



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFPSHT0821N6

Digital Control 360° Phase Shifter 0.8 – 2.1GHz



Features

- Wide Band Operation 0.8-2.1GHz
- 360° Phase Shift
- Fast Switching Speed

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test Instrument

Electrical Specifications, $T_A = +25^{\circ}\text{C}$, $V_{dd} = +12\text{V}$, $V_{CTL} = 0 / +5\text{V}$

Description	PN:RFPSHT0821N6			
	Digital Step Phase Shifter			
Parameters	Min	Typ.	Max	Units
Frequency Range	0.8		2.1	GHz
Phase Range		360		°
Control Bits			6	bit
Control Step Size		5.6		°
Insertion Loss		4.0	6.0	dB
Insertion Loss Temperature Coefficient		0.003		dB / °C
Phase Flatness		±5	±15	°
Input VSWR		1.5	2.5	: 1
Output VSWR		1.5	2.5	: 1
Input 1dB Compression Point (P1dB)		27		dBm
Input Ip3		50		dBm
Switching Speed		500		us
Weight	2.12			ounces
Impedance	50			Ω
Bias Current(+12V)	200			mA
Input / Output Connectors	SMA - Female			
Interface and Control Connector	MICRO-D9 (Female)			
Finish	Nickel Plated			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			

Digital Control 360° Phase Shifter 0.8-2.1GHz



Absolute Maximum Ratings

Bias Voltage	+15V
TTL Control Voltage	0 ~ 0.8V / 2.8 ~ 5V
RF Input Power	+27dBm

Ordering Information

Part No.	ECCN	Description
RFPSHT0821N6	EAR99	0.8—2.1GHz DigitalPhase Shifter

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+70°C
Storage Temperature		-50°C~+100°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	MIL-STD-883	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)



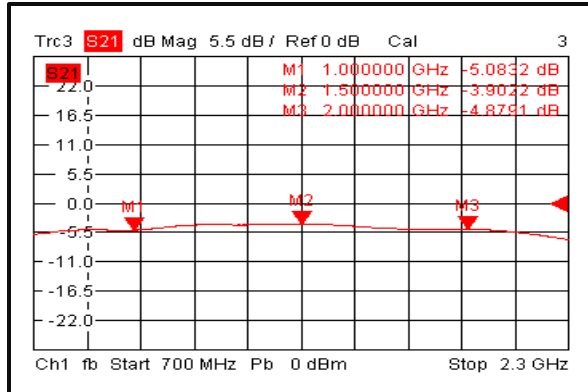
RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

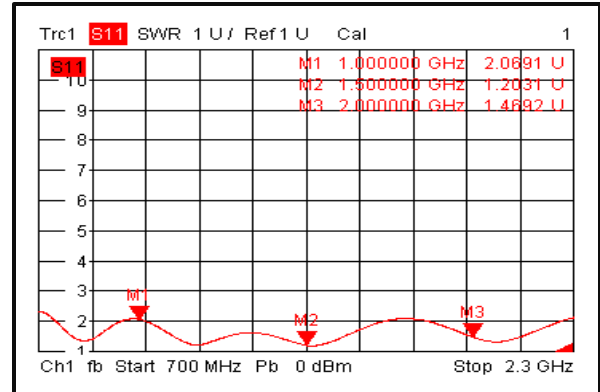
RFPSHT0821N6

Typical Performance Plots

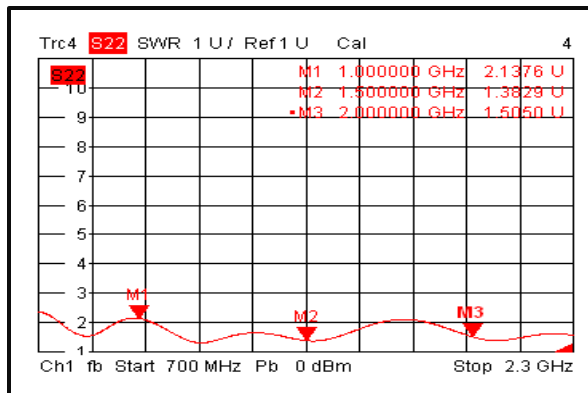
Insertion Loss @+25°C



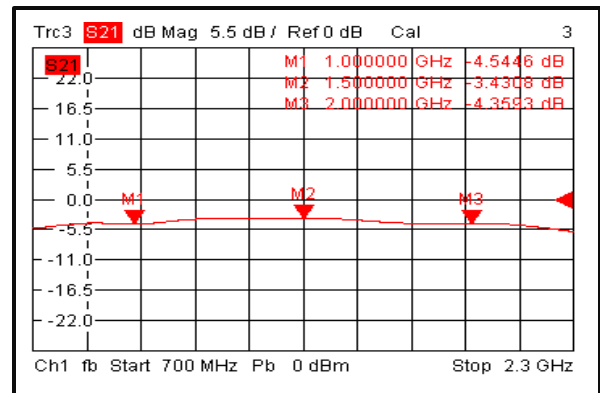
Input VSWR @+25°C



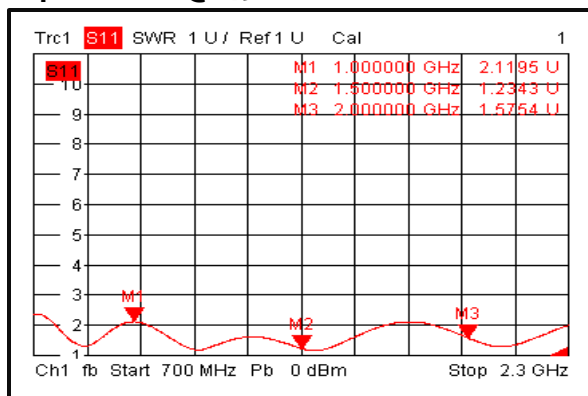
Output VSWR @+25°C



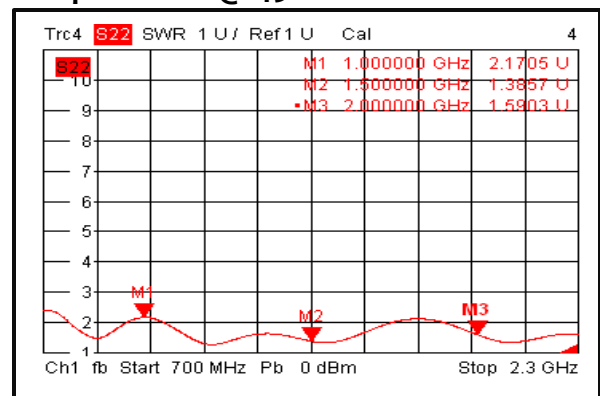
Insertion Loss @-45°C



Input VSWR @-45°C



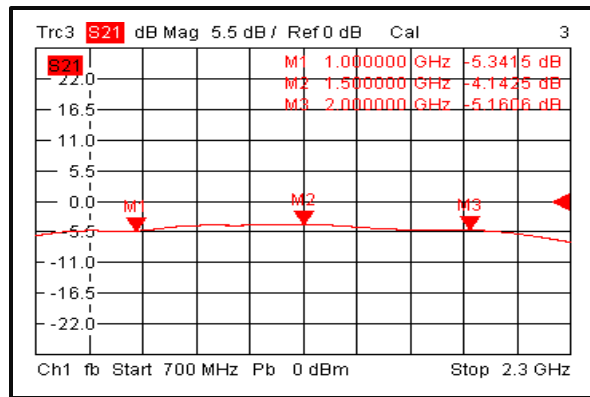
Output VSWR @-45°C



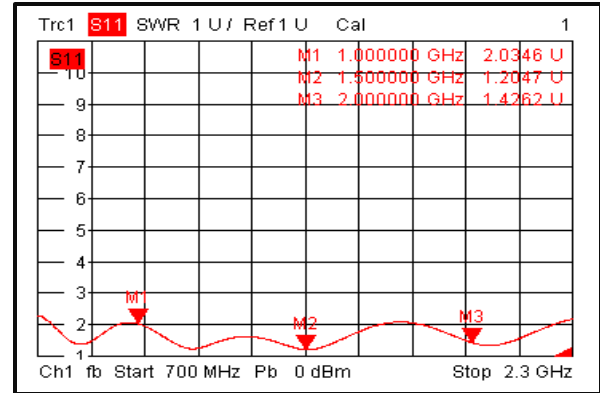
Digital Control 360° Phase Shifter 0.8-2.1GHz



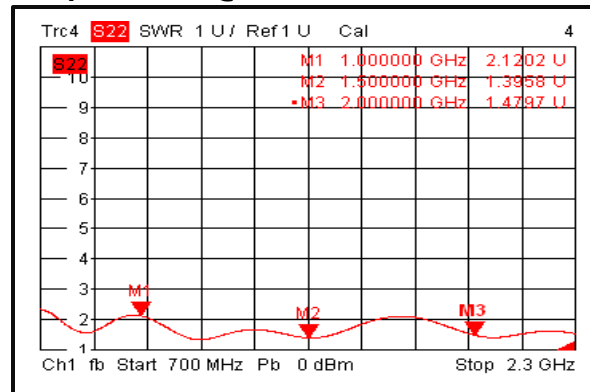
Insertion Loss @+85°C



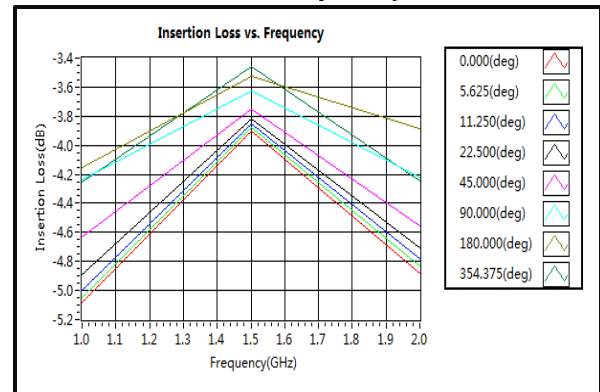
Input VSWR @+85°C



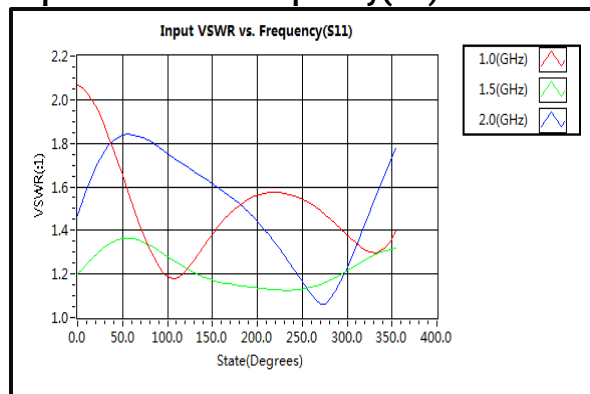
Output VSWR @+85°C



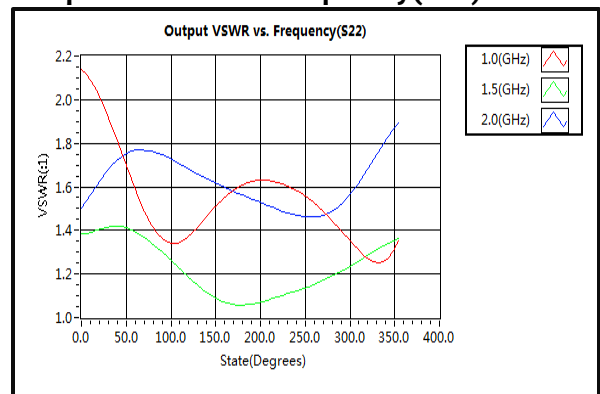
Insertion Loss vs. Frequency



Input VSWR vs. Frequency(S11)

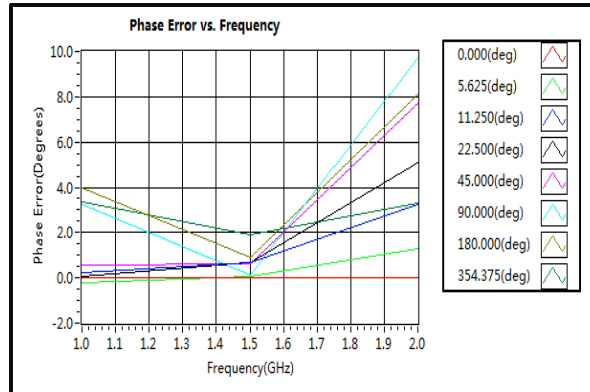


Output VSWR vs. Frequency(S22)

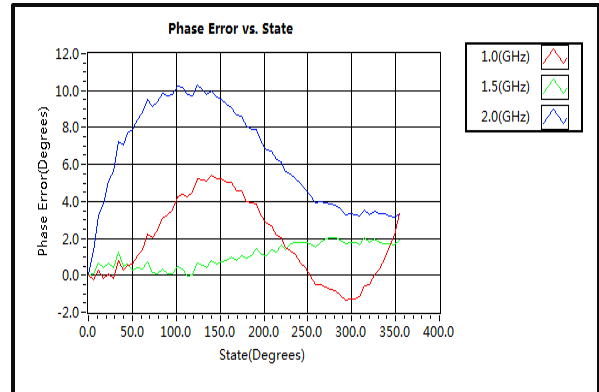




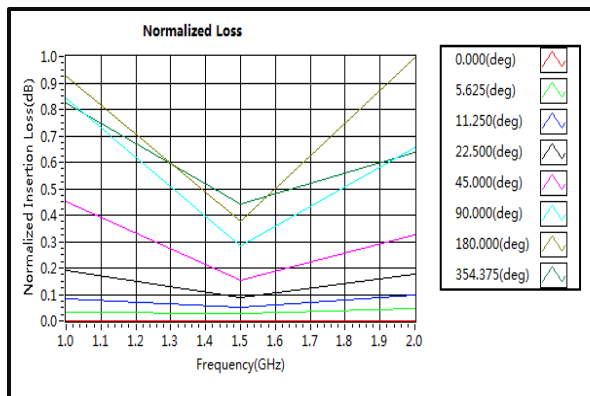
Phase Error vs. Frequency



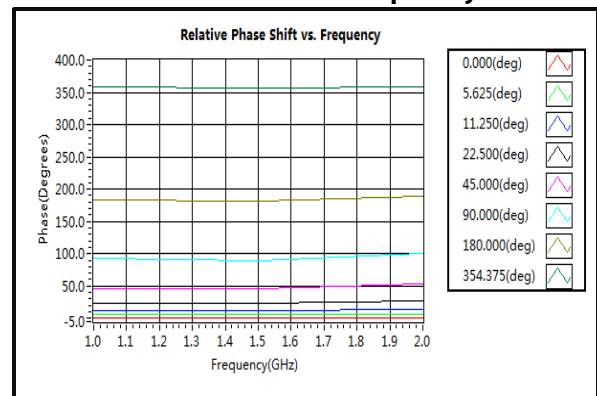
Phase Error vs. State



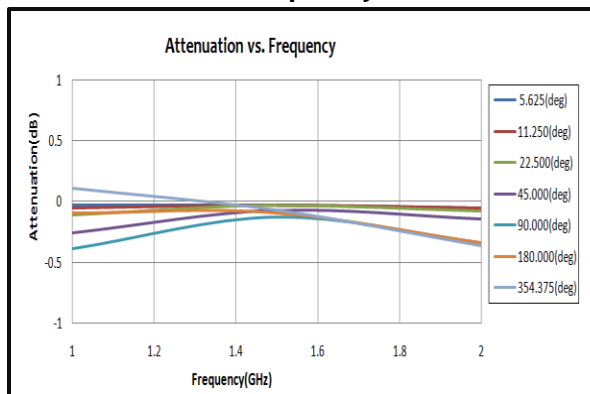
Normalized Loss. All States



Relative Phase Shift vs. Frequency



Attenuation vs. Frequency





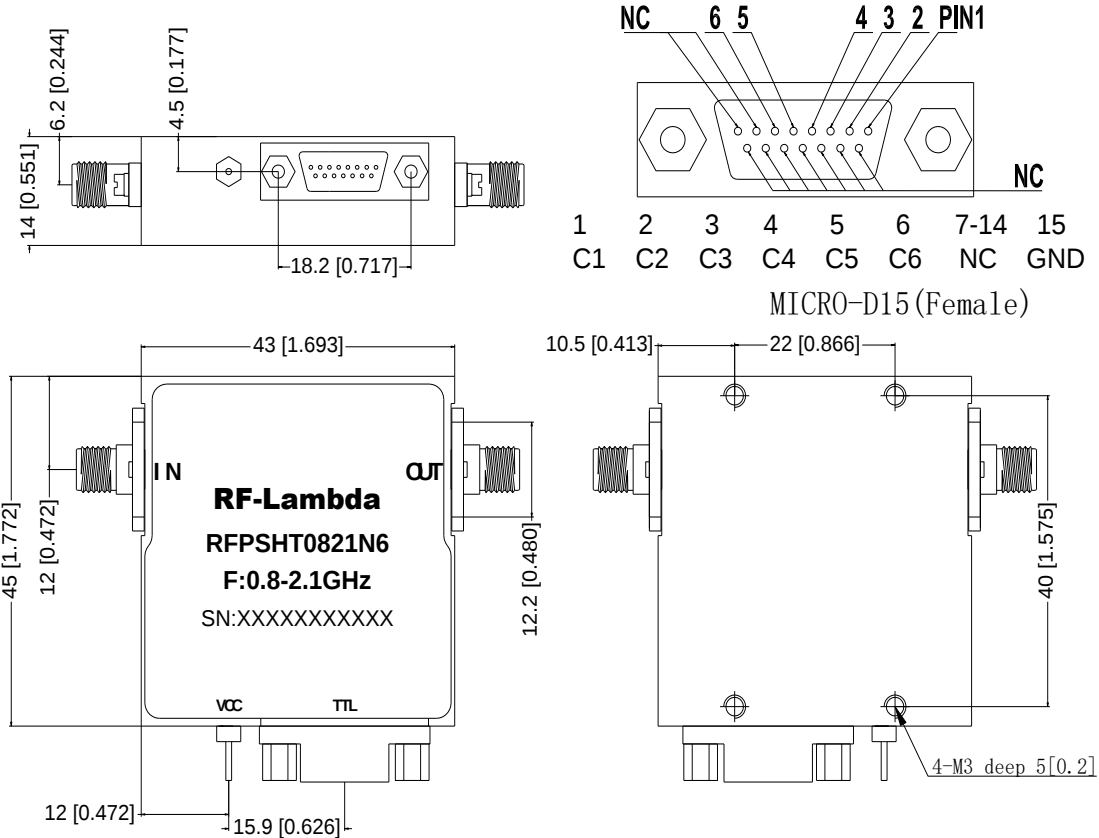
RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFPSHT0821N6

Outline Drawing:

All Dimensions in mm [inches]



Truth Table

Control Voltage Input						Phase Shift (Degrees)
C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	Reference
1	1	1	1	1	0	5.625
1	1	1	1	0	1	11.25
1	1	1	0	1	1	22.5
1	1	0	1	1	1	45
1	0	1	1	1	1	90
0	1	1	1	1	1	180
0	0	0	0	0	0	354.3



Important Notice

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

Digital Control 360° Phase Shifter 0.8-2.1GHz