

Voltage Variable Attenuator

EVA-1500+

50Ω 100 to 1500 MHz



CASE STYLE: HE1354

The Big Deal

- Broad band, 100 to 1500 MHz
- IP2 +85 dBm, IP3 +49 dBm
- Well matched in/out ports, return loss 18.5 dB
- Minimal phase deviation over attenuation range
- Drop-in, no external matching circuits required

Product Overview

The EVA-1500+ is a Voltage Variable 50Ω matched Attenuator built into a shielded (0.394" x 0.394" x 0.15") case. The model utilizes well matched PIN diodes, carefully biased in order to enable very low insertion loss with very low supply and control current consumption.

Key Features

Feature	Advantages
Insertion loss of 1.5 dB up to 500MHz	Low insertion loss means very less power dissipation, so SNR will be maintained without much degradation.
Low power consumption: <ul style="list-style-type: none">• Supply voltage +3 V• Supply current 0.5 mA max.• Control voltage 0 - 5 V• Control current 7 mA max.	Needs very little current for adjusting the attenuation range so that a wide range of drivers can be chosen to control attenuation.
IP3 +49 dBm typ. IP2 +85 dBm typ.	Low distortion enabling improved system performance.
Minimal phase deviation over attenuation range	Can provide low signal distortion over attenuation range.

Surface Mount Voltage Variable Attenuator

EVA-1500+

50Ω 100 to 1500 MHz

Maximum Ratings

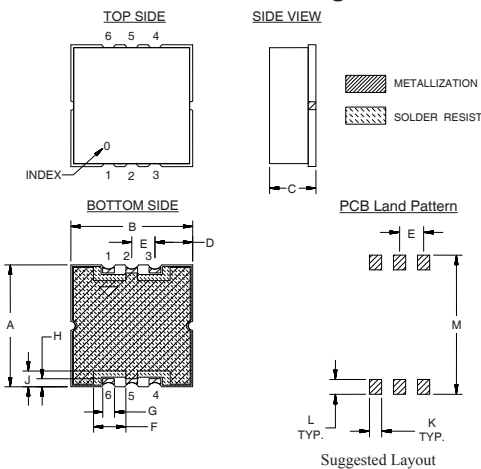
Operating Temperature	-45°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage(V+)	6V
Absolute Max. Control Voltage(Vctrl)	10V
Absolute Max. RF Input Level	+20dBm

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

Pin Connections

RF IN	1
RF OUT	6
V CONTROL	3
V+	4
GROUND	2,5

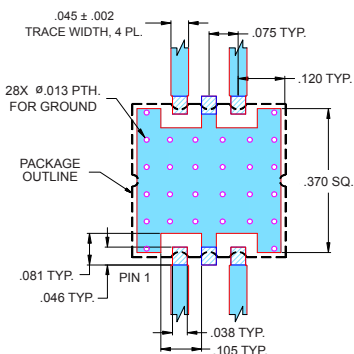
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	wt. grams
.394	.394	.150	.122	.075	.098	.038	.026	.051	.038	.046	.434	0.7
10.01	10.01	3.81	3.10	1.90	2.49	0.97	0.66	1.29	0.97	1.17	11.02	

Demo Board MCL P/N: TB-474+ Suggested PCB Layout (PL-285)



- NOTES:
- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025" ± .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.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- Frequency range, 100-1500 MHz
- Low current consumption
- Low insertion loss
- IP2 +85 dBm typ.
- IP3 +49 dBm typ.
- Minimal phase deviation over attenuation range
- No external bias and RF matching network required
- Shielded case
- Aqueous washable

Applications

- Power level control
- Feed forward amplifier
- Test equipment
- VHF



CASE STYLE: HE1354
PRICE: \$9.95 ea. QTY (10-49)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

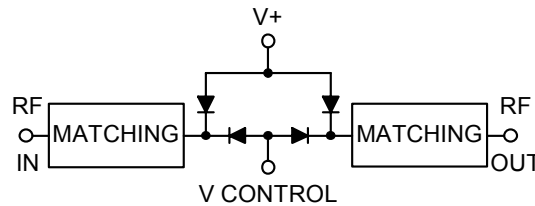
The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Electrical Specifications (T_{AMB} = 25°C)

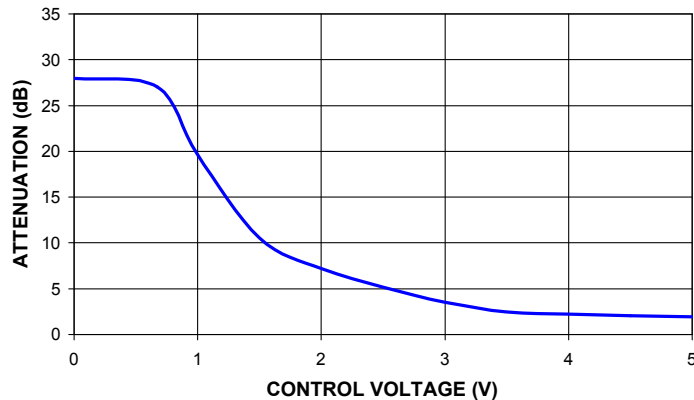
FREQ. (MHz)	MIN. INSERTION LOSS, dB (+5V)		MAX. ATTEN. dB (0V)		INPUT POWER (dBm)		CONTROL Voltage Current (V) (mA)		IP3* (dBm)	IP2* (dBm)	RETURN LOSS (dB)	POWER SUPPLY Voltage Current (V) (mA)	
	Min.	Max.	Typ.	Max.	Typ.	Min.	Max.	Max.	Typ.	Typ.	Typ.	V	Max.
100 - 500	1.5	2.5	35	25	+20	0 - 5	7	47	80	17	+3	0.5	
500 - 1000	1.7	3.0	30	20	+20	0 - 5	7	50	85	20	+3	0.5	
1000 - 1500	2.0	3.5	25	17	+20	0 - 5	7	50	85	20	+3	0.5	

- Notes:
- Rise/Fall time: 13 μSec / 15 μSec Typ.
 - Switching Time, turn on/off: 15 μSec / 25 μSec Typ.
 - * Typical IP2 & IP3 at Vc=5V

Equivalent Schematic



EVA-1500+ TYPICAL ATTENUATION AT 1000 MHz



Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED
The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com
IF/RF MICROWAVE COMPONENTS

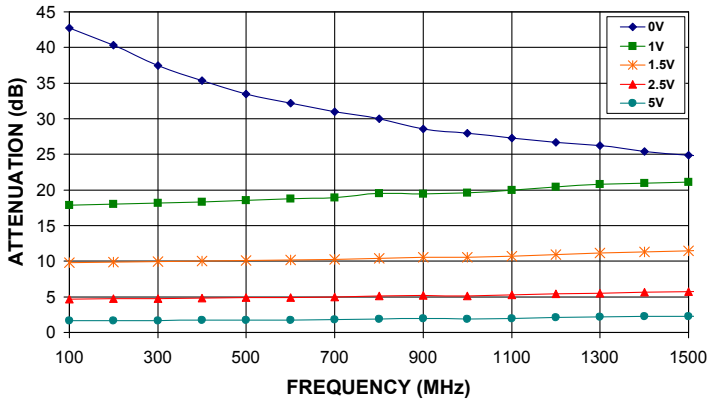
For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

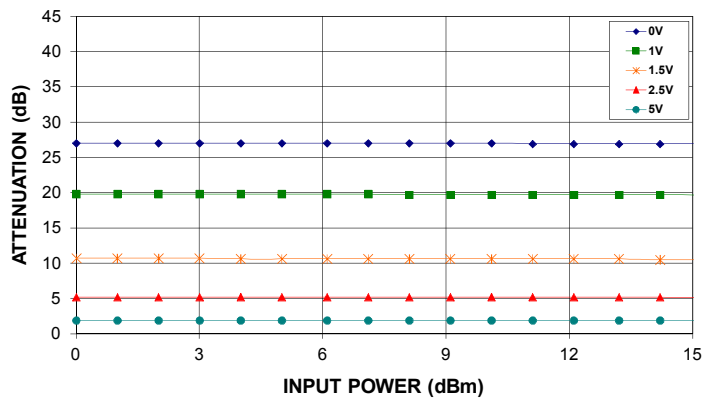
Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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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EVA-1500+
EDR-9027AU
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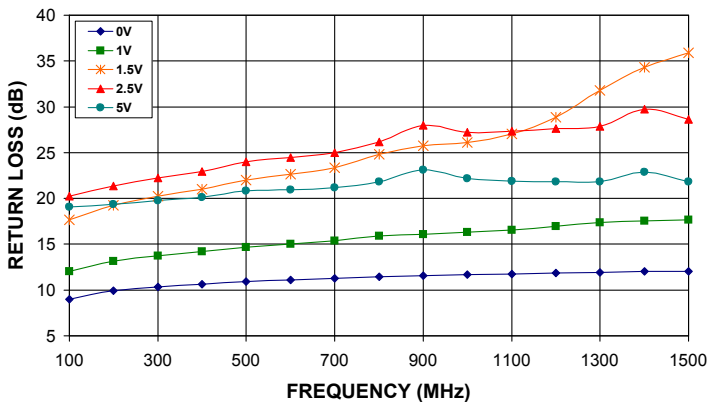
EVA-1500+
ATTENUATION Vs. FREQUENCY
OVER CONTROL VOLTAGES



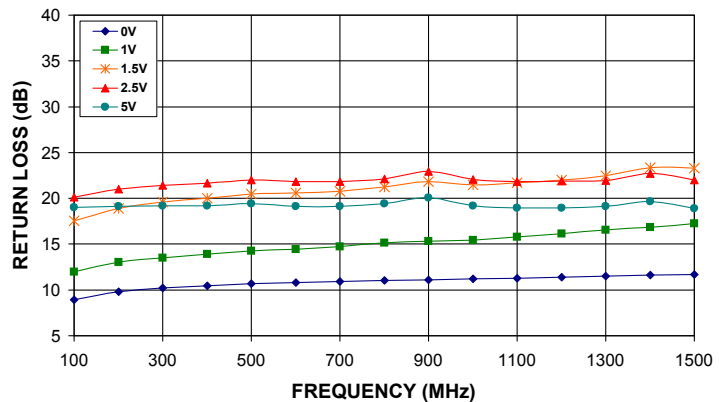
EVA-1500+
ATTENUATION Vs. INPUT POWER
OVER CONTROL VOLTAGES AT 1000 MHz



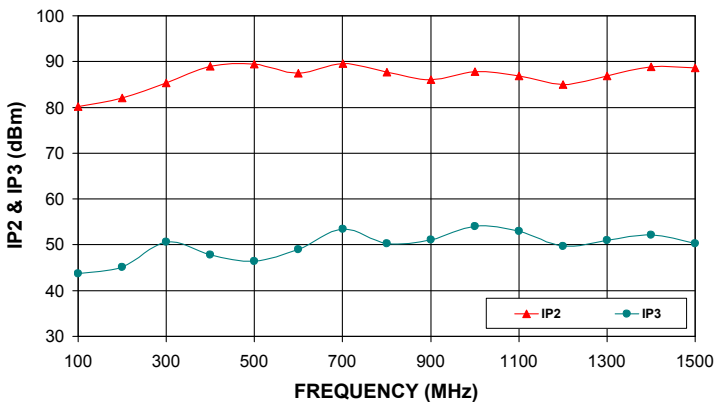
EVA-1500+
INPUT RETURN LOSS Vs. FREQUENCY
OVER CONTROL VOLTAGES



EVA-1500+
OUTPUT RETURN LOSS Vs. FREQUENCY
OVER CONTROL VOLTAGES



EVA-1500+
IP2 & IP3 Vs. FREQUENCY
@ Vc=5V



EVA-1500+
PHASE SHIFT Vs. FREQUENCY
OVER CONTROL VOLTAGES

