

Reflective Coaxial SP2T Switch 100-250MHz



Key Features

- Wide Band Operation 100-250MHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation

Typical Applications

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement
- Radar and Satellite
- 5G LTE Communications

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{dd} = +5\text{V}/-28\text{V}$, TTL = 0 / +5V

Description	PN: RFSP2TR0125M			
	SP2T Reflective Switch			
	High Power Cold Switching			
Parameters	Min.	Typ.	Max.	Units
Frequency Range	100-250			MHz
Insertion Loss		0.4	0.8	dB
Insertion Loss Temperature Coefficient		0.003		dB/ $^\circ\text{C}$
Isolation	55	65		dB
Input VSWR		1.25	1.5	: 1
Output VSWR		1.25	1.5	: 1
RF Input Power (5us Pulse width, 10% duty cycle)			300	W
DC Power Dissipation		1		W
0.1dB Compression Point (P 0.1dB)		51		dBm
IIP3		53		dbm
Switching Speed		1.2		us
Weight	8.0 Max.			OZ
Impedance	50			Ω
Bias Current (+5V/-28V)	200/50 Max.			mA
Input / Output Connectors	N-Female / SMA-Female			
Finish	Nickel Plated			
Material	Aluminum			
Sealing	Epoxy Sealed (Standard) Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Parameter	Value
Biasing	+5V±10%/-28V±10%

Ordering Information

Part Number	Description
RFSP2TR0125M	SP2T 100-250MHz PIN Diode Switch

Notes:

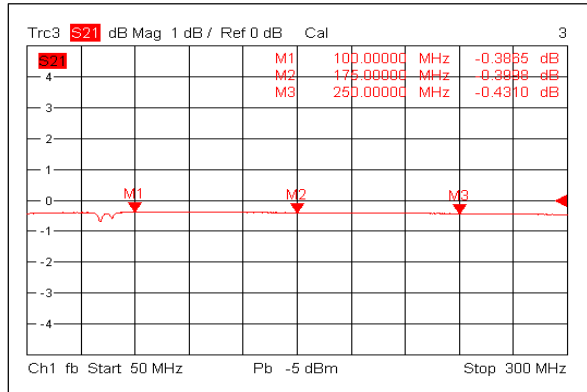
- TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.
- If the device operates in high power state, case temperature must be lower than 60°C.
- Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

Environmental Specifications and Test Standards

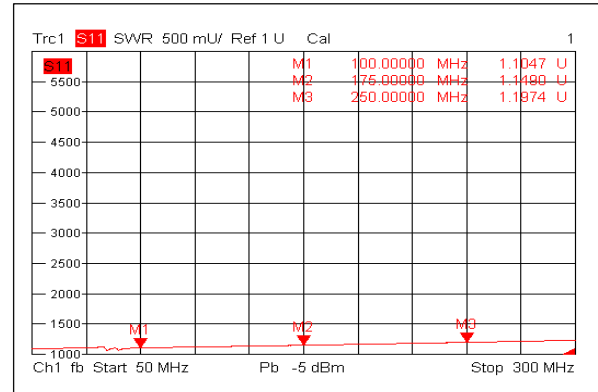
Parameter	Description
Operational Temperature	-40°C~+85°C (Case Temperature)
Storage Temperature	-50°C~+105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours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

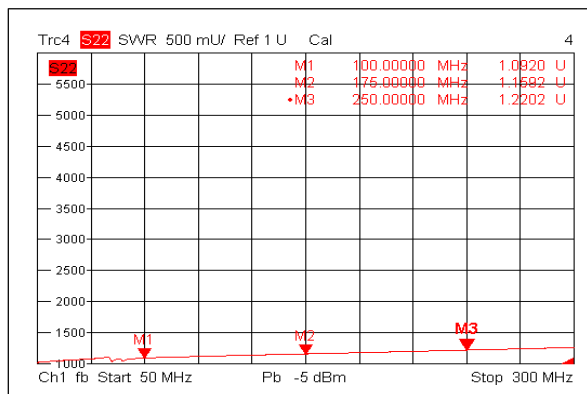
Insertion Loss @+25°C



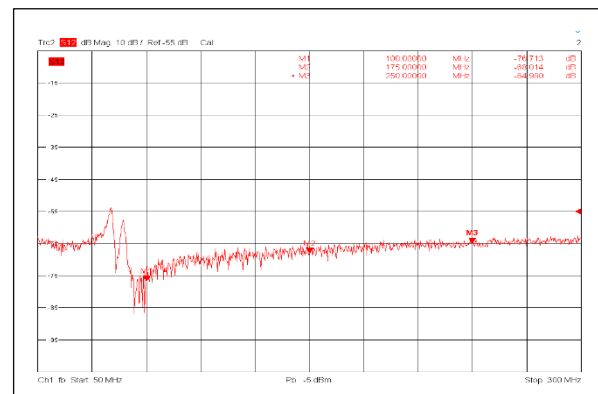
Input VSWR @+25°C



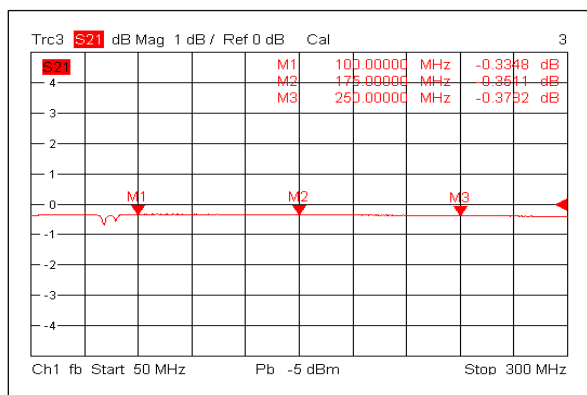
Output VSWR @+25°C



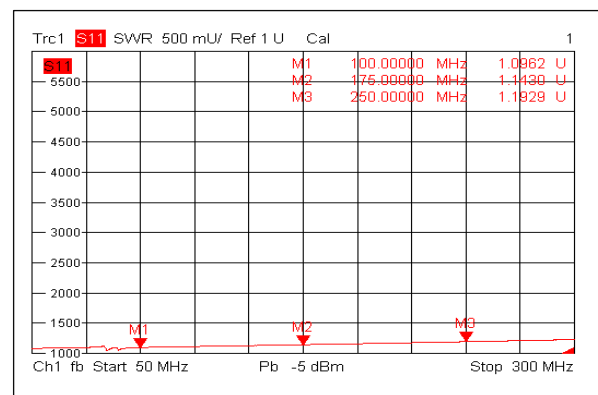
Isolation @+25°C



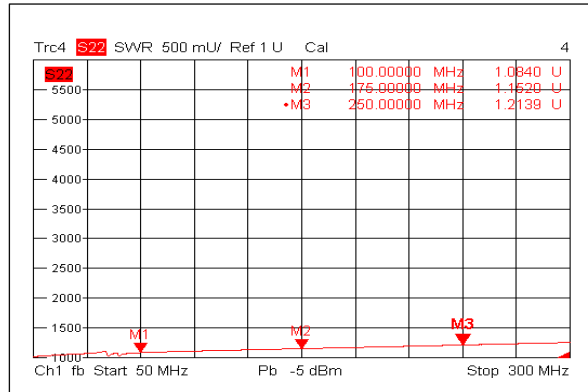
Insertion Loss @-40°C



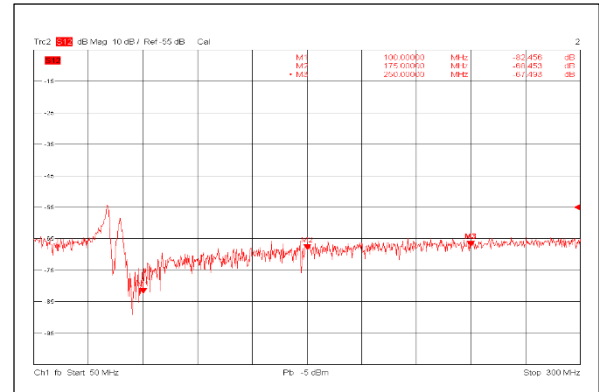
Input VSWR @-40°C



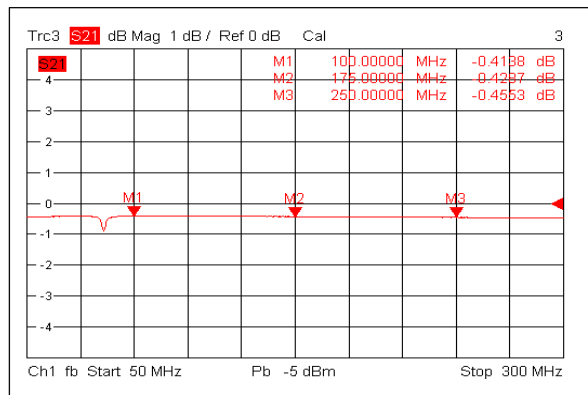
Output VSWR @-40°C



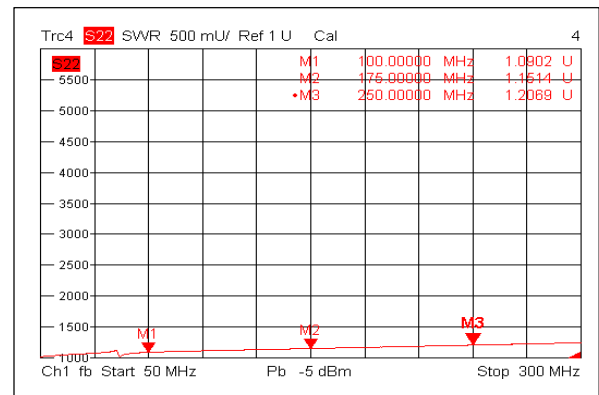
Isolation @-40°C



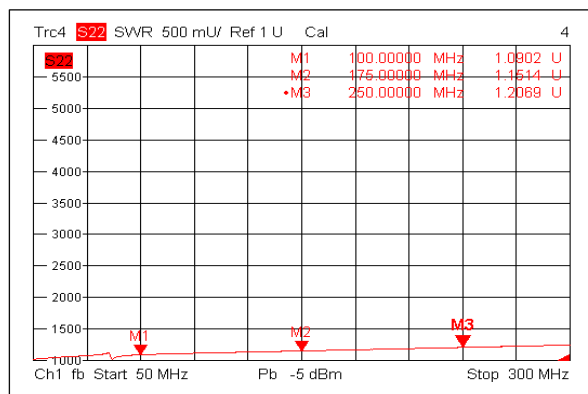
Insertion Loss @+85°C



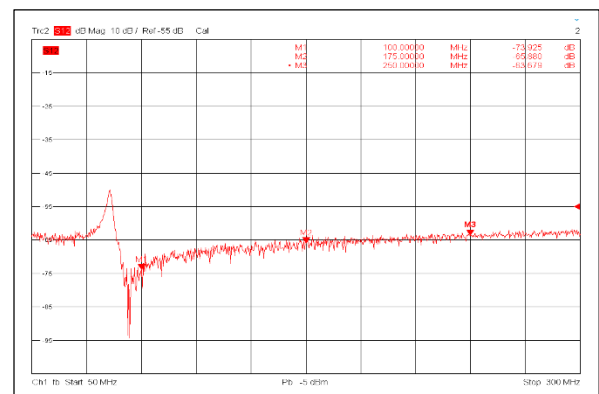
Input VSWR @+85°C



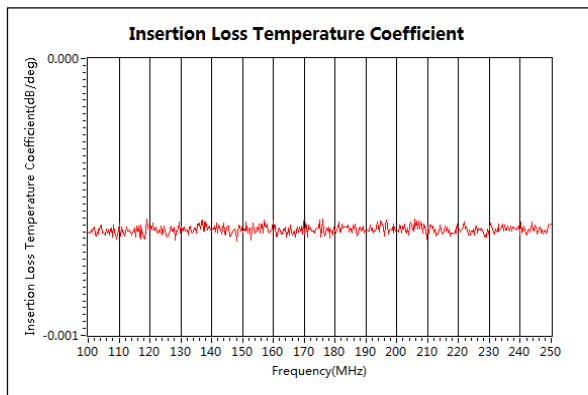
Output VSWR @+85°C



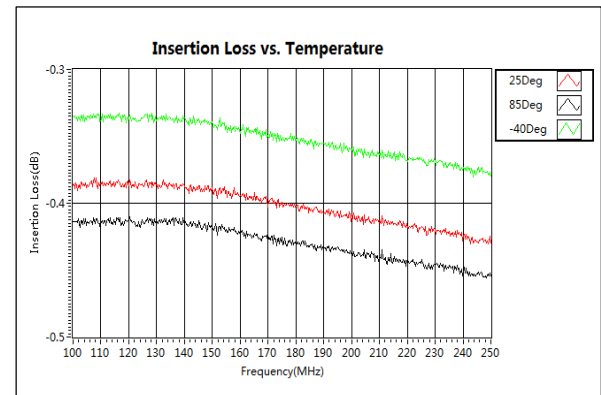
Isolation @+85°C



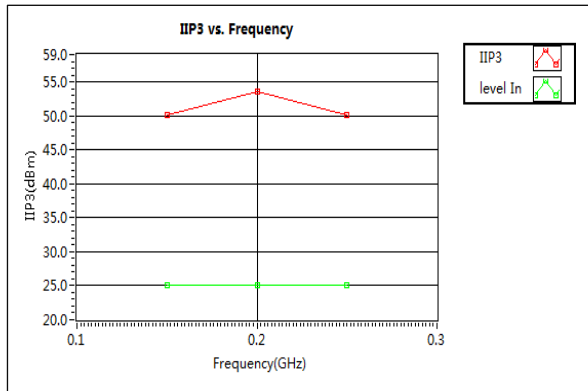
Insertion Loss Temperature Coefficient



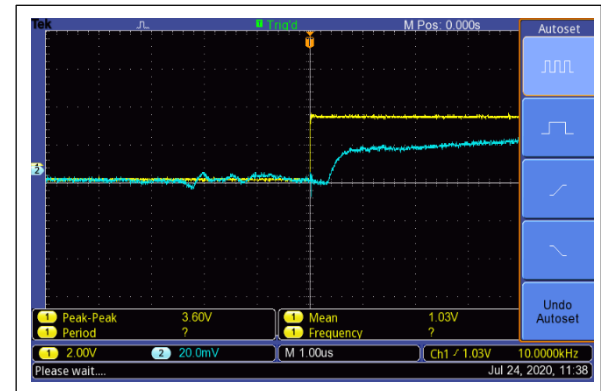
Insertion Loss vs. Temperature



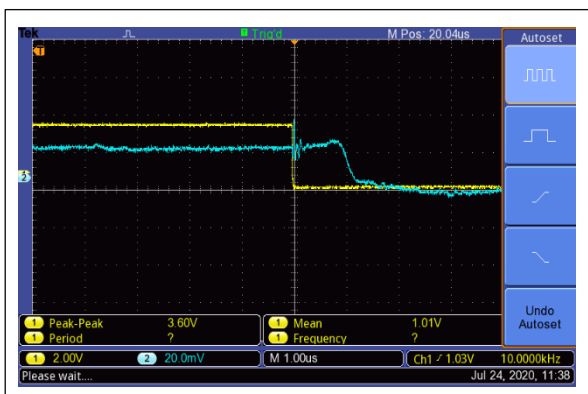
IIP3



Switching Speed

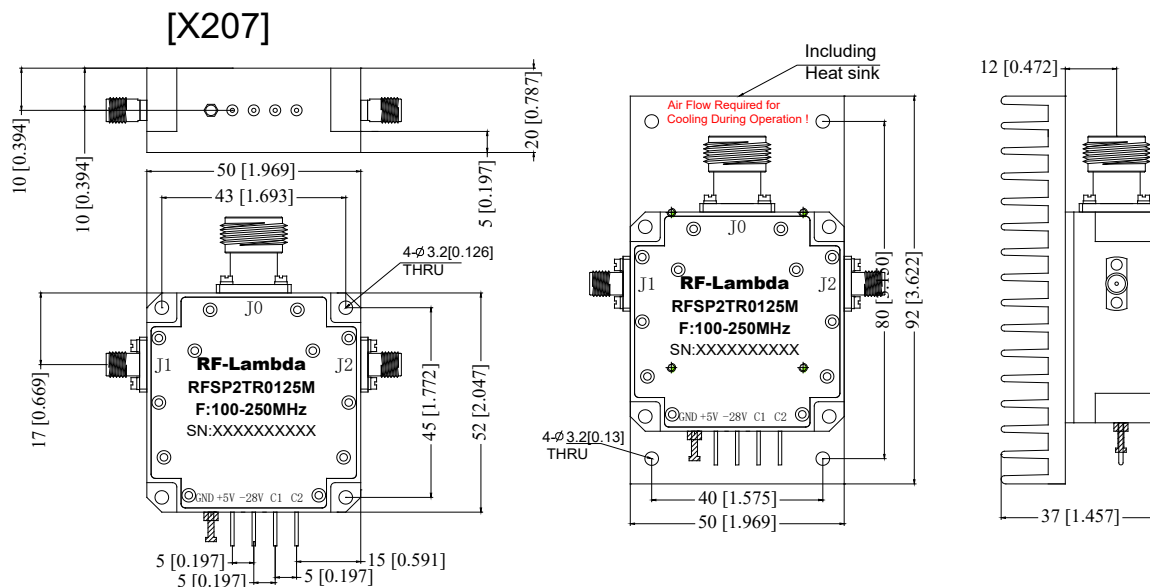


Switching Speed



Outline Drawing

All Dimensions in mm [inches]
Housing Tolerances ± 0.2 [0.008]



Notes:

- Heatsink Mandatory for Operation.
- Standard torque wrench must be used to secure RF connectors.

Truth Table		
TTL Control Voltage	Low(0)=0-0.8V	
	High(1)=2.8-5V	
Control Input TTL	Signal Path State	
C2	C1	
0	0	OFF
0	1	J0-J1
1	0	J0-J2
1	1	Not Used
Control Pin Customization available upon request		



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.