

Absorptive Coaxial SP2T Switch 30 - 90GHz



Features

- Wide Band Operation 30-90GHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation

Typical Applications

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement

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

Description	PN: RFSP2TA3090G						
	SP2T Absorptive Switch						
	Low Power Cold Switching						
Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	30-60			60-90			GHz
Insertion Loss		10.0	11.0		13.0	14.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/°C
Isolation	25	30		25	30		dB
Input VSWR		3.0	3.5		2.5	3.0	: 1
Output VSWR		3.0	3.5		2.5	3.0	: 1
RF Input Power			15			15	dBm
DC Power Dissipation		0.1			0.1		W
0.1dB Compression Point ($P_{0.1\text{dB}}$)		15			15		dBm
IIP3		38			35		dBm
Switching Speed		250	350		250	350	ns
Weight	0.5Max.						ounces
Impedance	50						Ω
Bias Current (+5V / -5V)	10/10 Max.						mA
Input / Output Connectors	1.0mm-Female						
Finish	Gold Plated						
Material	Aluminum						
Sealing	Hermetically Sealed (Optional)						

Absolute Maximum Ratings

Biasing	+5V±10%/-5V±10%
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Note: TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.

Ordering Information

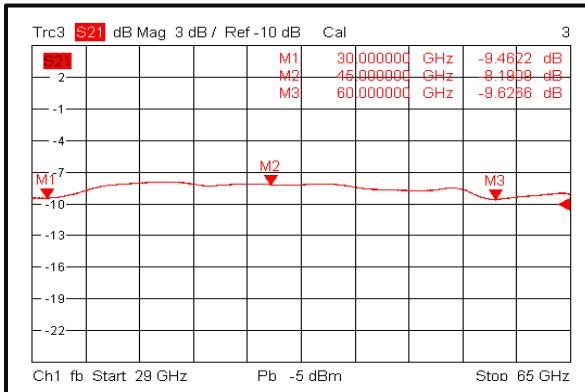
Part No.	Description
RFSP2TA3090G	SP2T 30-90GHz PIN Diode Switch

Environmental Specifications and Test Standards

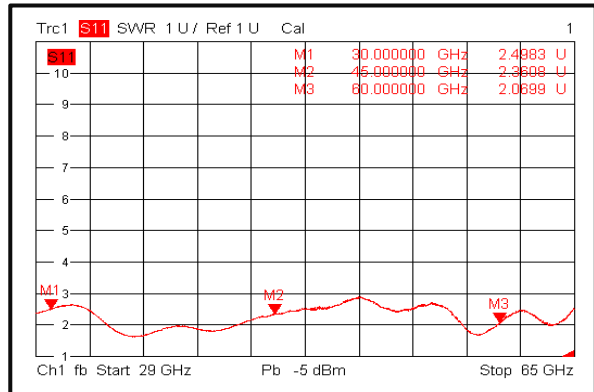
Parameter	Description
Operational Temperature	-40°C~+85°C (Case Temperature)
Storage Temperature	-50°C~+105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours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

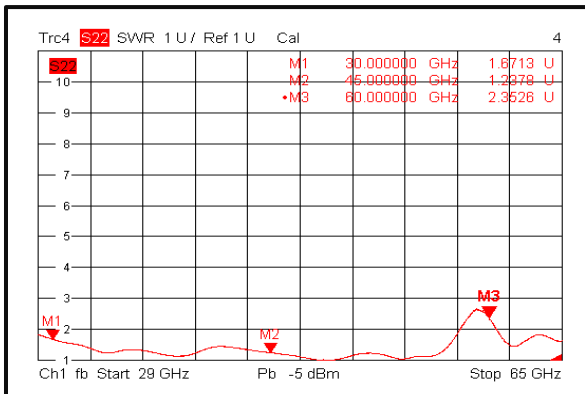
Insertion Loss@+25°C (30-60GHz)



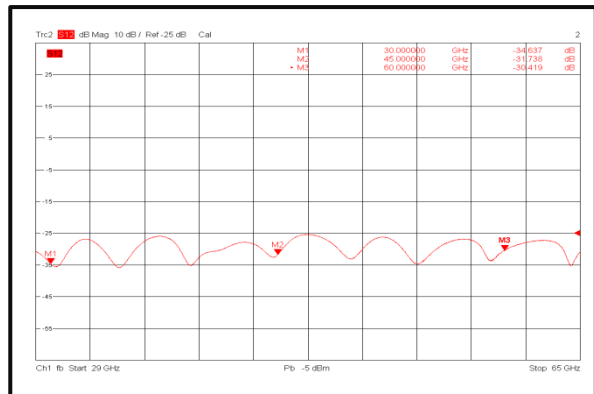
Input VSWR @+25°C (30-60GHz)



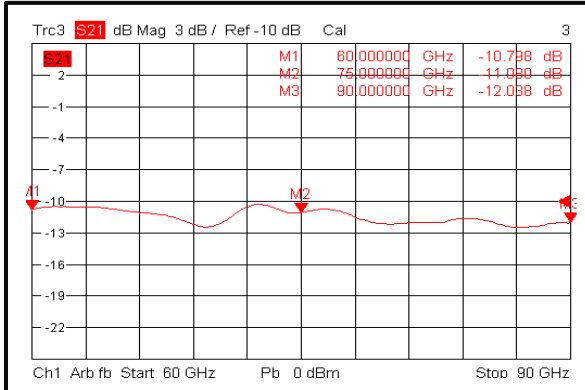
Output VSWR@+25°C (30-60GHz)



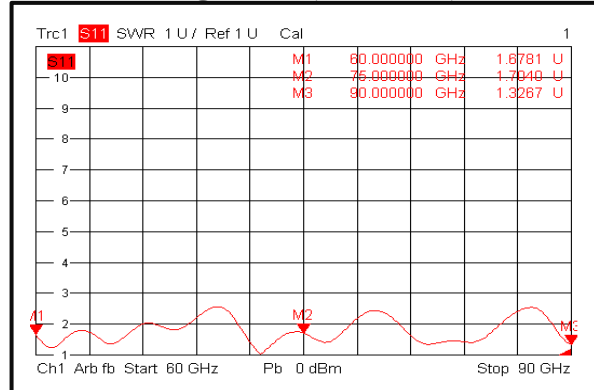
Isolation@+25°C (30-60GHz)



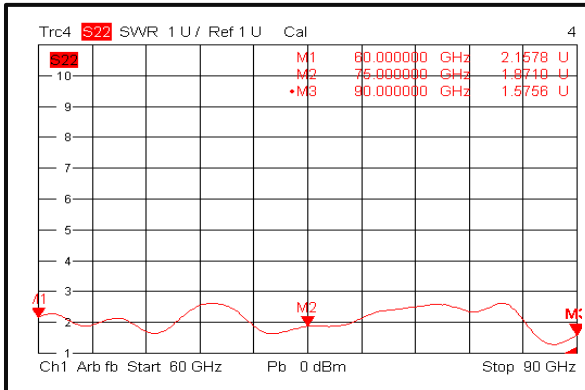
Insertion Loss@+25°C (60-90GHz)



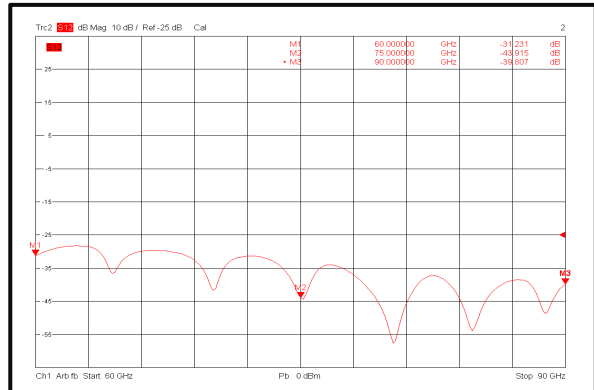
Input VSWR@+25°C (60-90GHz)



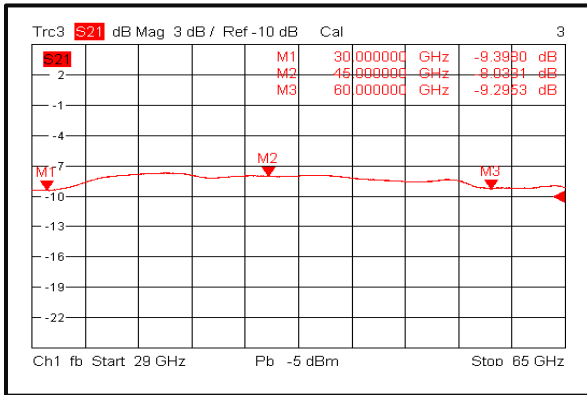
Output VSWR@+25°C (60-90GHz)



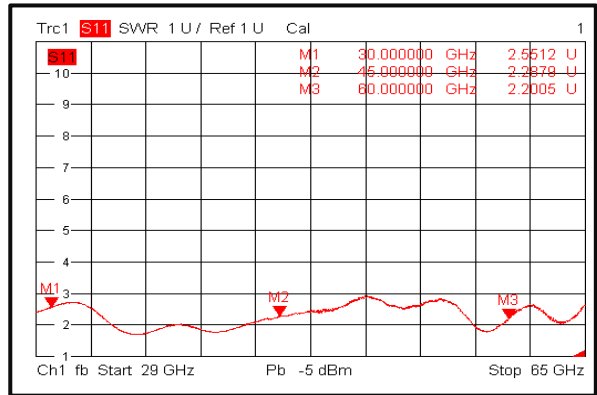
Isolation@+25°C (60-90GHz)



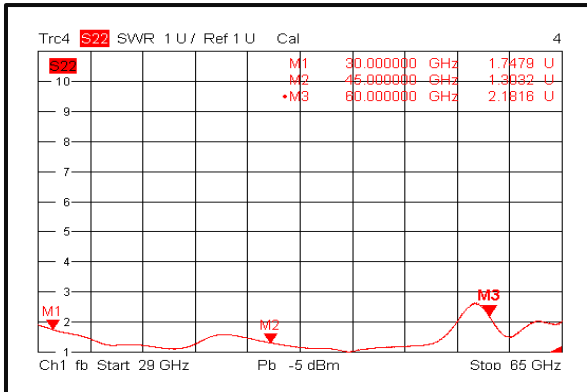
Insertion Loss@-40°C



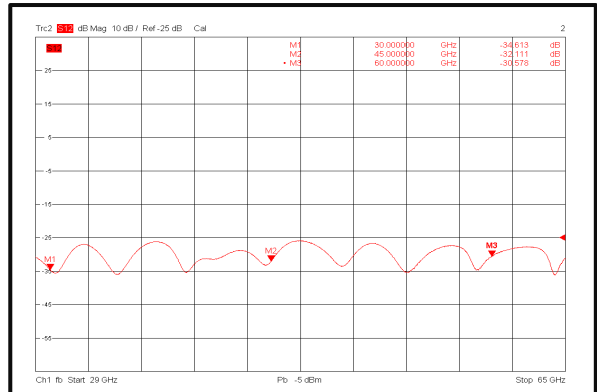
Input VSWR @-40°C



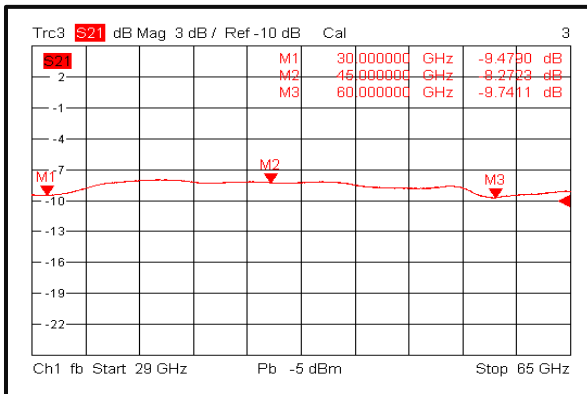
Output VSWR@-40°C



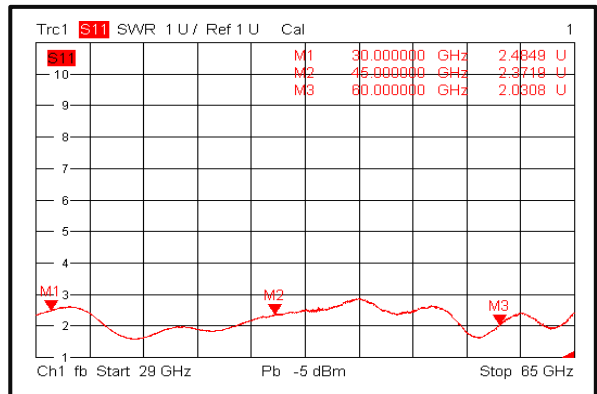
Isolation@-40°C



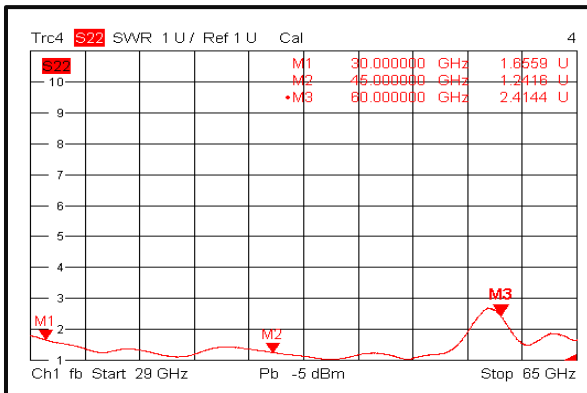
Insertion Loss@+85°C



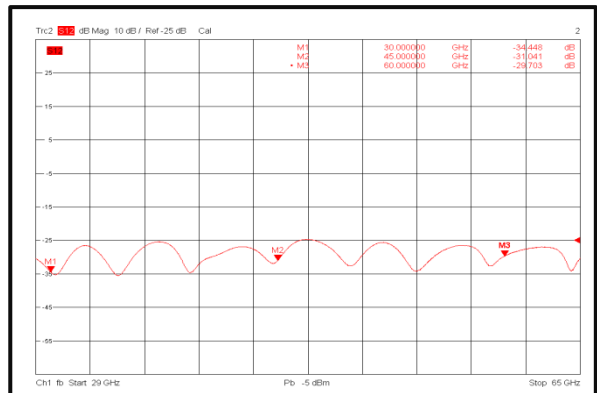
Input VSWR @+85°C



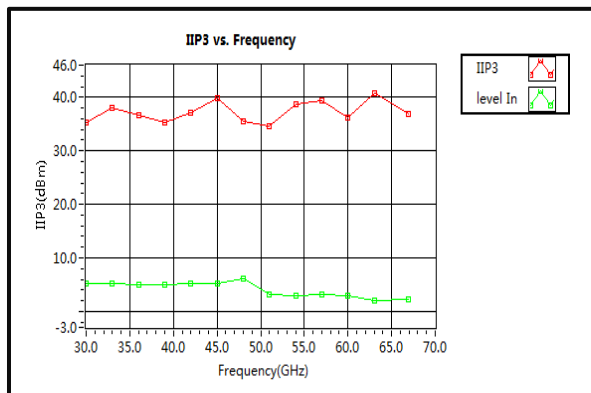
Output VSWR@+85°C



Isolation@+85°C



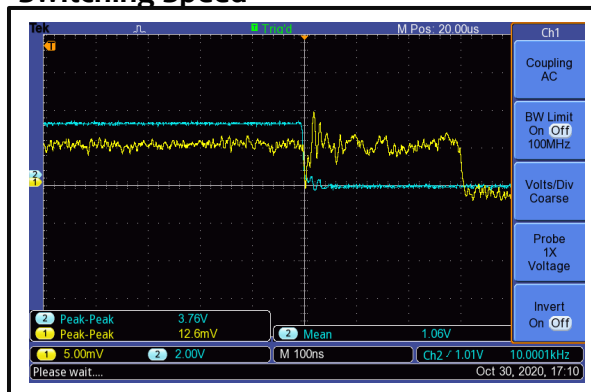
IIP3



Switching Speed



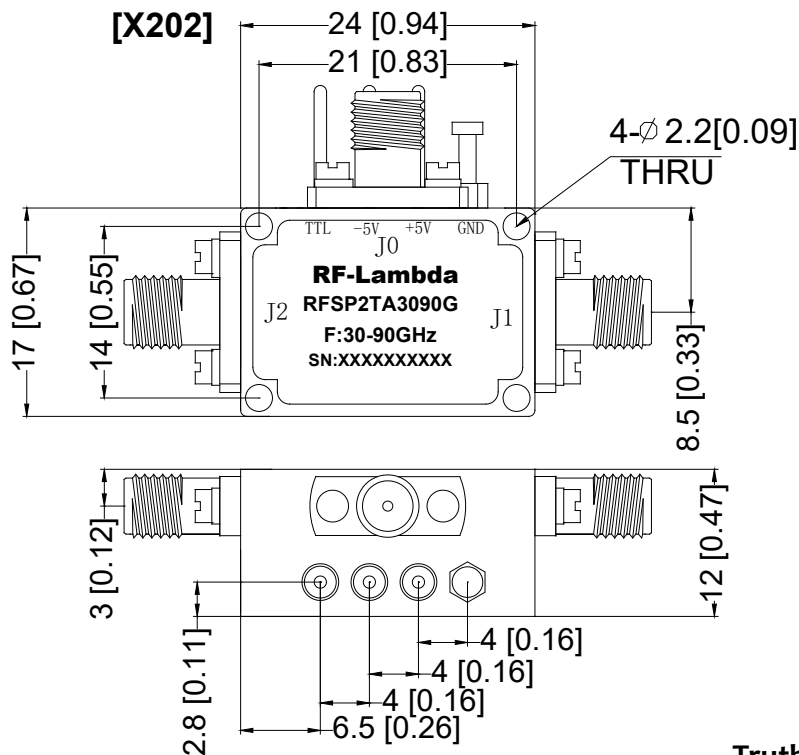
Switching Speed



Outline Drawing:

All Dimensions in mm [inches]

Housing Tolerances ± 0.1 [0.004]



Truth Table

TTL Control Voltage THRESHOLD	Low(0)=0~0.8V
	High(1)=2.8~5V
Control Input TTL	Signal Path State
1	J0-J1
0	J0-J2
Control Pin Customization available upon request	



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