

Wide Band Coaxial DPDT Switch 0.5 – 43.5GHz



Features

- Ultra Wide Band Operation 0.5-43.5GHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation

Typical Applications

- Wireless Infrastructure
- Test and Measurement
- 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: RFDPDTA5M43G									
	DPDT Switch									
	Low Power Cold Switching									
Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.5		8	8		26.5	26.5		43.5	GHz
Insertion Loss		2.5	3.5		3.0	4.0		5.0	6.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/°C
Isolation	40	45		40	45		40	45		dB
Input VSWR		1.6	2.0		2.5	3.0		1.8	3.0	:1
Output VSWR		1.6	2.0		2.5	3.0		1.8	3.0	:1
RF Input Power			23			23			23	dBm
DC Power Dissipation		0.7			0.7			0.7		W
0.1dB Compression Point ($P_{0.1dB}$)		23			23			23		dBm
IIP3		43			40			38		dBm
Switching Speed	100 Max.									ns
Weight	1.5 Max.									ounces
Impedance	50									Ω
Bias Current (+5V / -5V)	120/100 Typ.									mA
Input / Output Connectors	2.92mm-Female									
Finish	Gold Plated									
Material	Aluminum									
Sealing	Hermetically Sealed (Optional)									

Wide Band Double Pole Double Throw Switch 0.5 – 43.5GHz

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

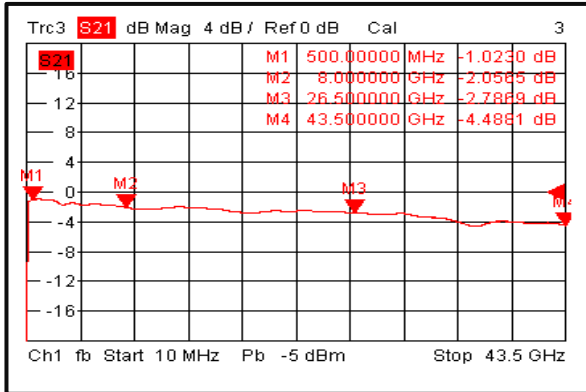
Part No.	Description
RFDPDTA5M43G	DPDT 0.5-43.5GHZ PIN Diode Switch

Environmental Specifications and Test Standards

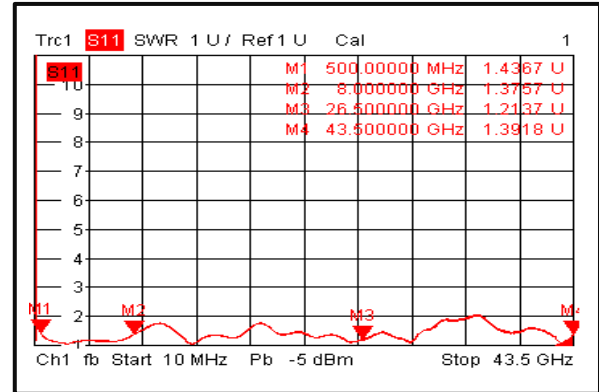
Parameter	Description
Operational Temperature	-40°C~+85°C (Case Temperature)
Storage Temperature	-50°C~+105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours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

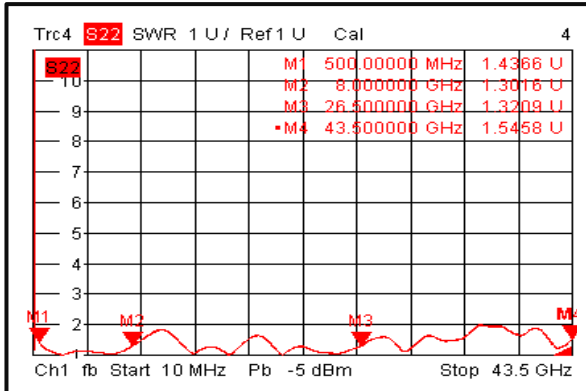
Insertion Loss @+25°C



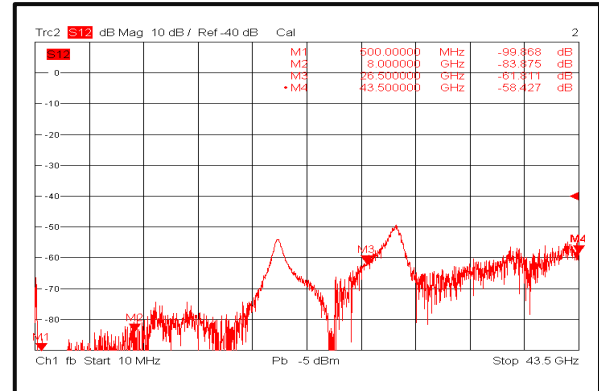
Input VSWR @+25°C



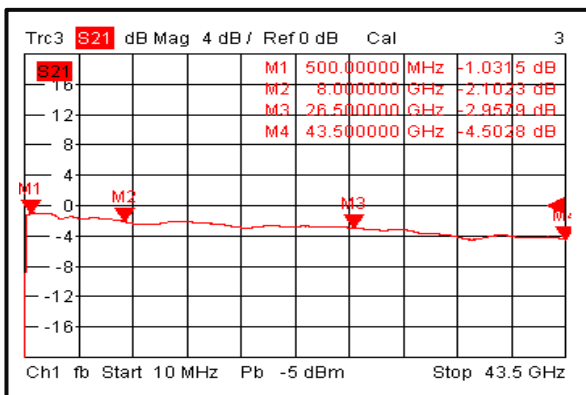
Output VSWR @+25°C



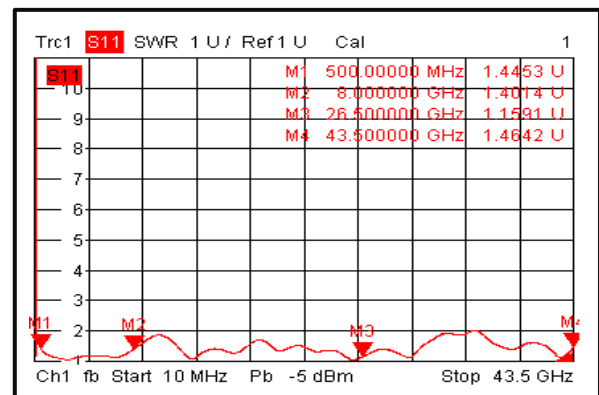
Isolation @+25°C



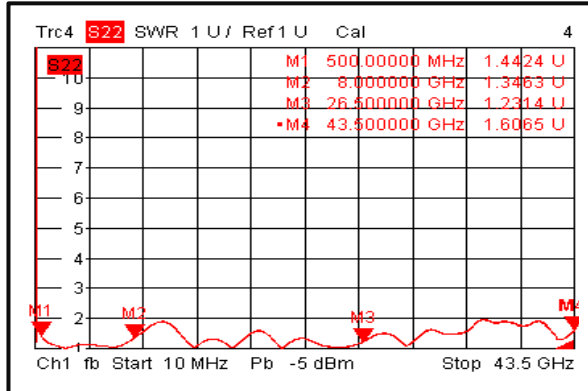
Insertion Loss @-40°C



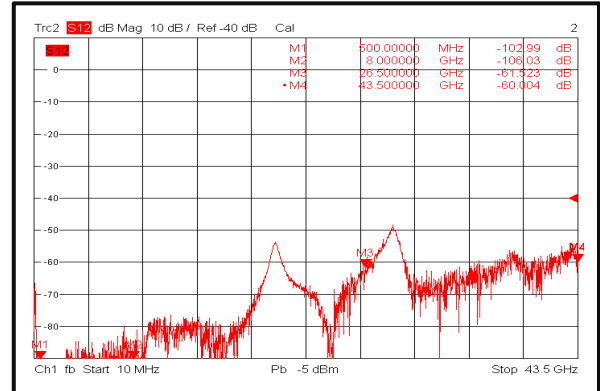
Input VSWR @-40°C



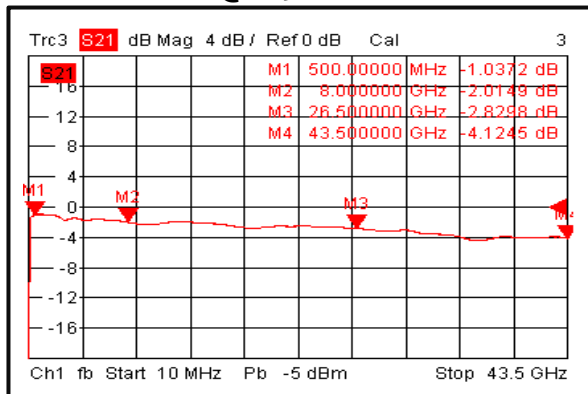
Output VSWR @-40°C



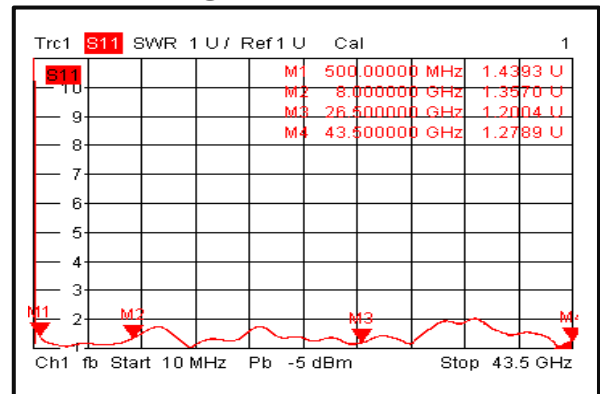
Isolation @-40°C



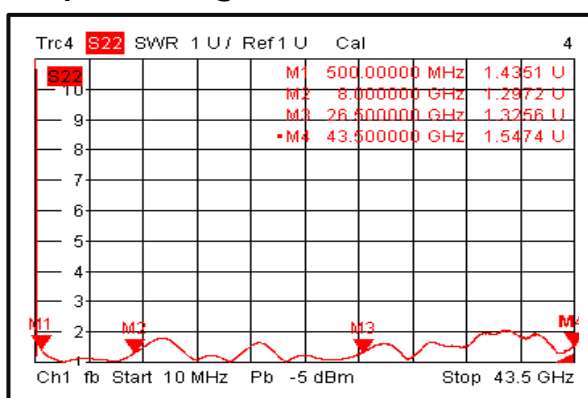
Insertion Loss @+85°C



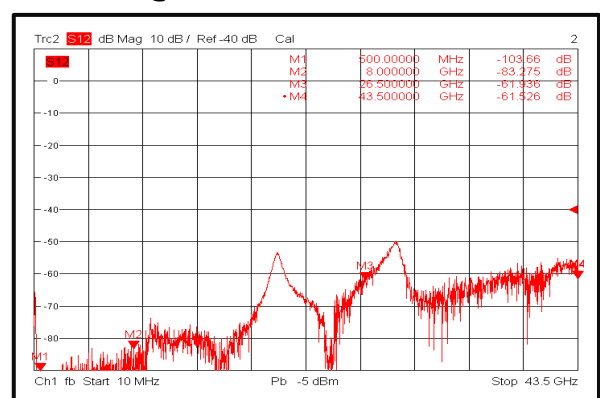
Input VSWR @+85°C



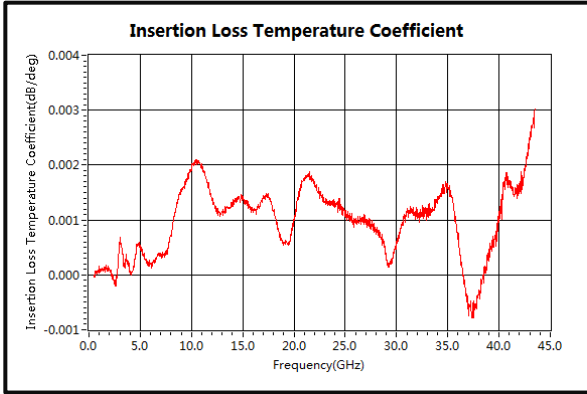
Output VSWR @+85°C



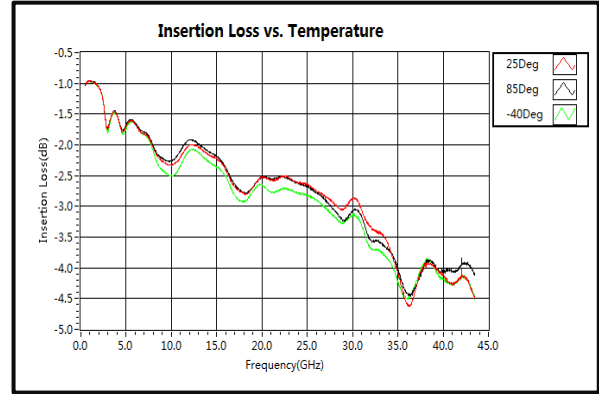
Isolation @+85°C



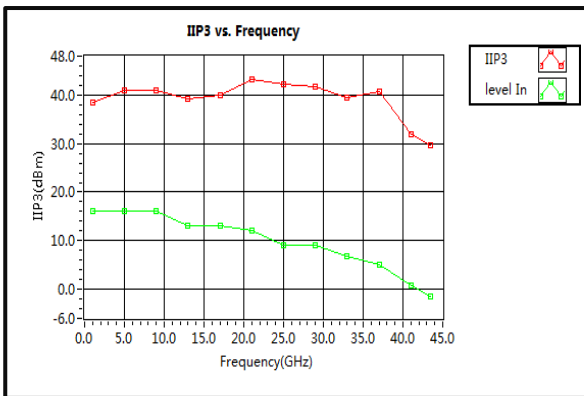
Insertion Loss Temperature Coefficient



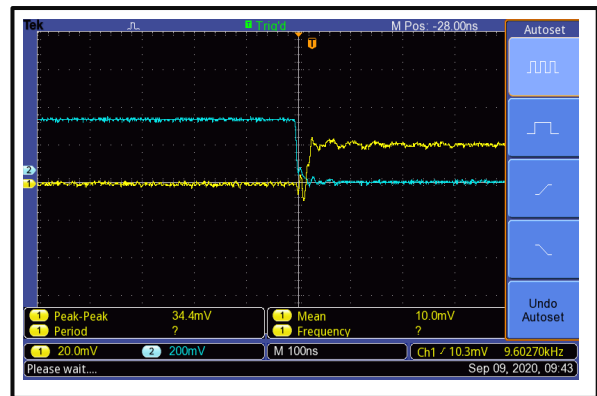
Insertion Loss vs. Temperature



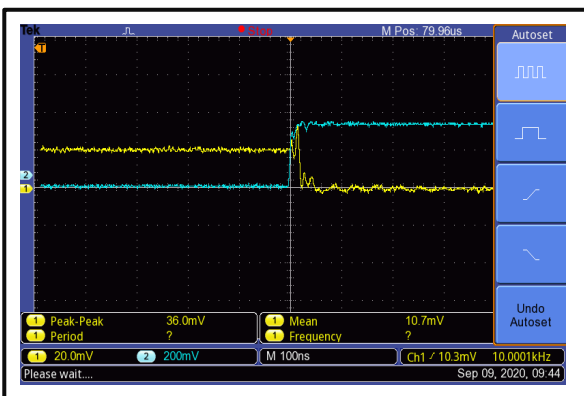
IIP3



Switching Speed



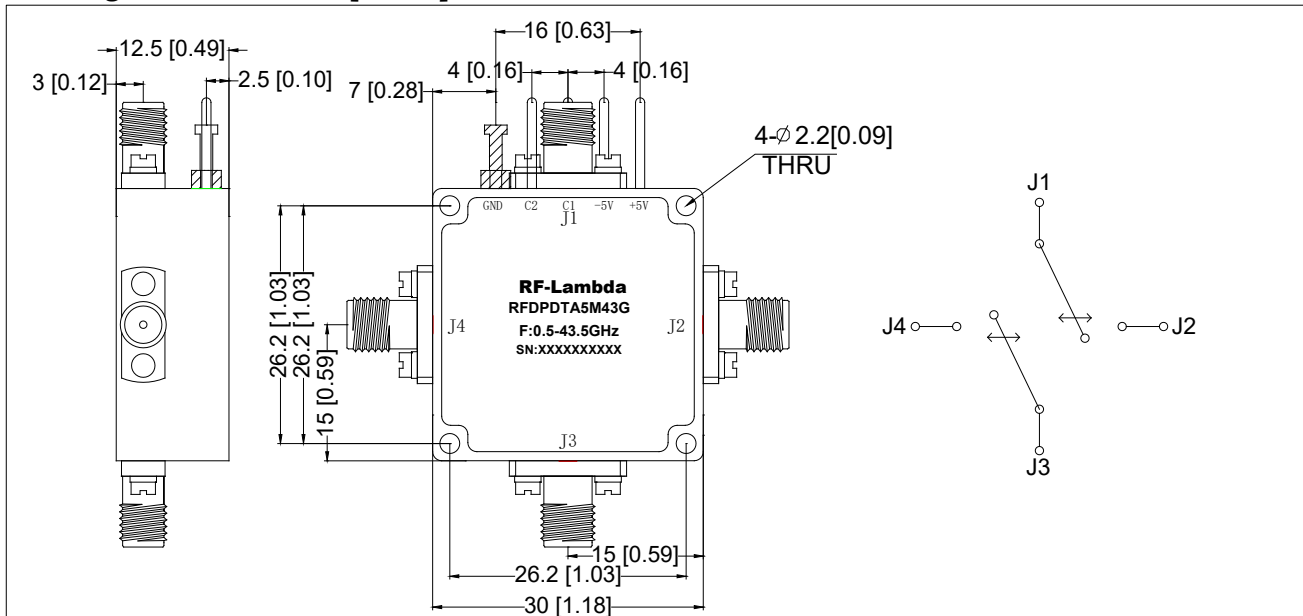
Switching Speed



Outline Drawing:

All Dimensions in mm [inches]

Housing Tolerances ± 0.1 [0.004]



Truth Table

TTL Control Voltage THRESHOLD		Low(0)=0~0.8V	
		High(1)=2.8~5V	
Control Input TTL		Signal Path State	
C2	C1		
1	0	J1-J2(IL state) J3-J4(IL state)	J1-J4(ISO state) J2-J3(ISO state)
0	1	J1-J2(Isolation state) J3-J4(Isolation state)	J1-J4(IL state) J2-J3(IL state)
1	1	All OFF	
		Control Pin Customization available upon request	



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