

## Voltage Control Phase Shifter 15GHz-29GHz



### Product Description

RVPT2229GBC is a voltage control phase shifter with a frequency range of 15 to 29GHz.

The phase shifter's adjustment range 360 degrees with phase flatness of  $\pm 15$ deg .The insertion loss is 20dB with a typical VSWR 2.5:1.

Phase shifters are devices used to adjust transmission phase in a system. RF-Lambda phase shifters provide low insertion loss, and equal amplitude (or loss) in all phase states.

The working temperature of this product is between - 40°C and + 85°C.

### Features

- Wide Band Operation 15-29GHz
- 360° Phase Shift
- Low Insertion Loss and Low Phase Error
- Single Control Operation

### Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

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

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	15		22	22		29	GHz
Phase Range		360			360		deg
Insertion Loss		10	12		20	26	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Phase Flatness		$\pm 15$			$\pm 15$		deg
Control Voltage	0	10		0	10		V
Input VSWR @ Insertion Loss State		2.0	2.5		2.0	2.5	:1
Output VSWR @ Insertion Loss State		2.5	2.8		2.5	3.1	:1
0.1dB Compression Point (P0.1dB)		20			20		dBm
Input Ip3		28			25		dBm
Current			5 Max.				mA
Weight			0.03Max.				lbs.
Impedance			50				Ohms
Input / Output Connectors	2.92mm-Female (Input) – 2.92mm-Female (Output)						
Package	Epoxy Sealed (Standard) Hermetically Sealed (Optional)						

**Absolute Maximum Ratings**

Parameter	Rating
Control Voltage	0~15V
RF Input Power	+20dBm

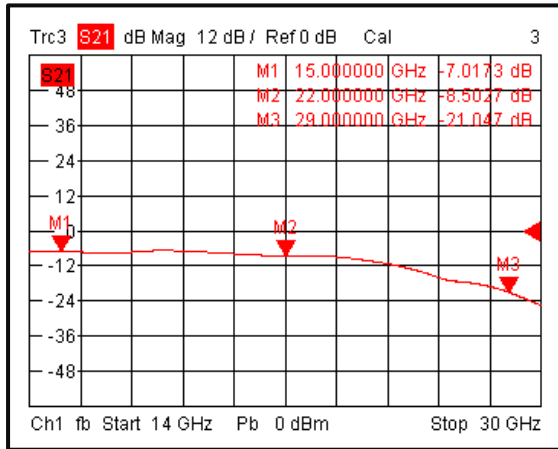
**Environmental Specifications and Test Standards**

Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Storage Temperature	-50°C to +105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
**Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High 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 (For Hermetically Sealed Units)

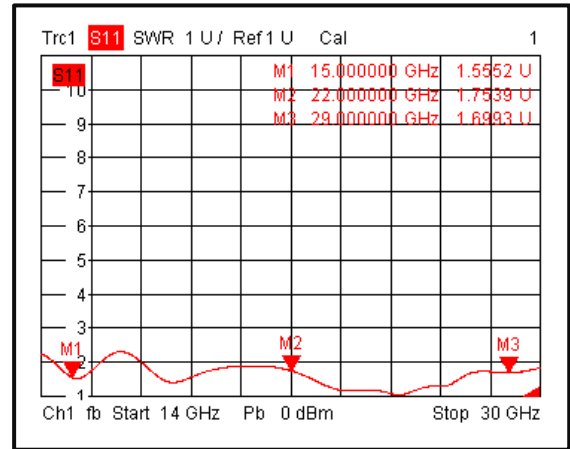
\*\*For vibration testing details please see additional information section.

Typical Performance Plots

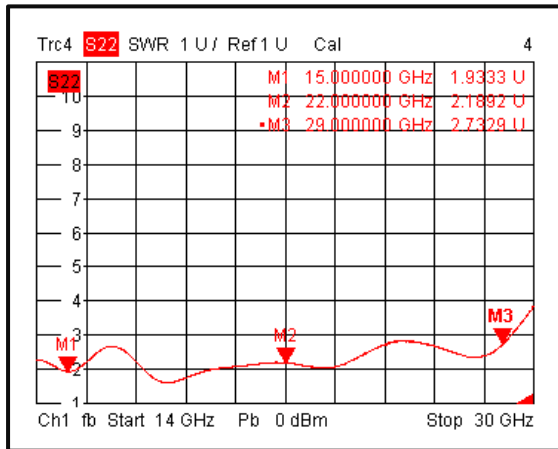
Insertion Loss@+25°C



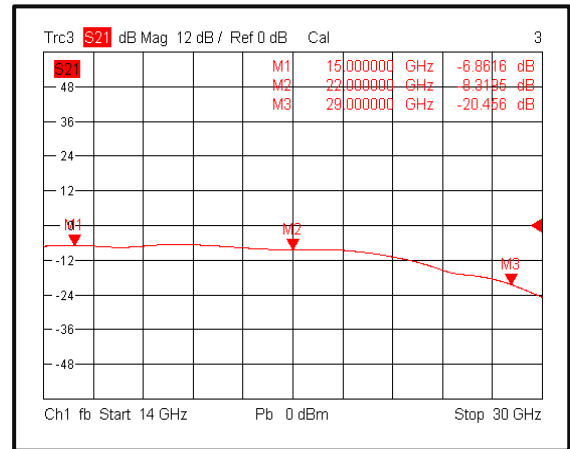
Input VSWR@+25°C



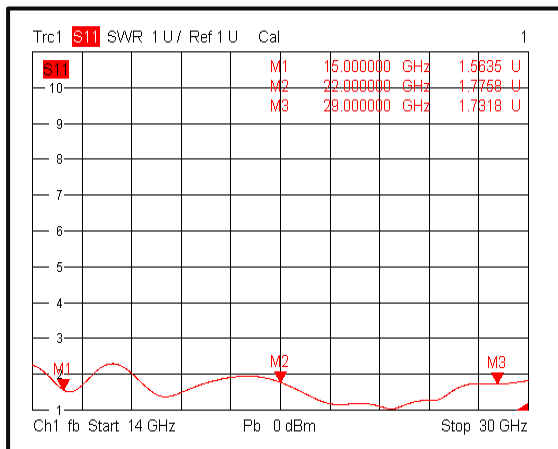
Output VSWR@+25°C



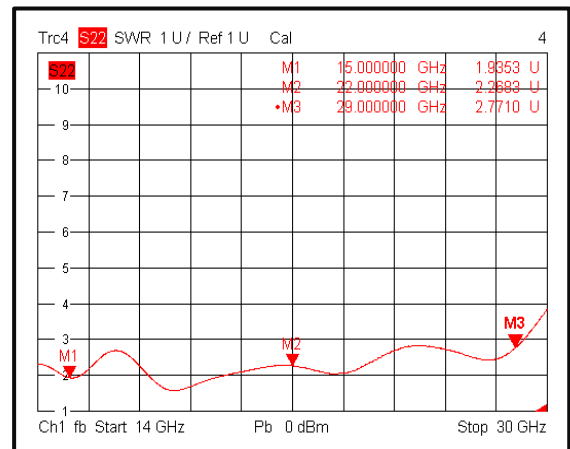
Insertion Loss@-40°C



Input VSWR@-40°C

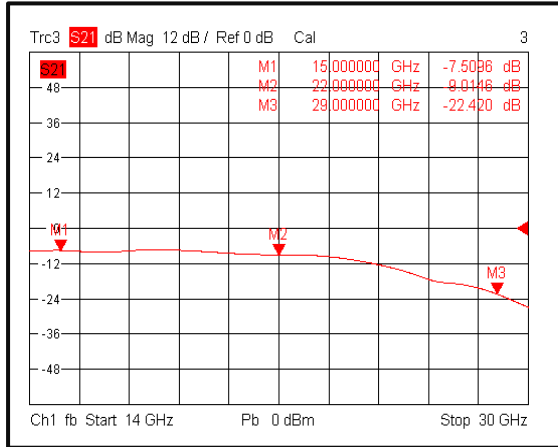


Output VSWR@-40°C

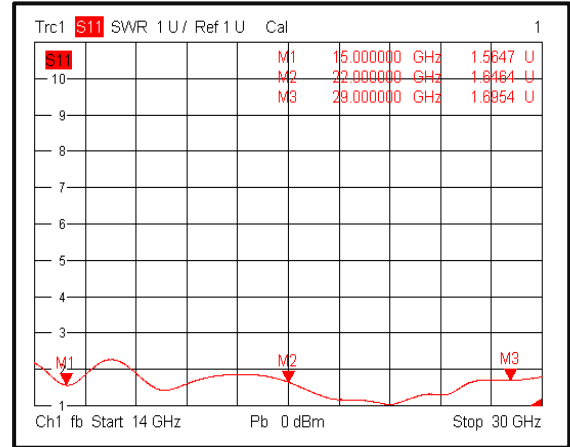


Typical Performance Plots

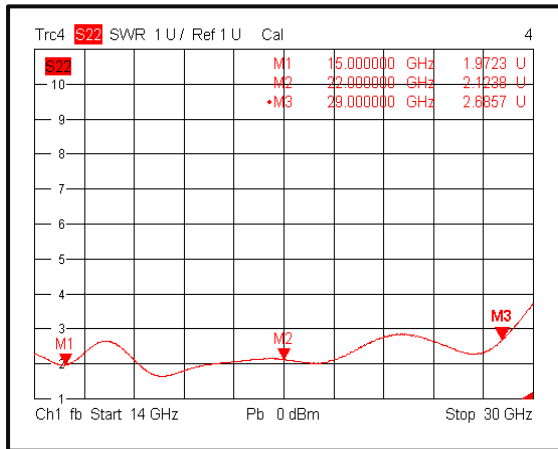
Insertion Loss@+85°C



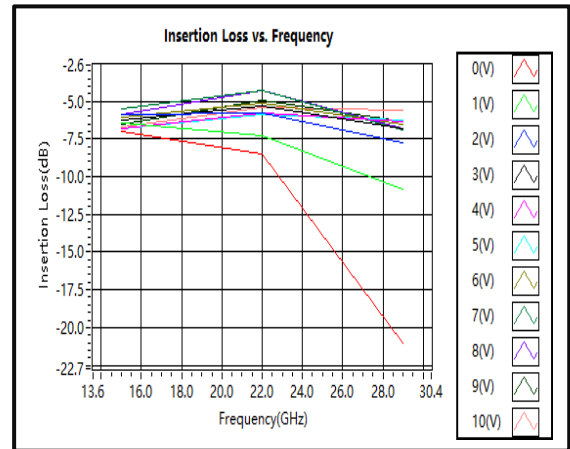
Input VSWR@+85°C



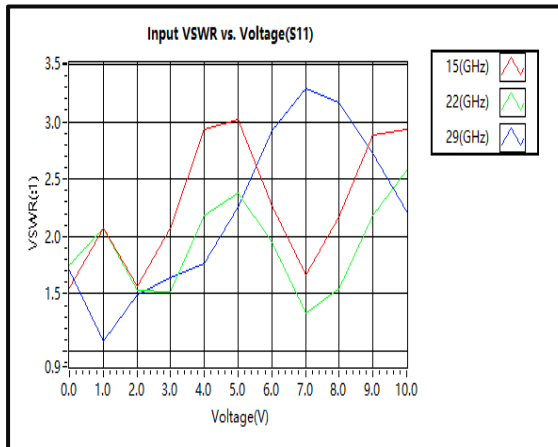
Output VSWR@+85°C



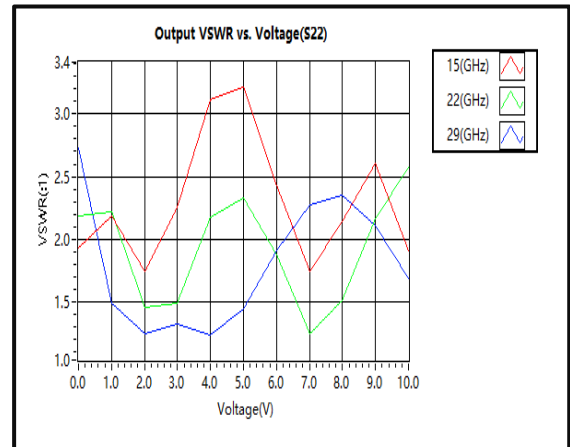
Insertion Loss vs. Frequency



Input VSWR vs. Voltage(S11)

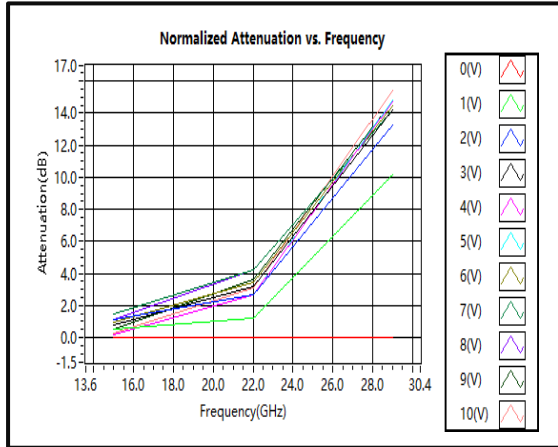


Output VSWR vs. Voltage(S22)

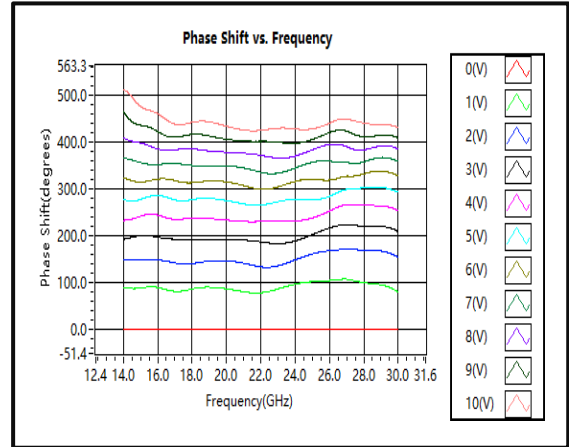


Typical Performance Plots

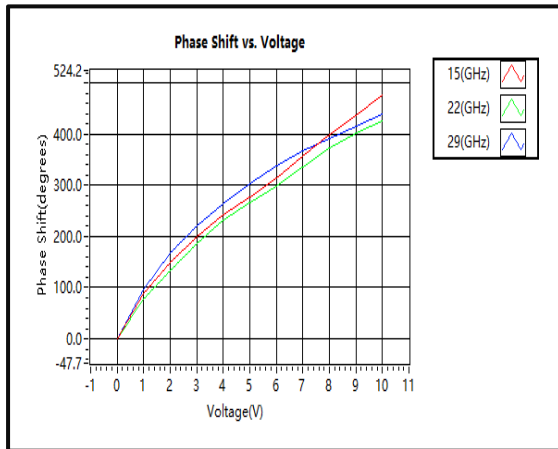
Normalized Attenuation vs. Frequency



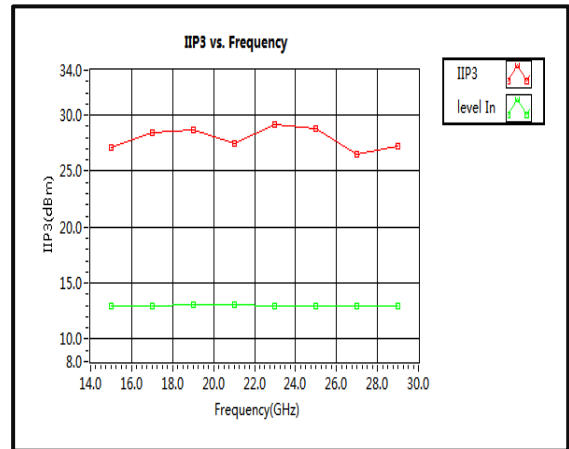
Phase Shift vs. Frequency



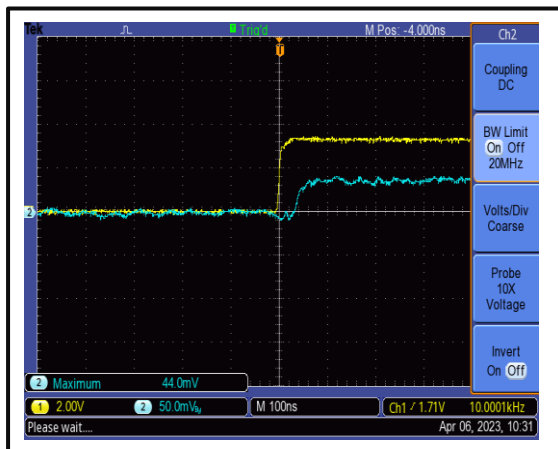
Phase Shift vs. Voltage



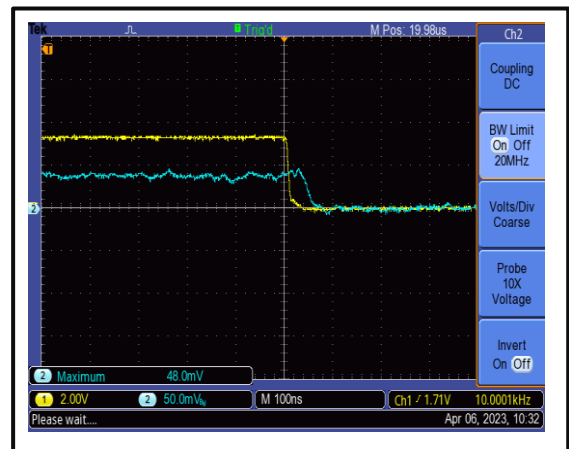
IIP3



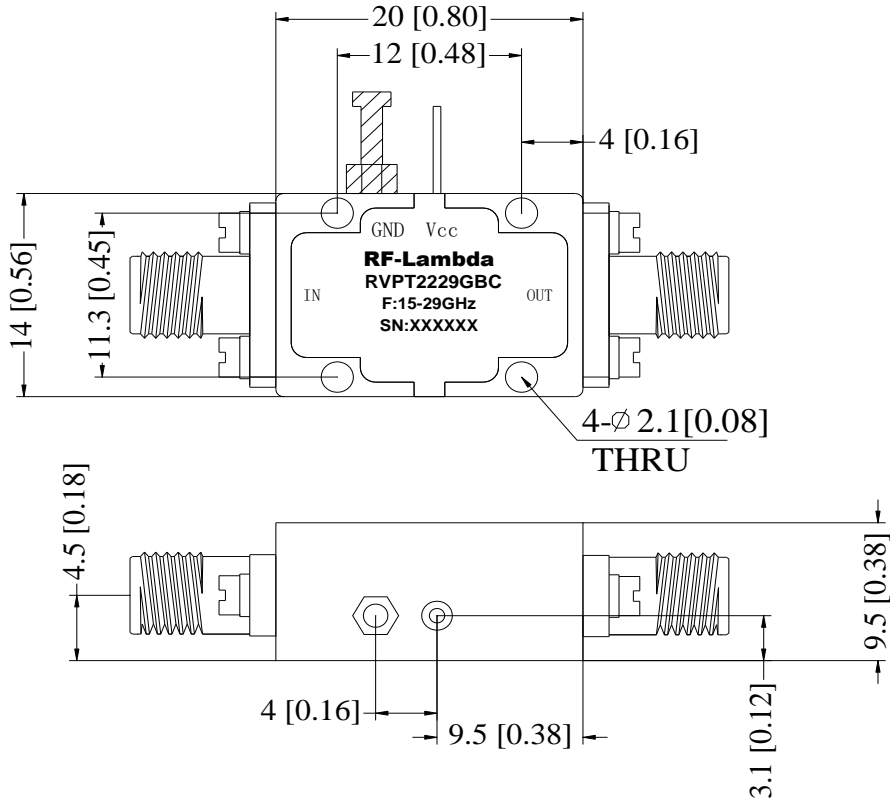
Speed



Speed

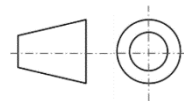


Outline Drawing



Notes:

1. Package Material: Aluminum
2. Finish: Gold Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances  $\pm 0.1$  [0.004] unless otherwise specified.
5. Standard torque wrench must be used to secure RF connectors.



Additional Information

Documentation	Webpage
ESD Policy	<a href="https://rflambda.com/pdf/rflambda_esd_control.pdf">https://rflambda.com/pdf/rflambda_esd_control.pdf</a>
Connector Torque Specifications	<a href="https://www.rflambda.com/pdf/Torque_Specifications.pdf">https://www.rflambda.com/pdf/Torque_Specifications.pdf</a>
Random Vibration Test Standard	<a href="https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf">https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf</a>

**Ordering Information**

Part Number	Modification	Description
RVPT2229GBC	Connectors 2.92mm-Female	15GHz-29GHz Voltage Control Phase Shifter

**Important Notice**

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