

Thin Film Limiter Module 5 to 3000 MHz

Rev. 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

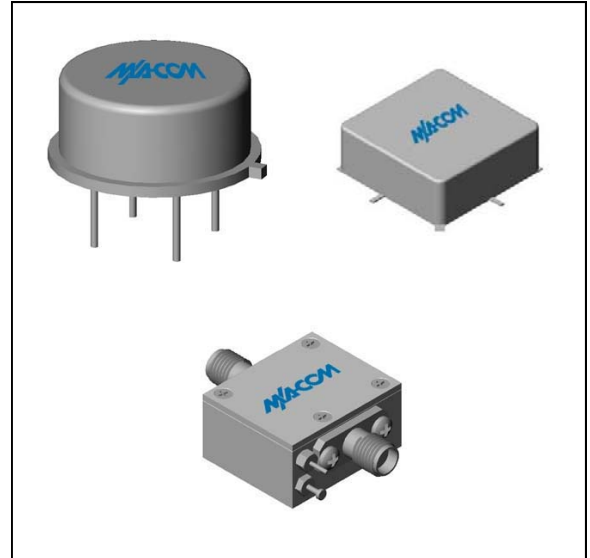
The L1 signal limiter is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. This design uses Schottky bridge quad and anti-parallel diodes, which provide consistent limiting levels over a broadband frequency range. Both TO-8 and SMT0-8 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: $Z_0 = 50\Omega$, $V_{CC} = +15 V_{DC}$

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	dB	2.0	3.0	3.5
1000-3000 MHz	dB	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	dBm	2.5	4.0	4.5
2000-3000 MHz	dBm	6.5	7.0	7.0
Bias Current (max.)				
@ 15 Vdc	mA	7.0	9.0	10.0
@ 20 Vdc	mA	10.0		

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

Absolute Maximum Ratings

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 μ sec max.)	1 W
"S" Series Burn-In Temperature (case)	+125°C

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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ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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Visit www.macomtech.com for additional data sheets and product information.

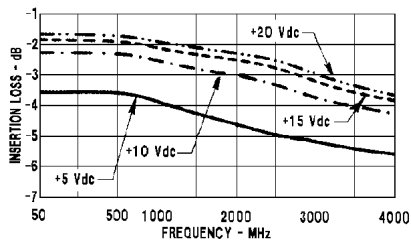
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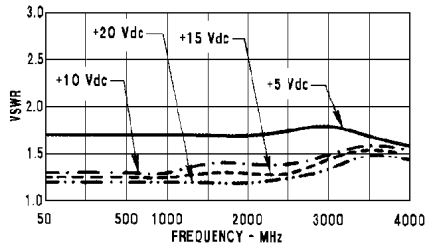
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Typical Performance Curves at +25°C

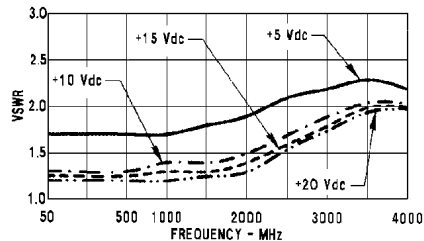
Insertion Loss



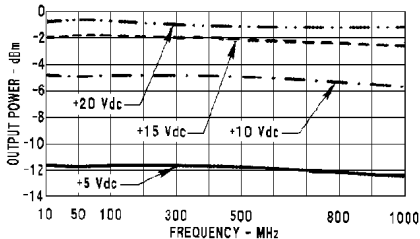
Input VSWR vs. Frequency



Output VSWR vs. Frequency

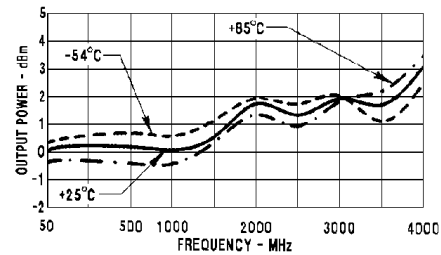
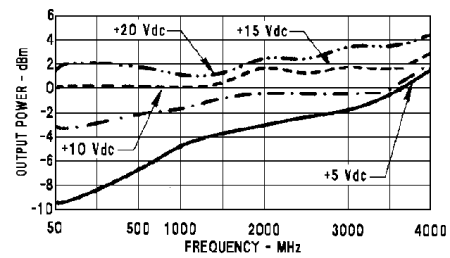


Output Power*

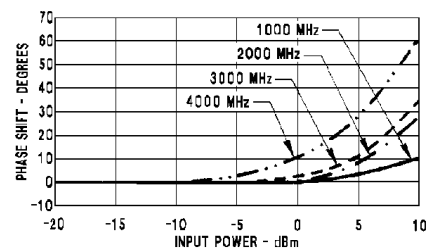
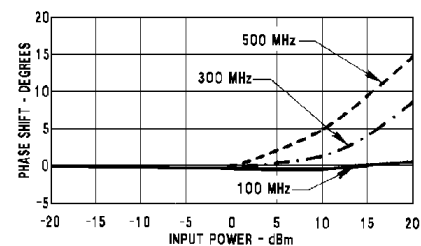


*at 1 dB Compression

Maximum Limiting Level



Phase Shift vs. Input Power



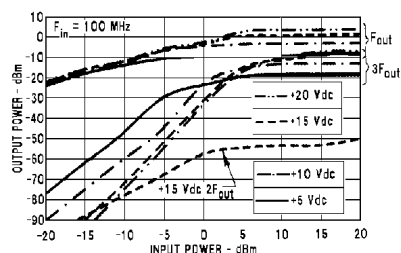
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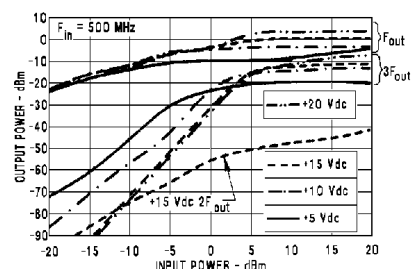
Typical Performance Curves at +25°C

Outline Drawing: TO-8 *

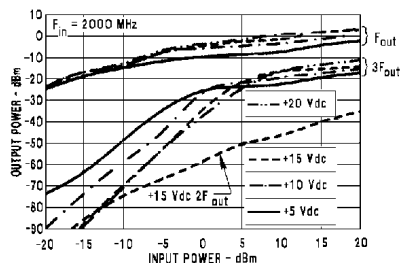
Limiting Characteristics



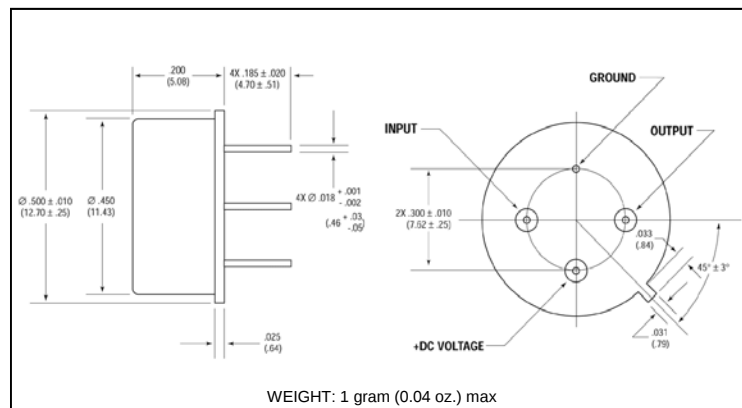
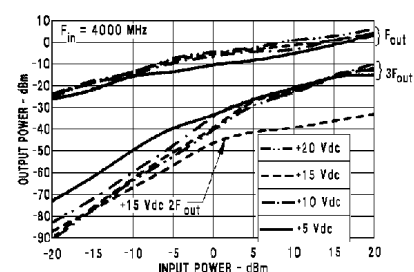
Limiting Characteristics



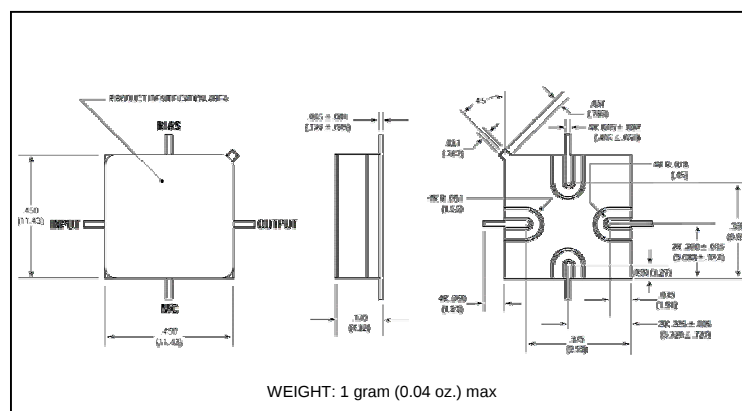
Limiting Characteristics



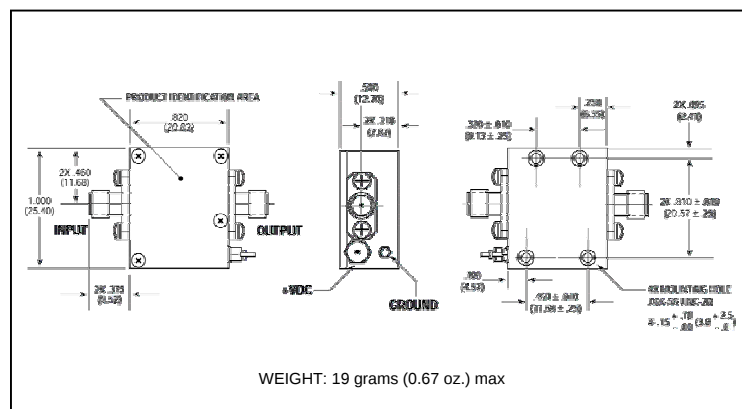
Limiting Characteristics



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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