

Digital Control 360° Phase Shifter 140MHz-190MHz



Note: Photo is for illustration purposes only. Please refer to outline drawing.

Features

- Wide Band Operation 140-190MHz
- 360° Phase Shift
- Fast Switching Speed

Product Description

RFPST0165D6 is a digital control phase shifter with a frequency range of 140 to 190MHz.

The phase shifter's adjustment range 360 degrees with 6 control bits. The insertion loss is 3.5dB with a typical VSWR of 2:1.

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.

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°C), V_{dd} = +12V, V_{CTL} = 0/ +5V

Parameter	Min	Typ	Max	Units
Frequency Range	140		190	MHz
Phase Range	330	360		deg
Control Bits		6		Bits
Control Step Size		5.625		deg
Insertion Loss		3.5	3.8	dB
Insertion Loss Temperature Coefficient		0.008		dB/ °C
Phase Flatness		±25	±35	deg
Input VSWR		1.5	2.0	: 1
Output VSWR		1.5	2.0	: 1
Input 1 dB Compression Point (P1dB)		28		dBm
Bias Current (+12V)		40		mA
Weight		0.12 Max.		lbs.
Impedance		50		Ohms
Input / Output Connectors	SMA-Female (Input) – SMA-Female (Output)			
Interface and Control Connector	MICRO-D15 (Female)			
Package	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Parameter	Rating
Bias Voltage	+12V±10%

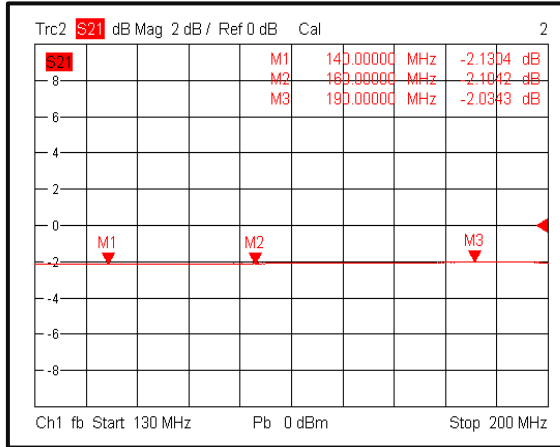
Environmental Specifications and Test Standards

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)

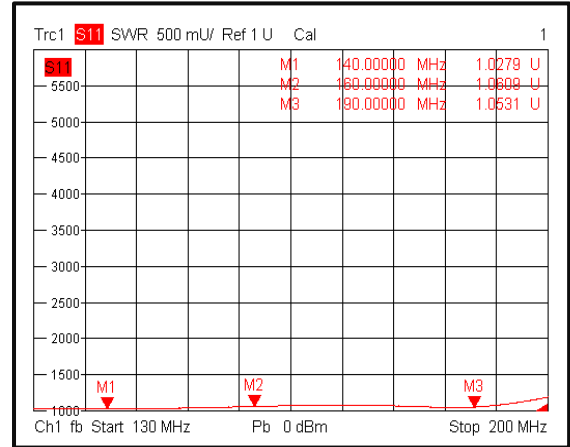
**For vibration testing details please see additional information section.

Typical Performance Plots

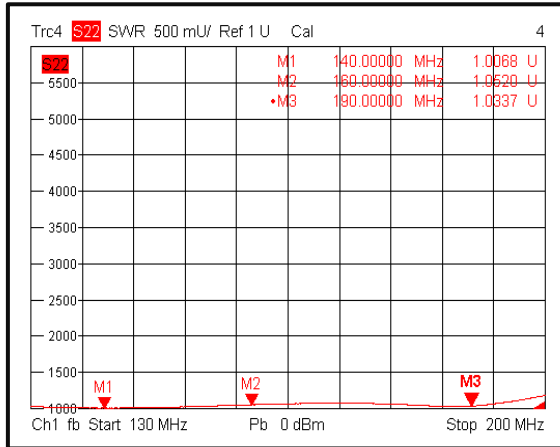
Insertion Loss@+25°C



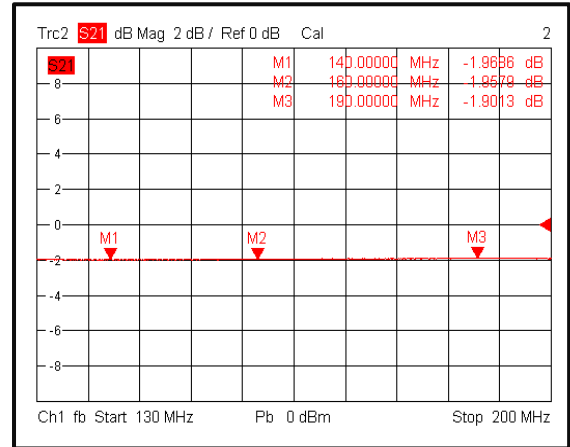
Input VSWR@+25°C



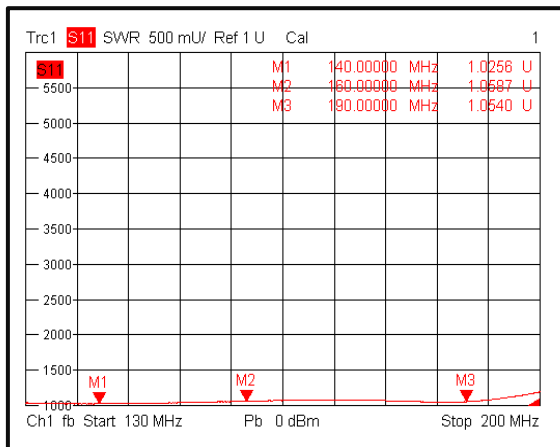
Output VSWR@+25°C



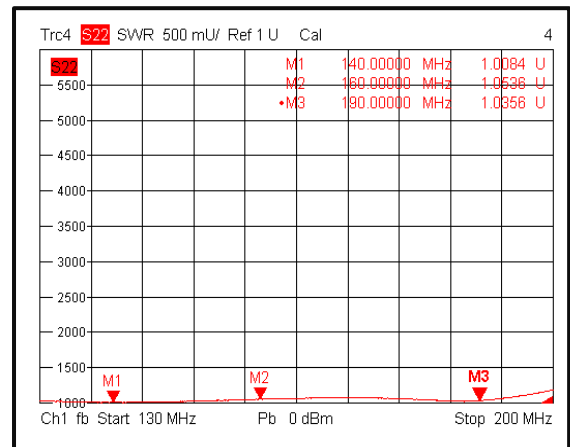
Insertion Loss@-40°C



Input VSWR@-40°C

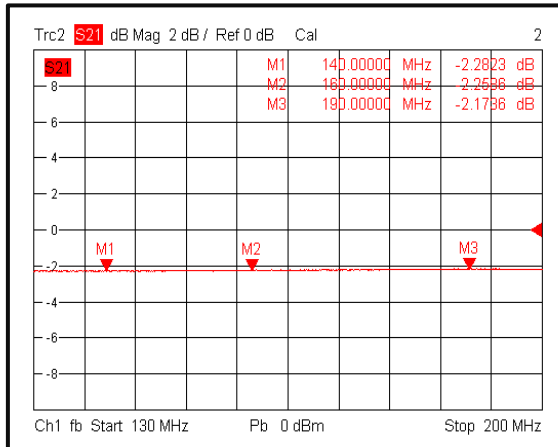


Output VSWR@-40°C

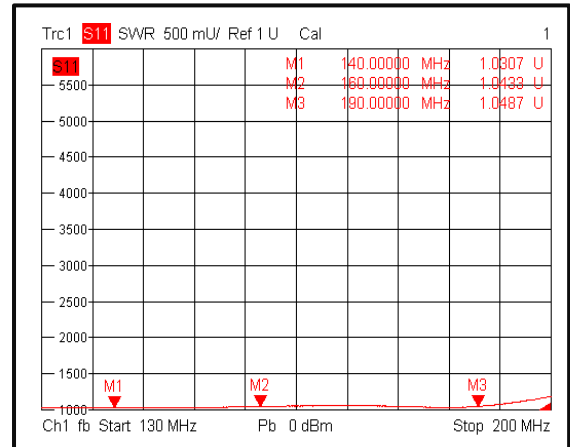


Typical Performance Plots

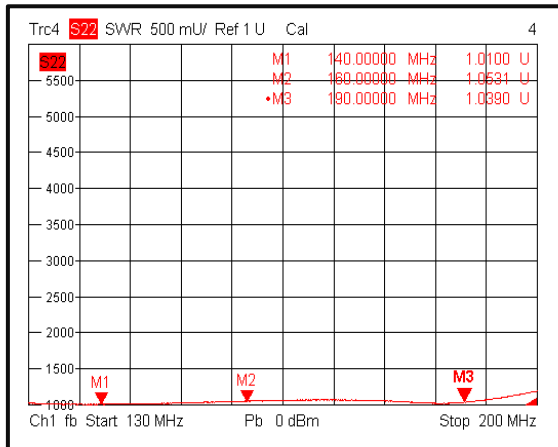
Insertion Loss@+85°C



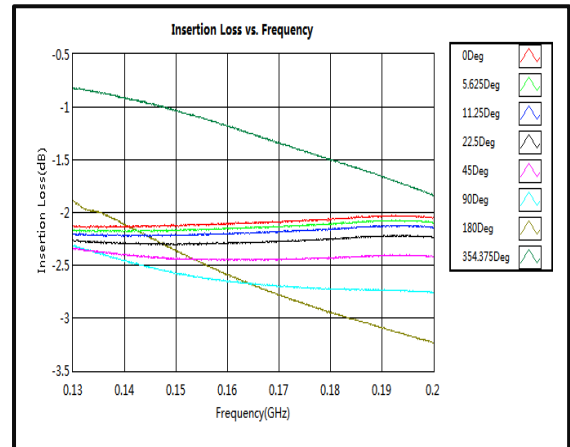
Input VSWR@+85°C



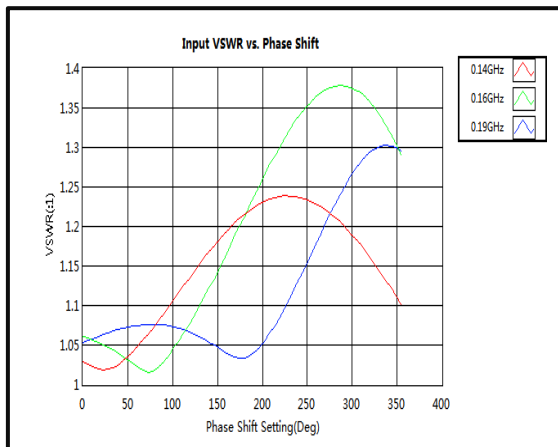
Output VSWR@+85°C



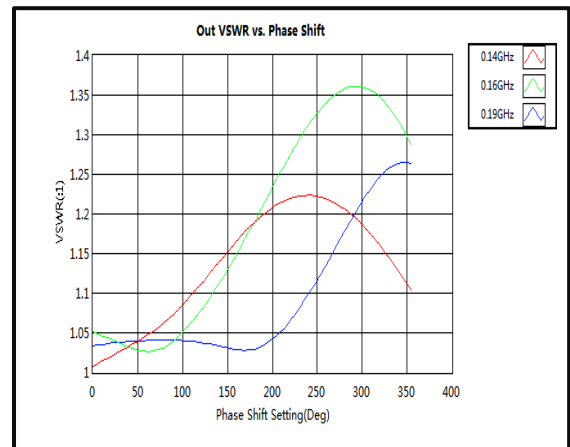
Insertion Loss vs. Frequency



Input VSWR vs. Frequency

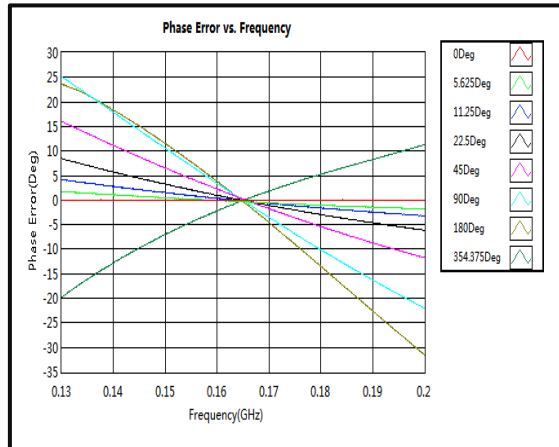


Output VSWR vs. Frequency

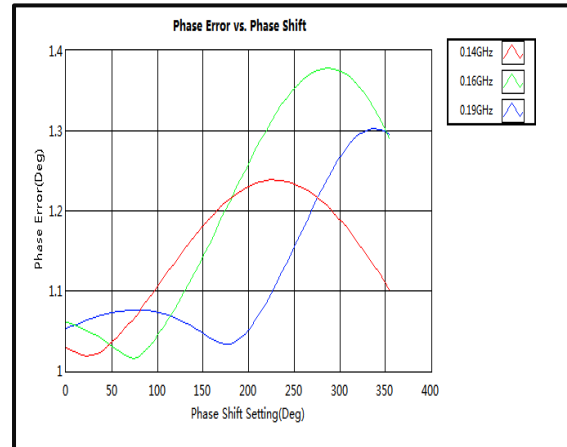


Typical Performance Plots

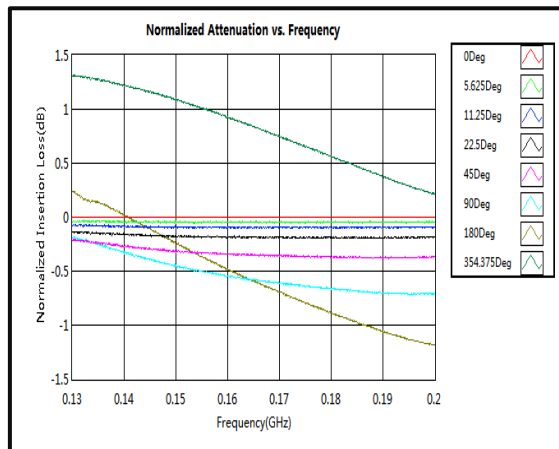
Phase Error vs. Frequency



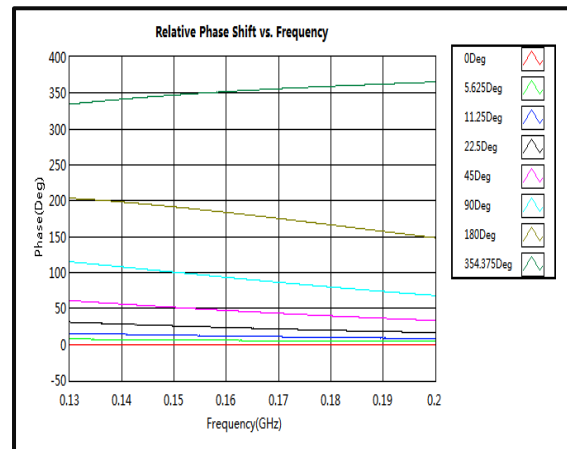
Phase Error vs. State



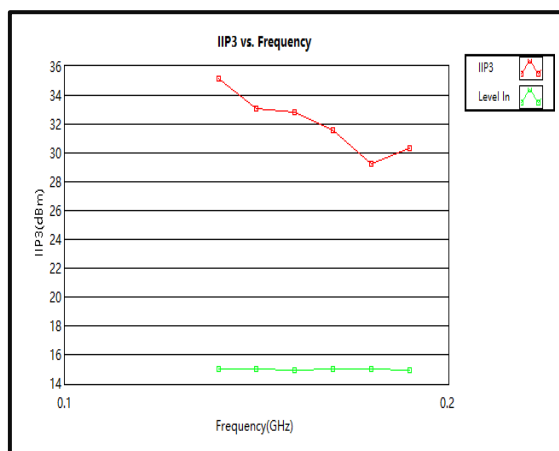
Normalized Attenuation vs. Frequency



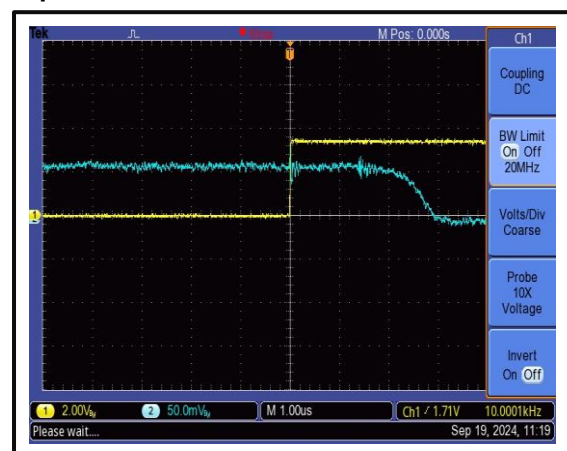
Relative Phase Shift vs. Frequency



IIP3 vs. Frequency

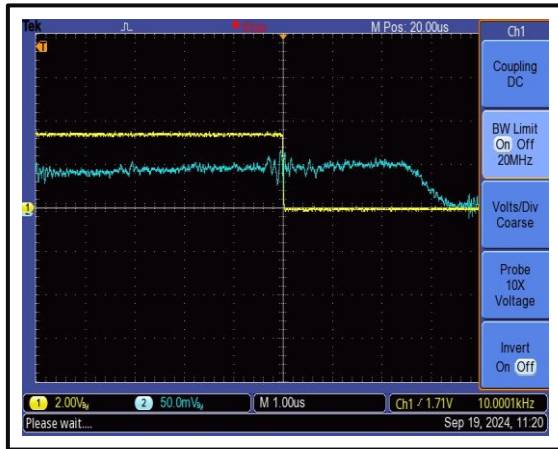


Speed

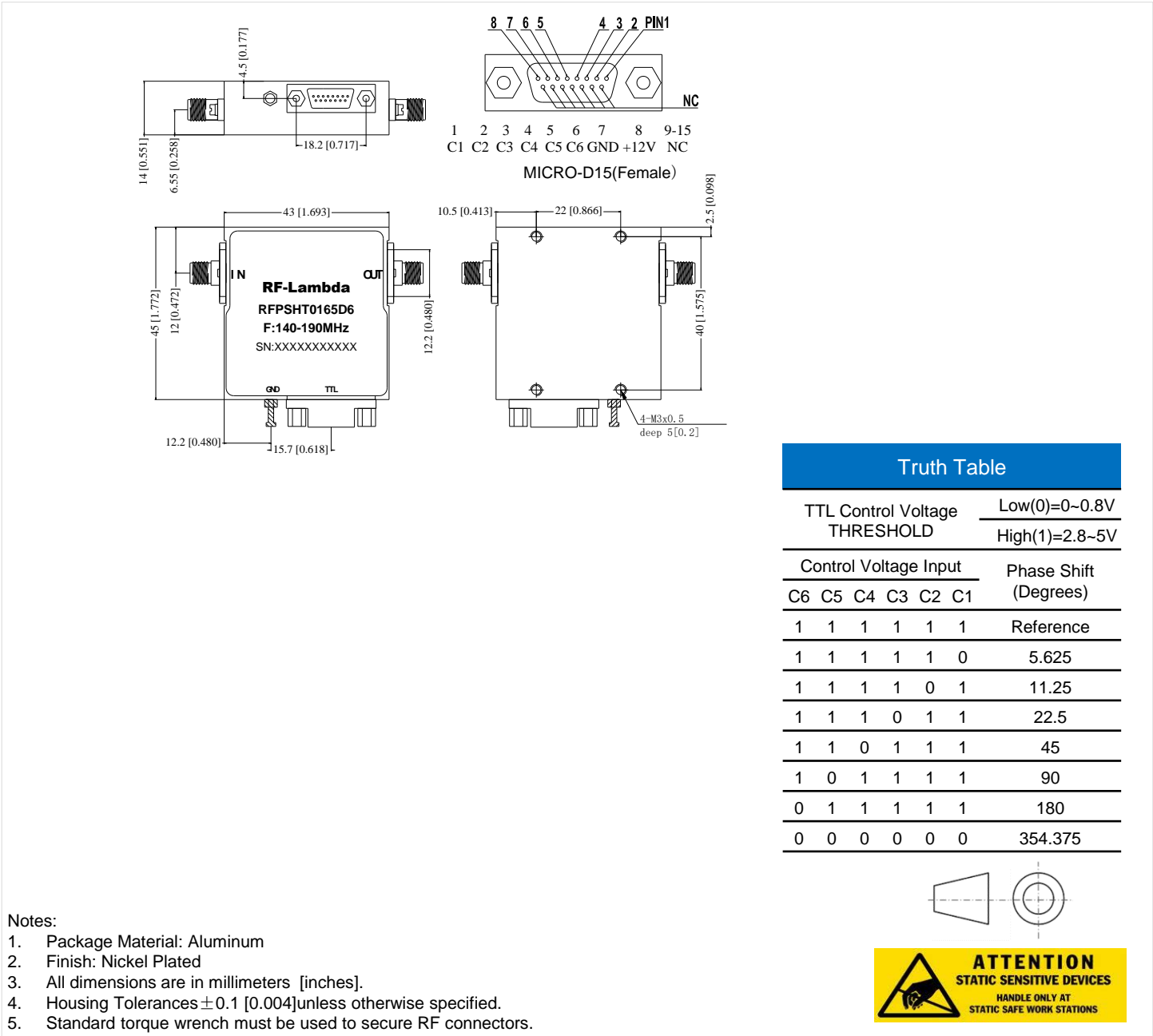


Typical Performance Plots

Speed



Outline Drawing



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
RFPSHT0165D6	Standard	140MHz-190MHz Digital Control Phase Shifter

Important Notice

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