

Digital 360° Phase Shifter 6 - 18GHz



Key Features

- Wide Band Operation 6-18GHz
- 6-Bit Phase Shift
- Customization available upon request

Typical Applications

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement
- Radar and Satellite
- 5G LTE Communications

Electrical Specifications, TA = +25°C

Description	PN: RFPSHT0618N6						
	Digital Phase Shifter						
Parameters	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	6		12	12		18	GHz
Phase Range		360			360		deg
Control Bits			6			6	Bit
Control Step Size		5.625			5.625		deg
Insertion Loss		9.5	10.5		10	12	dB
Insertion Loss Temperature Coefficient		0.008			0.008		dB/ °C
Phase Flatness		±5	±11		±8	±18	deg
Input VSWR @ Insertion Loss State		1.5	2.5		1.5	2.1	:1
Output VSWR @ Insertion Loss State		2.0	3.0		1.7	2.5	:1
Input 1 dB Compression Point(P1dB)		25			25		dBm
Input IP3		41			41		dBm
Switching Speed		500			500		ns
Weight	0.75 Max.						oz
Impedance	50						Ω
Bias Current(+5V)	10 Max.						mA
Input /Output Connectors	SMA-Female						
Interface and Control Connector	MICRO-D9 (Female)						
Finish	Gold Plated						
Material	Aluminum						
Sealing	Hermetically Sealed (Optional)						

Absolute Maximum Ratings

Parameter	Value
Biasing	+5V±10%
RF Input Power	+30dBm

Ordering Information

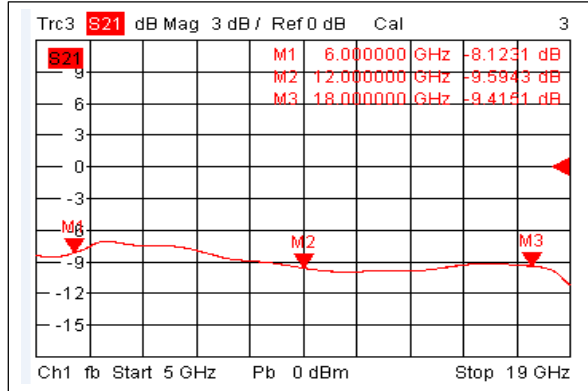
Part Number	Description
RFPSHT0618N6	6-18GHz Digital Phase Shifter

Environmental Specifications and Test Standards

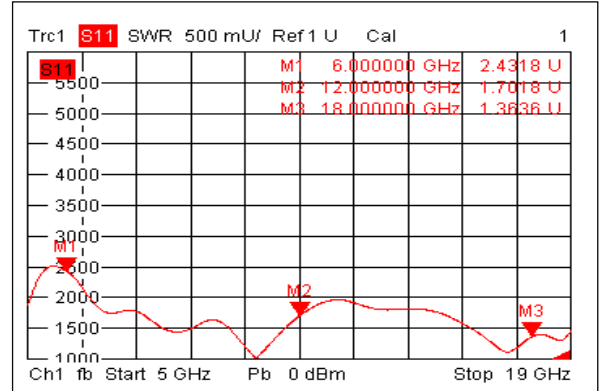
Parameter	Description
Operational Temperature	-40°C~+85°C (Case Temperature)
Storage Temperature	-50°C~+105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours
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)

Typical Performance Plots

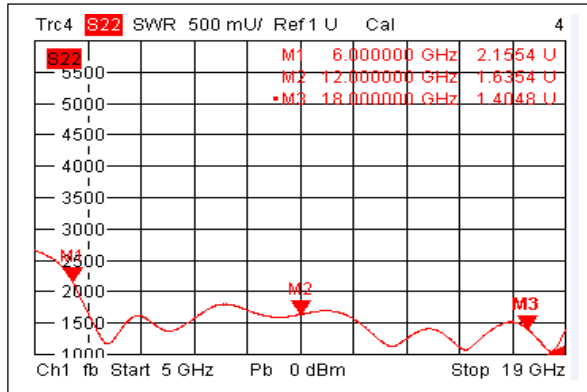
Insertion Loss@+25°C



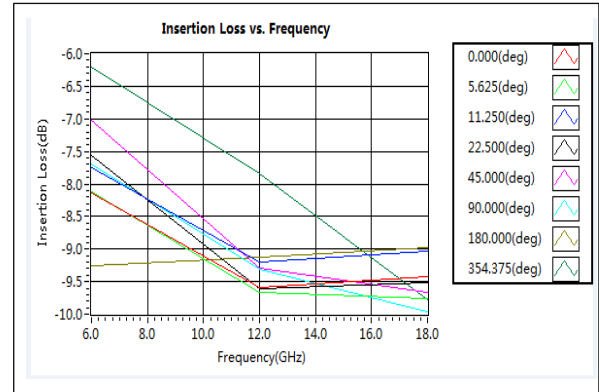
Input VSWR @+25°C



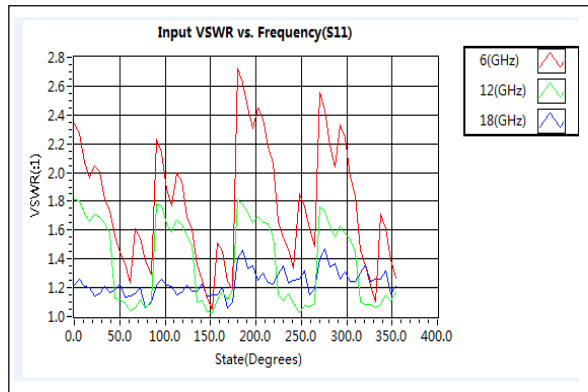
Output VSWR @+25°C



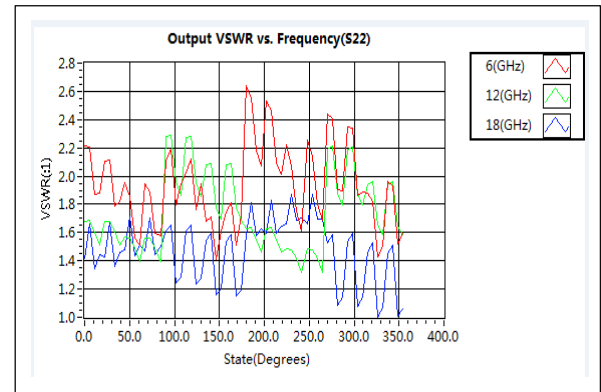
Insertion Loss vs. Frequency



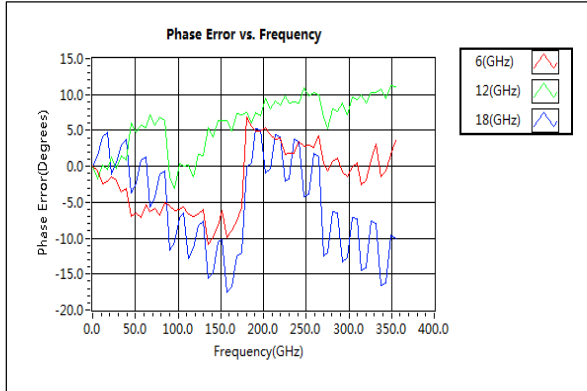
Input VSWR vs. Frequency



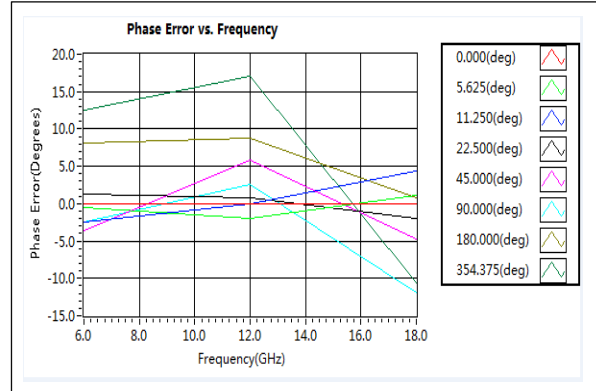
Output VSWR vs. Frequency



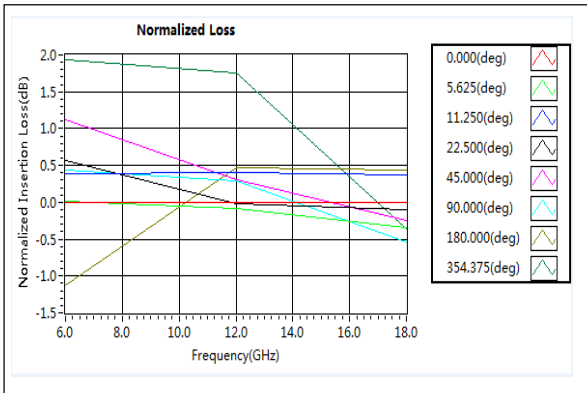
Phase Error vs. Frequency



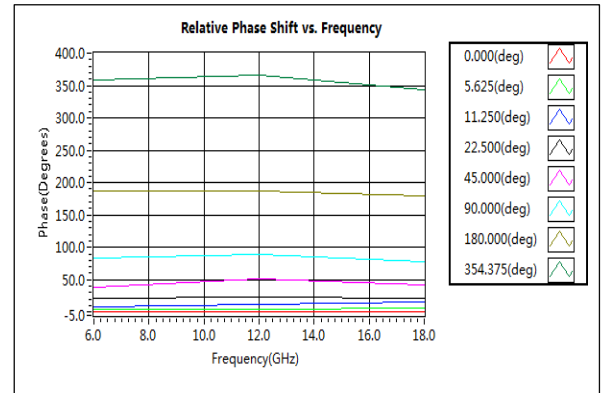
Phase Error vs. State



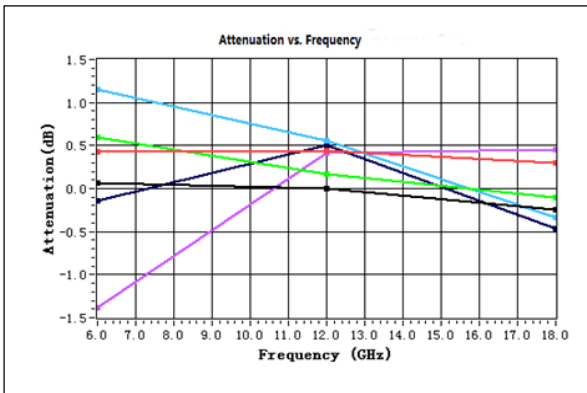
Normalized Loss. All States



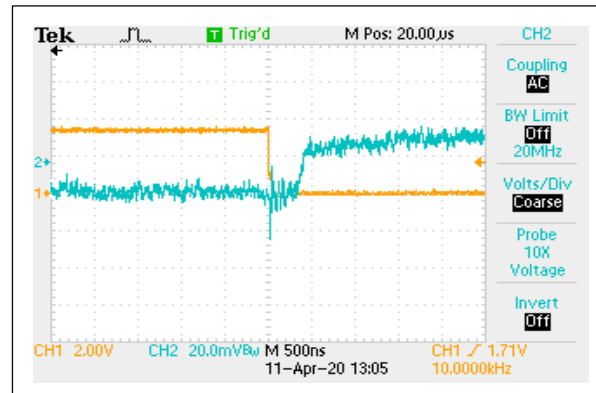
Relative Phase Shift vs. Frequency



Attenuation vs. Frequency

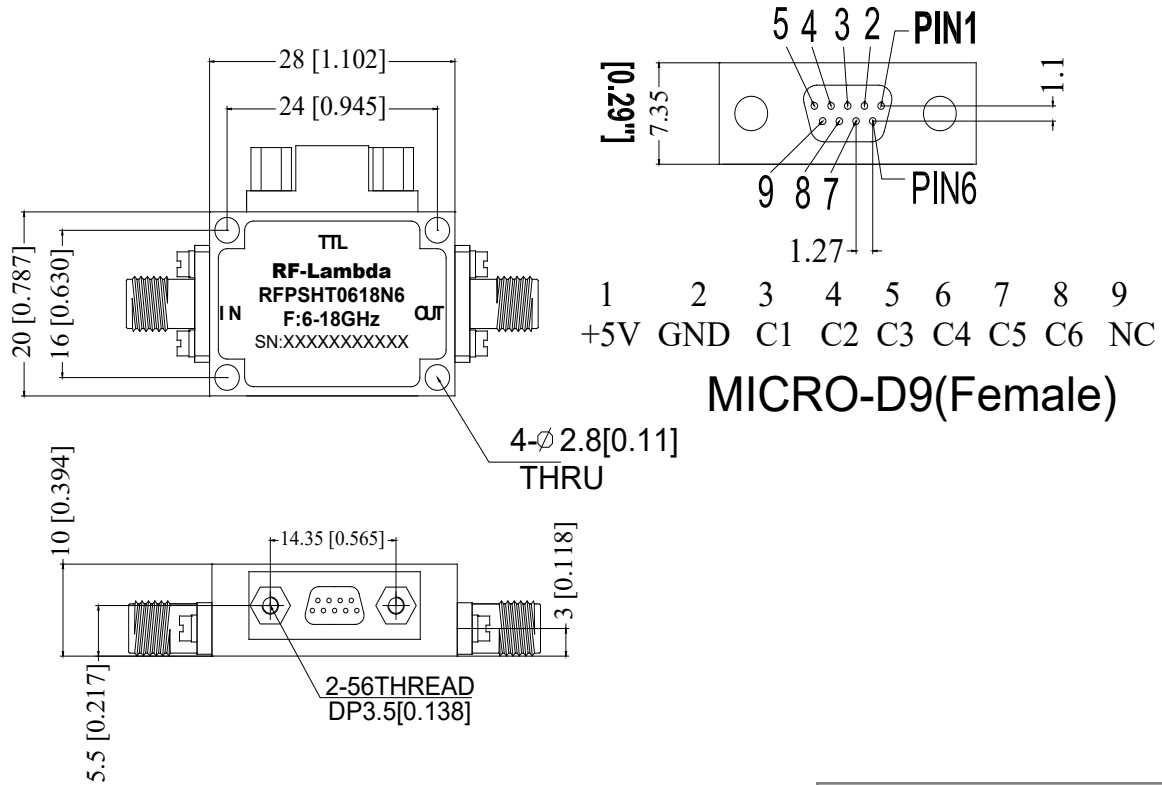


Speed



Outline Drawing

All Dimensions in mm [inches]
Housing Tolerances ±0.1 [0.004]



Notes:
Standard torque wrench must be used to secure RF connectors.

Truth Table						
TTL Control Voltage THRESHOLD						Low(0)=0~0.8V
						High(1)=2.8~5V
Control Voltage Input						Phase Shift (Degree)
C6	C5	C4	C3	C2	C1	
0	0	0	0	0	0	Reference
0	0	0	0	0	1	5.625
0	0	0	0	1	0	11.25
0	0	0	1	0	0	22.5
0	0	1	0	0	0	45
0	1	0	0	0	0	90
1	0	0	0	0	0	180
1	1	1	1	1	1	355



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