

Thin Film Limiter Module 50 to 4000 MHz

Rev. V2

Features

- Very Wide Bandwidth
- Good Suppression of Even Order Harmonics
- Low Insertion Loss: 3.5 dB (typ.)

Description

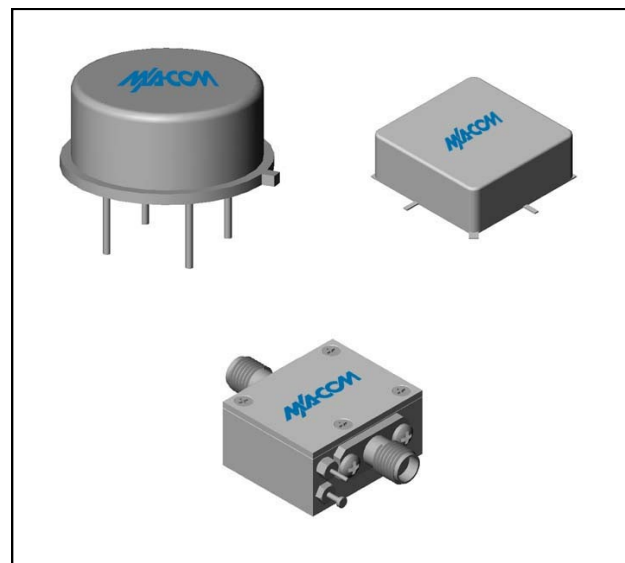
The L42 signal limiter is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. This design uses Schottky bridge quad and anti-parallel diodes, which provide consistent limiting levels over a broadband frequency range. Both TO-8 and SMT0-8 packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

Part Number	Package
L42	TO-8
SML42	Surface Mount
CL42 **	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 (min)	MHz	5-4000	50-4000	50-4000
Insertion Loss @ $P_{IN} \leq -20$ dBm (max.)				
50-3000 MHz	dB	3.5	4.5	5.0
3000-4000 MHz	dB	4.0	5.0	6.0
Input VSWR (max.) $P_{IN} \leq -10$ dBm, $+10 \leq \text{Bias} \leq +20 V_{dc}$		1.6:1	1.9:1	2.1:1
Output VSWR (max.) $P_{IN} \leq -10$ dBm, $+10 \leq \text{Bias} \leq +20 V_{dc}$		2.0:1	2.3:1	2.5:1
Output Limiting Level @ $P_{IN} = +20$ dBm (max.)				
+15 $\leq \text{Bias} \leq +20 V_{dc}$	dBm	2.5	4.0	4.5
50-2000 MHz	dBm	6.5	7.0	7.5
2000-4000 MHz				
Bias Current (max.)				
@ +20 Vdc	mA	8.5	9.0	10.0
@ +15 Vdc	mA	7.0		
@ +10 Vdc	mA	4.0		

* Over temperature performance limits for part number CL42, guaranteed from 0°C to +50°C only.

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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

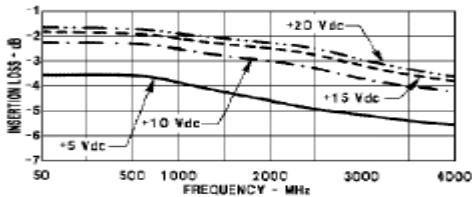
Bias Voltage	Output Level at Limiting Threshold (1 dB comp.) (Typical)		
	1000 MHz	2500 MHz	4000 MHz
+20 Volts	-1.0 dBm	-2.5 dBm	-6.0 dBm
+15 Volts	-2.0 dBm	-4.0 dBm	-6.2 dBm
+10 Volts	-5.5 dBm	-7.0 dBm	-7.8 dBm
+5 Volts	-12.0 dBm	-13.8 dBm	-12.0 dBm

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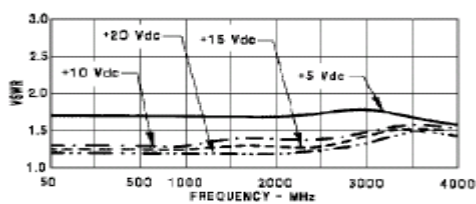
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Typical Performance Curves at +25°C

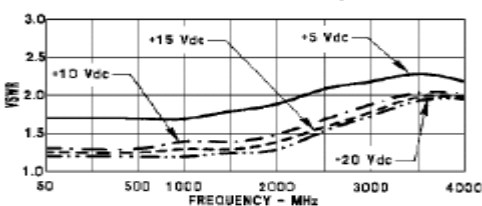
Insertion Loss



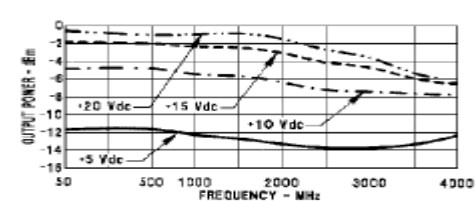
Input VSWR vs. Frequency



Output VSWR vs. Frequency

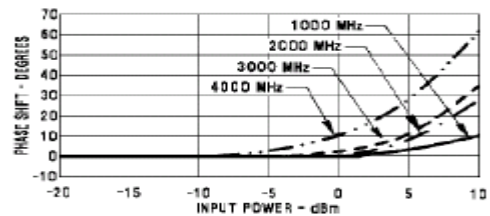
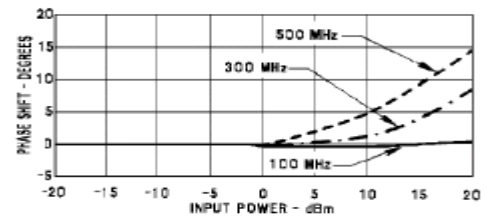


Output Power*

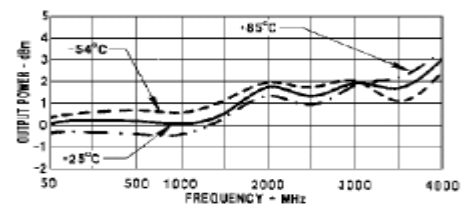
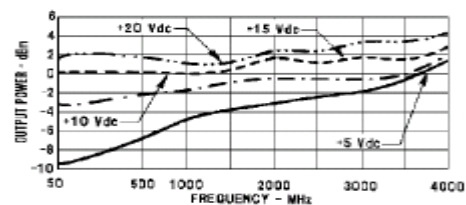


*at 1 dB Gain Compression

Phase Shift vs. Input Power



Maximum Limiting Level



L42 / SML42 / CL42



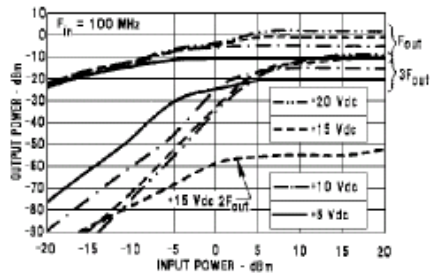
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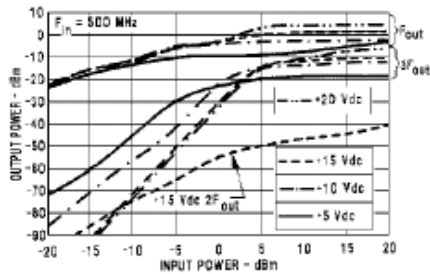
Typical Performance Curves at +25°C

Outline Drawing: TO-8 *

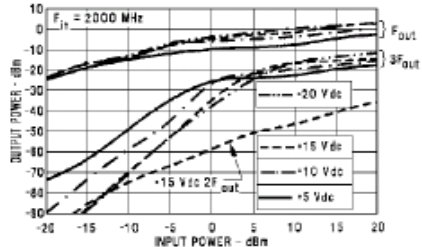
Limiting Characteristics



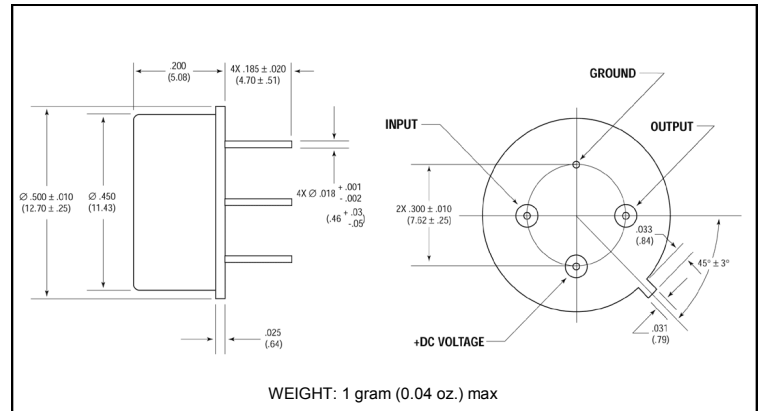
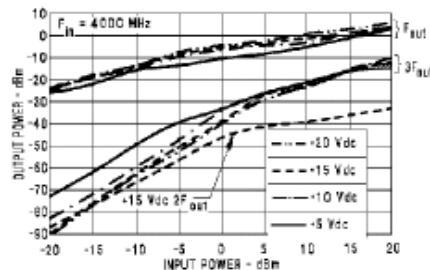
Limiting Characteristics



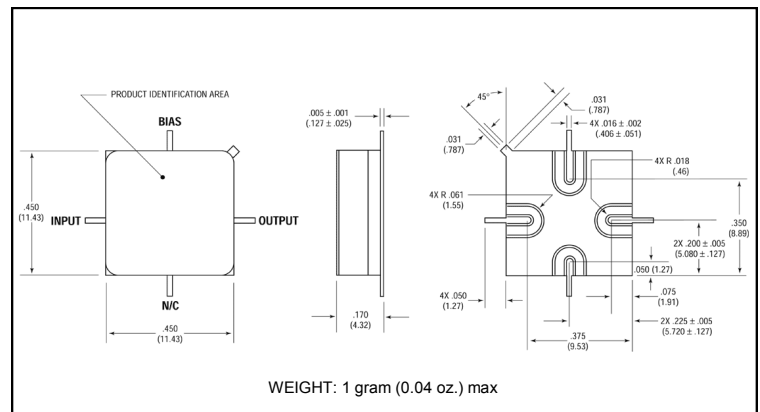
Limiting Characteristics



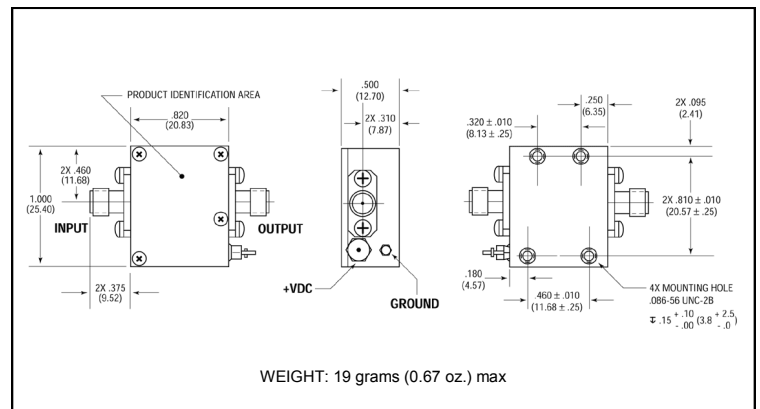
Limiting Characteristics



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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

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