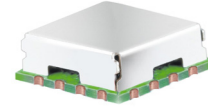


# Voltage Variable Attenuator

## RVA-6000+

50Ω 2000 to 6000 MHz



CASE STYLE: DV874

### The Big Deal

- Broad band, 2000 to 6000 MHz
- IP3 +43 dBm typ.
- Well matched in/out ports, return loss 20 dB typ.
- Minimal phase deviation over attenuation range
- Drop-in, no external matching circuits required

### Product Overview

The RVA-6000+ is a Voltage Variable 50Ω matched Attenuator built into a shielded (0.5" x 0.5" x 0.195") case. The model utilizes well matched PIN diodes, carefully biased in order to enable over 30 dB attenuation range control while maintaining very good input & output port matching.

### Key Features

Feature	Advantages
IP3 +40 dBm typ.	Low distortion enabling improved system performance.
Minimal phase deviation over attenuation range	Can provide low signal distortion over attenuation range

#### Notes

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# Surface Mount Voltage Variable Attenuator

## RVA-6000+

50Ω 2000 to 6000 MHz

### Maximum Ratings

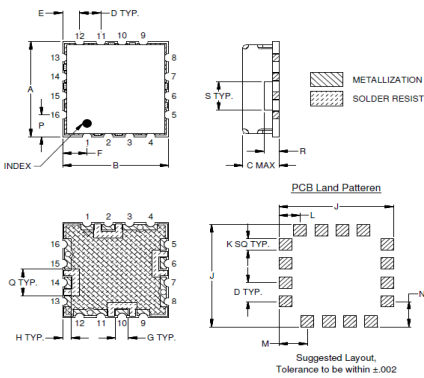
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 85°C
Absolute Max. Supply Voltage(V+)	6V
Absolute Max. Control Voltage(Vctrl)	14V
Absolute Max. RF Input Level	+20dBm

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

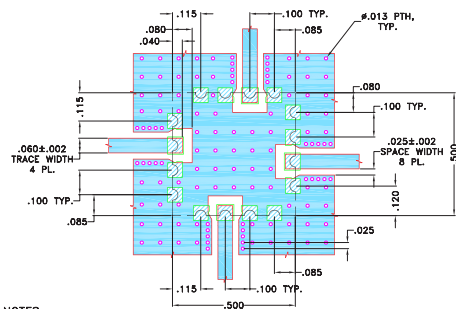
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
.500	.500	.195	.100	.080	.115	.060	.040	.540	.060
12.7	12.7	4.95	2.54	2.03	2.92	1.52	1.02	13.72	1.52
L	M	N	P	Q	R	S			Wt.
.100	.135	.135	.115	.140	.070	.150			grams
2.54	3.43	3.43	2.92	3.56	1.78	3.81			1.0

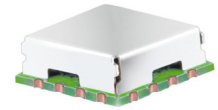
### Demo Board MCL P/N: TB-686 Suggested PCB Layout (PL-374)



- NOTES:
- 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.
  - 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 SOLDERMASK

### Features

- Broadband, 2000-6000 MHz
- Good VSWR at IN/OUT ports over attenuation range
- Fast Rasing/Fall Time, 6.8μSec/3.5μSec Typ.
- Minimal phase deviation over attenuation range
- No external bias and RF matching network required
- Shielded case
- Aqueous washable



CASE STYLE: DV874

### +RoHS Compliant

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

### Applications

- Power level control
- Feed forward amplifier

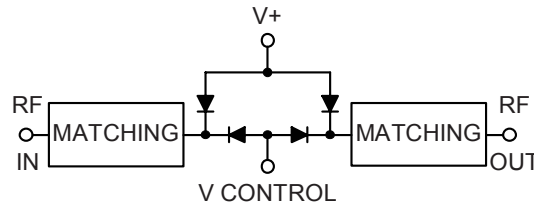
### Electrical Specifications (T<sub>AMB</sub> = 25°C)

FREQ. (MHz)	MIN. INSERTION LOSS, dB (+12V)		MAX. ATTEN. 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.
2000- 4000	3.3	4.0	37.7	30	+20	0 - 12	10	41	20	+5	5
4000- 6000	3.5	4.5	32.7	25	+20	0 - 12	10	43	20	+5	5

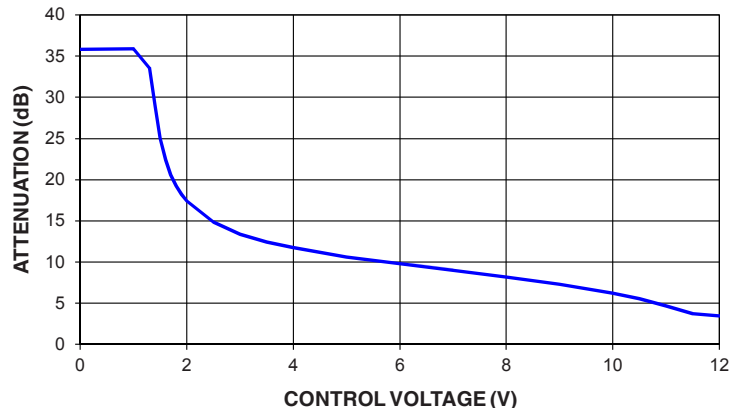
### Notes:

- Rise/Fall time: 6.8 / 3.8 μSec Typ.
- Switching Time & turn on/off time: 8.8 / 3.8 μSec. Typ.
- \* Typical IP3 @ Vc = 5V

### Equivalent Schematic



### RVA-6000+ TYPICAL ATTENUATION AT 4000 MHz



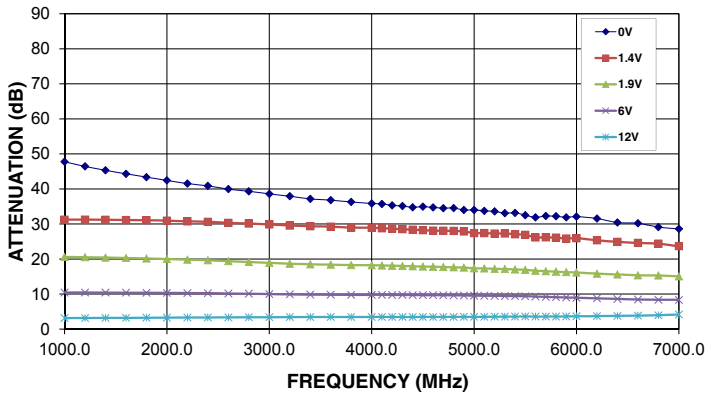
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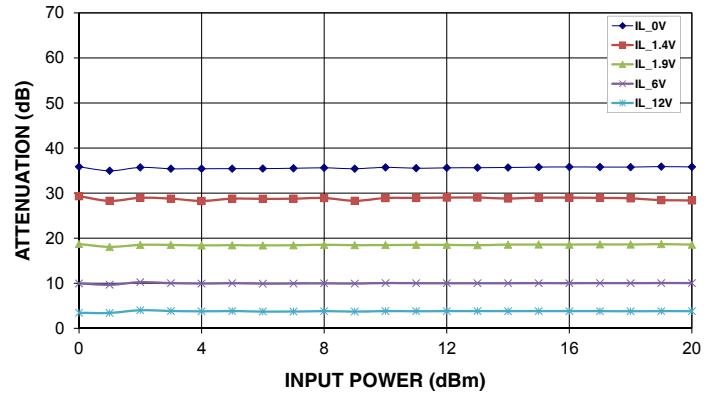


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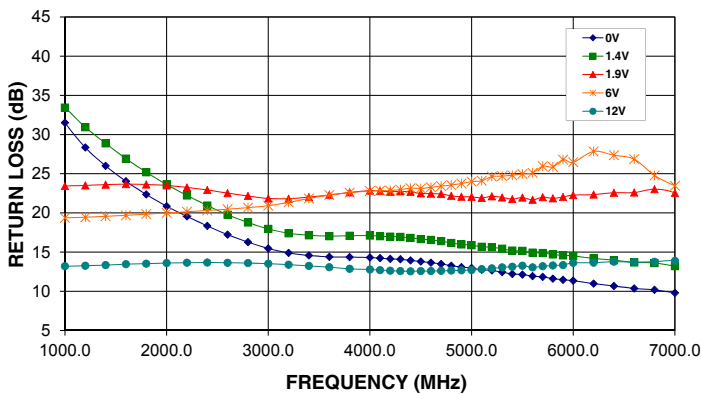
**RVA-6000+  
ATTENUATION Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



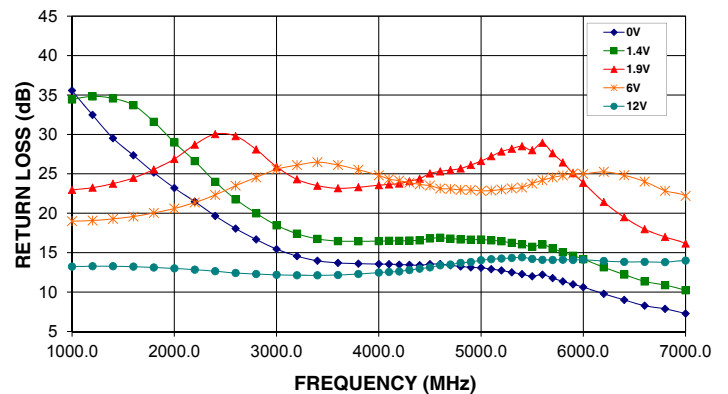
**RVA-6000+  
ATTENUATION Vs. INPUT POWER  
OVER CONTROL VOLTAGES AT 4000 MHz**



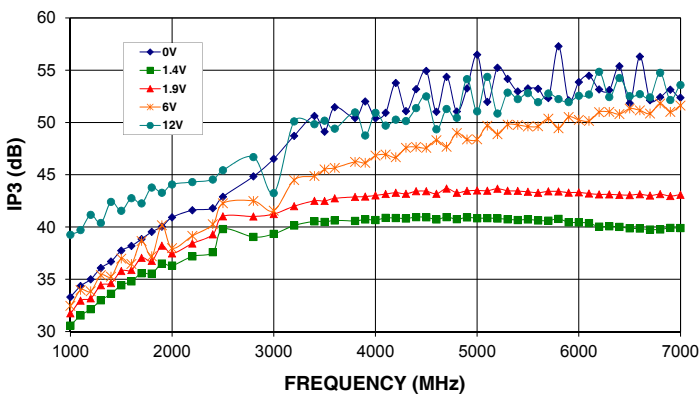
**RVA-6000+  
INPUT RETURN LOSS Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



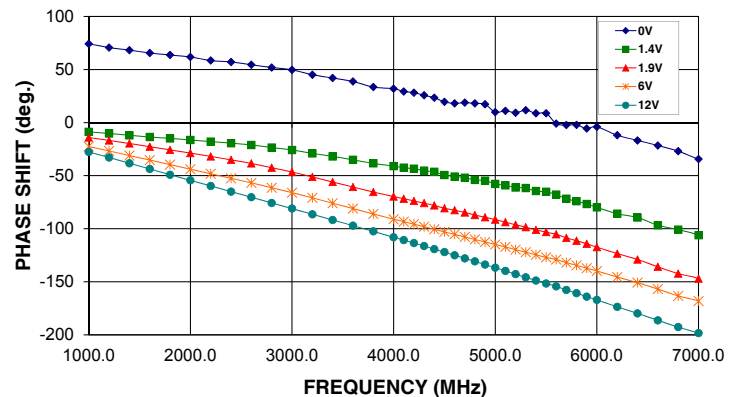
**RVA-6000+  
OUTPUT RETURN LOSS Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



**RVA-6000+  
IP3 Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



**RVA-6000+  
PHASE SHIFT Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



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