*High IP3*

# Voltage Variable Attenuator

# RVA-2000+

50Ω  150 to 2000 MHz

## Maximum Ratings

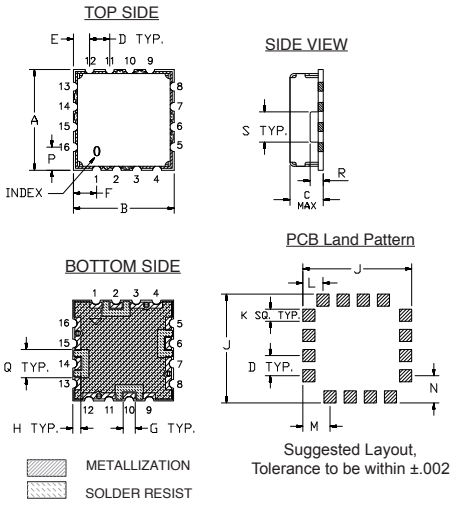
| | |
|---|---|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 85°C |
| Absolute Max. Supply Voltage(V+) | 12V |
| Absolute Max. Control Voltage(Vctrl) | 20V |
| Absolute Max. RF Input Level | +30 dBm |

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 |

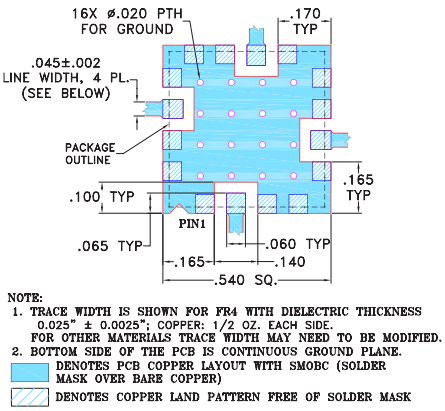
## Outline Drawing




## 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:
1. 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.
2. 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, 150-2000 MHz
- High RF Input level, +31dBm Max.
- High IP3, +55 dBm typ.
- Fast Rise/Fall Time, 5μSec/4μSec Typ.
- 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
- 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 amplifiers

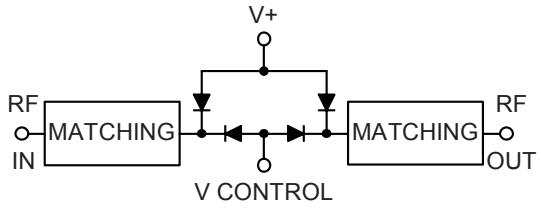
## Electrical Specifications ($T_{AMB}$= 25°C)

| FREQ. (MHz) | | MIN. INSERTION LOSS, dB (+17V) | | MAX. ATTENUATION dB (0V) | | INPUT POWER (dBm) | CONTROL Voltage (V) | CONTROL Current (mA) | IP3 (dBm) | RETURN LOSS (dB) | POWER SUPPLY Voltage (V) | POWER SUPPLY Current (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min. | Max. | Typ. | Max. | Typ. | Min. | Max. | | Max. | Typ. | Typ. | | Max. |
| 150 - | 500 | 2.8 | 3.5 | 46 | 34 | +30 | 0 - 17 | 30 | 53 | 23 | +5 | 10 |
| 500 - | 1500 | 3.0 | 4.5 | 35 | 23 | +30 | 0 - 17 | 30 | 56 | 22 | +5 | 10 |
| 1500 - | 2000 | 3.5 | 5.0 | 29 | 20 | +30 | 0 - 17 | 30 | 57 | 21 | +5 | 10 |

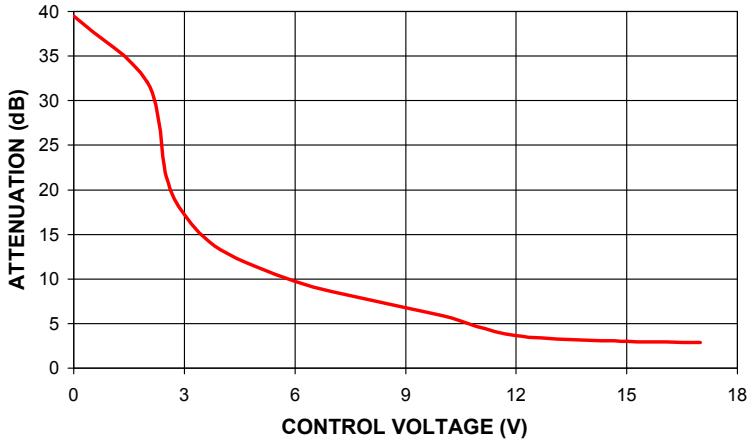
Notes:

Rise/Fall time: 5μSec/4μSec Typ.
Switching Time, turn on/off: 6μSec. Typ.

## Equivalent Schematic




**RVA-2000+**
**TYPICAL ATTENUATION AT 500 MHz**




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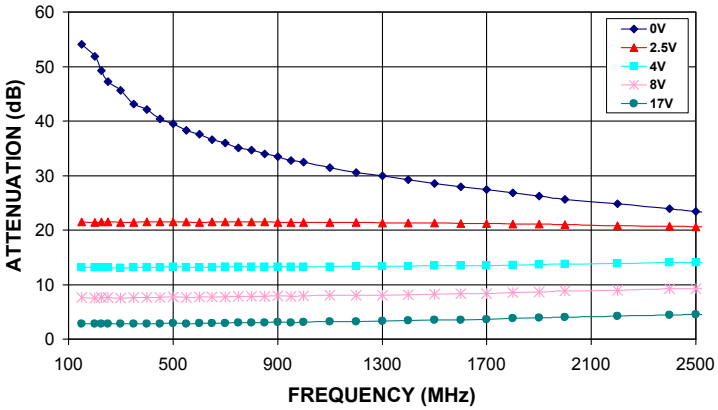
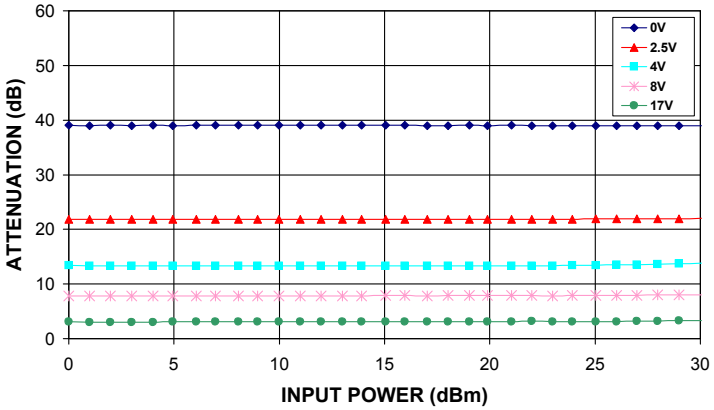
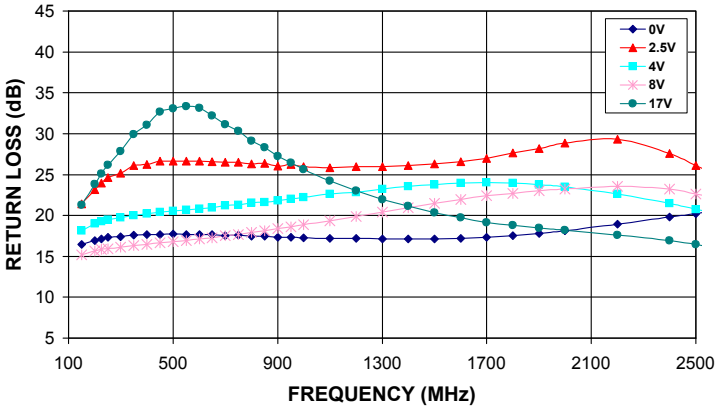
**RVA-2000+**
**ATTENUATION Vs. FREQUENCY**
**OVER CONTROL VOLTAGES**



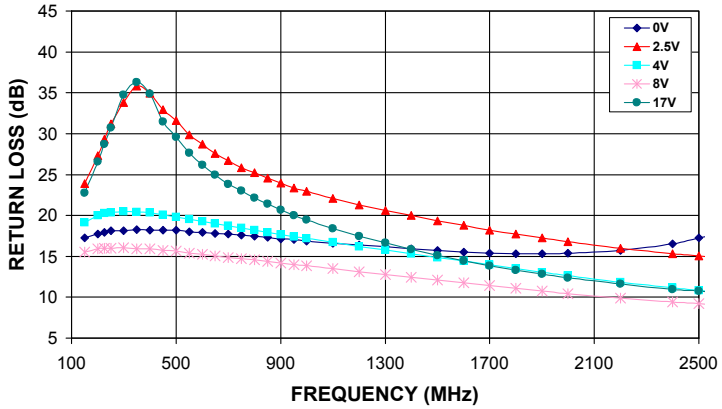

**RVA-2000+**
**ATTENUATION Vs. INPUT POWER**
**OVER CONTROL VOLTAGES AT 500MHz**



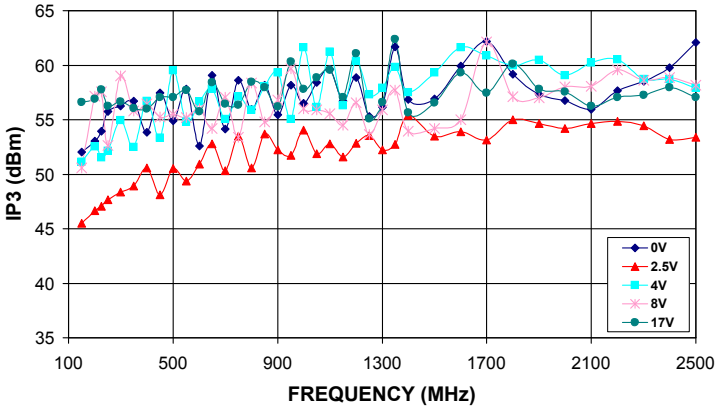

**RVA-2000+**
**INPUT RETURN LOSS Vs. FREQUENCY**
**OVER CONTROL VOLTAGES**



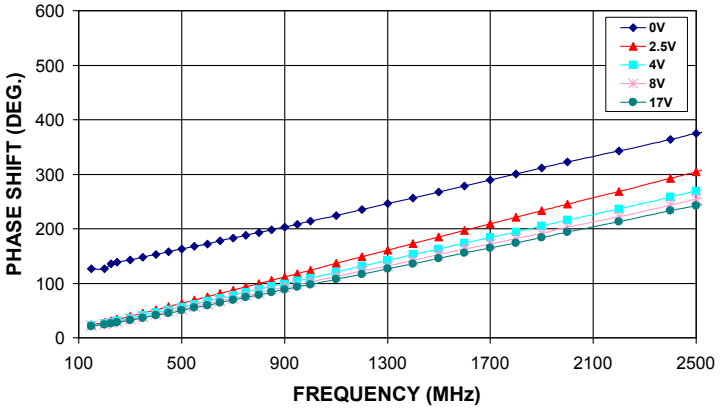

**RVA-2000+**
**OUTPUT RETURN LOSS Vs. FREQUENCY**
**OVER CONTROL VOLTAGES**




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




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

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