+12 to +33 dBm

Limiter

RLM-33-2W+

50Ω Broadband 0.2 to 3000 MHz

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

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

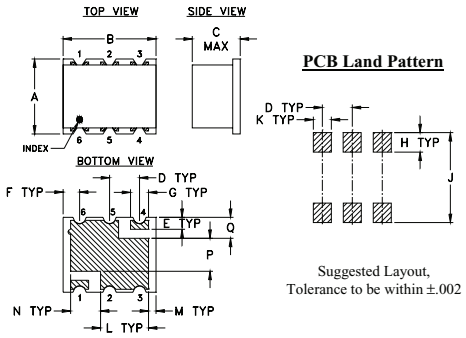
Features

- 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

Outline Drawing



Outline Dimensions (inch / mm)

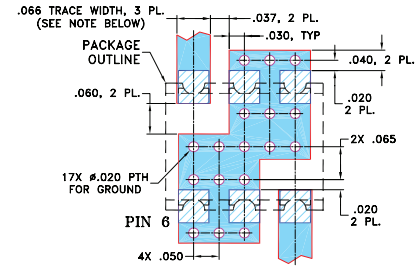
A	B	C	D	E	F	G	H
.25	.31	.16	.100	.040	.055	.060	.065
6.35	7.87	4.06	2.54	1.02	1.40	1.52	1.65

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

Electrical Specifications

Parameter	Condition	Min.	Typ.	Max.	Units
Frequency Range		0.2		3000	MHz
Linear Range					
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
Limiting Range					
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	—	dB/dB
	20 to 25	—	0.1	—	
	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

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



NOTES: 1. 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.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

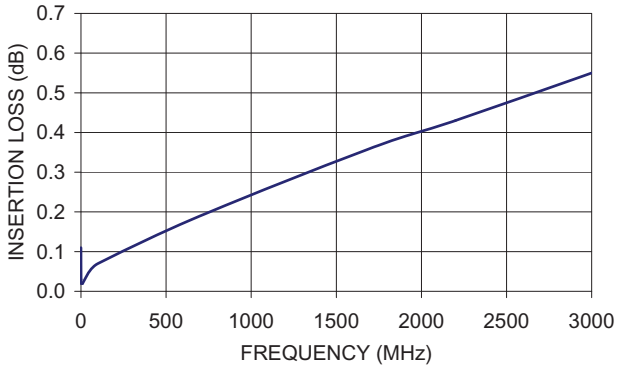
Typical Performance Data

Freq. (MHz)	I. Loss (dB) in Linear Range at -10 dBm	VSWR (:1) in Linear Range at -10 dBm	Power Output (dBm) +12 dBm Input	+20 dBm Input	+25 dBm Input	+30 dBm Input	+33dBm Input	Δ Output / Δ 1dB 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

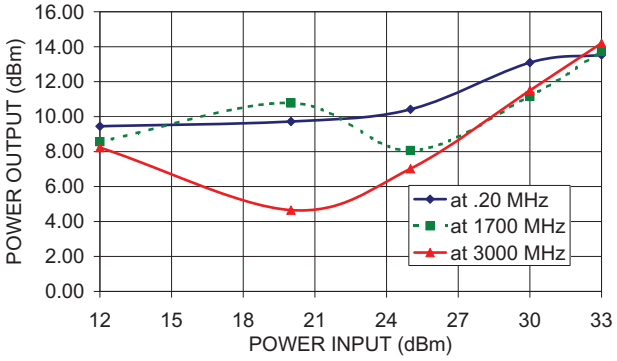
Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

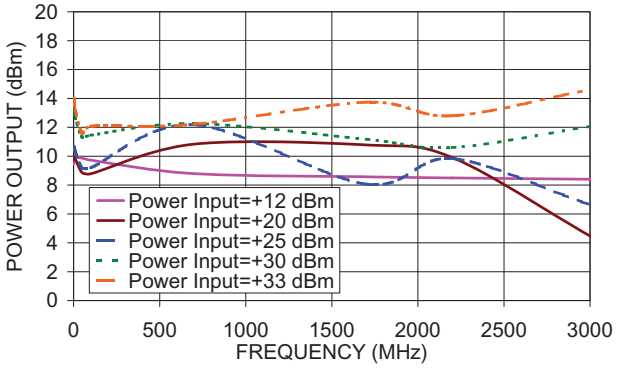
RLM-33-2W+
INSERTION LOSS IN LINEAR RANGE



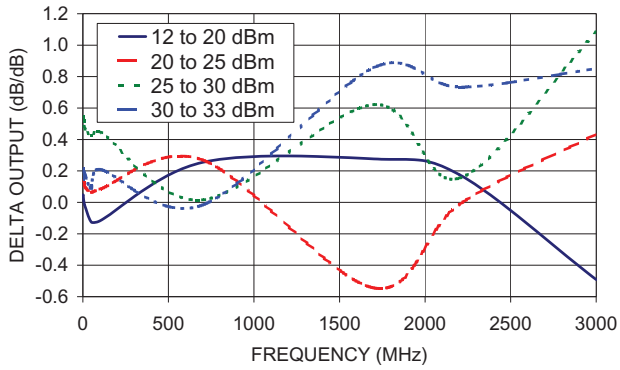
RLM-33-2W+
POWER OUTPUT vs. POWER INPUT



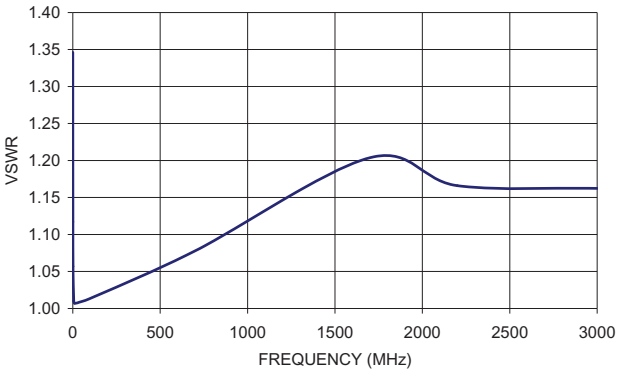
RLM-33-2W+
POWER OUTPUT vs. FREQUENCY



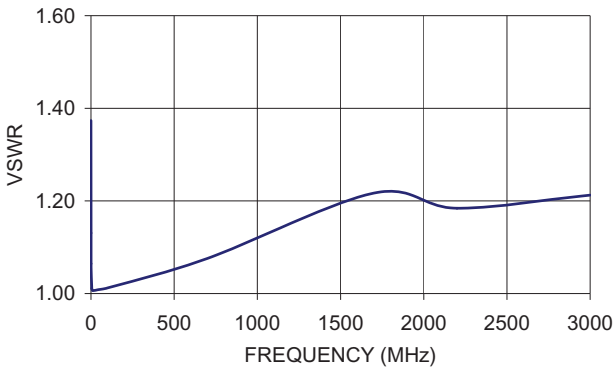
RLM-33-2W+
DELTA OUTPUT/DELTA 1dB INPUT



RLM-33-2W+
INPUT VSWR IN LINEAR RANGE



RLM-33-2W+
OUTPUT VSWR IN LINEAR RANGE



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