

# Broad Band Voltage Variable Attenuator

## RVA-2500+ RVA-2500

50Ω 10 to 2500 MHz

### Maximum Ratings

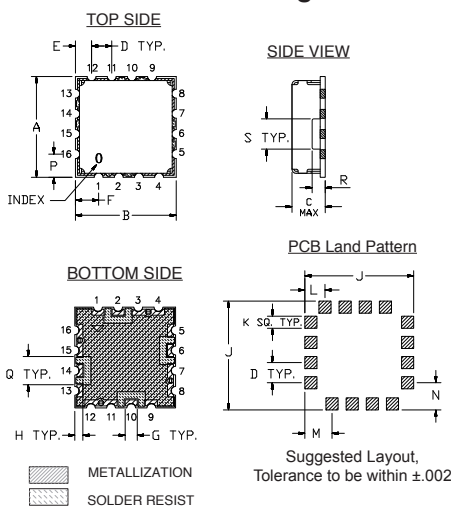
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 85°C
Absolute Max. Supply Voltage(V+)	12V
Absolute Max. Control Voltage(Vctrl)	20V
Absolute Max. RF Input Level	+20 dBm

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

### Pin Connections

RF IN	2
RF OUT	10
V CONTROL	6
V+	14
GROUND	1,3,4,5,7,8,9,11,12,13,15,16

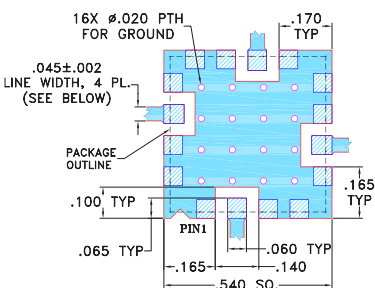
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J
.500	.500	.195	.100	.080	.115	.060	.040	.540
12.70	12.70	4.95	2.54	2.03	2.92	1.52	1.02	13.72
K	L	M	N	P	Q	R	S	wt.
.060	.100	.135	.135	.115	.140	.070	.150	grams
1.52	2.54	3.43	3.43	2.92	3.56	1.78	3.81	1.0

Demo Board MCL P/N: TB-163  
Suggested PCB Layout (PL-040)



- NOTE:
- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS 0.025" ± 0.0025"; 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.
- Legend:  
 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Features

- Broadband, 10-2500 MHz
- IP3, +43 dBm typ.
- 40 dB attenuation @ 1500 MHz
- Good VSWR at IN/OUT ports over attenuation range
- Minimal phase deviation over attenuation range
- No external bias and RF matching network required
- Shielded case



CASE STYLE: DV874

### Applications

- Power level control
- Feed forward amplifiers

### +RoHS Compliant

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

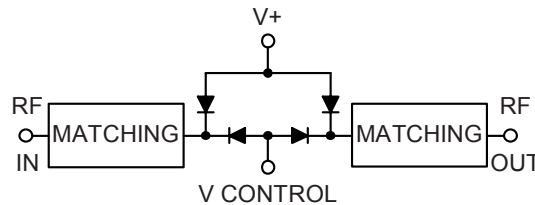
### Electrical Specifications (T<sub>AMB</sub> = 25°C)

FREQ. (MHz)	MIN. INSERTION LOSS, dB (+15V)		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.		Min.	Max.			Typ.	Max.
10 - 500	3.0	4.6	55	41	+20	0 - 17	30	43	20	+3 to +5	5
500 - 1500	3.3	5.0	40	30	+20	0 - 17	30	43	20	+3 to +5	5
1500 - 2500	4.0	6.2	37	25	+20	0 - 17	30	44	20	+3 to +5	5

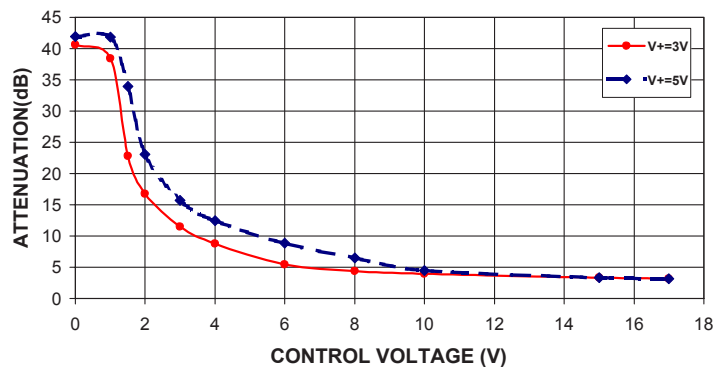
### Notes:

- Rise/Fall time: 14μSec / 25μSec Typ.
- Switching Time, turn on/off: 14μSec / 25μSec Typ.
- Improved R.Loss in/out performance can be achieved at certain frequencies by choosing a V+ between +3V to +5V

### Equivalent Schematic



### RVA-2500 TYPICAL ATTENUATION AT 1000MHz

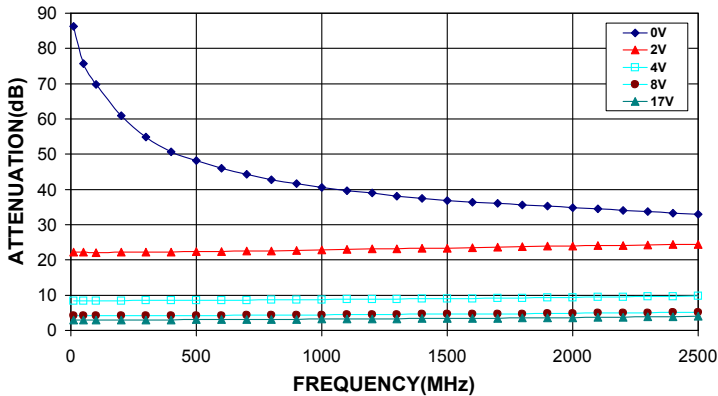


### Notes

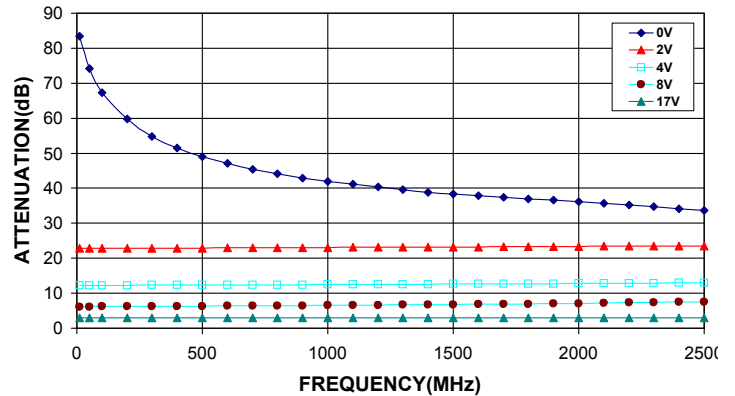
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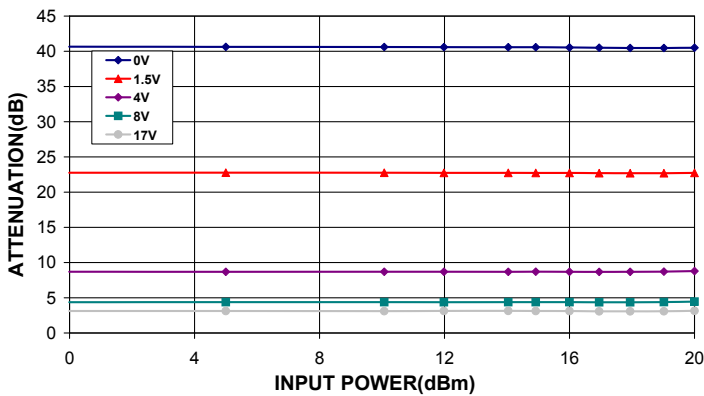
**RVA-2500**  
**ATTENUATION Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=3V**



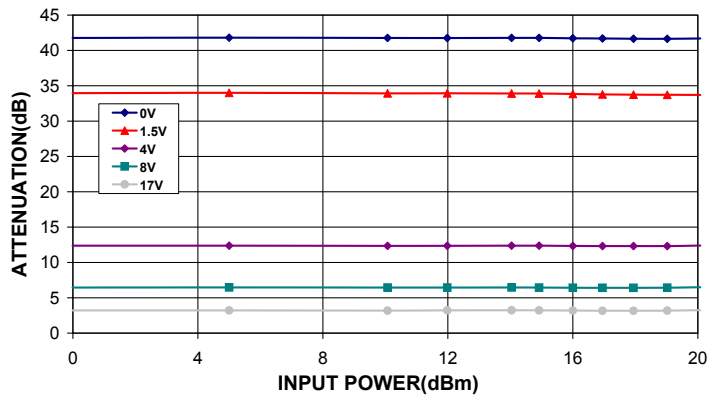
**RVA-2500**  
**ATTENUATION Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=5V**



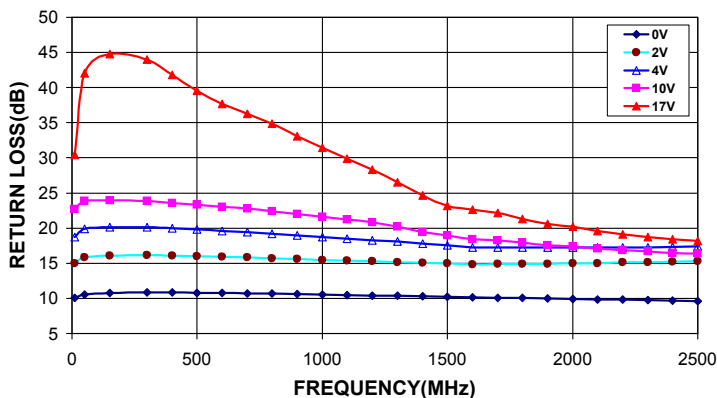
**RVA-2500**  
**ATTENUATION Vs. INPUT POWER**  
**OVER CONTROL VOLTAGES AT 1000MHz @ V+=3V**



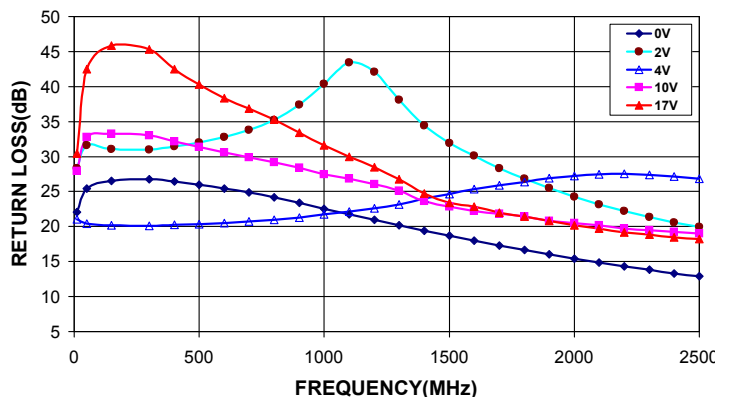
**RVA-2500**  
**ATTENUATION Vs. INPUT POWER**  
**OVER CONTROL VOLTAGES AT 1000MHz @ V+=5V**



**RVA-2500**  
**INPUT RETURN LOSS Vs. FREQUENCY**  
**Vs. CONTROL VOLTAGE @ V+=3V**



**RVA-2500**  
**INPUT RETURN LOSS Vs. FREQUENCY**  
**OVER CONTROL VOLTAGES @ V+=5V**

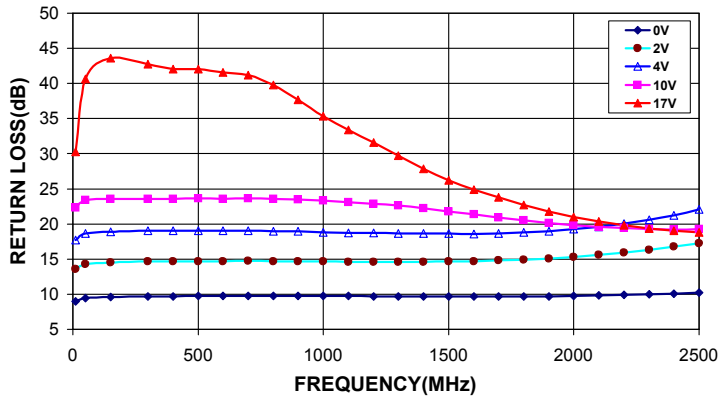


**Notes**

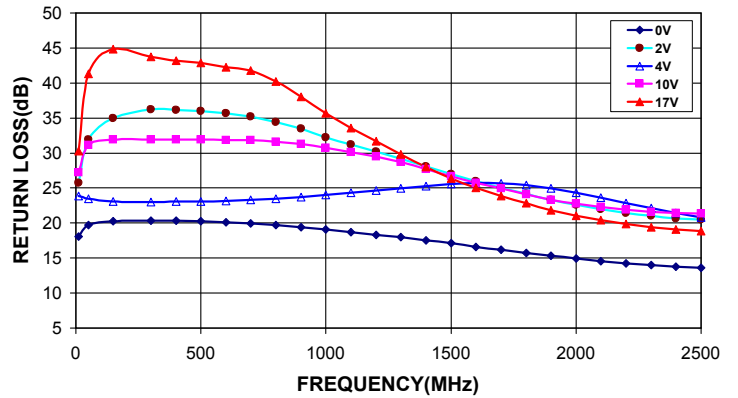
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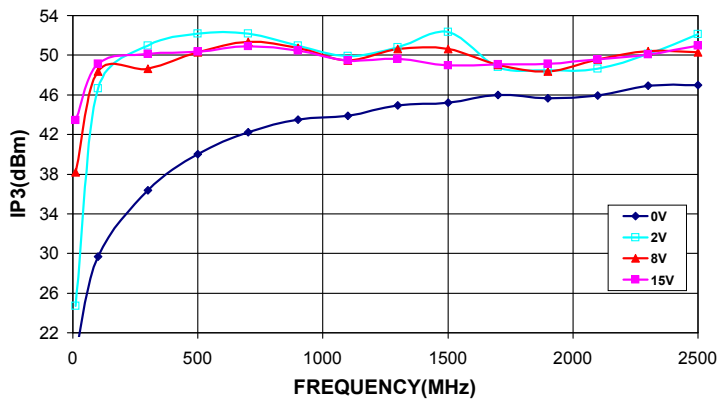
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OUTPUT RETURN LOSS Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=3V



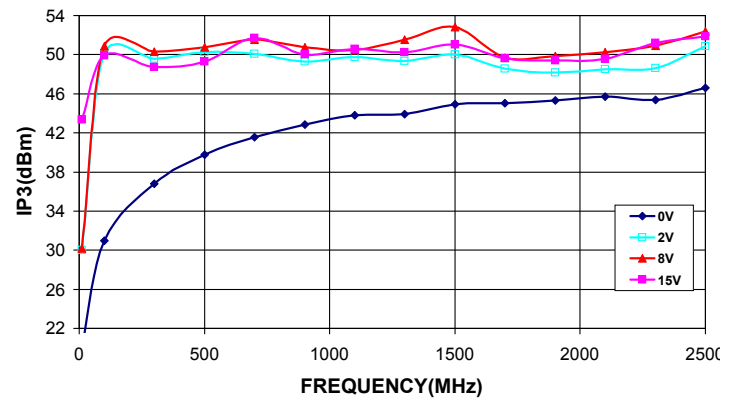
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OUTPUT RETURN LOSS Vs. FREQUENCY  
Vs. CONTROL VOLTAGE @ V+=5V



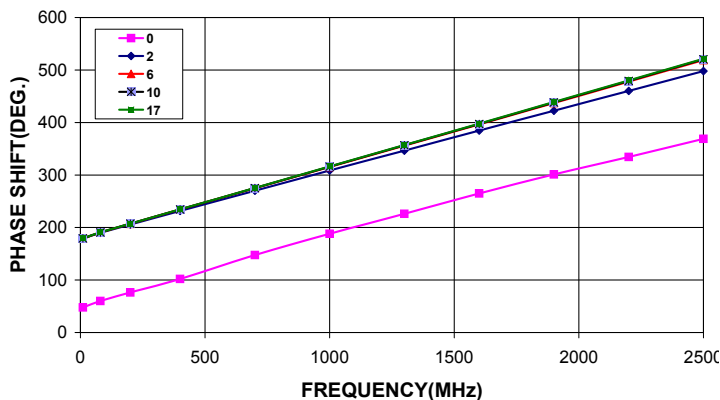
**RVA-2500**  
IP3 Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=3V



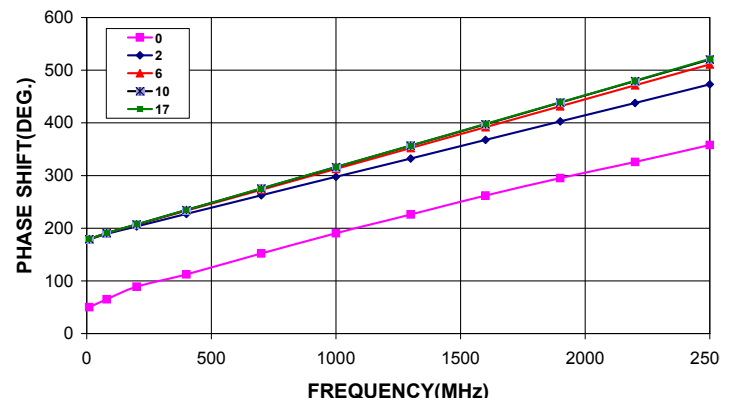
**RVA-2500**  
IP3 Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=5V



**RVA-2500**  
PHASE SHIFT Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=3V



**RVA-2500**  
PHASE SHIFT Vs. FREQUENCY  
OVER CONTROL VOLTAGES @ V+=5V



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