

## Voltage Control Phase Shifter 21GHz-27GHz



### Product Description

RVPT2127GBC is a voltage control phase shifter with a frequency range of 21 to 27GHz.

The phase shifter's adjustment range 360 degrees with phase flatness of  $\pm 30$  degrees typical. The insertion loss is 13dB typical.

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 21-27GHz
- 360° Phase Shift
- Low Insertion Loss
- Single Voltage 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	Units
Frequency Range		21 - 27		GHz
Phase Range		360		deg
Insertion Loss		13	17	dB
Insertion Loss Temperature Coefficient		0.003		dB/ °C
Phase Flatness		$\pm 30$		deg
Control Voltage	0	10		V
Input Return loss		-10	-7.5	dB
Output Return loss		-10	-7.5	dB
0.1dB Compression Point (P0.1dB)		23		dBm
IIP3		25		dBm
Current		5		mA
Weight		0.04Max.		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	15V
RF Input Power	+15dBm

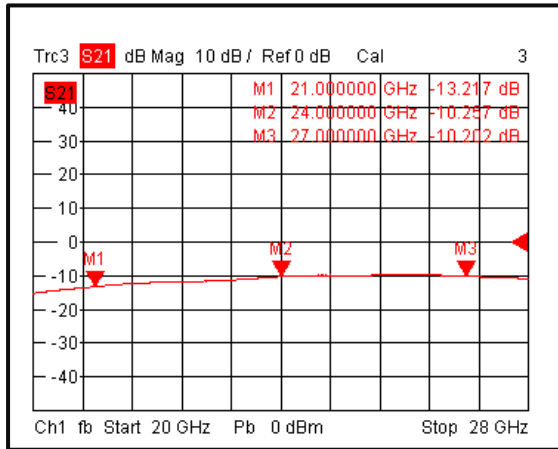
**Environmental Specifications and Test Standards**

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)

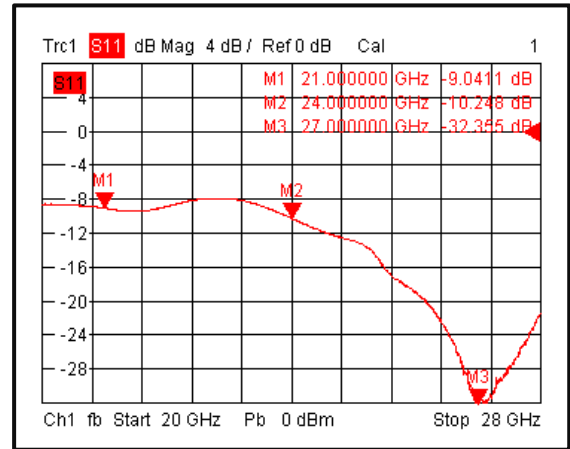
\*\*For vibration testing details please see additional information section.

**Typical Performance Plots**

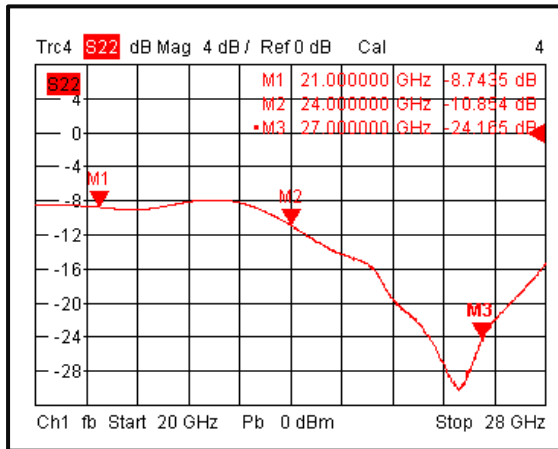
**Insertion Loss@+25°C**



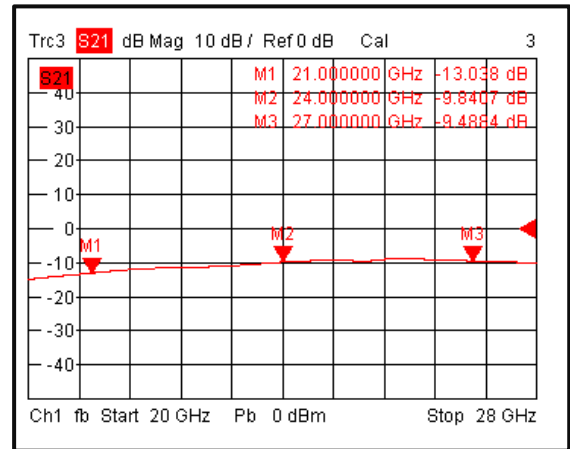
**Input Return loss @+25°C**



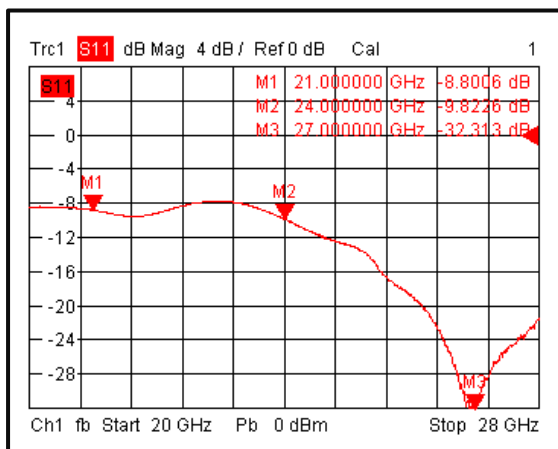
**Output Return loss @+25°C**



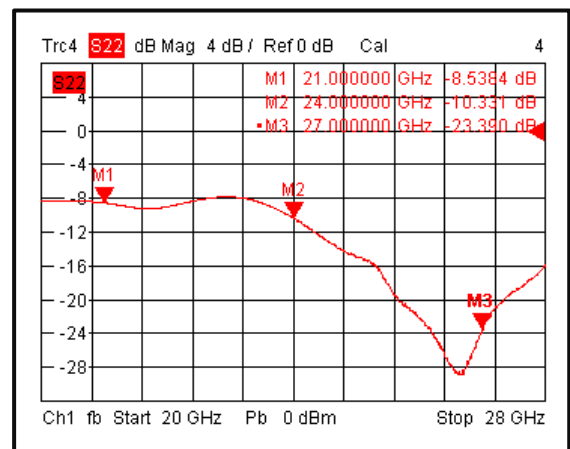
**Insertion Loss@-40°C**



**Input Return loss @-40°C**

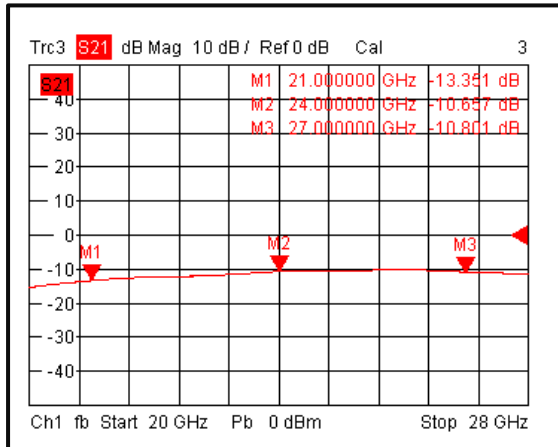


**Output Return loss @-40°C**

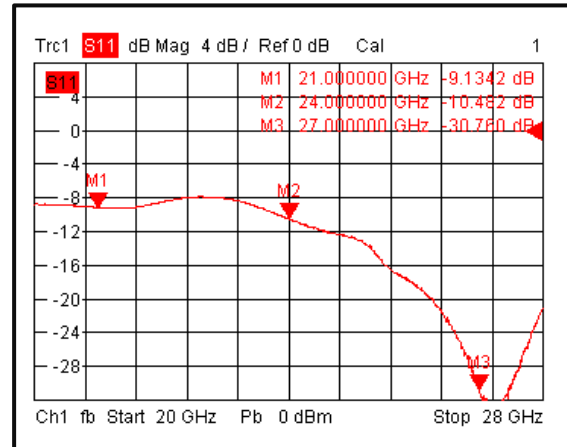


Typical Performance Plots

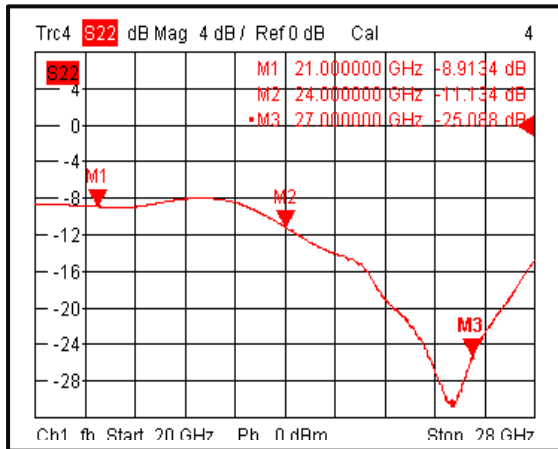
Insertion Loss@+85°C



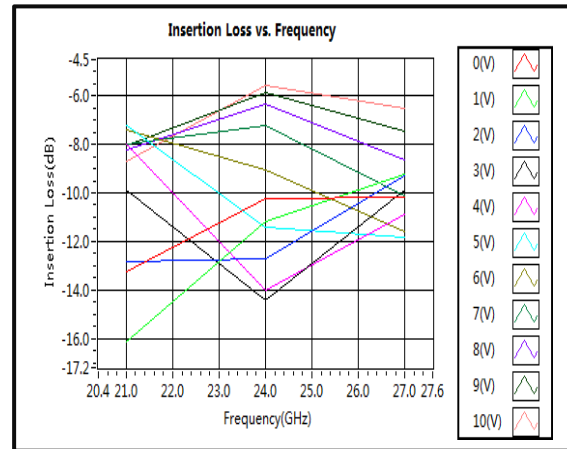
Input Return loss @+85°C



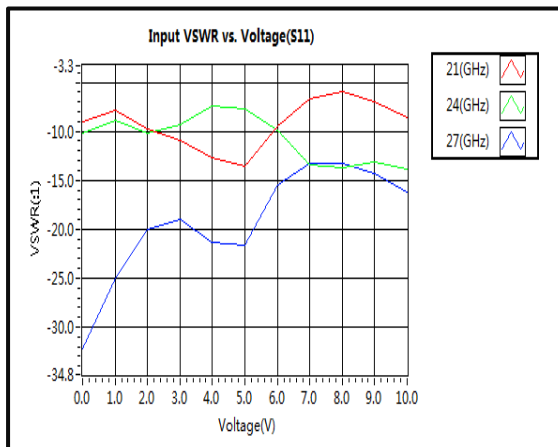
Output Return loss @+85°C



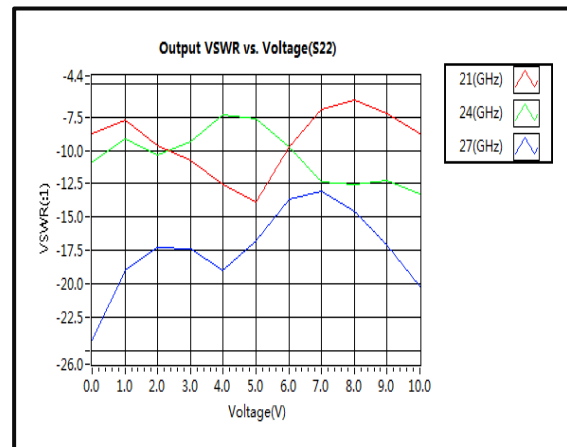
Insertion Loss vs. Frequency



Input VSWR vs. Voltage(s11)

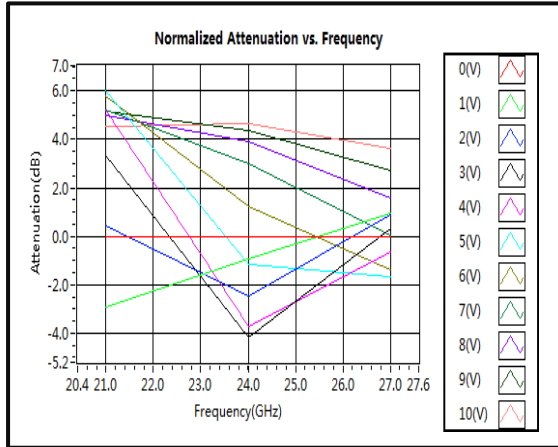


Output VSWR vs. Voltage(s22)

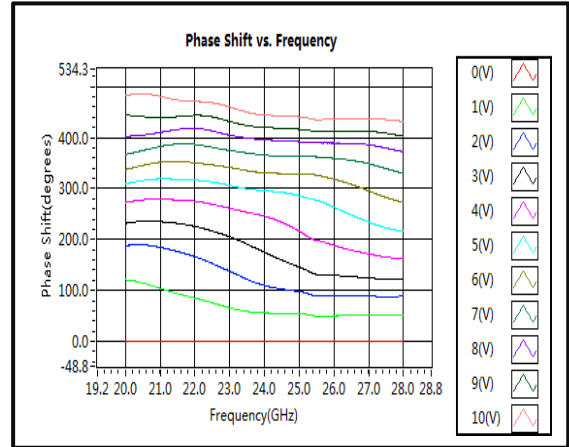


**Typical Performance Plots**

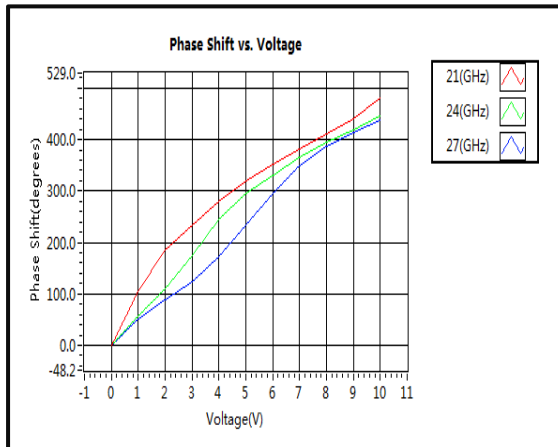
**Normalized Attenuation vs. Frequency**



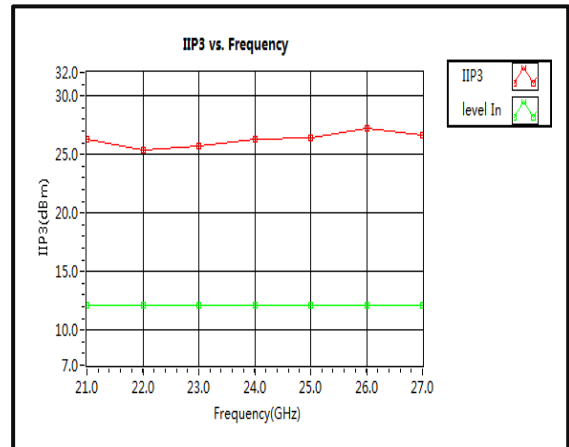
**Phase Shift vs. Frequency**



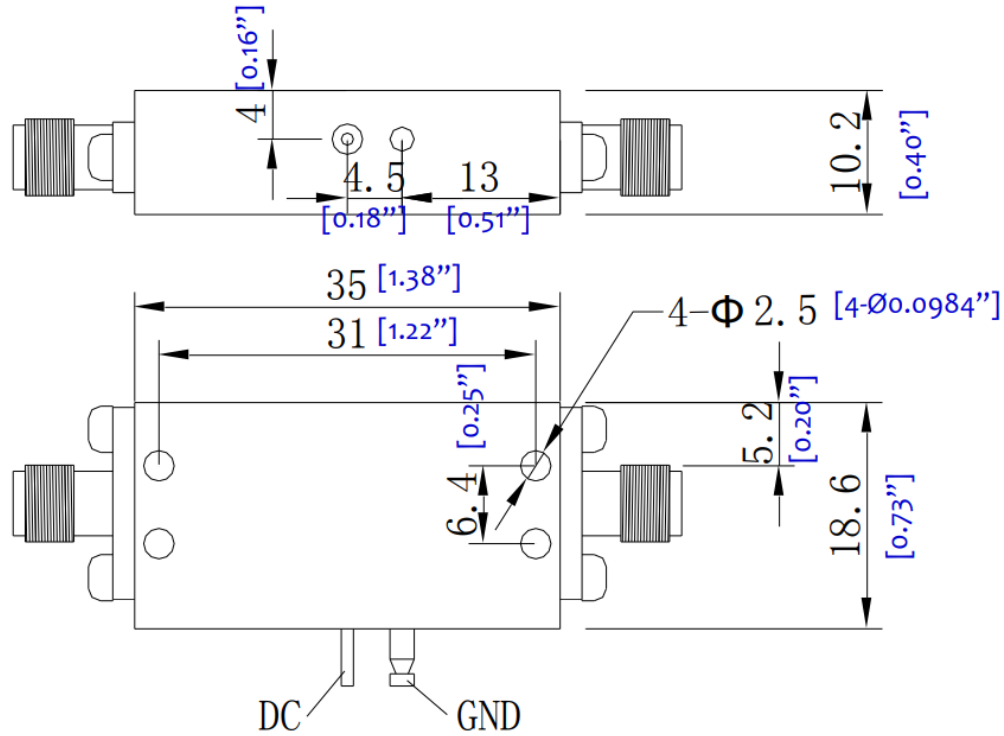
**Phase Shift vs. Voltage**



**IIP3**

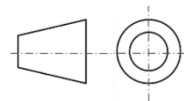


**Outline Drawing**



Notes:

1. Package Material: Aluminum
2. Plating: Gold
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
RVPT2127GBC	Connectors 2.92mm-Female	21-27GHz Voltage Control Phase Shifter

**Important Notice**

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