

Reflective Coaxial SP8T Switch 0.01GHz-18GHz



Product Description

RFSP8TRDC18G is a reflective coaxial single pole eight throw switch with a frequency range of 0.01 to 18GHz.

The power input of this switch is 40dBm Max. The insertion loss is 5.5dB with a typical isolation of 40dB.

The product features of 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
- Fast Switching Speed
- High Power Cold Switching
- Insertion Loss 5.5dB
- Isolation 40dB
- 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 = +12V, TTL = 0 / +5V

Parameter		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.01		0.1	0.1		6	6		18	GHz
Insertion Loss			4.0	4.5		4.0	4.5		5.5	6.8	dB
Insertion Loss Temperature Coefficient			0.003			0.003			0.003		dB/ °C
Isolation		30	40		30	40		22	24		dB
Input VSWR			1.5	2.0		1.5	2.0		1.5	2.0	: 1
Output VSWR			1.5	2.0		1.5	2.0		1.5	2.0	: 1
*RF Input Power (CW) (50Ω,T = 25°C)				40			40			40	dBm
DC Power Dissipation			8.4			8.4			8.4		W
0.1dB Compression Point (P0.1dB)			17			27			24		dBm
IIP3			48			48			50		dBm
Switching Speed					500 Typ.						ns
Bias Current (+12V)					700 Max.						mA
Weight	Switch				1.05 Max.						lbs
	Including Heat sink				1.8 Max.						
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	+12V±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.

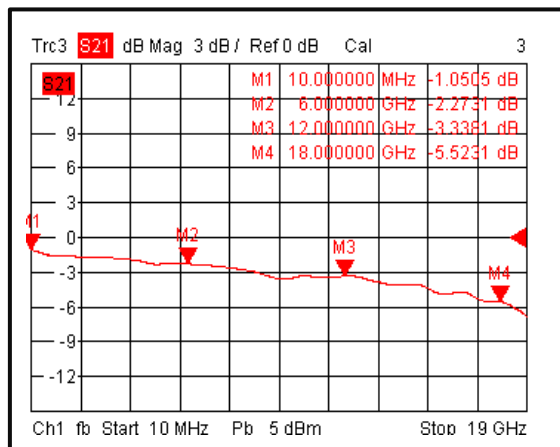
Environmental Specifications and Test Standards

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)

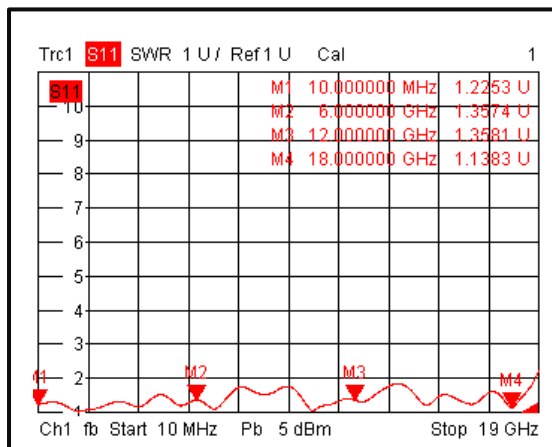
*For vibration testing details please see additional information section.

Typical Performance Plots

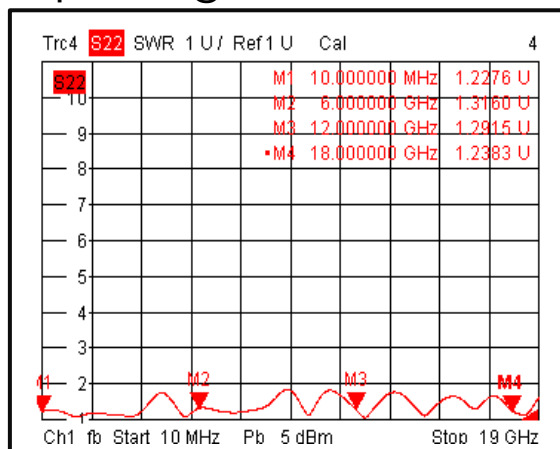
Insertion Loss @+25°C



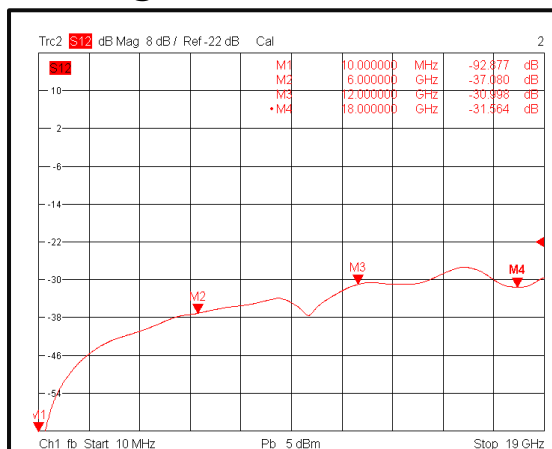
Input VSWR @+25°C



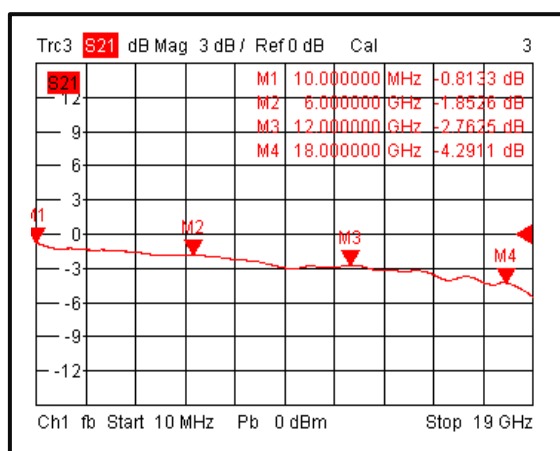
Output VSWR @+25°C



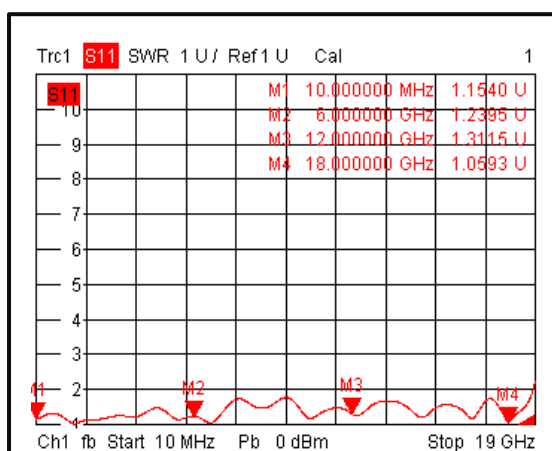
Isolation @+25°C



Insertion Loss @-40°C

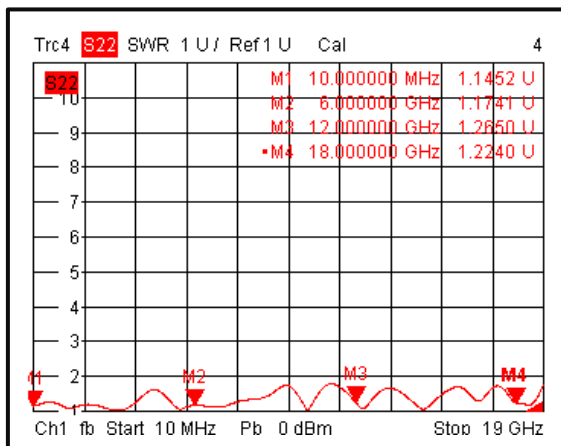


Input VSWR @-40°C

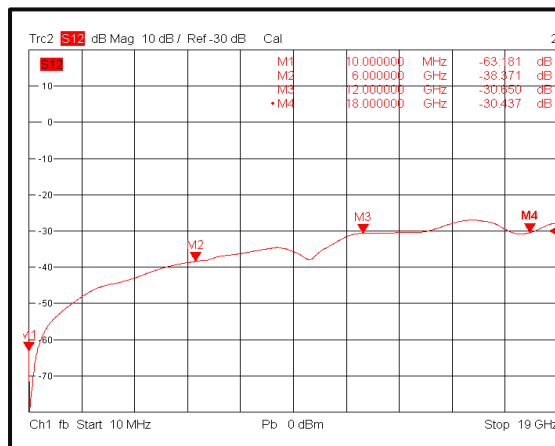


Typical Performance Plots

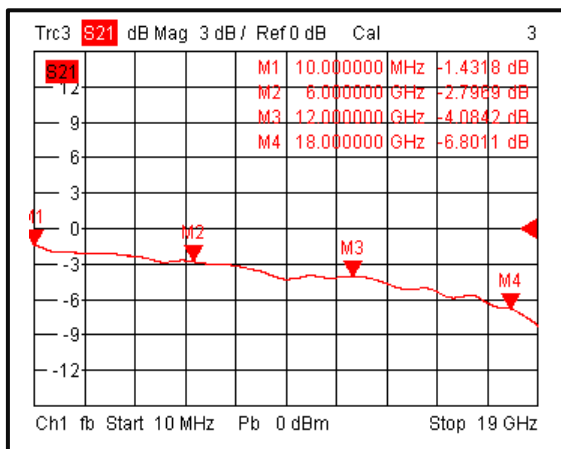
Output VSWR @-40°C



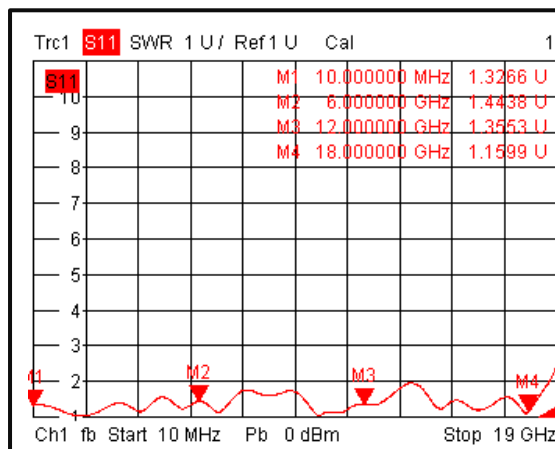
Isolation @-40°C



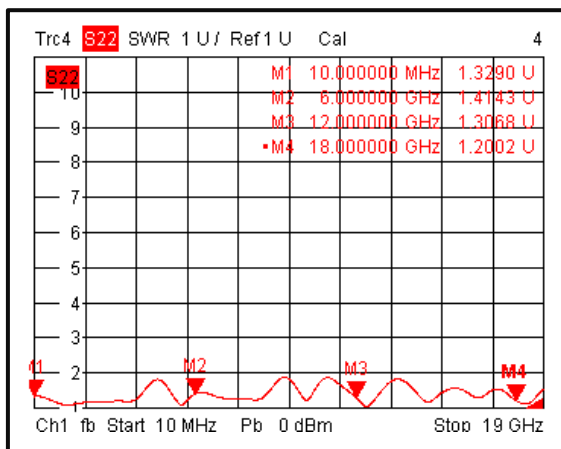
Insertion Loss @+85°C



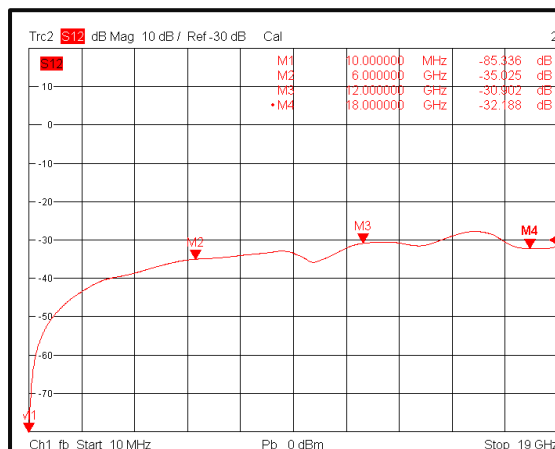
Input VSWR @+85°C



Output VSWR @+85°C

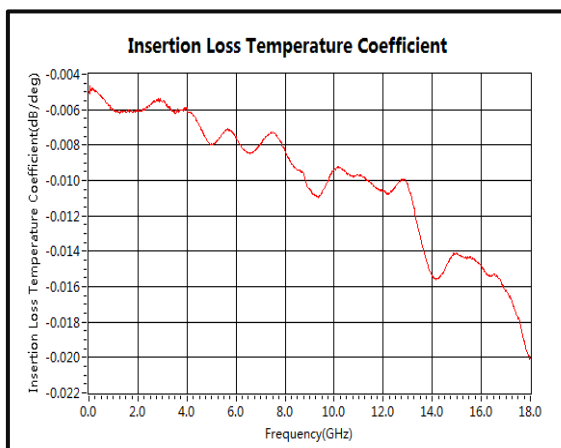


Isolation @+85°C

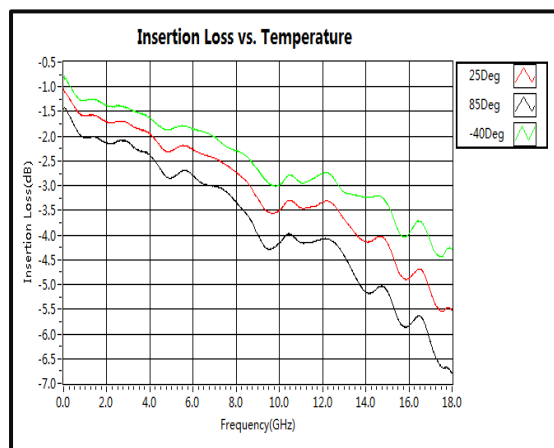


Typical Performance Plots

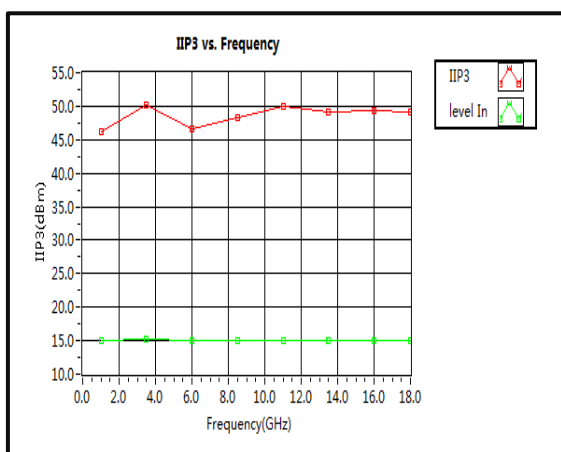
Insertion Loss Temperature Coefficient



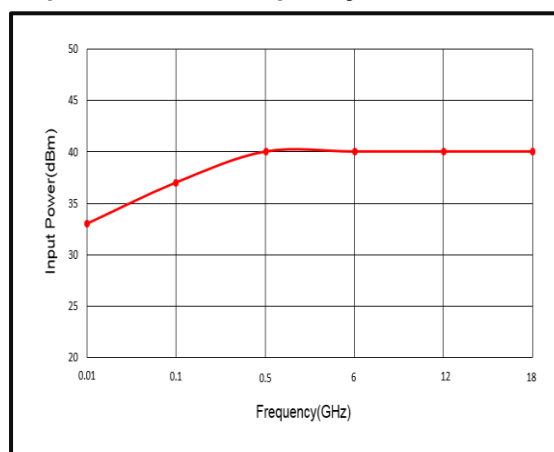
Insertion Loss vs. Temperature



IIP3



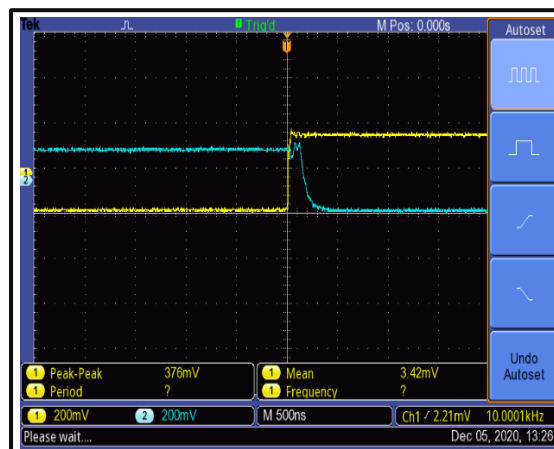
Input Power vs. Frequency



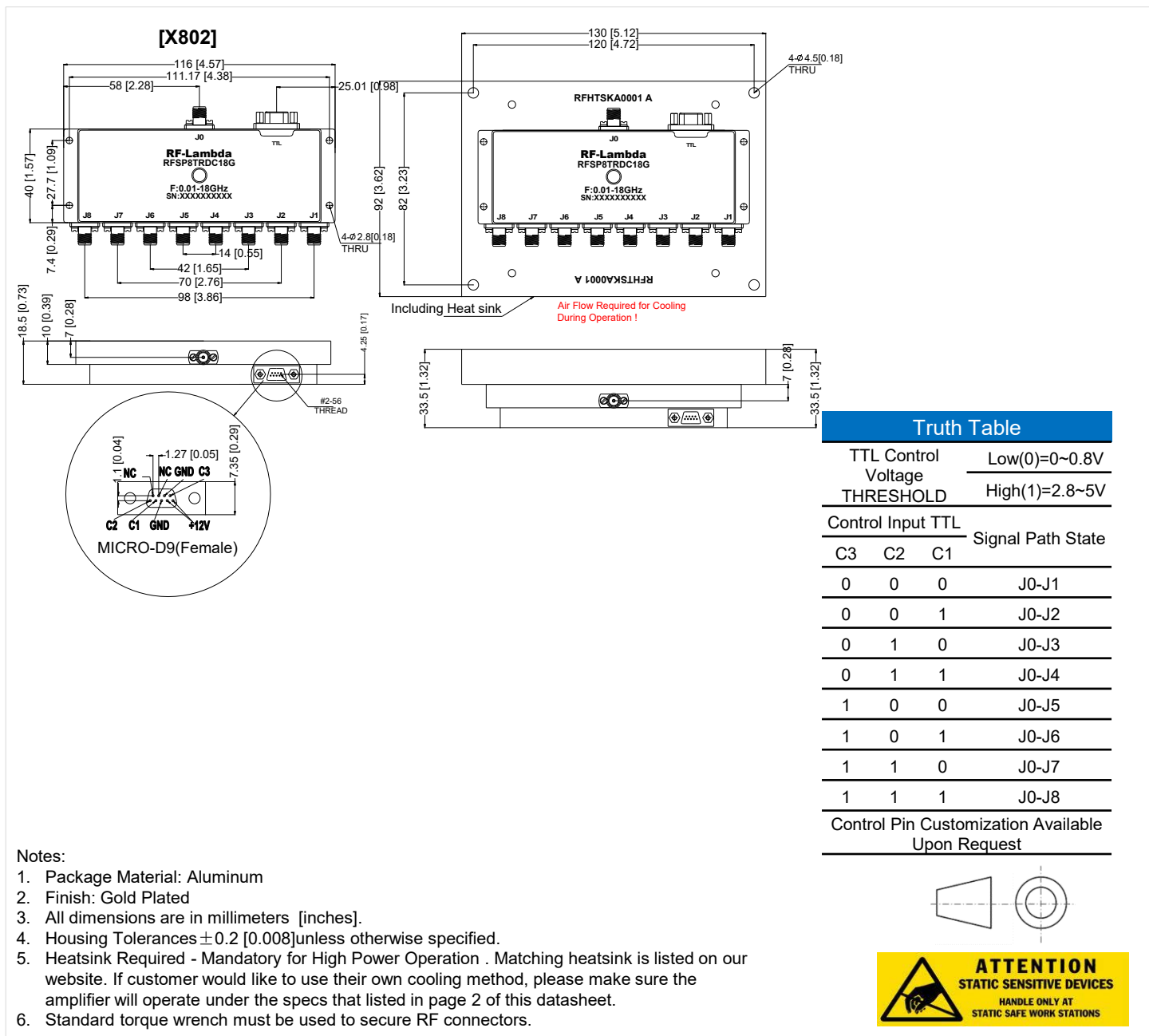
Switching Speed



Switching Speed



Outline Drawing



Additional Information

Documentation

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

Webpage

Ordering Information

Part Number	Modification	Description
RFSP8TRDC18G	Standard	0.01GHz-18GHz SP8T PIN Diode Switch

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.