



Voltage Controlled Phase Shifter 900 - 1050MHz



Features

- Wide Band Operation (900-1050MHz)
- 180° Phase Shift
- Low Insertion Loss and Low Phase Error
- Single Voltage Operation

Typical Applications

- Military and Aerospace
- Test & Measurement
- Wireless Infrastructure

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Electrical Specifications, $T_A = +25\text{ }^\circ\text{C}$

| Description | PN: RVPT1000MBSB | | | |
|--|----------------------------------|------|------|--------|
| | Voltage Controlled Phase Shifter | | | |
| Parameters | Min. | Typ. | Max. | Units |
| Frequency Range | 900-1050 | | | MHz |
| Phase Range | | 180 | | ° |
| Insertion Loss | | 2.5 | 3.0 | dB |
| Insertion Loss Temperature Coefficient | | 0.01 | | dB/°C |
| Phase Flatness | | ±10 | | ° |
| Control Voltage | 0 | 15 | | V |
| Input VSWR | | | 1.5 | :1 |
| Output VSWR | | | 1.5 | :1 |
| 0.1dB Compression Point (Po.1dB) | | 35 | | dBm |
| Ip3 Input | | 35 | | dBm |
| Weight | 0.35 Max. | | | ounces |
| Impedance | 50 | | | Ω |
| Bias Current | 5 | | | mA |
| Finish | Gold Plated | | | |
| Material | Aluminum | | | |
| Package | Surface Mount | | | |



Absolute Maximum Ratings

| | |
|-----------------|---------------|
| Control Voltage | 0~20V @ 25°C |
| RF Input Power | +37dBm @ 25°C |

Ordering Information

| Part No | Description |
|--------------|---|
| RVPT1000MBSB | 900-1050MHz Voltage Control Phase Shifter |

Environmental Specifications and Test Standards

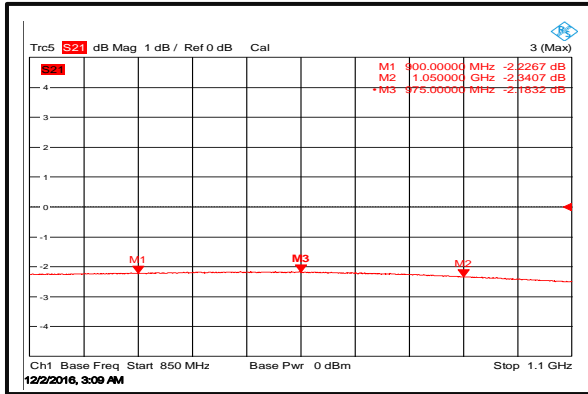
| Parameter | Standard | Description |
|----------------------------------|---------------|---|
| Operational Temperature | MIL-STD-39016 | -40°C~+85°C |
| Storage Temperature | | -50°C~+105°C |
| Thermal Shock | | 1 Hour@ -40°C → 1 Hour @ +85°C (5 Cycles) |
| Random Vibration | | Acceleration Spectral Density 6 (m/s) Total 92.6 RMS |
| Electrical & Temperature Burn In | | Temperature +85°C for 72 Hours |
| Shock | | 1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude | | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min) |
| Hermetically Sealed (Optional) | MIL-STD-883 | MIL-STD-883 (For Hermetically Sealed Units) |

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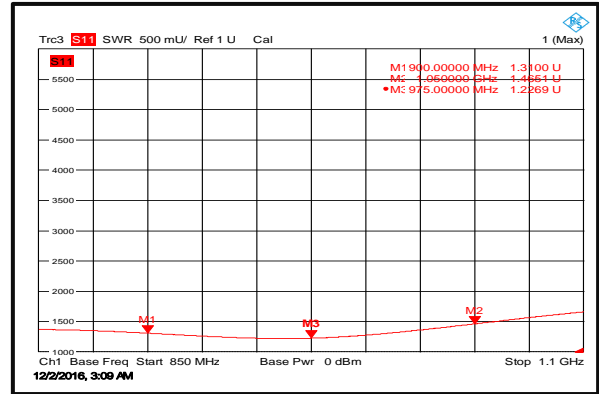


Typical Performance Plots

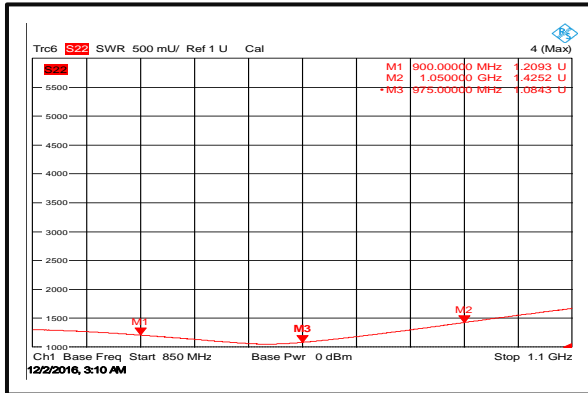
Insertion Loss



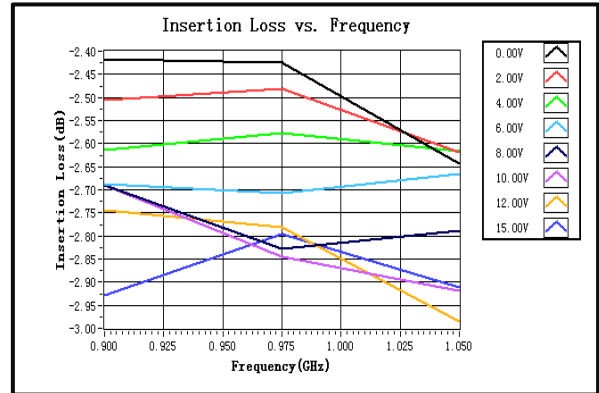
Input VSWR



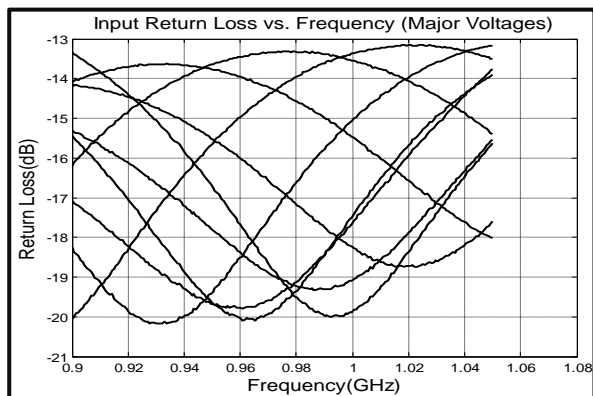
Output VSWR



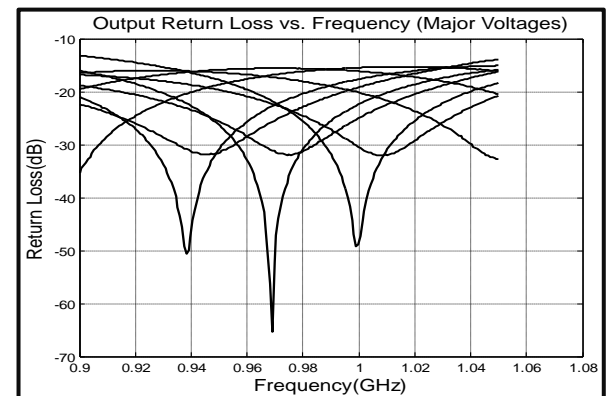
Insertion Loss vs. Frequency



Input Return Loss vs. Frequency



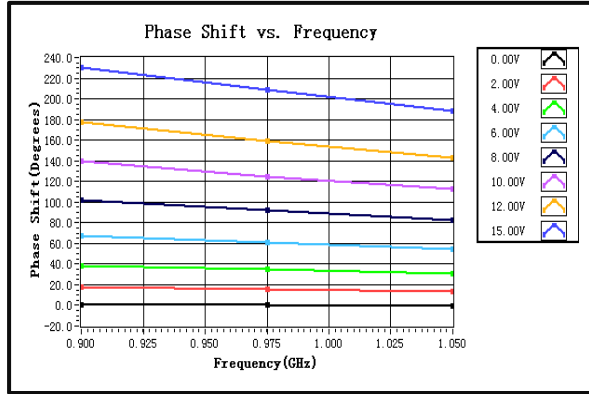
Output Return Loss vs. Frequency



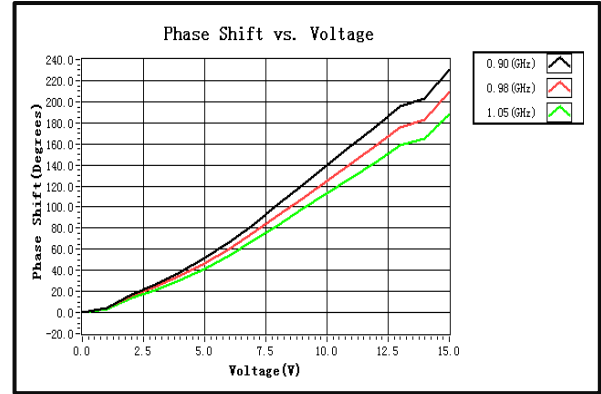
Voltage Controlled Phase Shifter 900 - 1050MHz



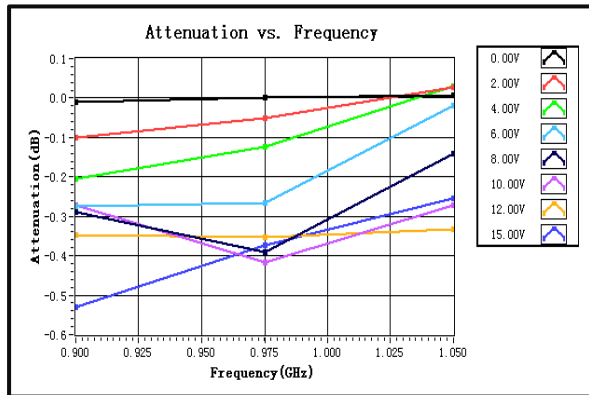
Phase Shift vs. Frequency



Phase Shift vs. Voltage



Attenuation vs. Frequency



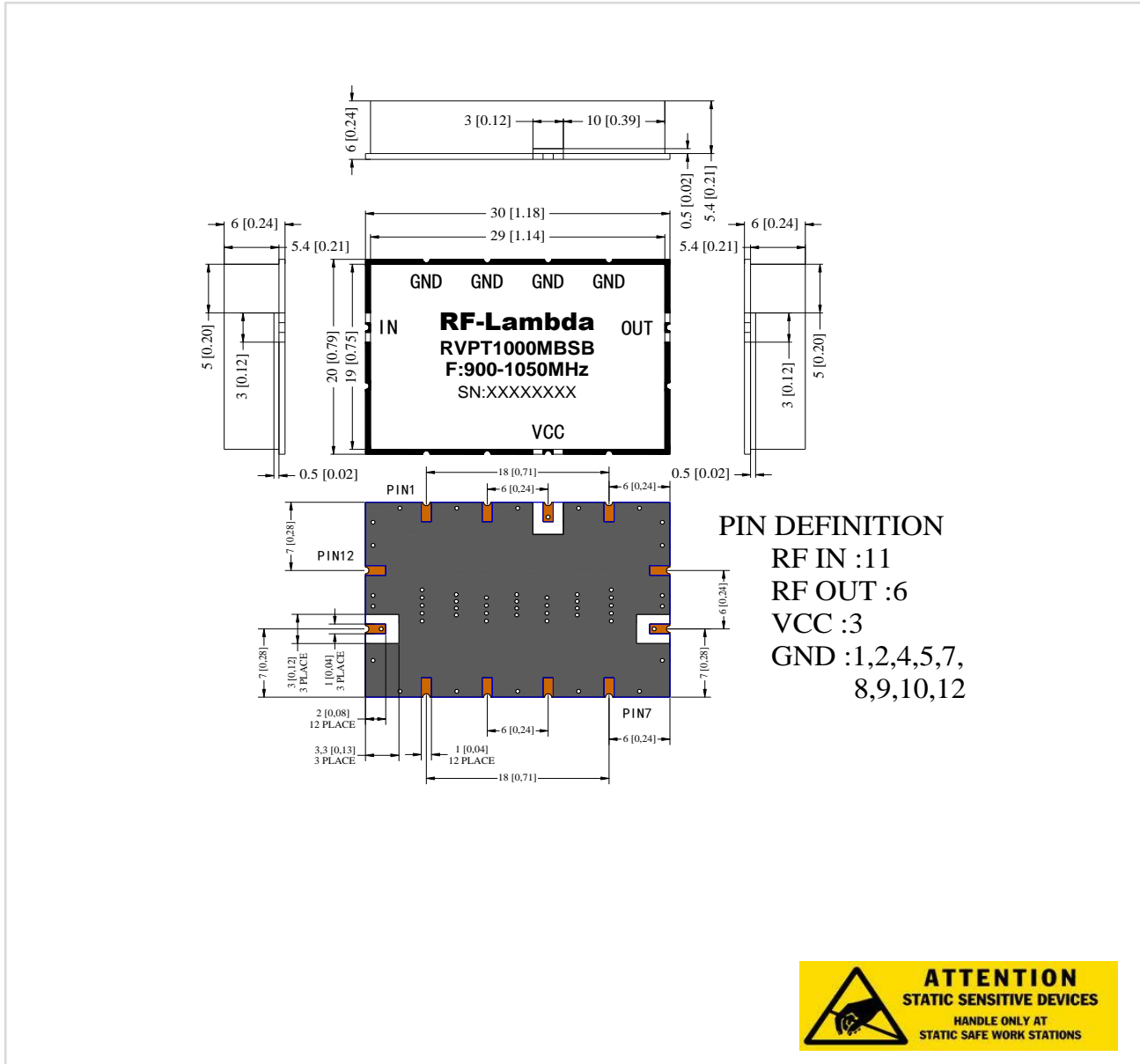
Voltage Controlled Phase Shifter 900 - 1050MHz



Outline Drawing:

All Dimensions in mm [inches]

Tolerance ± 0.2 [0.008]



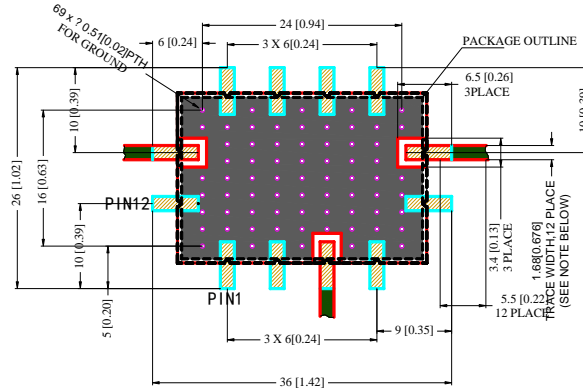
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Voltage Controlled Phase Shifter 900 - 1050MHz



Recommended PCB Footprint
All Dimensions in mm [inches]
Tolerance ± 0.13 [0.005]



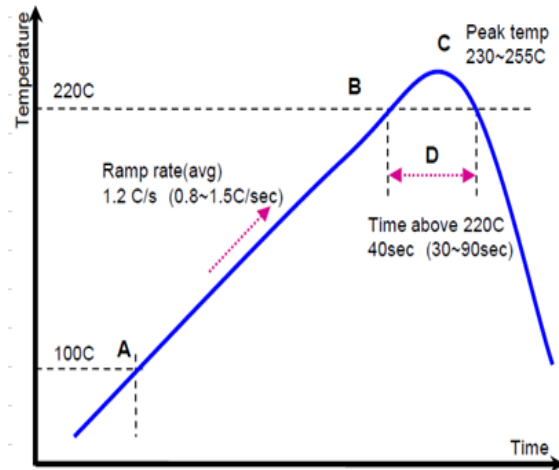
NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030 ± 0.002 ; COPPER : 0.5OZ. 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

Recommended Reflow Temperature Profile



| Point | | Standard | Upper | Lower |
|-------|---------------------------|-----------|----------|----------|
| A | Pre-heat start point | 100C | - | - |
| B | Pre-heat end point | 220C | - | - |
| A-B | Pre-heat time | 100sec | 150sec | 80sec |
| | Ramp up rate to Peak temp | 1.2 C/sec | 0.8C/sec | 1.5C/sec |
| C | Peak temperature | 240C | 255C | 230C |
| D | Time above 220C | 40sec | 90sec | 30sec |