

+12 to +33 dBm

# Limiter

## RLM-33-2W+

50Ω Broadband 0.2 to 3000 MHz

### Maximum Ratings

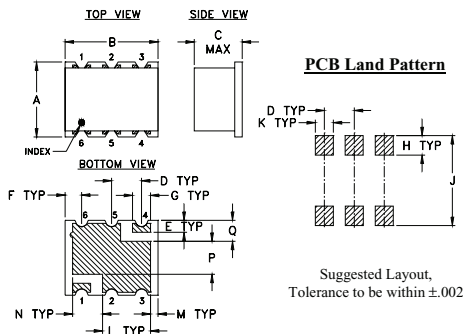
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Input Power        | 2.5W           |

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

|        |         |
|--------|---------|
| INPUT  | 1       |
| OUTPUT | 4       |
| GROUND | 2,3,5,6 |

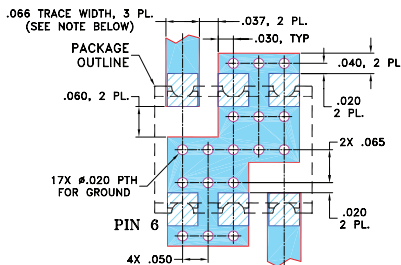
### Outline Drawing



### Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F    | G    | H     |
|------|------|------|------|------|------|------|-------|
| .25  | .31  | .16  | .100 | .040 | .055 | .060 | .065  |
| 6.35 | 7.87 | 4.06 | 2.54 | 1.02 | 1.40 | 1.52 | 1.65  |
| J    | K    | L    | M    | N    | P    | Q    | wt.   |
| .300 | .060 | .160 | .025 | .100 | .110 | .070 | grams |
| 7.62 | 1.52 | 4.06 | 0.64 | 2.54 | 2.79 | 1.78 | 0.16  |

### Demo Board MCL P/N: TB-393 Suggested PCB Layout (PL-258)



- NOTES:
- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
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#### Notes

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 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
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### Features

- wideband, 0.2 to 3000 MHz
- low insertion loss 0.25 dB typ.
- good recovery time, 22.5nsec typ.
- excellent VSWR 1.33:1 typ.
- low output power, 13 dBm typ.

### Applications

- military, hi-rel applications
- stabilizing generator outputs
- reducing amplitude variations
- protects low noise amplifiers and other devices from ESD or input power damage



Generic photo used for illustration purposes only

CASE STYLE: TT1224

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

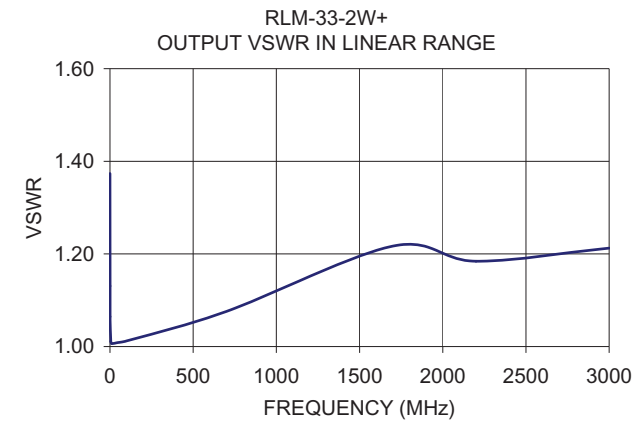
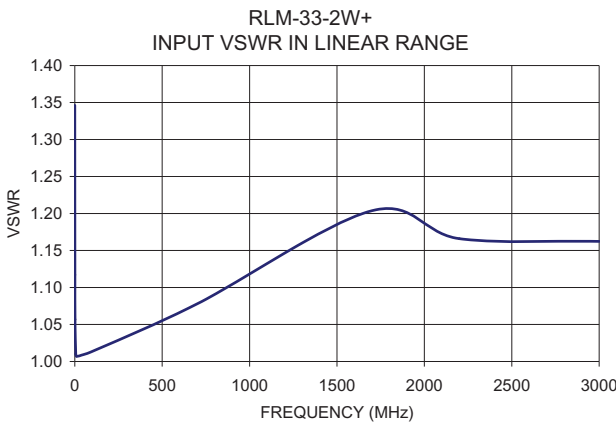
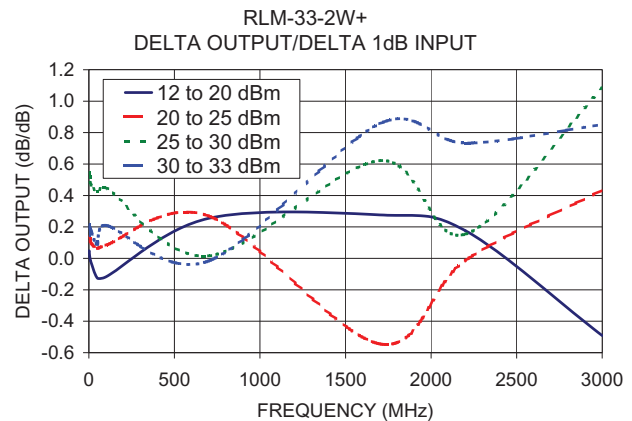
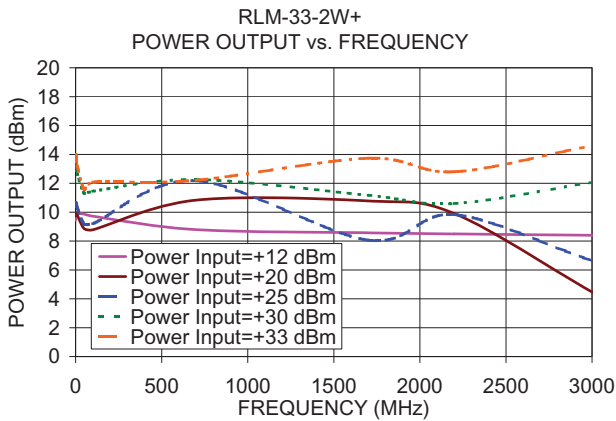
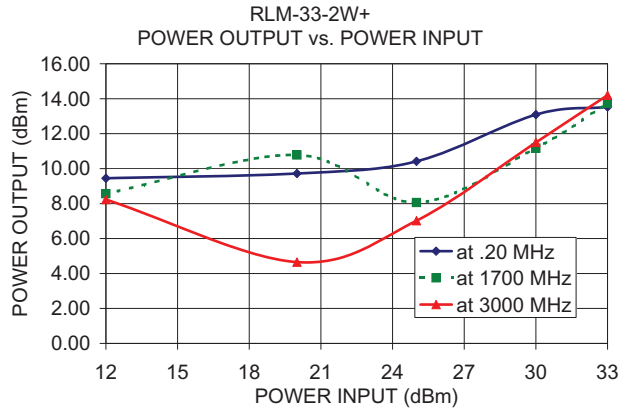
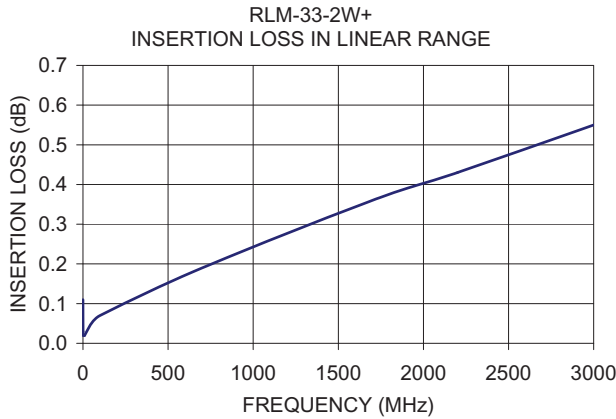
### Electrical Specifications

| Parameter             | Condition  | Min. | Typ. | Max. | Units |
|-----------------------|--|------|------|------|-------|
| Frequency Range       |  | 0.2  |      | 3000 | MHz   |
| <b>Linear Range</b>   |  |      |      |      |       |
| Max Input Power       | less than 1 dB compression   | —    | —    | 5    | dBm   |
| Insertion Loss        | less than -10 dBm input power  | —    | 0.25 | 0.9  | dB    |
| VSWR                  | less than -10 dBm input power  | —    | 1.33 | 1.5  | :1    |
| <b>Limiting Range</b> |  |      |      |      |       |
| Input Power           | >1dB compression filtered signal frequency   | +12  | —    | +33  | dBm   |
| Output Power          |  | —    | +13  | —    | dBm   |
| Δ Output/ Δ 1dB Input | Input Power Range (dBm)  |      |      |      |       |
|                       | 12 to 20   | —    | 0.3  | —    |       |
|                       | 20 to 25   | —    | 0.1  | —    | dB/dB |
|                       | 25 to 30   | —    | 0.1  | —    |       |
|                       | 30 to 33   | —    | 0.2  | —    |       |
| Recovery Time         | 1 watt pulse 50 μsec pw 1kHz duty cycle recovery to within 90% of final value @ 33 dBm | —    | 22.5 | —    | nsec  |
| Response Time         | 33 dBm input 50 μsec PW 1 kHz duty cycle   | —    | 5.6  | —    | nsec  |

### Typical Performance Data

| Freq. (MHz) | I. Loss (dB) in Linear Range at -10 dBm | VSWR (:1) in Linear Range at -10 dBm | Power Output (dBm) |               |               |               |              | Δ Output / Δ 1dB Input |                      |                      |                      |
|-------------|---|--------------------------------------|--------------------|---------------|---------------|---------------|--------------|------------------------|----------------------|----------------------|----------------------|
|             |   |                                      | +12 dBm Input      | +20 dBm Input | +25 dBm Input | +30 dBm Input | +33dBm Input | +12 to +20 dBm Input   | +20 to +25 dBm Input | +25 to +30 dBm Input | +30 to +33 dBm Input |
| 0.20        | 0.11                                    | 1.35                                 | 9.45               | 9.72          | 10.42         | 13.09         | 13.53        | 0.03                   | 0.14                 | 0.53                 | 0.15                 |
| 0.50        | 0.03                                    | 1.12                                 | 9.55               | 9.91          | 10.60         | 13.33         | 13.94        | 0.04                   | 0.14                 | 0.55                 | 0.20                 |
| 1.00        | 0.02                                    | 1.06                                 | 9.57               | 9.95          | 10.64         | 13.36         | 14.00        | 0.05                   | 0.14                 | 0.54                 | 0.21                 |
| 5.00        | 0.02                                    | 1.01                                 | 9.86               | 9.93          | 10.56         | 13.15         | 13.74        | 0.01                   | 0.13                 | 0.52                 | 0.20                 |
| 10.00       | 0.02                                    | 1.01                                 | 9.93               | 9.80          | 10.30         | 12.66         | 13.21        | -0.02                  | 0.10                 | 0.47                 | 0.18                 |
| 50.00       | 0.05                                    | 1.01                                 | 9.86               | 8.85          | 9.17          | 11.30         | 11.57        | -0.13                  | 0.06                 | 0.43                 | 0.09                 |
| 100.00      | 0.07                                    | 1.01                                 | 9.72               | 8.78          | 9.20          | 11.45         | 12.08        | -0.12                  | 0.08                 | 0.45                 | 0.21                 |
| 700.00      | 0.19                                    | 1.08                                 | 8.79               | 10.83         | 12.18         | 12.26         | 12.21        | 0.26                   | 0.27                 | 0.02                 | -0.02                |
| 1700.00     | 0.36                                    | 1.20                                 | 8.57               | 10.78         | 8.06          | 11.17         | 13.74        | 0.28                   | -0.54                | 0.62                 | 0.86                 |
| 2200.00     | 0.43                                    | 1.17                                 | 8.49               | 9.90          | 9.83          | 10.60         | 12.80        | 0.18                   | -0.01                | 0.15                 | 0.73                 |
| 3000.00     | 0.55                                    | 1.16                                 | 8.40               | 4.47          | 6.64          | 12.06         | 14.61        | -0.49                  | 0.43                 | 1.08                 | 0.85                 |





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