

# Broad Band Voltage Variable Attenuator

## MVA-2000+

50Ω 10 to 2000 MHz

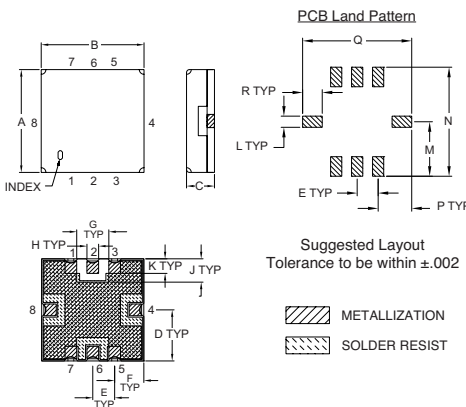
### Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 85°C
Absolute Max. Supply Voltage(V+)	7V
Absolute Max. Control Voltage(Vctrl)	14V
Absolute Max. RF Input Level	+19 dBm

### Pin Connections

RF IN	6
RF OUT	2
V CONTROL	4
V+	8
GROUND	1,3,5,7

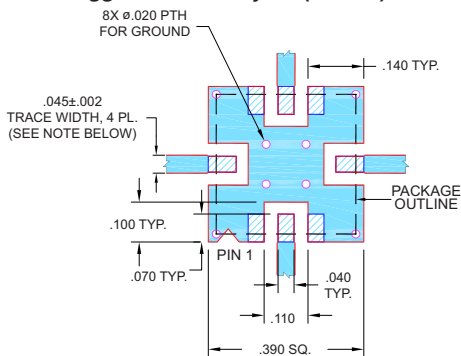
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J
.350	.350	.100	.175	.075	.100	.110	.040	.080
8.89	8.89	2.54	4.45	1.93	2.54	2.79	1.02	2.03
K	L	M	N	P	Q	R	wt.	
.050	.040	.195	.390	.120	.390	.070	grams	
1.27	1.02	4.95	9.91	3.05	9.91	1.78	0.25	

Demo Board MCL P/N: TB-286  
Suggested PCB Layout (PL-154)



- 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

- Broadband, 10-2000 MHz
- Low Insertion Loss, 1.9dB Typ.
- IP3, +45 dBm Typ.
- Small phase deviation over attenuation range
- No external bias and RF matching network required
- Shielded case
- Aqueous washable

### Applications

- Power level control
- Feed forward amplifiers
- CATV



CASE STYLE: GP731  
PRICE: \$12.95 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.

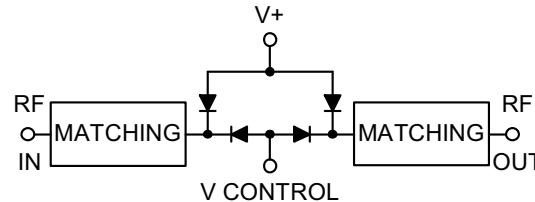
### Electrical Specifications (T<sub>AMB</sub> = 25°C)

FREQ. (MHz)	MIN. INSERTION LOSS, dB (+12V)		MAX. ATTENUATION dB (0V)		INPUT POWER (dBm)	CONTROL Voltage Current (V) (mA)		IP3 (dBm)	RETURN LOSS (dB)	POWER SUPPLY Voltage Current (V) (mA)	
	Min.	Max.	Typ.	Max.		Typ.	Max.			Typ.	Max.
10 - 500	1.7	2.7	43	25	+19	0 - 12	15	43	23	+3 to +5	5
500 - 1000	1.9	2.8	28	20	+19	0 - 12	15	48	23	+3 to +5	5
1000 - 2000	2.1	3.0	23	15	+19	0 - 12	15	50	23	+3 to +5	5

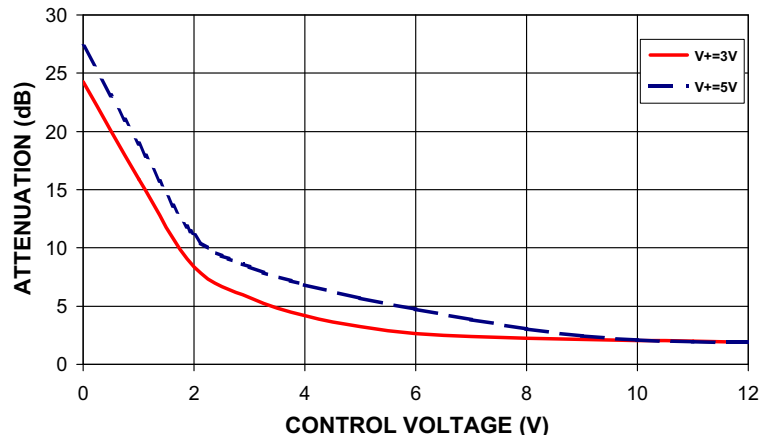
### Notes:

- Rise/Fall time: 17μSec/10μSec Typ.
- Switching Time, turn on/off: 20μSec. Typ.
- Improved R.Loss in/out performance can be achieved at certain frequencies by choosing a V+ between +3V to +5V

### Equivalent Schematic



### MVA-2000+ TYPICAL ATTENUATION AT 1000MHz



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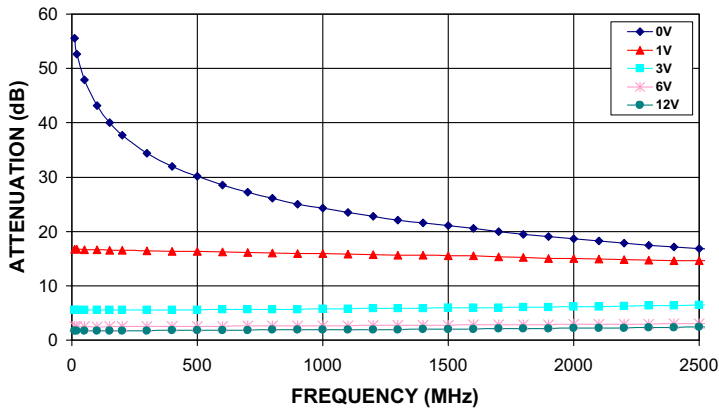


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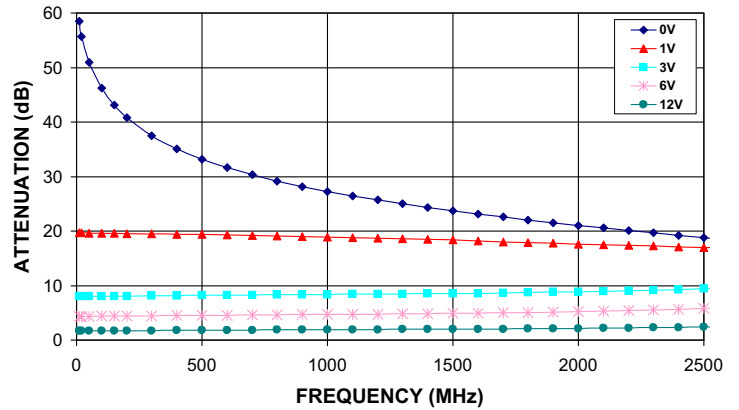
IF/RF MICROWAVE COMPONENTS

REV. OR  
M110472  
EDR-6631A  
MVA-2000+  
RAV  
090510  
Page 1 of 3

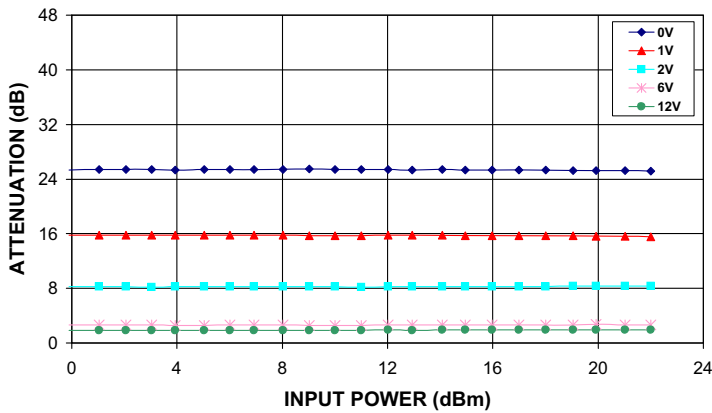
**MVA-2000+**  
ATTENUATION Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=3V



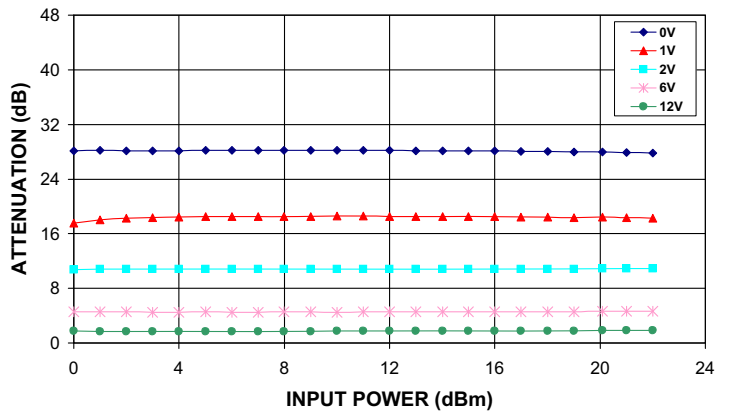
**MVA-2000+**  
ATTENUATION Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=5V



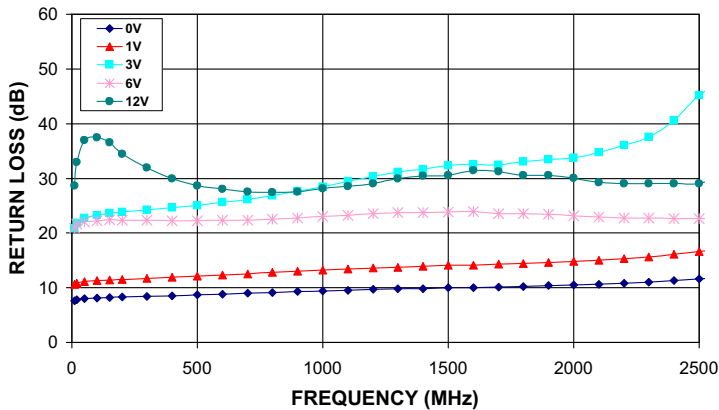
**MVA-2000+**  
ATTENUATION Vs. INPUT POWER  
OVER CONTROL VOLTAGES AT 1000MHz @ V+=3V



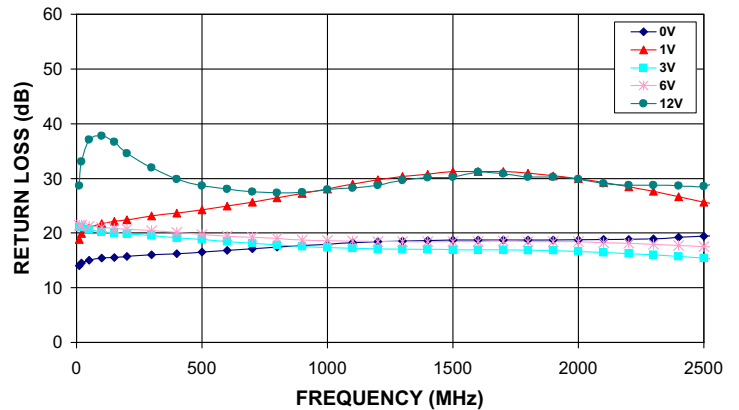
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ATTENUATION Vs. INPUT POWER  
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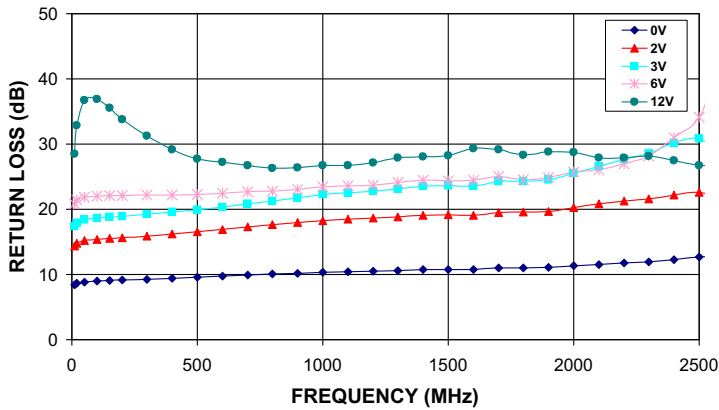
**MVA-2000+**  
INPUT RETURN LOSS Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=3V



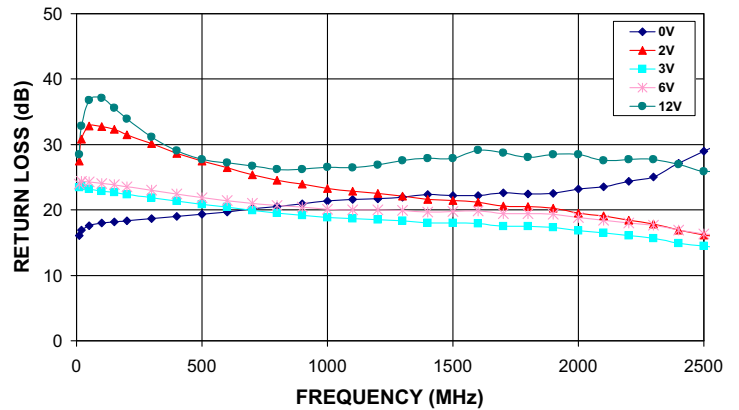
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INPUT RETURN LOSS Vs. FREQUENCY  
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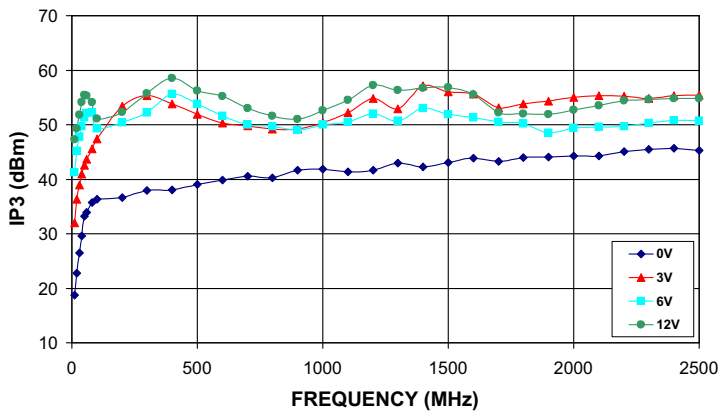
**MVA-2000+**  
**OUTPUT RETURN LOSS Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=3V**



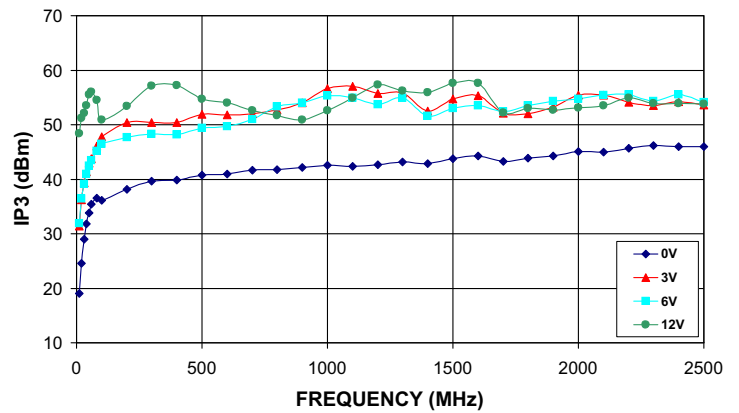
**MVA-2000+**  
**OUTPUT RETURN LOSS Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=5V**



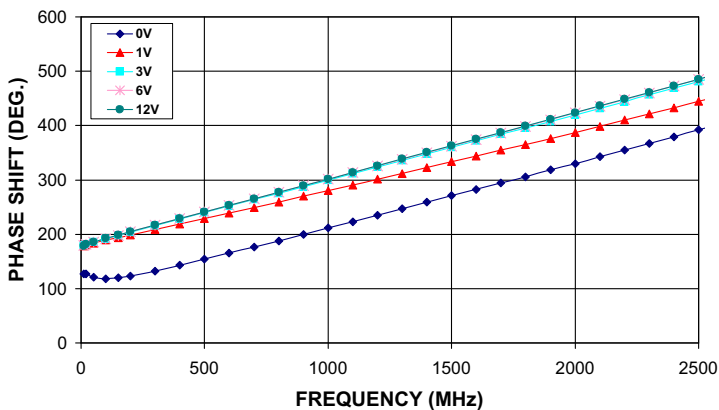
**MVA-2000+**  
**IP3 Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=3V**



**MVA-2000+**  
**IP3 Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=5V**



**MVA-2000+**  
**PHASE SHIFT Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=3V**



**MVA-2000+**  
**PHASE SHIFT Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=5V**

