

Wide Band Coaxial DPDT Switch 0.01GHz-12GHz



Note: The photo is for illustration purposes only.
Please refer to the outline drawing.

Product Description

RFDPDTRADC12G is an absorptive coaxial single pole four throw switch with a frequency range of 0.01 to 12GHz.

The power input of this switch is 43dBm Max. The Insertion Loss is 3dB Max with a typical isolation of 60dB

The product features fast switching speed, low insertion loss and high isolation.

The working temperature of this product is between - 40 °C and + 85 °C

Features

- TTL compatible driver included
- DPDT configuration
- Fast Switching Speed
- High Power Cold Switching
- Insertion Loss 3.0 dB
- Isolation 60 dB
- 50 Ohm Matched

Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

Electrical Specifications, TA = +25°C, Vdd = +5V, TTL = 0 / +5V

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.01 - 6			6-12		GHz
Insertion Loss		2.0			3.5		dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation		60			50		dB
Input VSWR		1.3	1.8		1.8		: 1
Output VSWR		1.3	1.8		1.8		: 1
*RF Input Power (CW) (50Ω, T = 25°C)			43			43	dBm
Power Dissipation		0.8			0.8		W
0.1dB Compression Point (P0.1dB)		43			43		dBm
IIP3		50			50		dBm
Switching Speed			500 Typ.				ns
Bias Current (+5V)			150 Max.				mA
Weight			/ Max.				lbs
Impedance			50				Ω
Input / Output Connectors			SMA – Female(Input) - SMA – Female(Output)				
Package			Epoxy Sealed (Standard)				
			Hermetically Sealed (Optional)				

* When the working frequency is lower than 100MHz, the power needs to be derated linearly to 1W from 100MHz to 10MHz.

Absolute Maximum Ratings

Parameter	Rating
Biasing	+5V±10%

Notes:

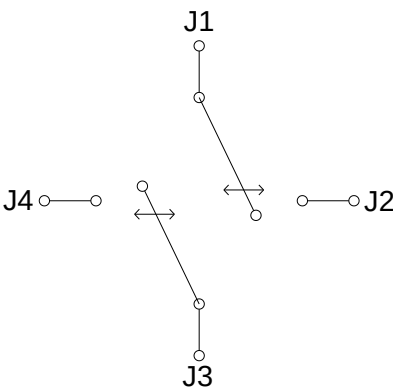
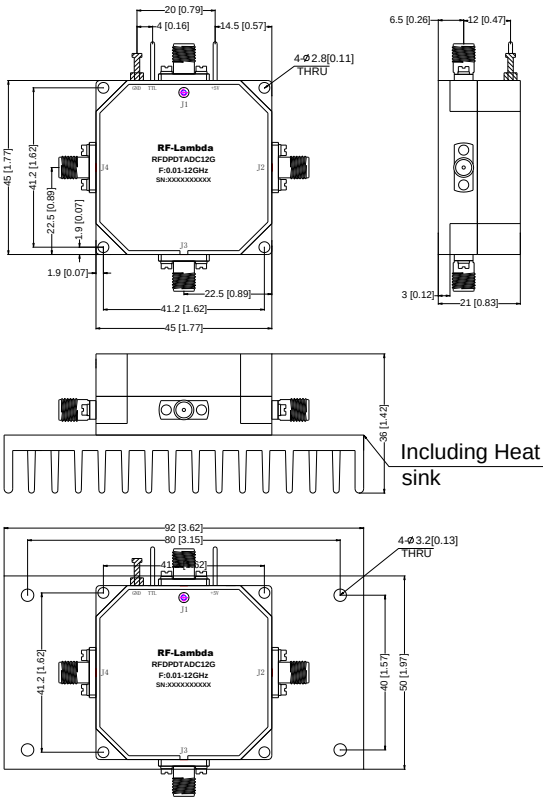
1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged .
2. If the device operates in high power state, recommend keeping case temperature lower than 60°C.
3. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.
4. DC blocks required . Input and output ports must not be connected to DC ground or any DC voltage or the switch will be damaged.

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Storage Temperature	-50°C to +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)

*For vibration testing details please see additional information section.

Outline Drawing

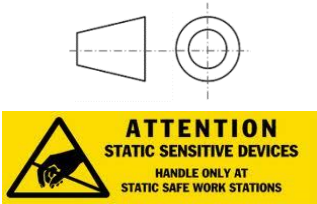


Truth Table

TTL Control Voltage	Low(0)=0~0.8V
THRESHOLD	High(1)=2.8~5V
Control Input TTL	Signal Path State
0	J1-J2(IL state) J1-J4(ISO state) J3-J4(IL state) J2-J3(ISO state)
1	J1-J2(ISO state) J1-J4(IL state) J3-J4(ISO state) J2-J3(IL state)

Control Pin Customization available upon request

- Notes:
1. Package Material: Aluminum
 2. Finish: Gold Plated
 3. All dimensions are in millimeters [inches].
 4. Housing Tolerances ±0.1 [0.004] unless otherwise specified.
 5. Heatsink Required - Mandatory for High Power Operation .Matching heatsink is listed on our website. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
 6. Standard torque wrench must be used to secure RF connectors.



Additional Information

Documentation	Webpage
ESD Policy	https://rflambda.com/pdf/rflambda_esd_control.pdf
Heatsink Lookup Specifications	https://rflambda.com/search_heatsink.jsp
Connector Torque Specifications	https://www.rflambda.com/pdf/Torque_Specifications.pdf
Random Vibration Test Standard	https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Ordering Information

Part Number	Modification	Description
RFDPDTRDC12G	Standard	0.01GHz-12GHz DPDT PIN Diode Switch

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