



### Absorptive Coaxial SP12T Switch 1.5 – 4.5GHz



#### Features

- Wide Band Operation 1.5-4.5GHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation

#### Typical Applications

- Test and Measurement
- Wireless Infrastructure
- Military and Aerospace

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

Description	PN: RFSP12TA1545G			
	SP12T Absorptive Switch			
	Low Power Cold Switching			
Parameters	Min.	Typ.	Max.	Units
Frequency Range	1.5 – 4.5			GHz
Insertion Loss		2	2.5	dB
Insertion Loss Temperature Coefficient		0.003		dB/°C
Loss Imbalance		0.5		dB
Isolation	60	75		dB
Input VSWR		1.4	1.8	: 1
Output VSWR		1.4	1.8	: 1
RF Input power			30	dBm
DC Power Dissipation		2.5		W
0.1dB Compression Point (Po.1dB)		30		dBm
IIP3		55		dBm
Switching Speed		120	250	ns
Weight	7.05			ounces
Impedance	50			$\Omega$
Bias Current (+5V / -5V)	500 / 50			mA
Input / Output Connectors	SMA-Female			
Finish	Nickel Plated			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			

Absorptive Coaxial Single Pole Twelve Throw Switch 1.5 – 4.5GHz



**Absolute Maximum Ratings**

Biasing	+5V±10%/-28V±10%
TTL Control Voltage	0~0.8V / 2.8~5V

Note: TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.

**Ordering Information**

Part No.	ECCN	Description
RFSP12TA1545G	EAR99	SP12T 1.5-4.5GHz PIN Diode Switch

**Environmental Specifications and Test Standards**

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C (Case Temperature)
Storage Temperature		-50°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)

**Absorptive Coaxial Single Pole Twelve Throw Switch 1.5 – 4.5GHz**



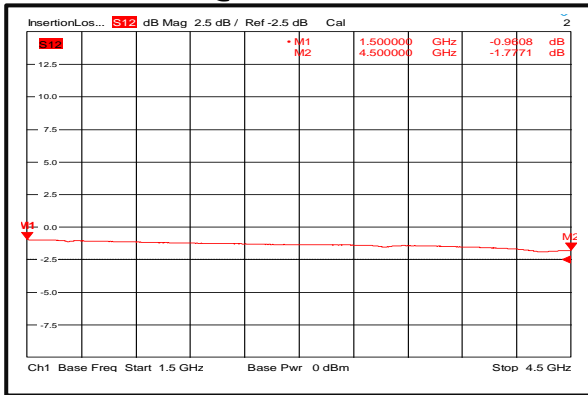
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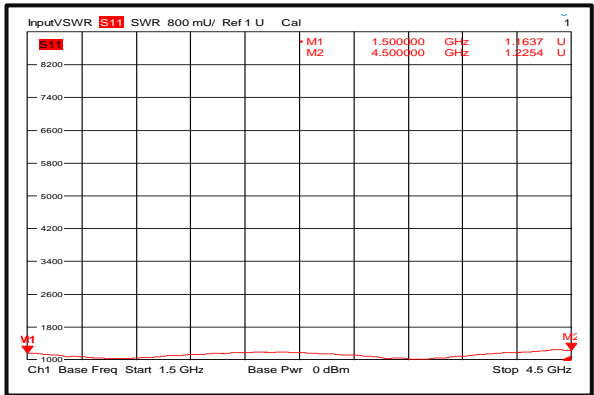
## RFSP12TA1545G

### Typical Performance Plots

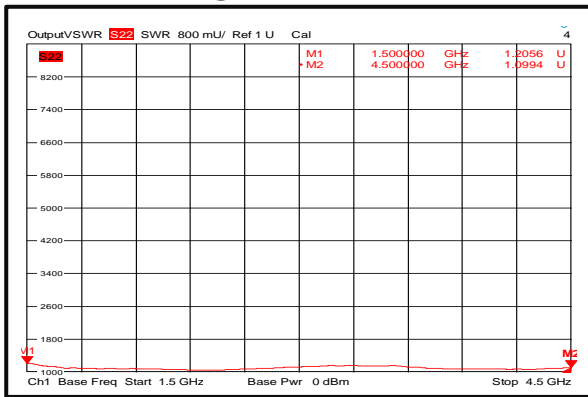
#### Insertion Loss @+25°C



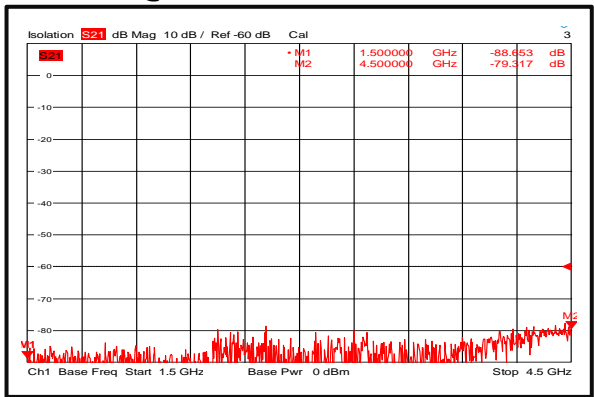
#### Input VSWR @+25°C



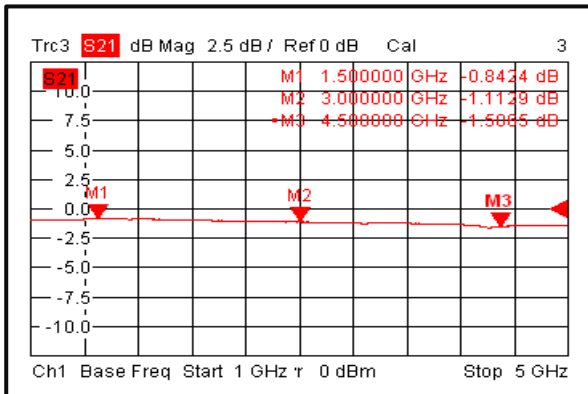
#### Output VSWR @+25°C



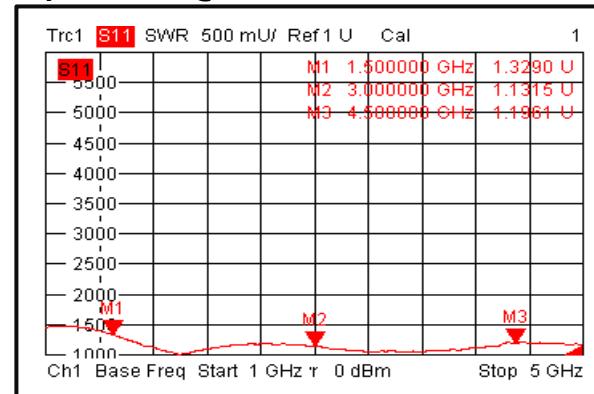
#### Isolation @+25°C



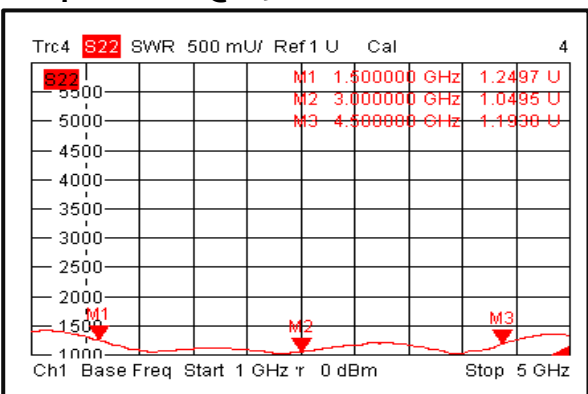
#### Insertion Loss @-45°C



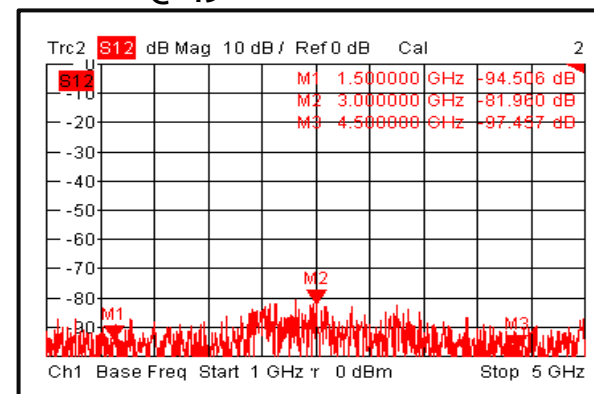
#### Input VSWR @-45°C



#### Output VSWR @-45°C



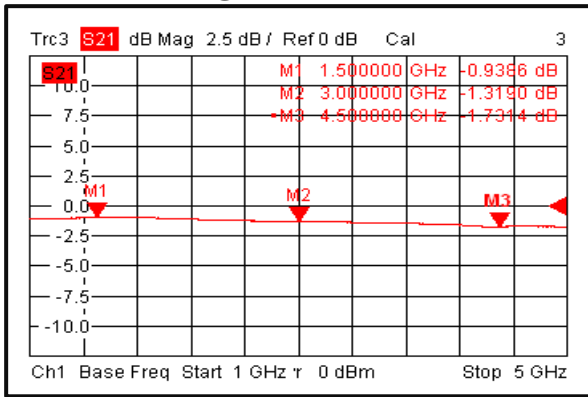
#### Isolation @-45°C



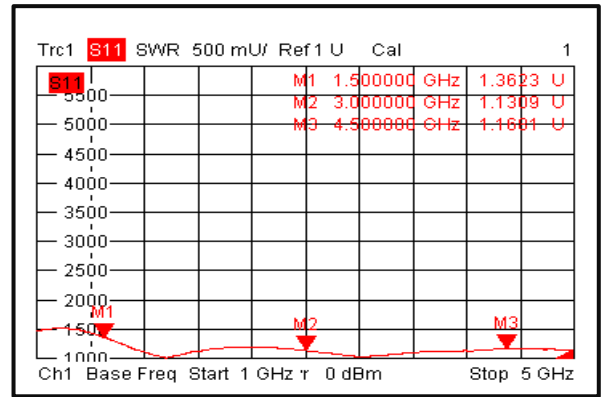
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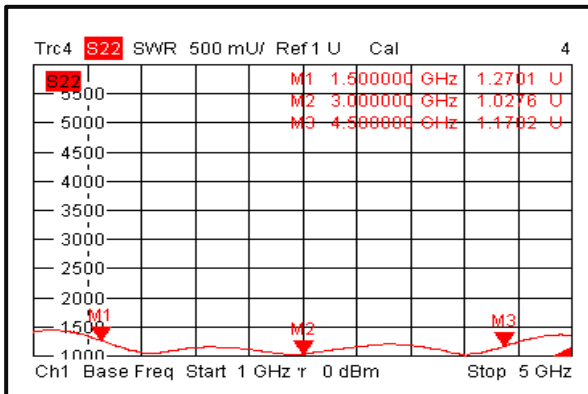
### Insertion Loss @+85°C



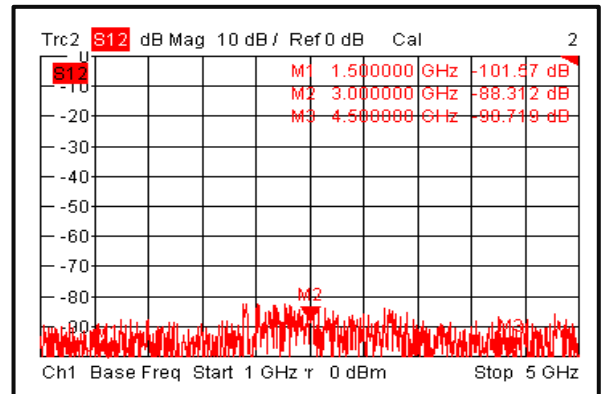
### Input VSWR @+85°C



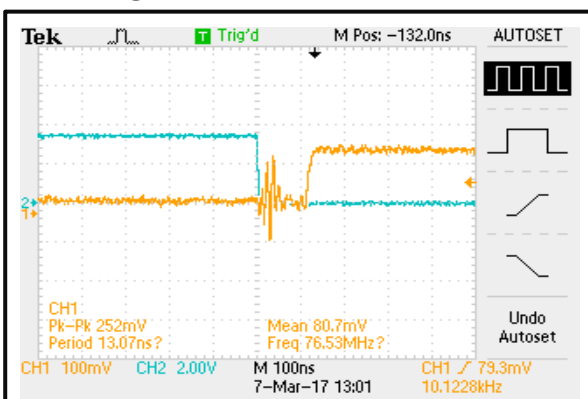
### Output VSWR @+85°C



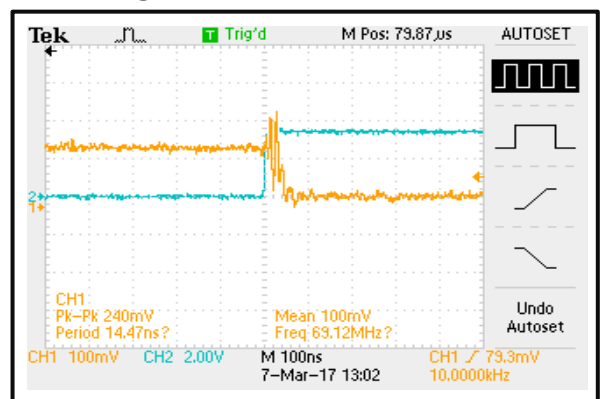
### Isolation @+85°C



### Switching Speed



### Switching Speed



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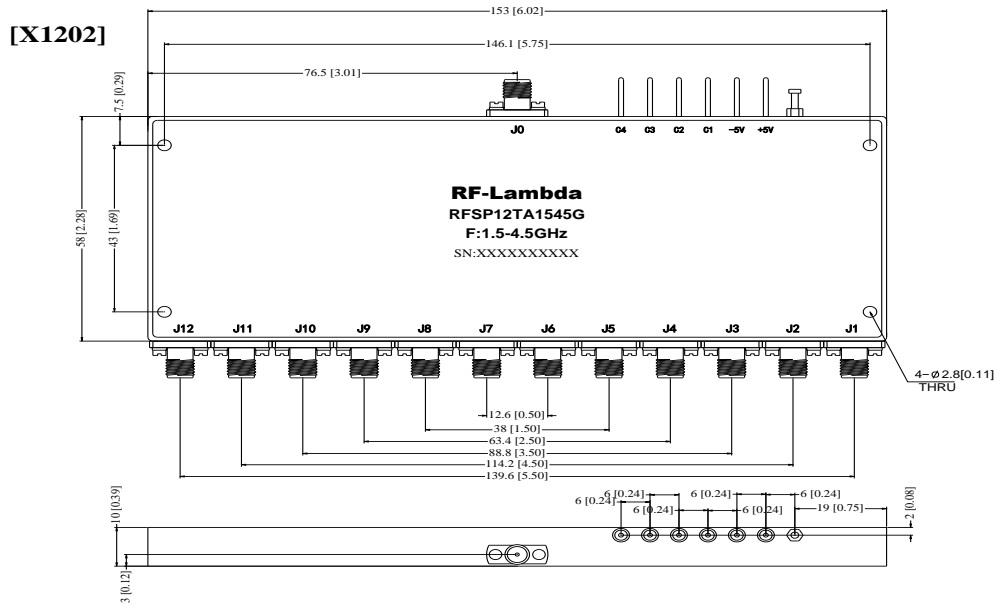
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## RFSP12TA1545G

### Outline Drawing:

All Dimensions in mm [inches]



### Truth Table

Control Input TTL				Signal Path State
c4	c3	c2	c1	
0	0	0	0	J0-J1
0	0	0	1	J0-J2
0	0	1	0	J0-J3
0	0	1	1	J0-J4
0	1	0	0	J0-J5
0	1	0	1	J0-J6
0	1	1	0	J0-J7
0	1	1	1	J0-J8
1	0	0	0	J0-J9
1	0	0	1	J0-J10
1	0	1	0	J0-J11
1	0	1	1	J0-J12
Control Pin Customization available upon request				



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