

Voltage Control Phase Shifter 8GHz-18GHz



Product Description

RVPT0818GBC is a voltage control phase shifter with a frequency range of 8 to 18GHz.

The phase shifter's adjustment range 360 degrees with phase flatness of $\pm 15\text{deg}$. The insertion loss is 6dB with a typical return loss 8dB.

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 $+85^{\circ}\text{C}$.

Features

- Wide Band Operation 8-18GHz
- 360° Phase Shift
- Low Insertion Loss and Low Phase Error
- 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 ($T_A=+25^{\circ}\text{C}$)

Parameter	Min	Typ	Max	Units
Frequency Range	8		18	GHz
Phase Range		360		deg
Insertion Loss (Non phase shifting states)		6.0	8.0	dB
Insertion Loss Temperature Coefficient		0.003		dB/ $^{\circ}\text{C}$
Phase Flatness		± 15		deg
Control Voltage	0	13		V
Input Return Loss (Non phase shifting states)		8	6	dB
Output Return Loss (Non phase shifting states)		8	6	dB
Input Ip3		24		dBm
Current		5		mA
Weight		0.023Max.		lbs.
Impedance		50		Ohms
Input / Output Connectors	SMA-Female (Input) – SMA-Female (Output)			
Package	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Parameter	Rating
Control Voltage	0~ 15V
RF Input Power	+26dBm

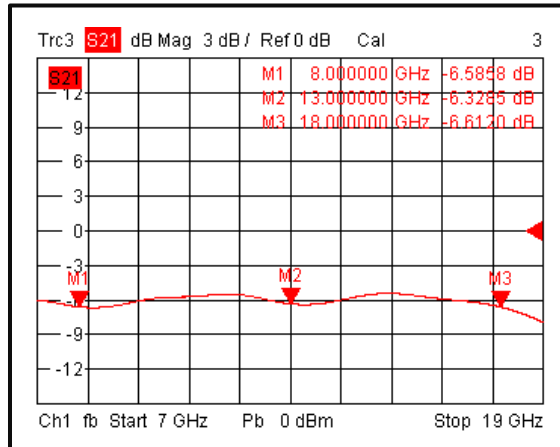
Environmental Specifications and Test Standards

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)

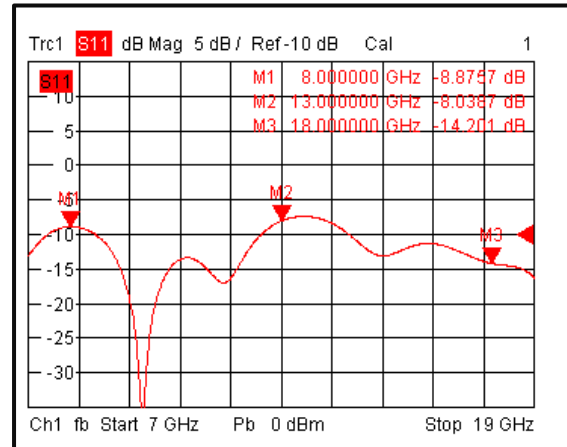
**For vibration testing details please see additional information section.

Typical Performance Plots

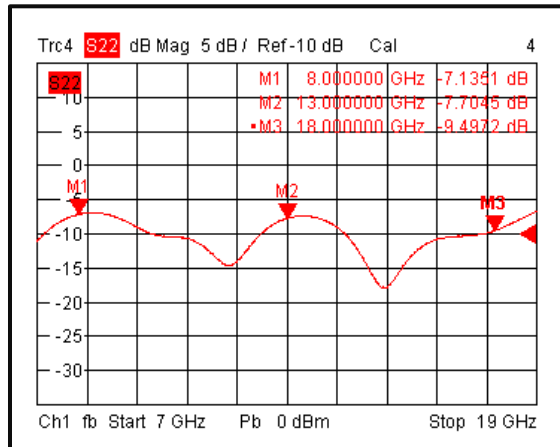
Insertion Loss @+25°C



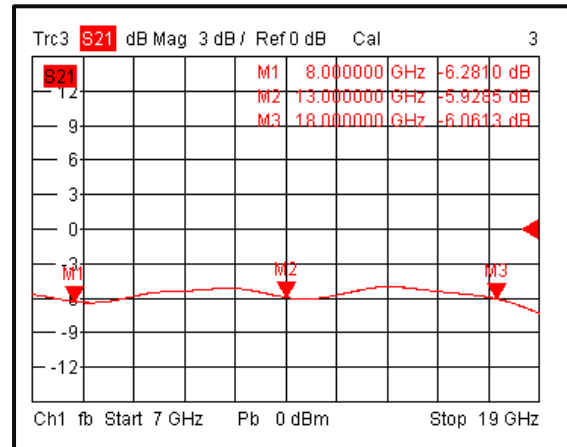
Input Return Loss @+25°C



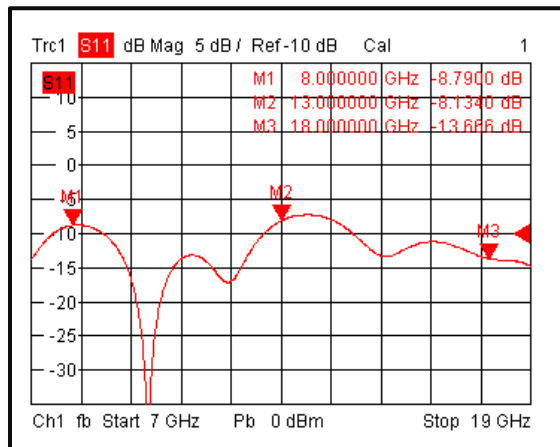
Output Return Loss @+25°C



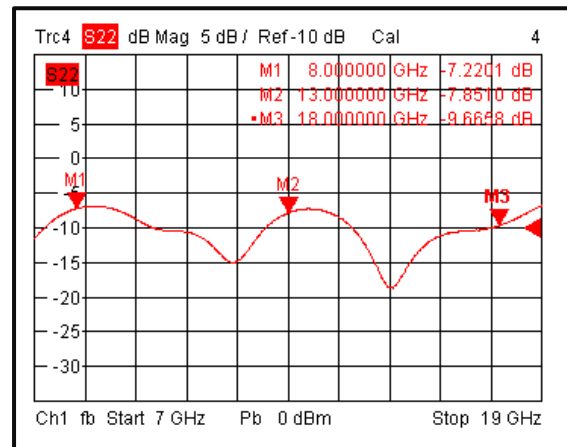
Insertion Loss @-40°C



Input Return Loss @-40°C

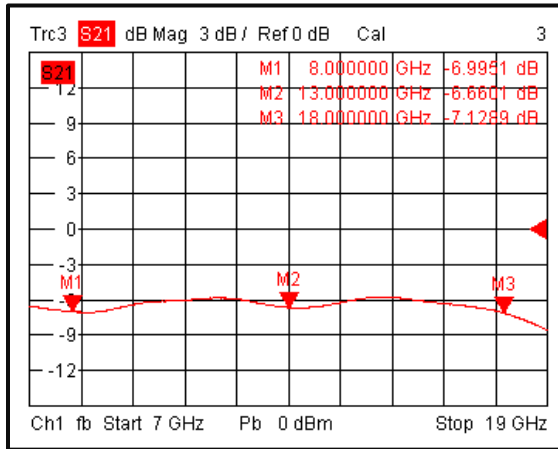


Output Return Loss @-40°C

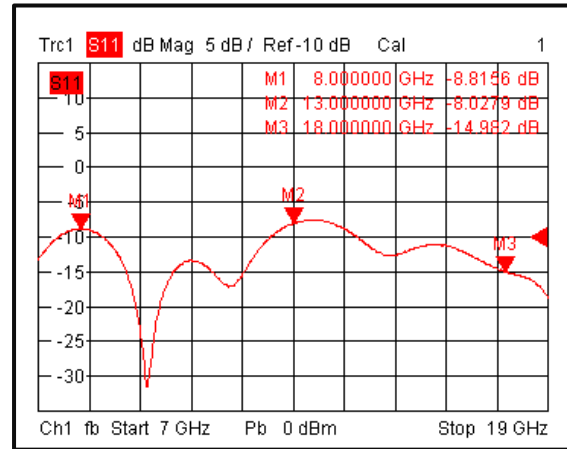


Typical Performance Plots

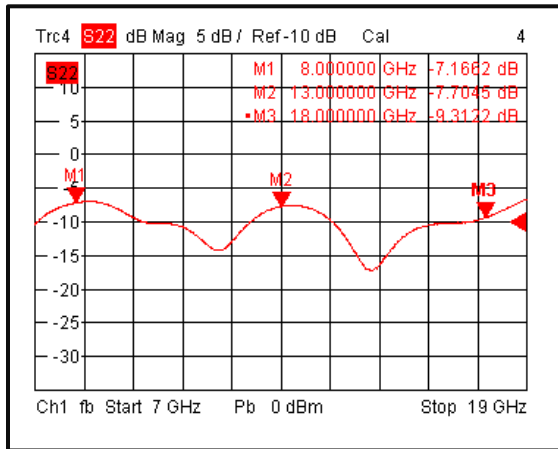
Insertion Loss @+85°C



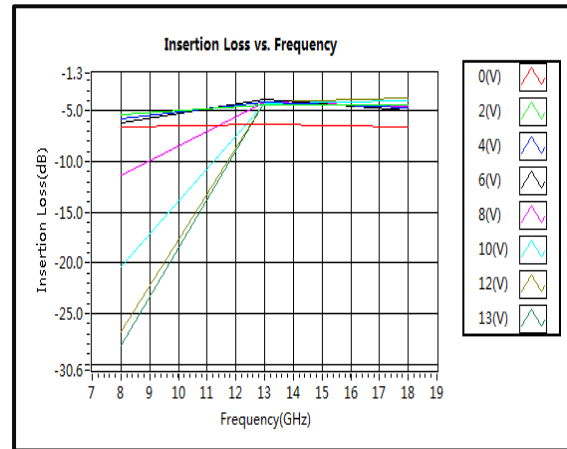
Input Return Loss @+85°C



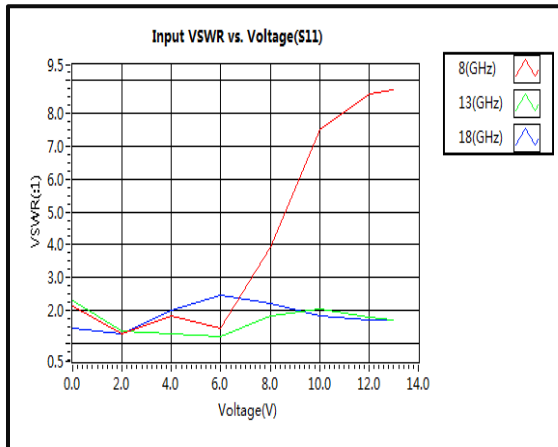
Output Return Loss @+85°C



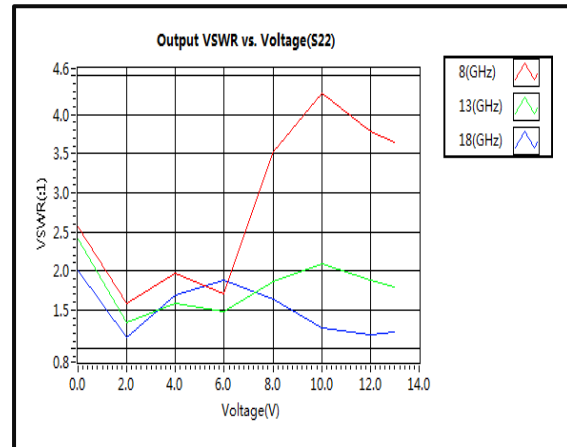
Insertion Loss vs. Frequency



Input VSWR vs. Voltage(s11)

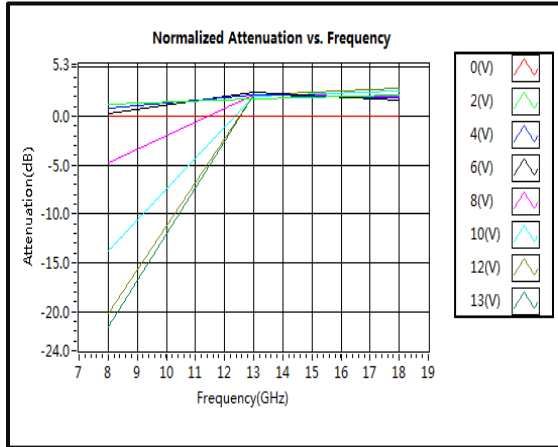


Output VSWR vs. Voltage(s22)

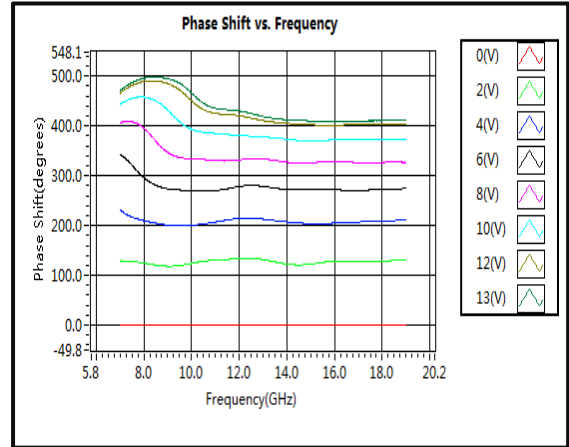


Typical Performance Plots

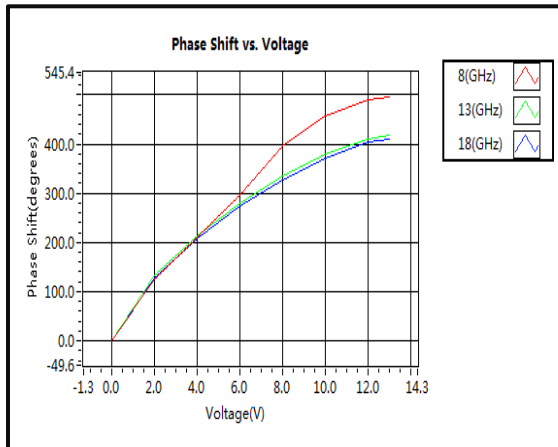
Normalized Attenuation vs. Frequency



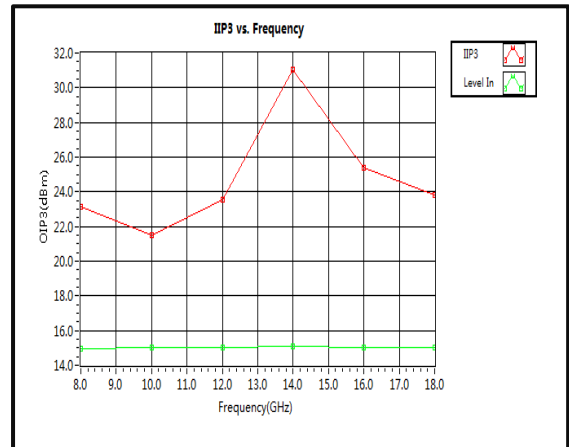
Phase Shift vs. Frequency



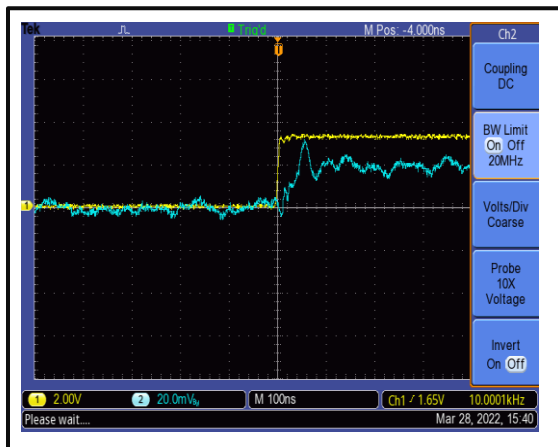
Phase Shift vs. Voltage



IIP3



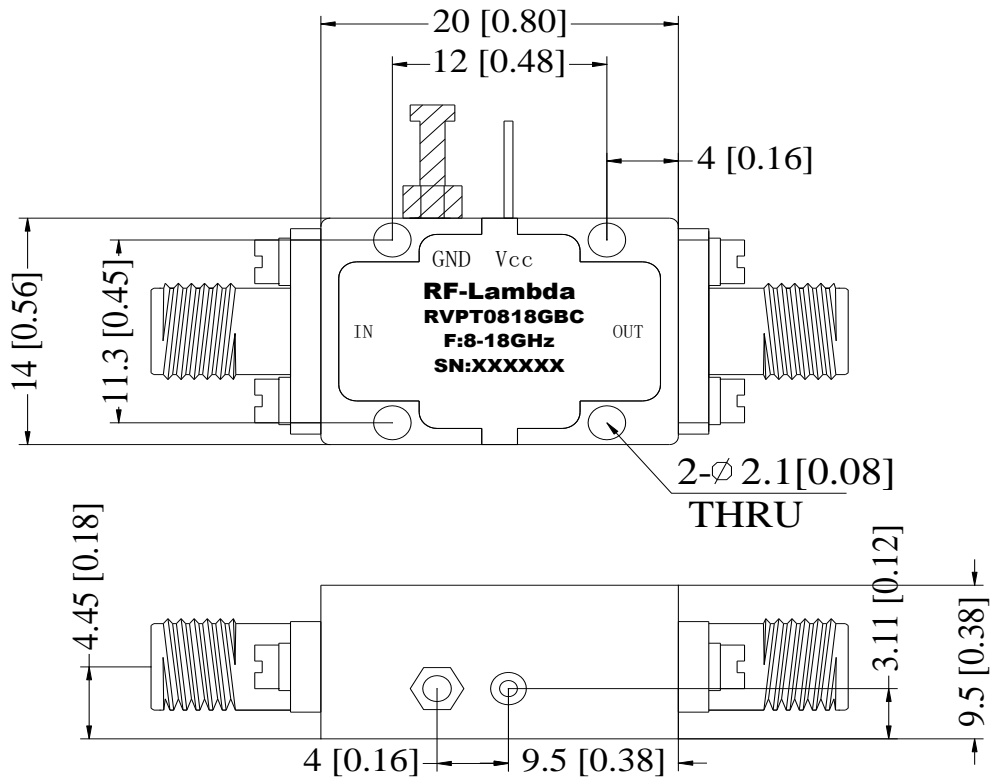
Speed



Speed

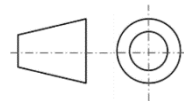


Outline Drawing



Notes:

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



Additional Information

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

Ordering Information

Part Number	Modification	Description
RVPT0818GBC	Standard	8GHz-18GHz Voltage Control Phase Shifter

Important Notice

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