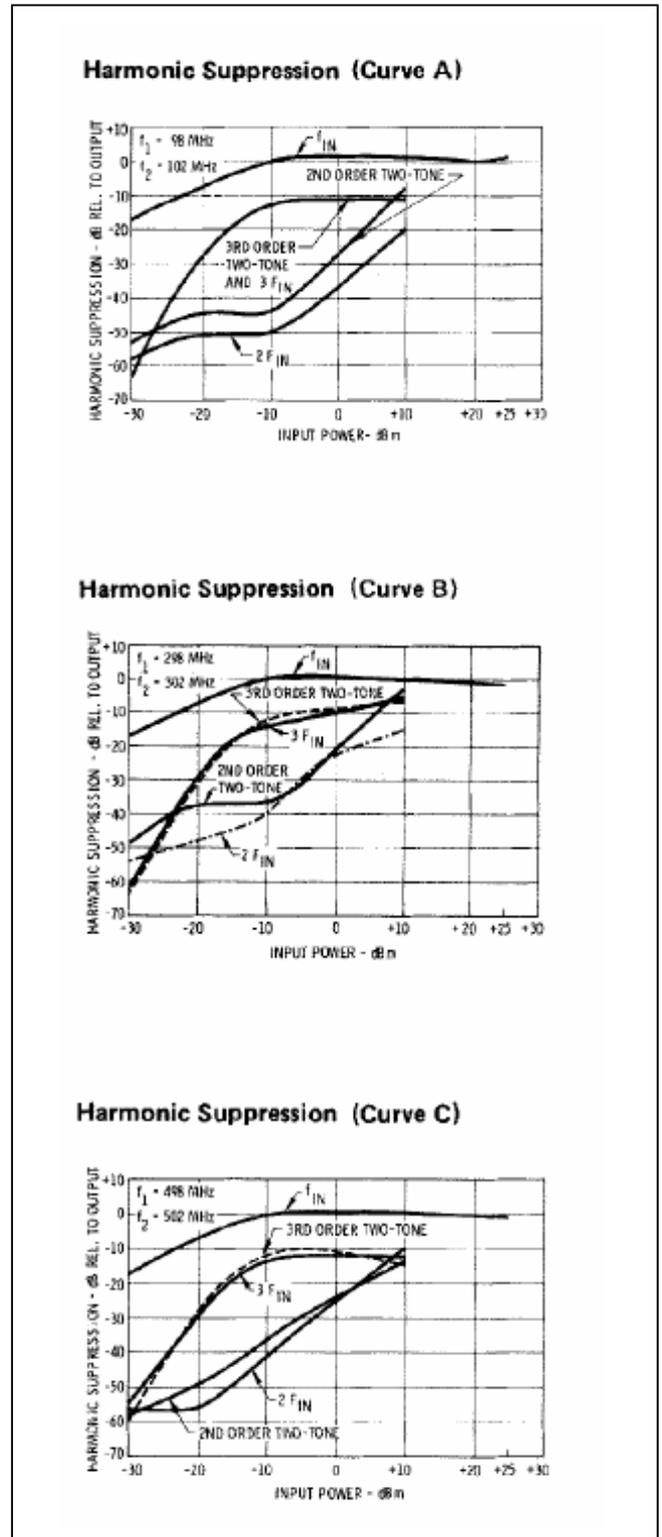
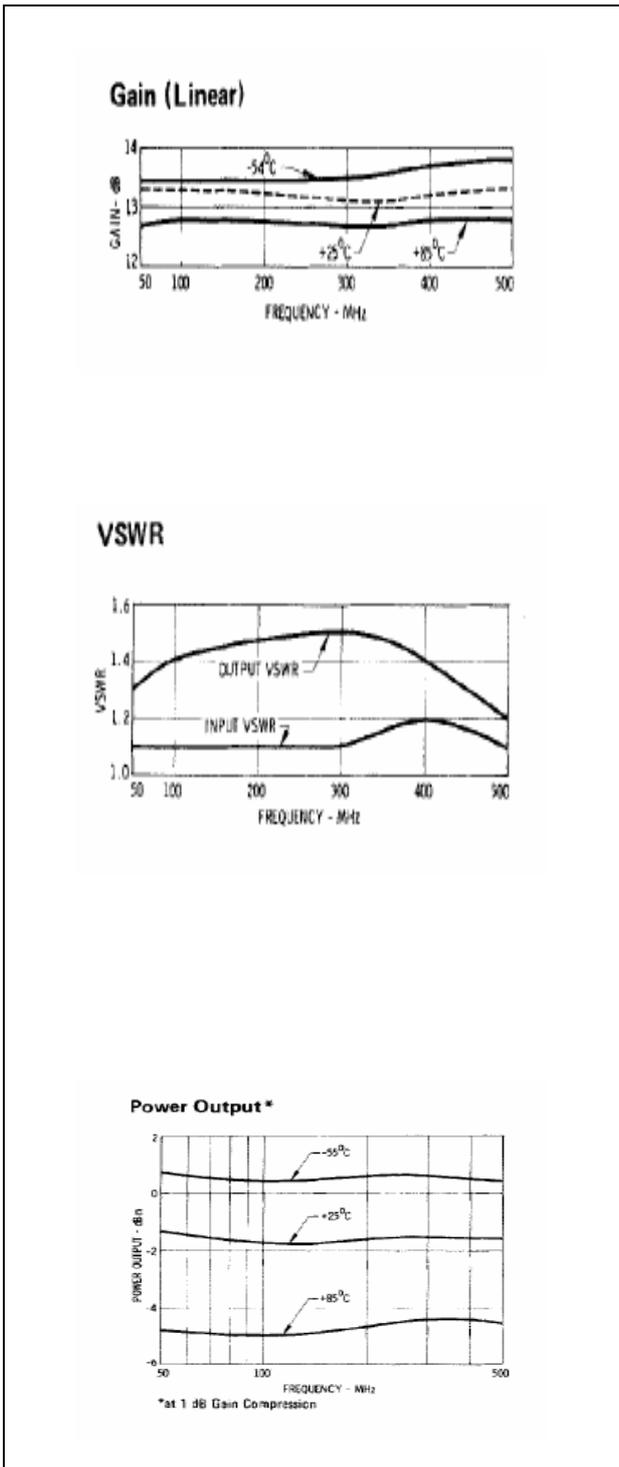
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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

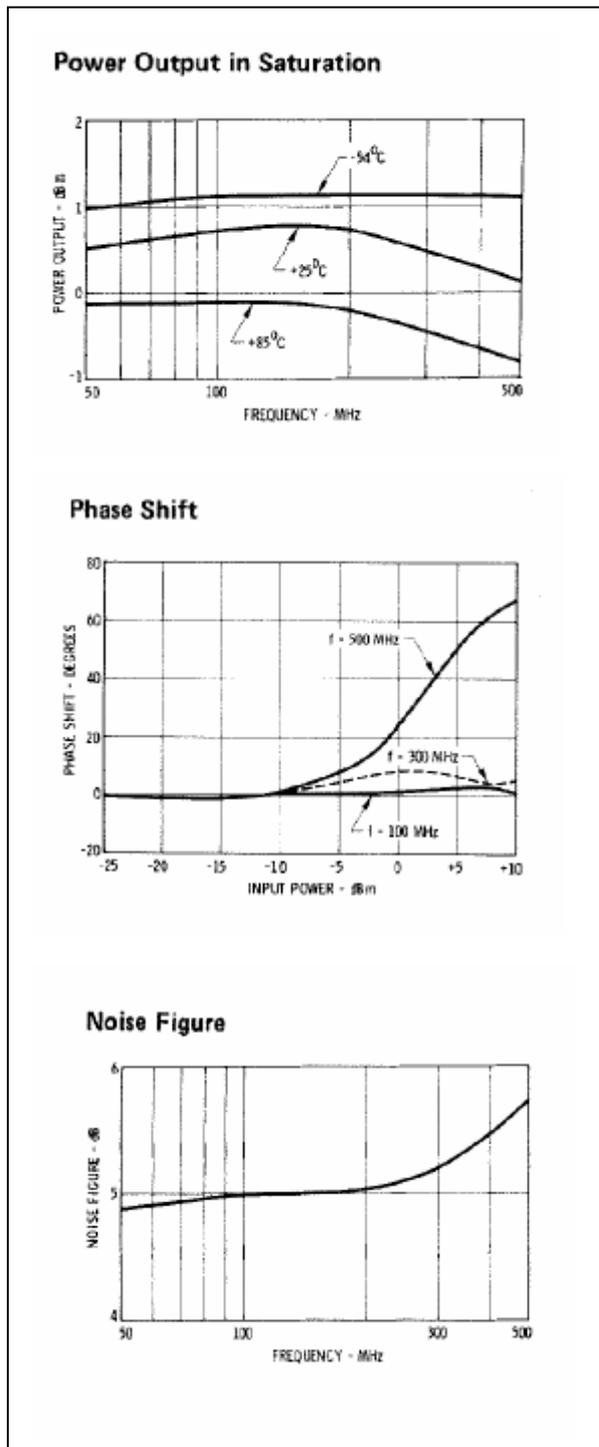


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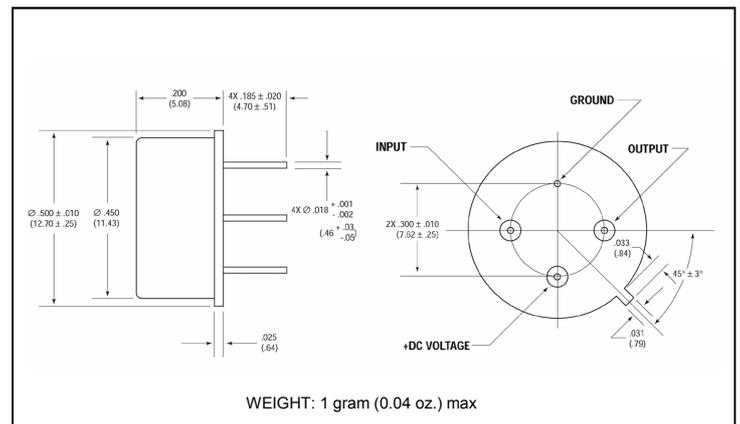
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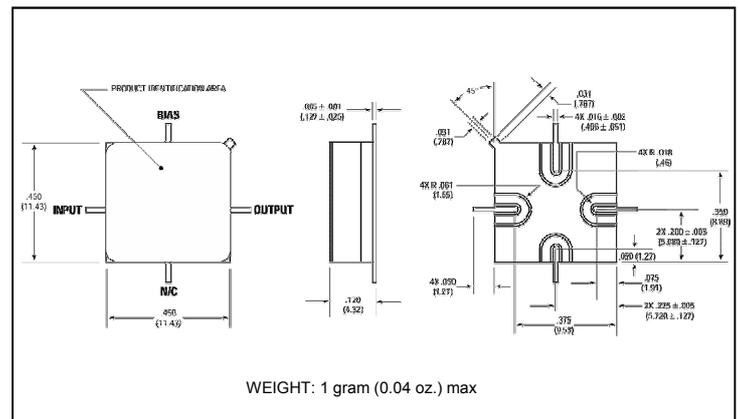
**Typical Performance Curves at +25°C**



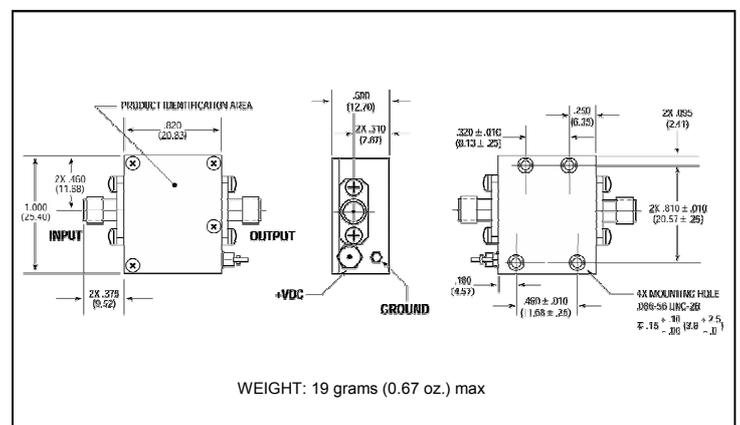
**Outline Drawing: TO-8 \***



**Outline Drawing: Surface Mount \***



**Outline Drawing: SMA Connectorized \***



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