



### Digital 360 Phase Shifter 6 - 18GHz



#### Features

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

#### Typical Applications

- Test and Measurement
- Military and Aerospace
- Wireless Infrastructure

Electrical Specifications, TA = +25 °C, Vdd = +5V, VCTL = 0 / +5V

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	°
Control Bits			6			6	Bit
Control Step size		5.625			5.625		°
Insertion Loss		7.5	9		10	12	dB
Insertion Loss Temperature Coefficient		0.008			0.008		dB/°C
Phase Flatness		±5	±10		±5	±15	°
Input VSWR		1.5	2.5		1.5	2.1	:1
Output VSWR		2.0	3.0		1.7	2.5	:1
Input 1dB Compression Point(P1dB)		25			25		dBm
Input IP3		41			41		dBm
Switching Speed		100			100		ns
Weight	1.41						ounces
Impedance	50						Ω
Bias Current (+5V)	10						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**

Biassing	+5V±10%
TTL Control Voltage	0~0.8V/2.8~5V
RF Input power	+30dBm

**Ordering Information**

Part No.	ECCN	Description
RFPSHT0618N6	EAR99	6-18GHz Digital Phase Shifter

**Environmental Specifications and Test Standards**

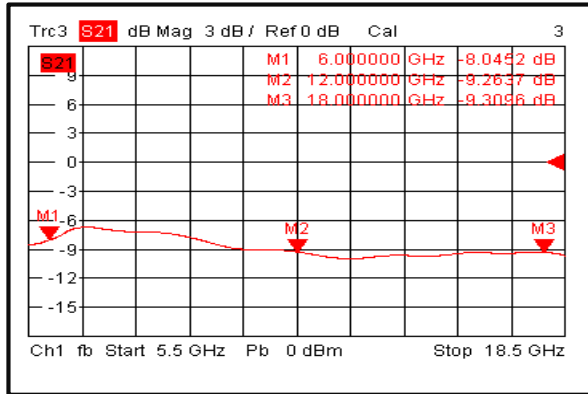
Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-55°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85°C for 72 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	MIL-STD-883 (For Hermetically Sealed Units)

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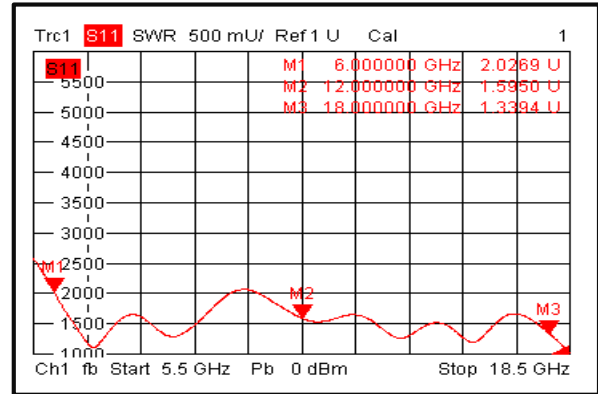


Typical Performance Plots

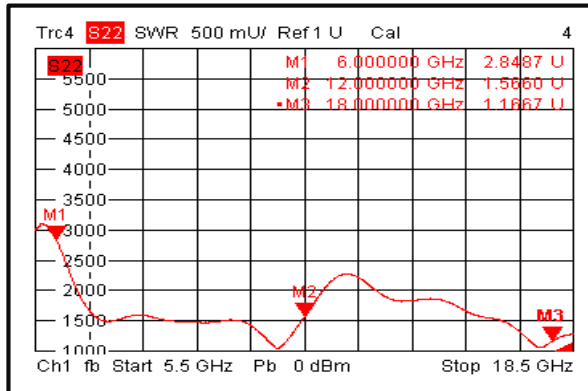
**Insertion Loss**



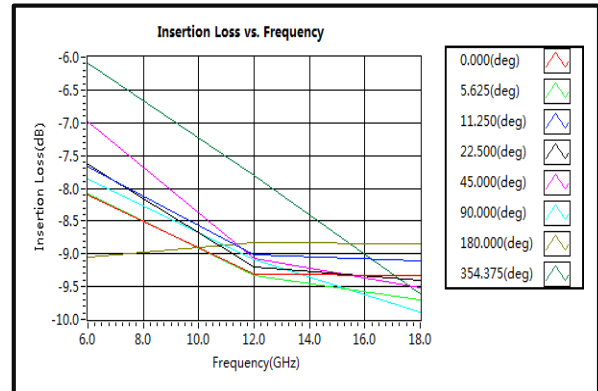
**Input VSWR**



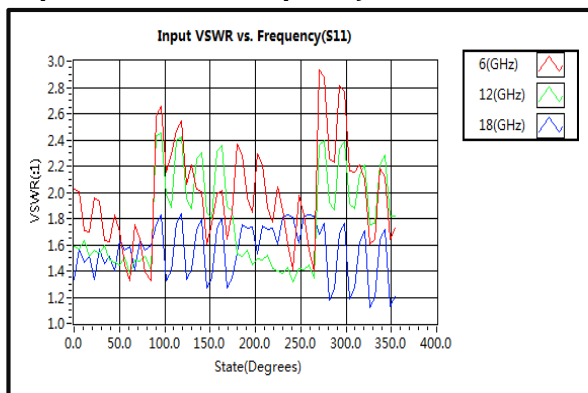
**Output VSWR**



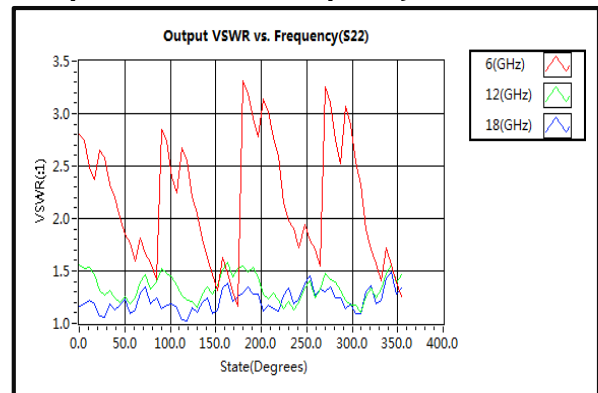
**Insertion Loss vs. Frequency**



**Input VSWR vs. Frequency**

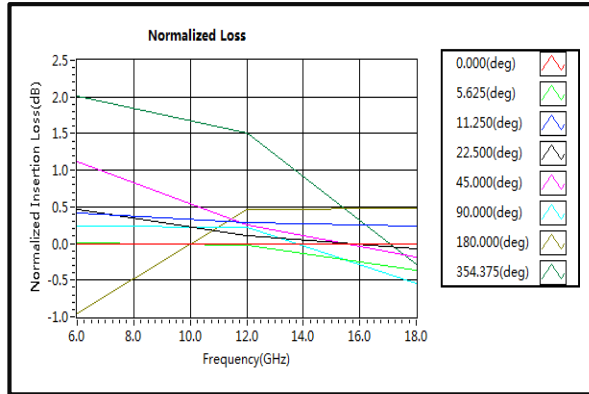


**Output VSWR vs. Frequency**

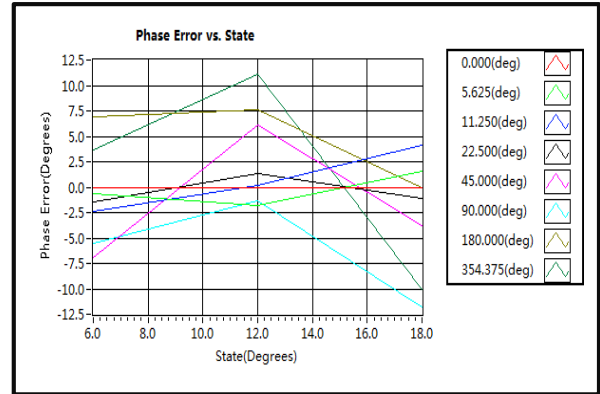




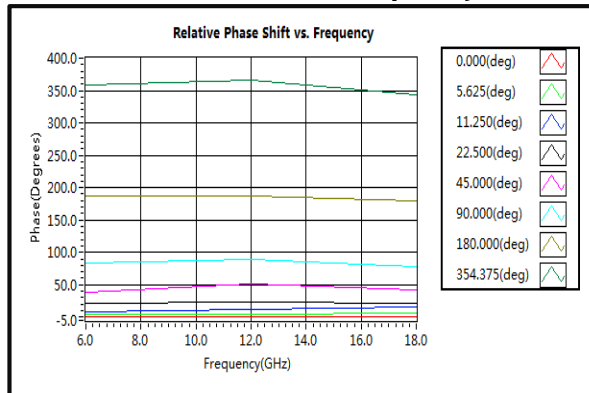
**Normalized Loss**



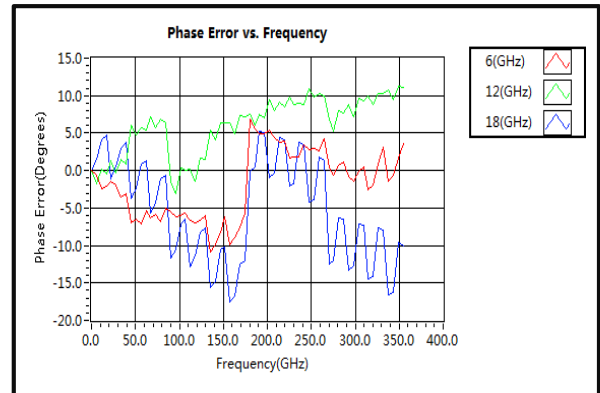
**Phase Error vs. State**



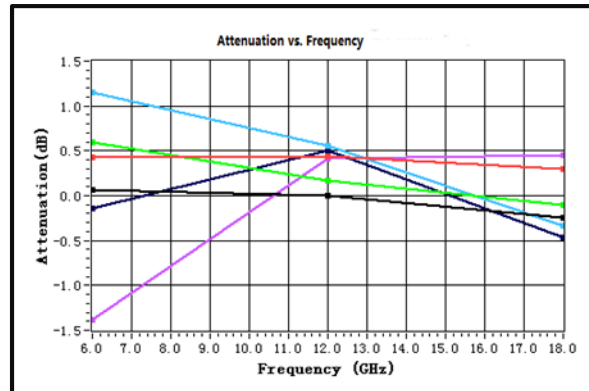
**Relative Phase Shift vs. Frequency**



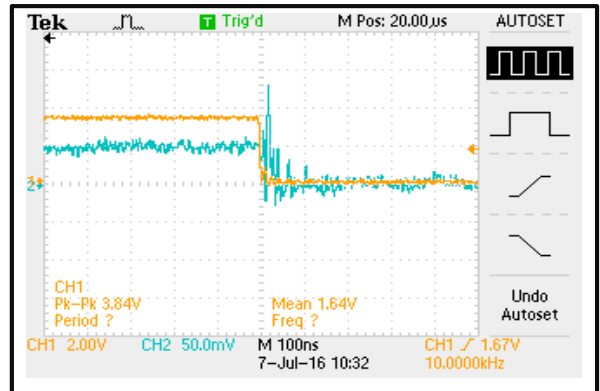
**Phase Error vs. Frequency**



**Attenuation vs. Frequency**



**Speed**

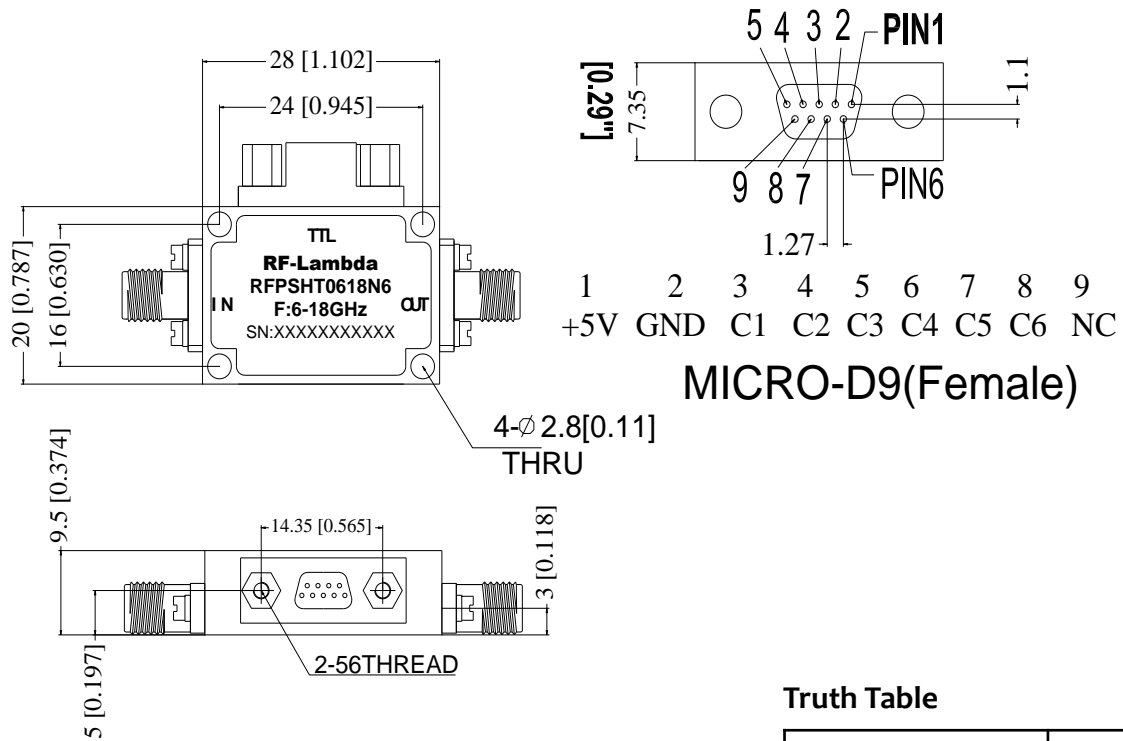


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**Outline Drawing:**

All Dimensions in mm [inches]



**Truth Table**

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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