

# L42 / SML42

## 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

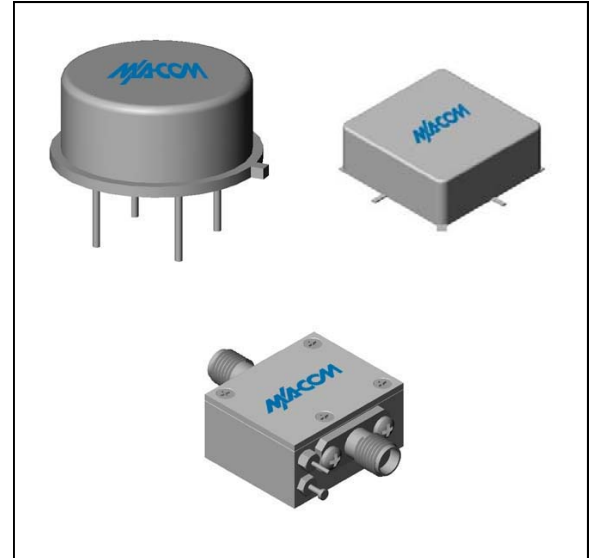
The L42 signal limiter is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. This design uses Schottky bridge quad and anti-parallel diodes, which provide consistent limiting levels over a broadband frequency range. Both TO-8 and SMT0-8 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.)<br>$P_{IN} \leq -10$ dBm, $+10 \leq \text{Bias} \leq +20 V_{DC}$  |       | 1.6:1   | 1.9:1      | 2.1:1          |
| Output VSWR (max.)<br>$P_{IN} \leq -10$ 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.)                                   |       |         |            |                |
| $+15 \leq \text{Bias} \leq +20 V_{DC}$                                              |       |         |            |                |
| 50-2000 MHz                                                                         | dBm   | 2.5     | 4.0        | 4.5            |
| 2000-4000 MHz                                                                       | dBm   | 6.5     | 7.0        | 7.5            |
| Bias Current (max.)                                                                 |       |         |            |                |
| @ +20 Vdc                                                                           | mA    | 8.5     | 9.0        | 10.0           |
| @ +15 Vdc                                                                           | mA    | 7.0     |            |                |
| @ +10 Vdc                                                                           | mA    | 4.0     |            |                |

### 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<br>(1 minute max.) | 400 mW           |
| Peak Power (3 $\mu$ sec max.)             | 1 W              |
| "S" Series Burn-In<br>Temperature (case)  | +125°C           |

\* Over temperature performance limits for part number CL42, 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.) |           |           |
|--------------|-------------------------------------------------|-----------|-----------|
|              | 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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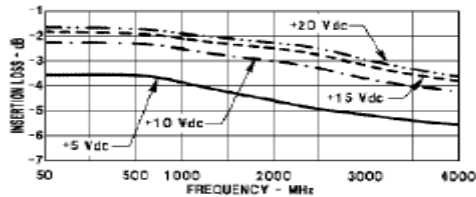
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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

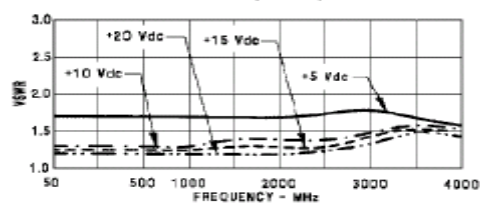
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## Typical Performance Curves at +25°C

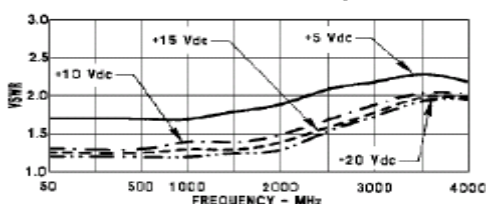
Insertion Loss



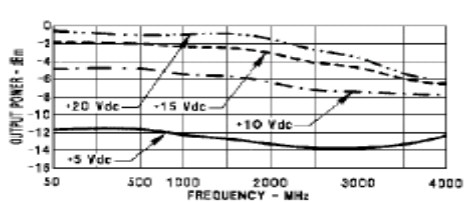
Input VSWR vs. Frequency



Output VSWR vs. Frequency

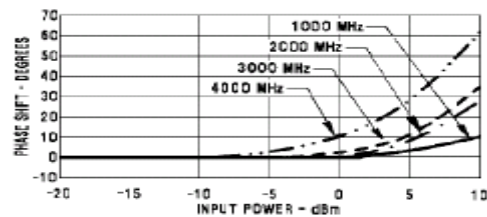
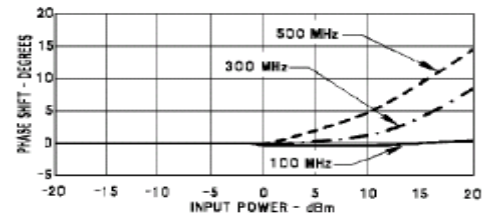


Output Power\*

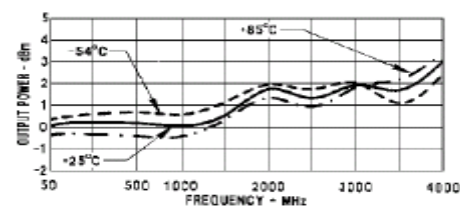
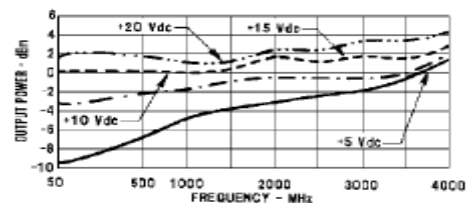


\*at 1 dB Gain Compression

Phase Shift vs. Input Power



Maximum Limiting Level



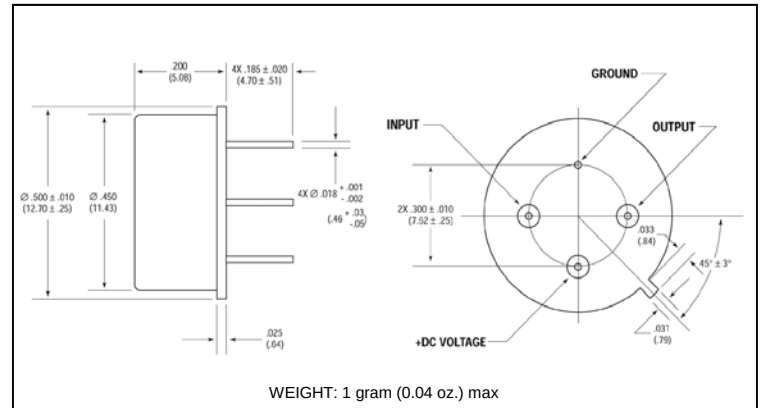
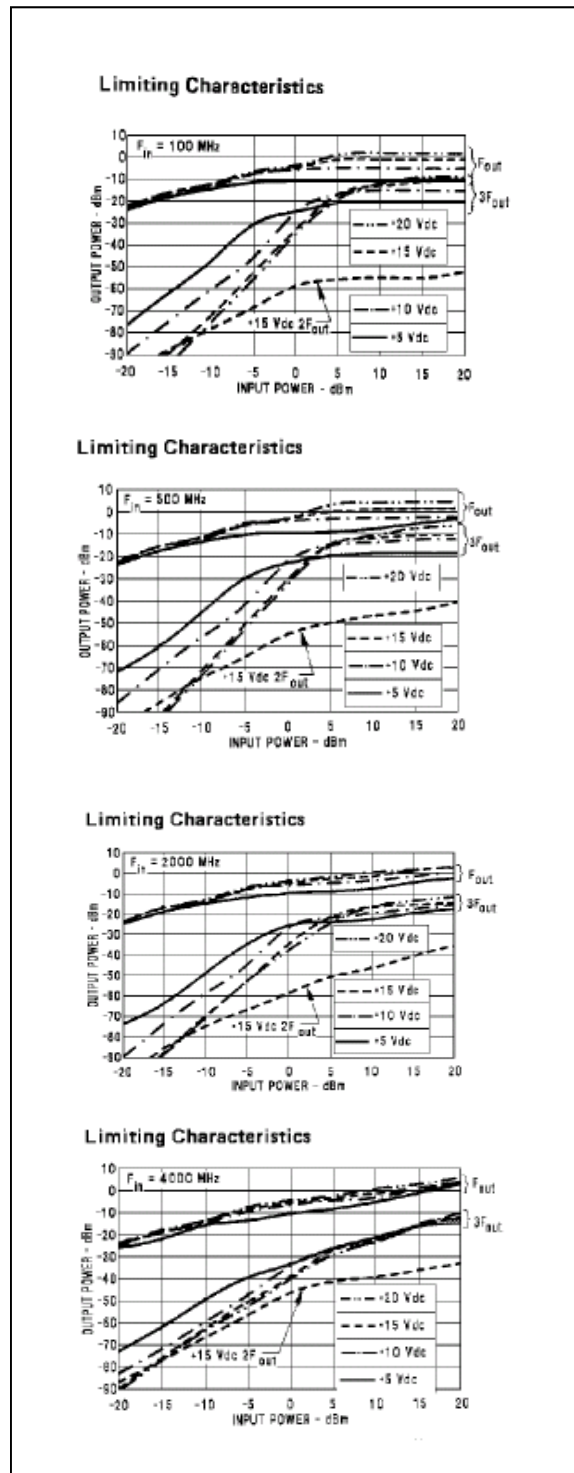
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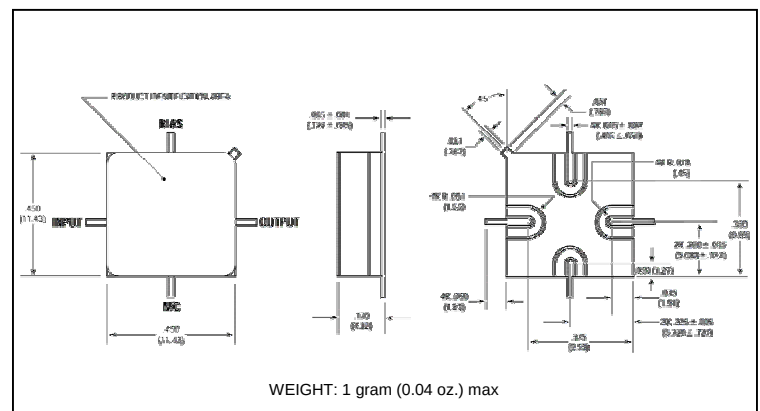
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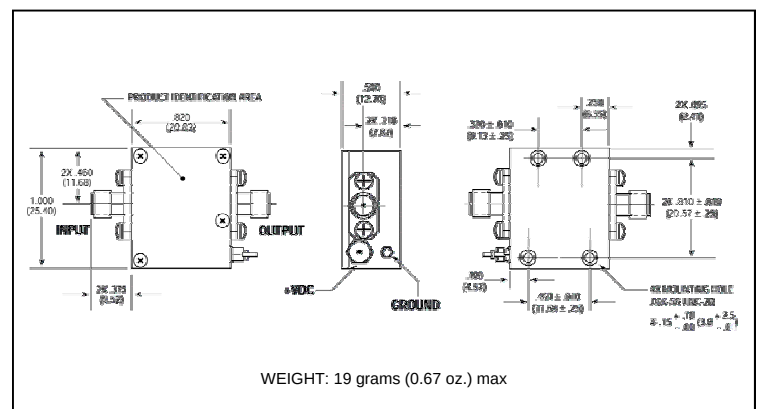
### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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