+12 to +33dBm

Limiter

ULM-63-2W-N+

50Ω Broadband 30 to 6000 MHz



Generic photo used for illustration purposes only
CASE STYLE: FF779

The Big Deal

- Extra wide frequency range, 30 MHz to 6 GHz
- Wide limiting range, +12 to +33 dBm
- Very fast recovery time, 5 nsec typical

Product Overview

The ULM-63-2W-N+ reacts almost instantaneously to protect sensitive devices from power surges and other unwanted signals at the device input. For inputs >12 dBm, the output power remains about 11.5 dBm, whereas lower-level input losses are only 0.4 dB typ. These units are housed in a patented, rugged unibody enclosure (2.11” x 0.72”) specifically designed to function in tough environments such as manufacturing sites, train tunnels, weapon systems, or anywhere sensitive components, such as low noise amplifiers, need protection.

Key Features

Feature	Advantages
High power handling, up to 2.5W max	Affords protection against peak voltages of multi-tone signals
Very fast recovery time, 5 nsec typ.	Back in operation almost instantaneously following signal spikes
Wideband, 30 MHz to 6 GHz	Protection for a wide range of applications, from IF receivers to toll-booth operations

Notes
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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

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Connectors	Model
N (F/M)	ULM-63-2W-N+

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Input Power	2.5W CW

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

Features

- Wideband, 30 to 6000 MHz
- Low insertion loss 0.4 dB typ.
- Fast recovery time, 5nsec typ.
- Excellent VSWR 1.2:1 typ.

Applications

- Protects low noise amplifiers and other devices from ESD or input power damage
- Military, Hi-rel application
- Telecommunication and Broadband wireless

+RoHS Compliant

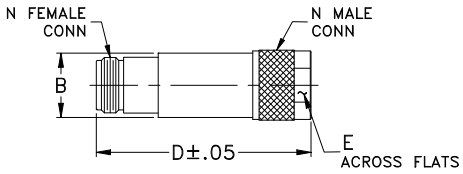
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Coaxial Connections*

INPUT	N FEMALE
OUTPUT	N MALE

*Suggested Connections. For reverse connections, consult Mini-Circuits.

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	Wt.
--	**.71**	--	**2.11**	**.718**	grams
--	18.03	--	53.59	18.24	72.5

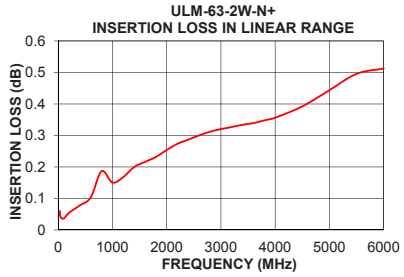
Note: Please refer to case style drawing for details

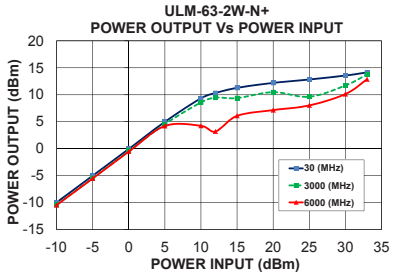
Electrical Specifications

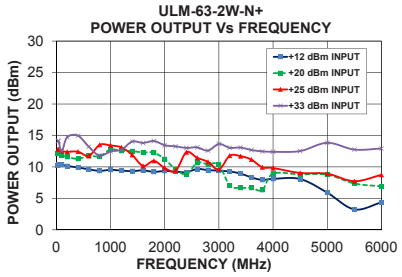
Parameter	Condition	Min.	Typ.	Max.	Units
Frequency Range		30		6000	MHz
Insertion Loss in Linear Range	<+4 dBm Input	—	0.5	1.2	dB
VSWR	<+4 dBm Input	—	1.25	1.9	:1
Input Power Limiting Range		+12	—	+33	dBm
Output Power	In limiting range	—	+13.5	—	dBm
Recovery Time	1 watt pulse 50 µsec pw 1kHz duty cycle recovery to within 90% of final value.	—	5	—	nsec
Response Time	-30 to +33 dBm input 50 µsec, BW 1 kHz duty cycle	—	7	—	nsec
Limiting Δ Output/1dB Δ Input	Input Power Range (dBm) 12 to 20 20 to 25 25 to 33	 — — —	 0.3 0.5 0.6	 — — —	dB/dB

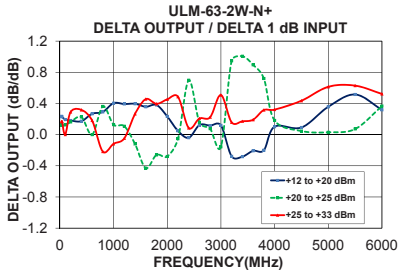
Typical Performance Data

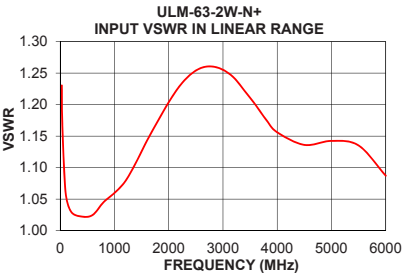
Freq. (MHz)	I. Loss in Linear Range (dB)	VSWR in Linear Range (:1)	Power Output (dBm)				Δ Output 1dB Δ Input		
			+12 dBm Input	+20 dBm Input	+25 dBm Input	+33 dBm Input	+12 to +20 dBm Input	+20 to +25 dBm Input	+25 to +33 dBm Input
30	0.06	1.23	10.27	12.15	12.80	14.13	0.24	0.13	0.17
100	0.04	1.06	10.33	11.88	12.50	12.50	0.19	0.12	0.00
200	0.05	1.03	10.14	11.59	12.40	14.73	0.18	0.16	0.29
800	0.19	1.05	9.37	11.70	13.51	11.77	0.29	0.36	-0.22
1200	0.17	1.08	9.42	12.56	13.10	12.72	0.39	0.11	-0.05
1600	0.22	1.14	9.45	12.31	10.16	13.81	0.36	-0.43	0.46
2000	0.25	1.20	9.36	11.23	9.83	13.45	0.23	-0.28	0.45
2400	0.29	1.25	9.16	8.84	12.33	13.02	-0.04	0.70	0.09
3000	0.32	1.26	9.41	10.36	9.58	13.65	0.12	-0.16	0.51
3600	0.34	1.20	8.34	6.68	11.16	12.69	-0.21	0.90	0.19
4000	0.36	1.16	8.10	8.92	9.83	12.40	0.10	0.18	0.32
5000	0.44	1.14	5.91	8.77	8.92	13.83	0.36	0.03	0.61
6000	0.51	1.09	4.36	6.91	8.74	12.92	0.32	0.37	0.52

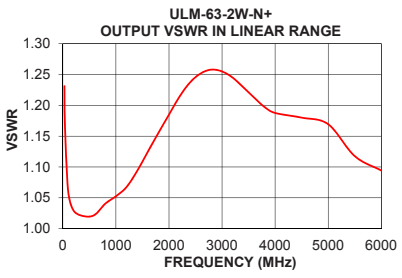












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