

**Thin Film Limiter Module  
5 to 3000 MHz**

**L1 / SML1**  
V2

**Features**

- VOLTAGE VARIABLE LIMITING LEVEL: -10 TO 0 dBm
- LOW INSERTION LOSS AT LOW INPUT LEVELS: < 2.0 dB (TYP.)
- GOOD SUPPRESSION OF EVEN ORDER HARMONICS DUE TO BALANCED CIRCUIT DESIGN
- EXCELLENT PHASE RESPONSE 0.3 DEGREE / dB TO 160 MHz (TYP.)

**Description**

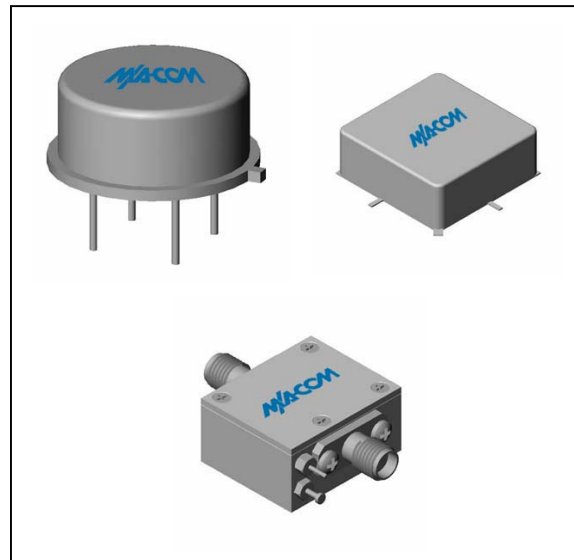
The L1 signal limiter is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. This design uses Schottky bridge quad and anti-parallel diodes, which provide consistent limiting levels over a broadband frequency range. Both TO-8 and SMTO-8 packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

**Ordering Information**

Part Number	Package
L1	TO-8
SML1	Surface Mount
CL1 **	SMA Connectorized

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

**Product Image**



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

**Absolute Maximum Ratings**

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	5-3200	5-3000	5-3000
Insertion Loss @ $P_{IN} \leq -20$ dBm (max.)	5-1000 MHz	2.0	3.0	3.5
	1000-3000 MHz	3.0	4.5	4.5
Input VSWR (max.) $P_{IN} \leq -10$ dBm, $+10 \leq \text{Bias} \leq +20 V_{dc}$		1.7:1	1.9:1	2.1:1
Output VSWR (max.) $P_{IN} \leq -10$ dBm, $+10 \leq \text{Bias} \leq +20 V_{dc}$	5-1000 MHz	1.7:1	2.0:1	2.2:1
	1000-3000 MHz	2.0:1	2.3:1	2.5:1
Output Limiting Level @ $P_{IN} = +20$ dBm (max.)	5-2000 MHz	2.5	4.0	4.5
	2000-3000 MHz	6.5	7.0	7.0
Bias Current (max.)	@ 15 Vdc	7.0	9.0	10.0
	@ 20 Vdc	10.0		

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+25 V
Continuous Input Power	+20 dBm
Short Term Input power (1 minute max.)	400 mW
Peak Power (3 $\mu$ sec max.)	1 W
"S" Series Burn-In Temperature (case)	+125°C

\* Over temperature performance limits for part number CL1, guaranteed from 0°C to +50°C only.

**Limiting and Insertion Loss Characteristics at +25°C**

Bias Voltage	Output Level at Limiting Threshold (1 dB comp.)		
	50 MHz	Typical 500 MHz	1000 MHz
+20 Volts	-0.8 dBm	-1.0 dBm	-1.0 dBm
+15 Volts	-2.0 dBm	-2.0 dBm	-2.2 dBm
+10 Volts	-4.5 dBm	-5.0 dBm	-5.5 dBm
+5 Volts	-11.5 dBm	-11.8 dBm	-12.0 dBm

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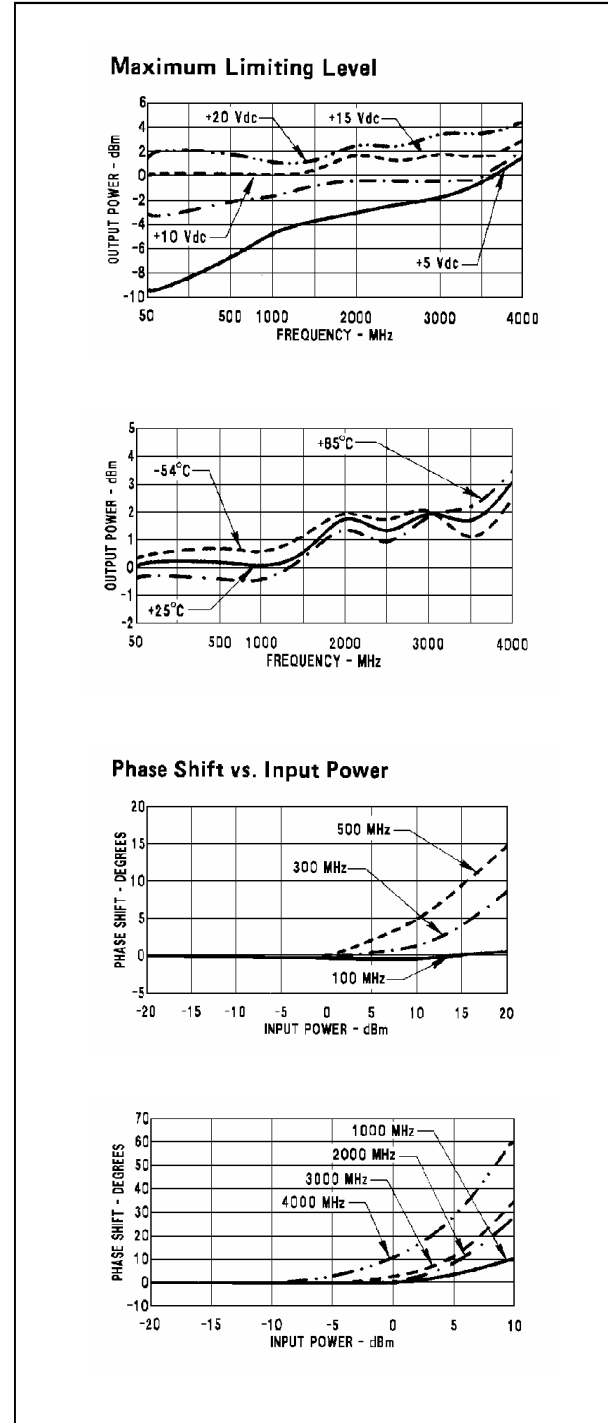
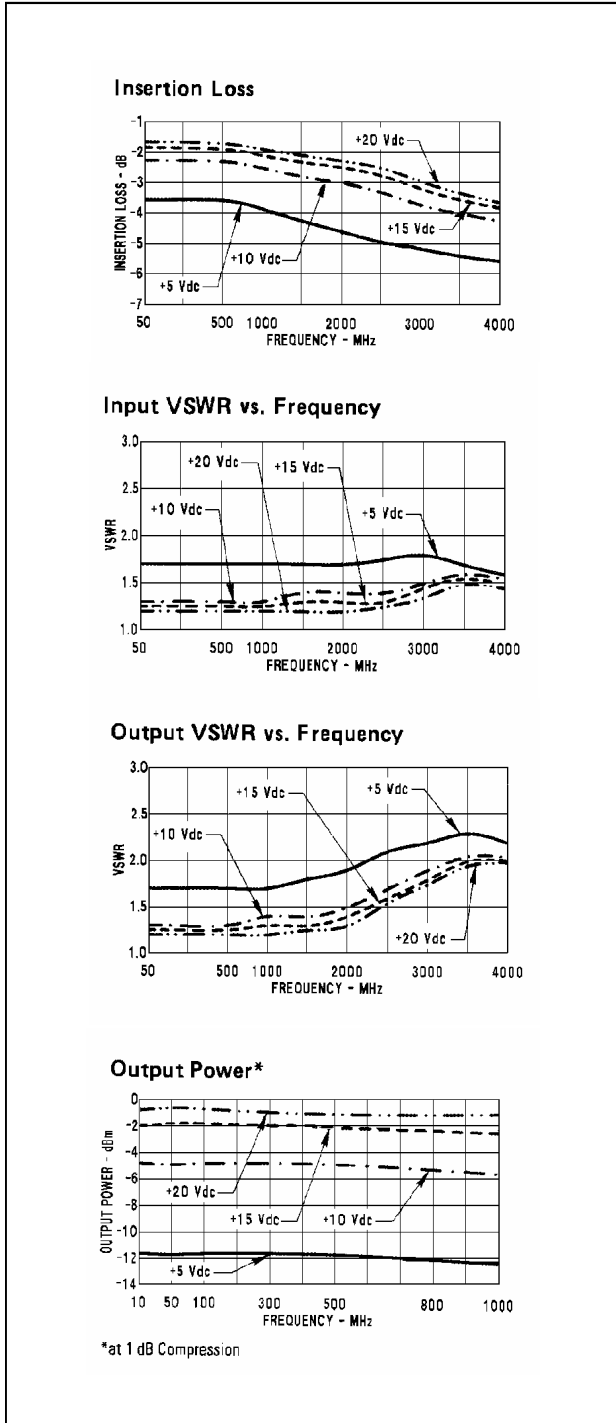
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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



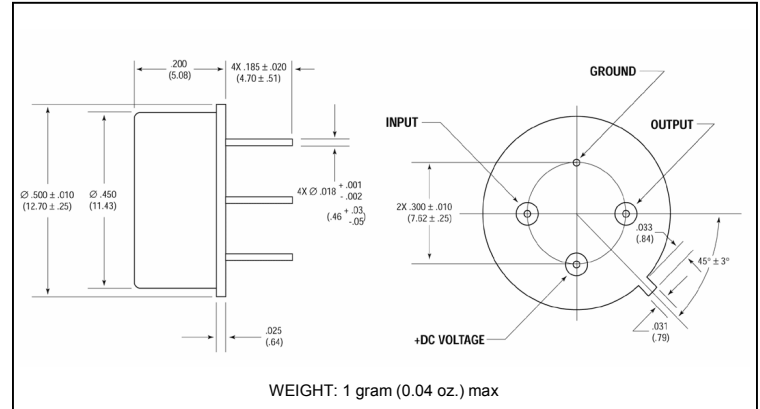
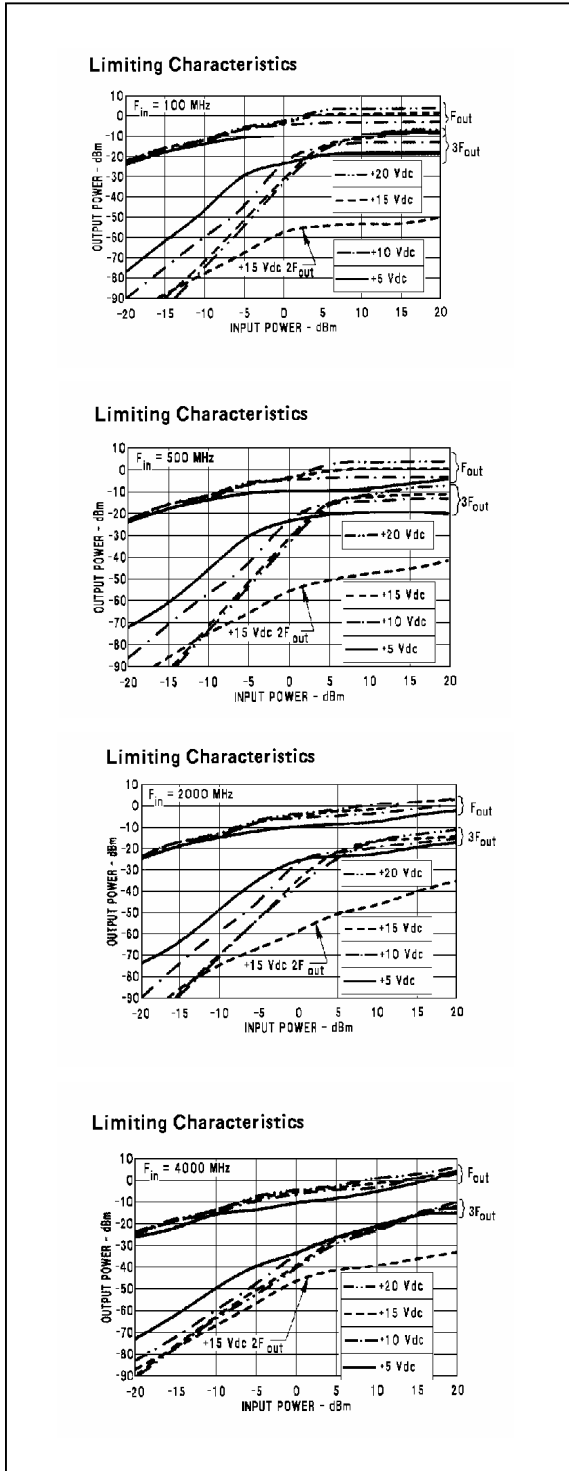
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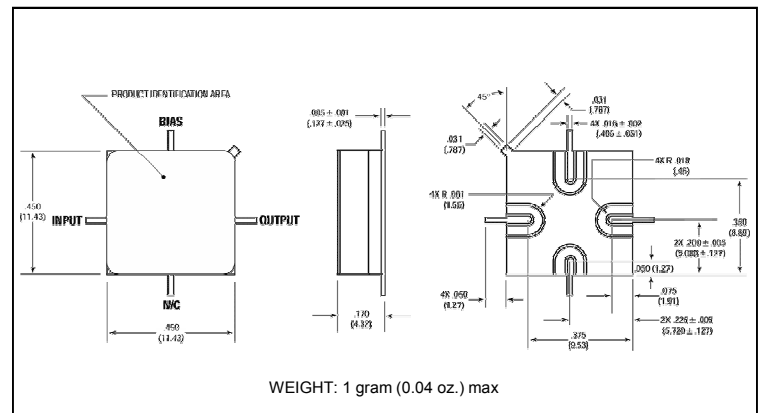
V2

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

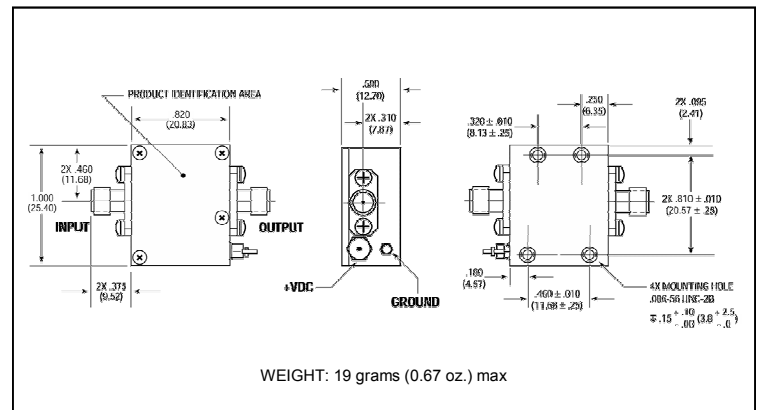
**Outline Drawing: TO-8 \***



**Outline Drawing: Surface Mount \***



**Outline Drawing: SMA Connectorized \***



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