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 ℃, 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		9.5	10.5		10	12	dB
Insertion Loss Temperature Coefficient		0.008			0.008		dB/℃
Phase Flatness		±5	±10		±5	±15	°
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		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)						

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Absolute Maximum Ratings

Biasing	+5V±10%
RF Input Power	+30dBm

Ordering Information

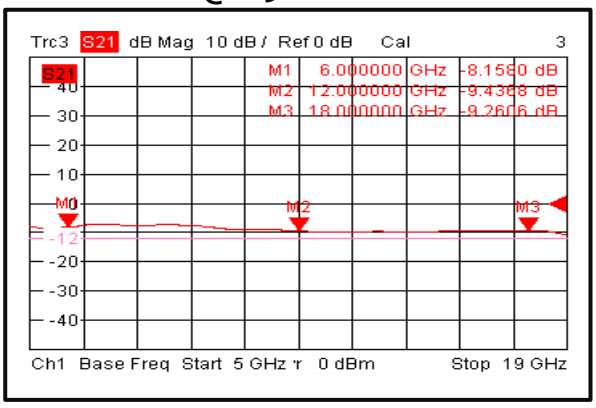
Part No.	Description
RFPSHT0618N6	6-18GHz Digital Phase Shifter

Environmental Specifications and Test Standards

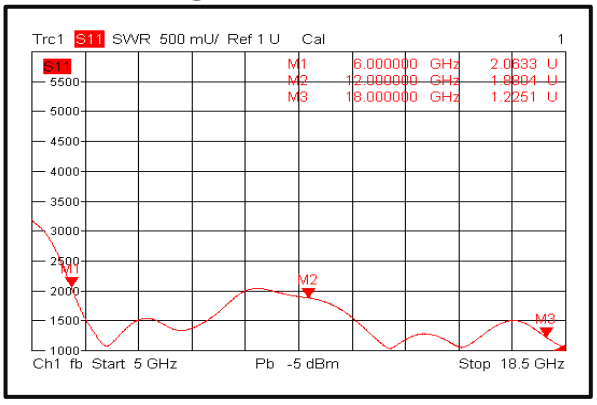
Parameter	Description
Operational Temperature	-40℃~+85℃ (Case Temperature)
Storage Temperature	-50℃~+105℃
Thermal Shock	-40℃ → +85℃ (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85℃ for 72 Hours
Shock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

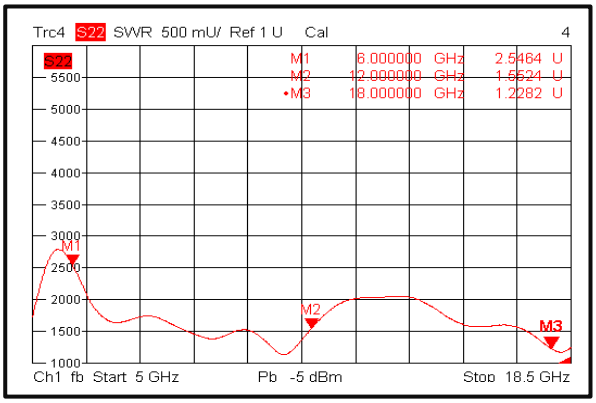
Insertion Loss@+25℃



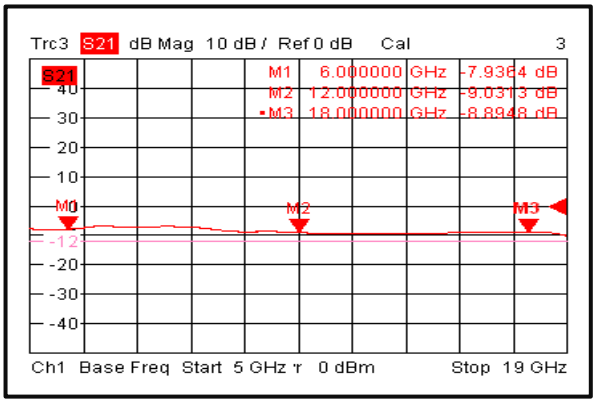
Input VSWR @+25℃



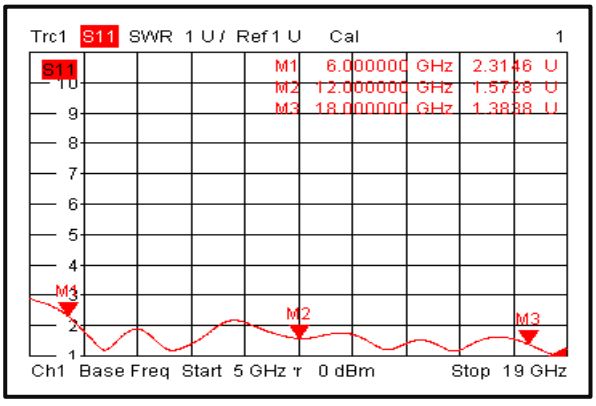
Output VSWR @+25℃



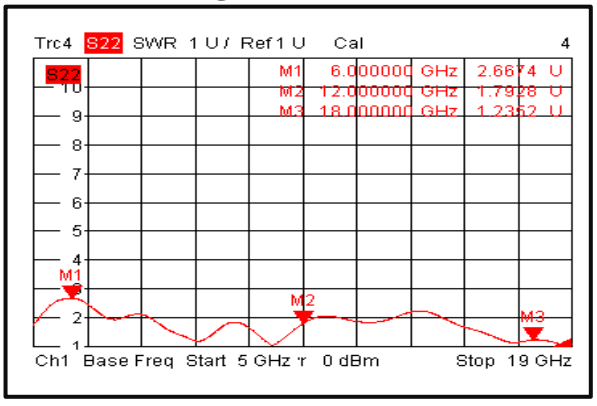
Insertion Loss @-40℃



Input VSWR @-40℃



Output VSWR @-40℃



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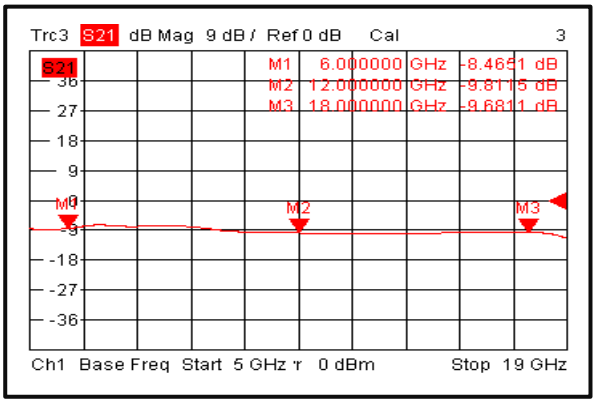
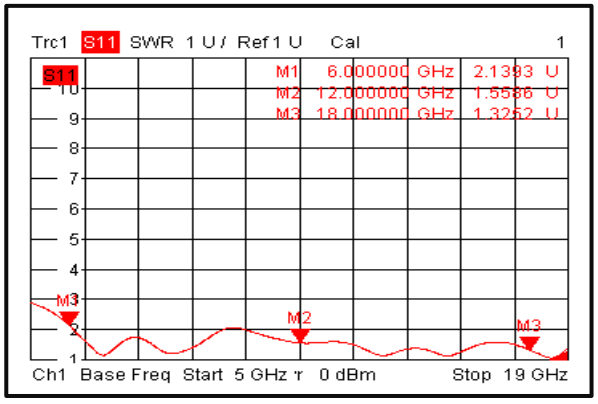
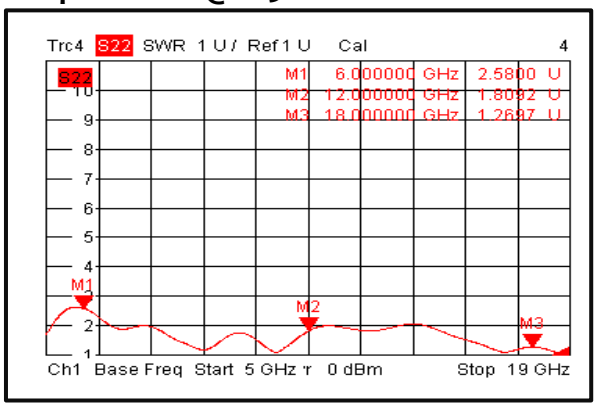
Insertion Loss @+85℃



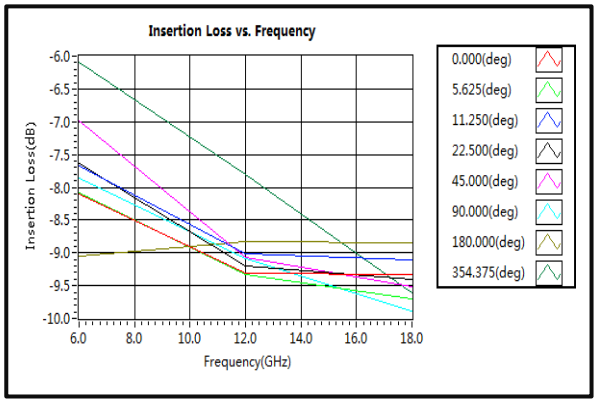
Input VSWR @+85℃



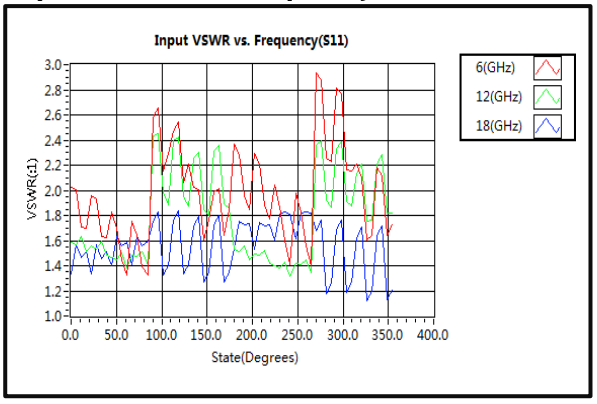
Output VSWR @+85℃



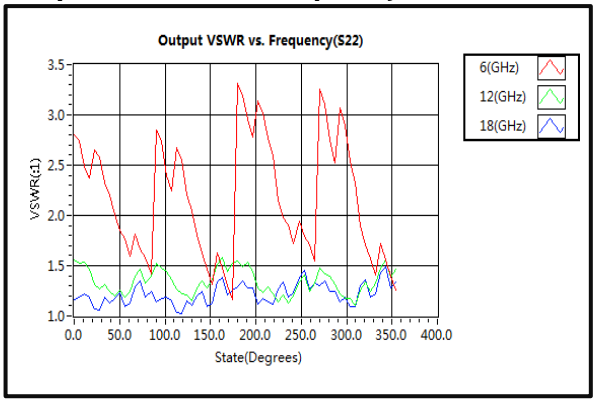
Insertion Loss vs. Frequency



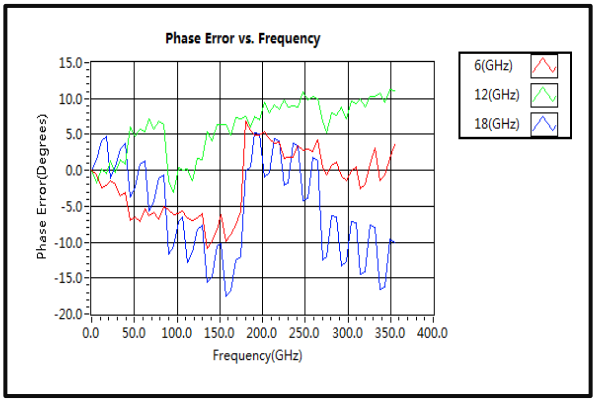
Input VSWR vs. Frequency



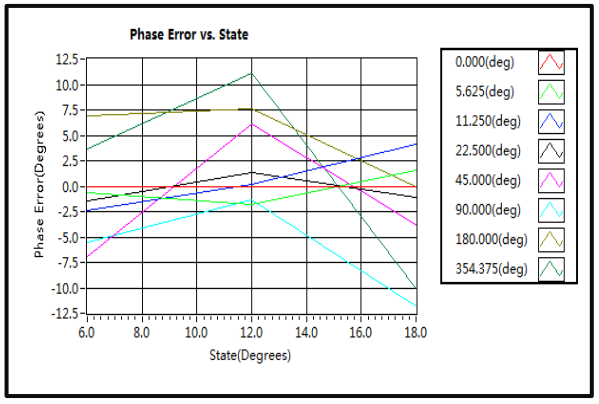
Output VSWR vs. Frequency



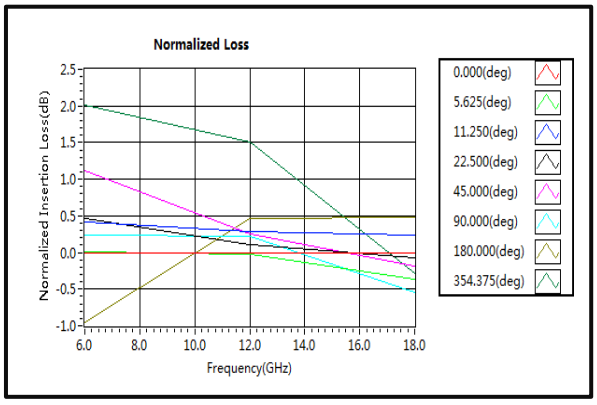
Phase Error vs. Frequency



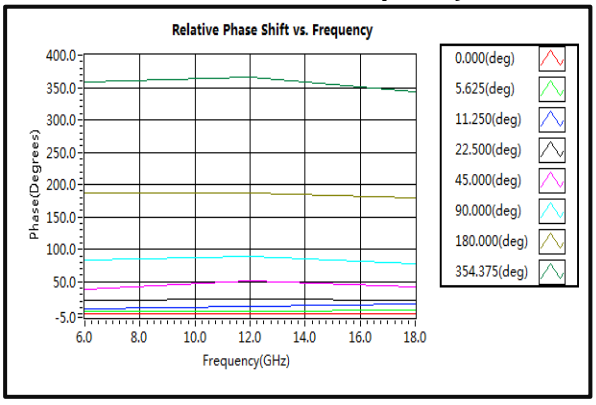
Phase Error vs. State



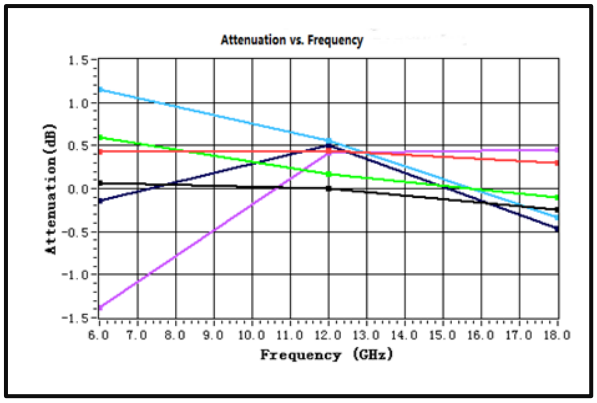
Normalized Loss. All States



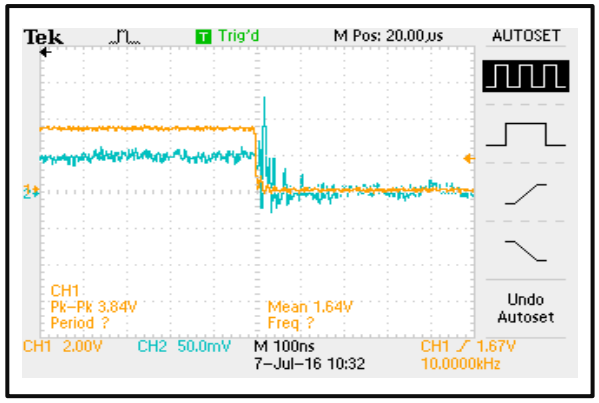
Relative Phase Shift vs. Frequency



Attenuation vs. Frequency



Speed



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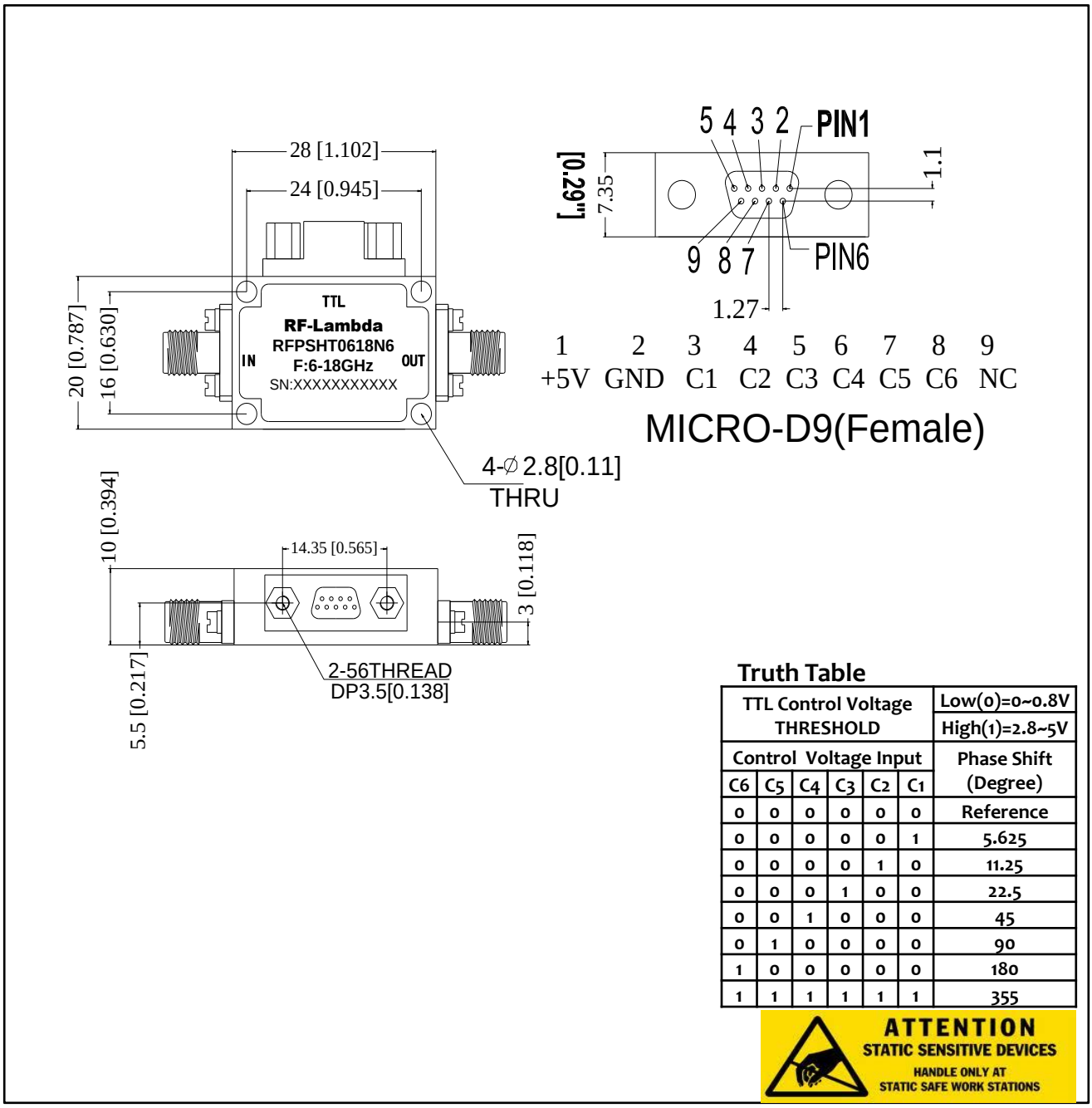
Outline Drawing:

All Dimensions in mm [inches]



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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