

# Broad Band Voltage Variable Attenuator

## RVA-2000V3+

50Ω 50 to 2000 MHz

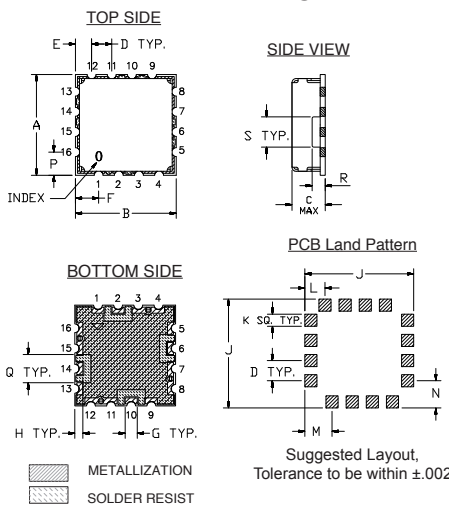
### Maximum Ratings

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)	12V
Absolute Max. RF Input Level	+18dBm
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

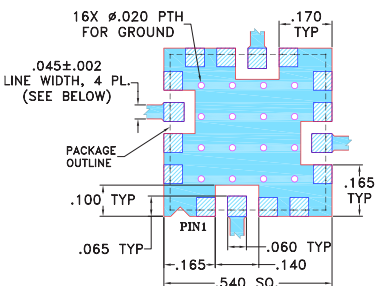
### Outline Drawing



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

### Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)

### Features

- Broadband, 50-2000 MHz
- IP3, +50 dBm typ.
- Good VSWR at IN/OUT ports over attenuation range
- No external bias and RF matching network required
- Shielded case
- Aqueous washable



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

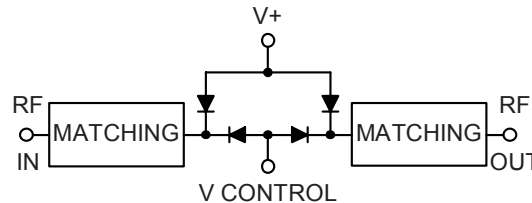
### Electrical Specifications (T<sub>AMB</sub> = 25°C)

FREQ. (MHz)	MIN. INSERTION LOSS, dB (+10V)		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.	Min.		Max.	Typ.			Max.	Typ.
50 - 1000	4.0	5.0	55	35	+18	0 - 10	20	48	25	+3	5
1000 - 2000	4.5	6.0	40	30	+18	0 - 10	20	50	20	+3	5

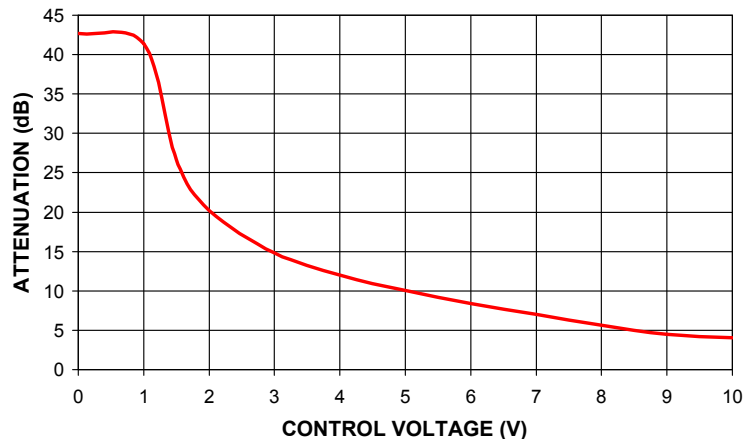
### Notes:

- Rise/Fall time: 20µSec/20µSec Typ.  
Switching Time, turn on/off: 25µSec. Typ.

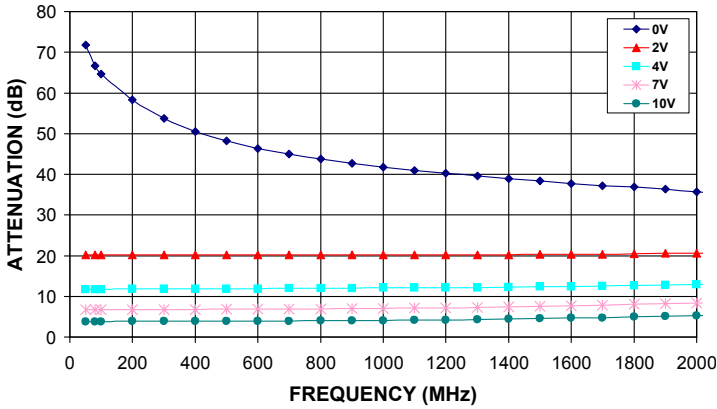
### Equivalent Schematic



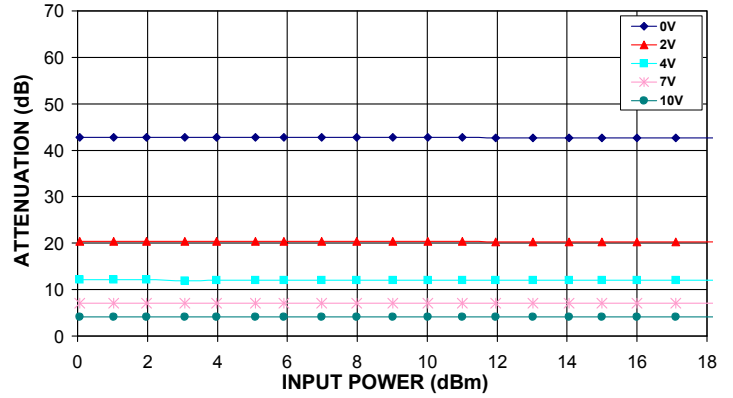
### RVA-2000V3+ TYPICAL ATTENUATION AT 900 MHz



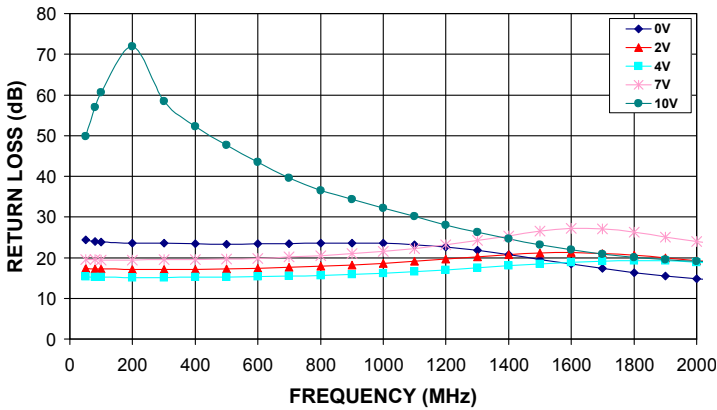
**RVA-2000V3+  
ATTENUATION Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



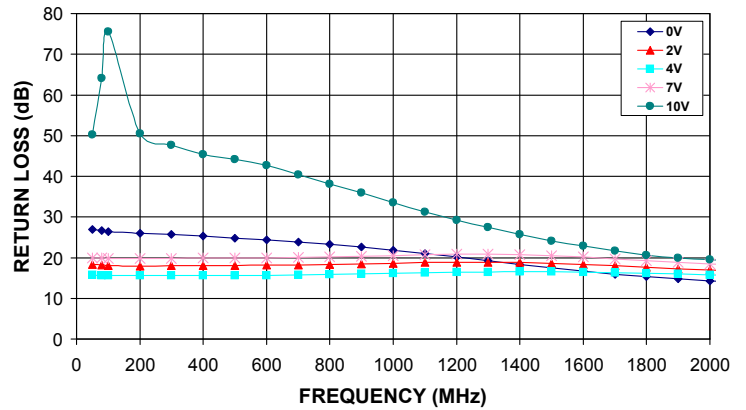
**RVA-2000V3+  
ATTENUATION Vs. INPUT POWER  
OVER CONTROL VOLTAGES AT 900 MHz**



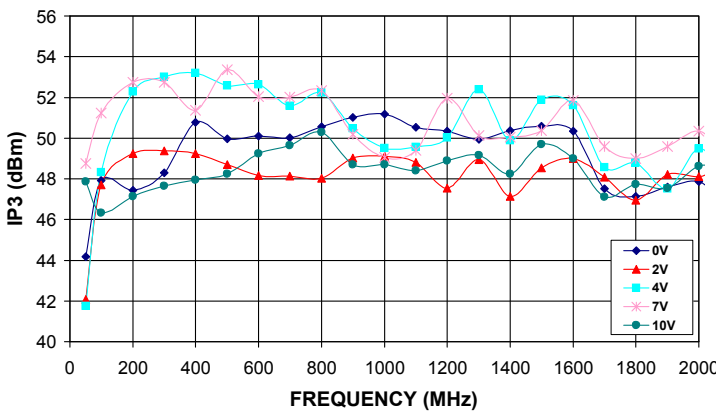
**RVA-2000V3+  
INPUT RETURN LOSS Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



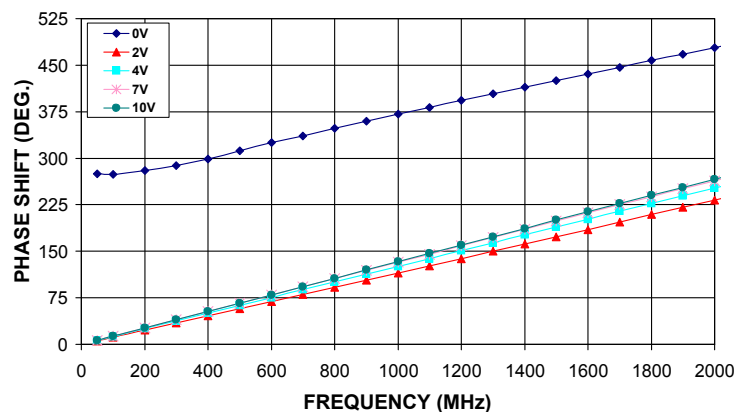
**RVA-2000V3+  
OUTPUT RETURN LOSS Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



**RVA-2000V3+  
IP3 Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



**RVA-2000V3+  
PHASE SHIFT Vs. FREQUENCY  
OVER CONTROL VOLTAGES**



**Notes**

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)

