DP3T & SPDT TERMINATED

Contents

DP3T PART NUMBER SELECTION GUIDE*

Digital Position		R 1-3:	4: RF connectors							5: Type			6: Voltage				7: Switch Model			8: Options				9: Terminals		10: Documentation		
Series	Configuration		SMA 3 GHz	SMA 6 GHz	SMA 18 GHz	SMA 20 GHz	SMA 26.5 GHz	SMA 2.9 40 GHz	2.4 mm 50 GHz	Failsafe	Latching	Normally open	12 V	15 V	24 V	28 V	DP3T	SPDT Terminated	Terminated 4 ports Bypass	Without option	Positive common	Supression diodes	Positive common and suppression diodes	Solder pins	D-Sub connector	Certificate of conformity	Calibration certificate	Calibration certificate + RF curves
RAMSES	DP3T	R585	3	-	4	-	F	8	J	1	3	7	2	-	-	3	0/1	2/3/4/5	6/7	0	1	3	4	0	-	-	-	-
PLATINUM	DP3T	R595	-	3	-	4	F	8	-	-	3	-	-	7	3	-	5	2	3	0	1	-	-	0	5	-	C	R

Note: TTL driver is already included for the 1, 3, 5 and 7 switch models of the RAMSES R585 series.
Example of P/N: R585832000 is a DP3T SMA2.9 40 GHz, latching, 12 Vdc, without option, solder pins.

**For part number creation and available options, see detailed part number selection for each series.*

DP3T and Terminated SPDT up to 50 GHz

SMA - SMA 2.9 - 2.4 mm

Radiall's RAMSES DP3T and Terminated SPDT switches offer excellent reliability, high performance and operating frequencies from DC to 50 GHz. A full range of options are available within the RAMSES range in order to offer customers a complete solution.

These relays are dedicated to market applications including: defense, instrumentation and telecommunication.

Example of P/N:
R585423300 is a SPDT terminated SMA 18 GHz, failsafe, 28 Vdc, indicator contacts, internal terminations without TTL drivers and solder pins.

PART NUMBER SELECTION

R 585

RF Connectors:
3: SMA up to 3 GHz
4: SMA up to 18 GHz
F: SMA up to 26.5 GHz
8: SMA 2.9 up to 40 GHz [5]
J : 2.4mm up to 50 GHz [4]

Type:
1: Failsafe
2: Failsafe + I.C.
3: Latching
4: Latching + I.C.
5: Latching + S.C.O. [1]
6: Latching + S.C.O + I.C. [1]
7: Normally open
8: Normally open + I.C.

Actuator Voltage:
2: 12 Vdc
3: 28 Vdc

Actuator Terminals:
0: Solder pins

Options:
0: Without option
1: Positive common [2] [3]
3: With suppression diodes [1]
4: With suppression diodes and positive common [1] [2] [3]

Switch Model:
0: Non-terminated 5 port DP3T switch without TTL driver
1: Non-terminated 5 port DP3T switch with TTL driver [1] [2]
2: Terminated SPDT switch without TTL driver / internal termination
3: Terminated SPDT switch with TTL driver / internal termination [1] [2]
4: Terminated SPDT switch without TTL driver / external termination
5: Terminated SPDT switch with TTL driver / external termination [1] [2]
6: Terminated 4 port bypass switch without TTL driver / external termination
7: Terminated 4 port bypass switch with TTL driver / external termination [1] [2]

NOTE:

I.C.: Indicator contact/S.C.O.: Self Cut-Off

(1): Suppression diodes are already included in Self Cut-OFF & TTL option

(2): Polarity is not relevant to application for switches with TTL driver

(3): Positive common shall be specified only with type 3, 4, 5, 6, 7 and 8 because failsafe switches can be used with both polarities

(4): Not available with switch model "2" and "3"

(5): Connector SMA 2.9 is equivalent to "K connector®", registered trademark of Anritsu

DP3T and Terminated SPDT up to 50 GHz

SMA - SMA 2.9 - 2.4 mm

GENERAL SPECIFICATIONS

Operating mode		Failsafe		Latching		Normally open	
Nominal operating voltage (across operating temperature)	Vdc	12 (10.2 to 13)	28 (24 to 30)	12 (10.2 to 13)	28 (24 to 32)	12 (10.2 to13)	28 (24 to 32)
Coil resistance (+/-10%)	Ω	24	138	29	175	47.5	275
Nominal operating current at 23°C	mA	500	205	420	160	250	102
Average power		See Power Rating Chart page 1-13					
		Internal terminations: 1 Watt CW into 50 Ohms					
TTL input	High level	2.2 to 5.5 Volts			800 µA max 5.5 Volts		
	Low level	0 to 0.8 Volts			20 µA max 5.5 Volts		
Indicator rating		1 W / 30 V / 100 mA					
Switching time (Max)	ms	10					
Life (Min)	SMA – SMA 2.9	2 million cycles for Normally open and internal terminated models 10 million cycles for all other products					
	2.4 mm	2 million cycles					
Actuator terminals		Solder pins					
Operating temperature range	SMA - SMA 2.9	-40°C to +85°C					
	2.4 mm	-25°C to +70°C					
Storage temperature range	SMA -SMA 2.9	-55°C to +85°C					
	2.4 mm	-40°C to +85°C					
Vibration (MIL STD 202, Method 204D, cond.D)		10-2000 Hz, 20 g			Operating		
Shock (MIL STD 202, Method 213B, cond.C)		100 g / 6 ms, ½ sine			Operating		

RF PERFORMANCE

Connectors	Frequency range GHz		V.S.W.R. (max)	Insertion loss (max) dB	Isolation (min) dB	Impedance Ω
SMA	DC - 3 DC - 18 DC - 26.5	DC - 3	1.20	0.20	80	50
		3 - 8	1.30	0.30	70	
		8 - 12.4	1.40	0.40	60	
		12.4 - 18	1.50	0.50	60	
		18 - 26.5	1.70	0.70	55	
SMA 2.9	DC - 40	DC - 6	1.30	0.30	70	50
		6 - 12.4	1.40	0.40	60	
		12.4 - 18	1.50	0.50	60	
		18 - 26.5	1.70	0.70	55	
		26.5 - 40	1.90	0.80	50	
2.4 mm	DC – 50	DC - 6	1.30	0.30	70	50
		6 - 12.4	1.40	0.40	60	
		12.4 - 18	1.50	0.50	60	
		18 - 26.5	1.70	0.70	55	
		26.5 - 40	1.90	0.80	50	
		40 - 50	1.90	1.1	50	

NOTE:

See page 3-4 for typical RF performance.

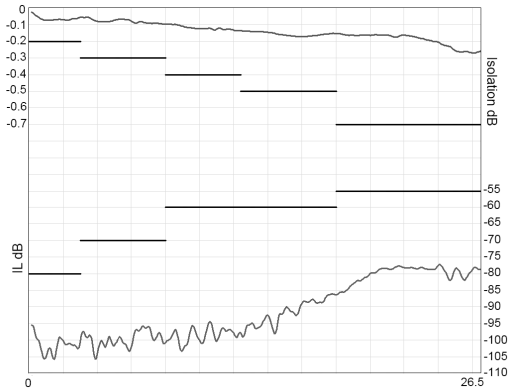
DP3T and Terminated SPDT up to 50 GHz

SMA - SMA 2.9 - 2.4 mm

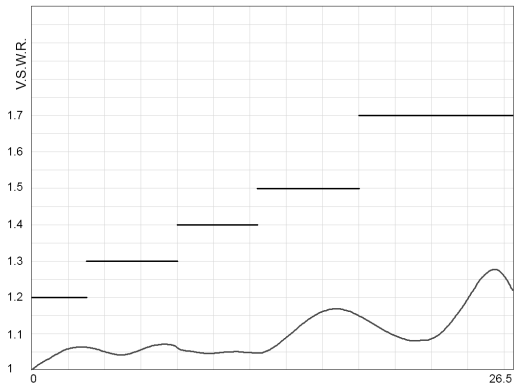
R585 TYPICAL RF PERFORMANCE

Example: DP3T SMA up to 26.5 GHz

Insertion Loss and Isolation

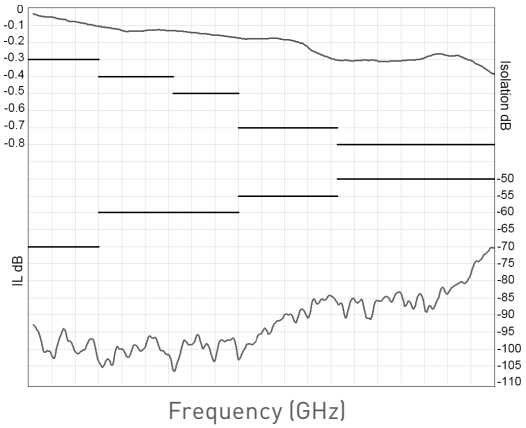


V.S.W.R.

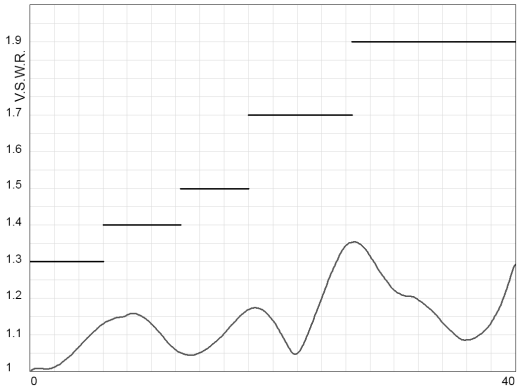


Example: DP3T SMA 2.9 up to 40 GHz

Insertion Loss and Isolation

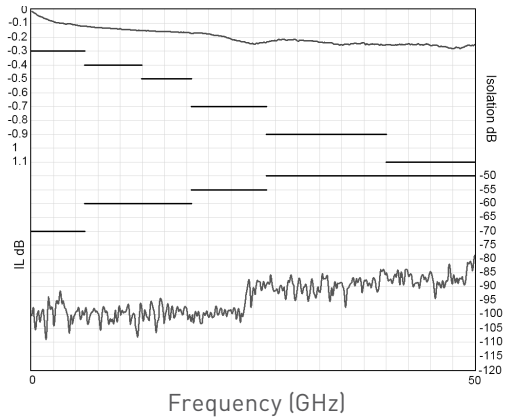


V.S.W.R.

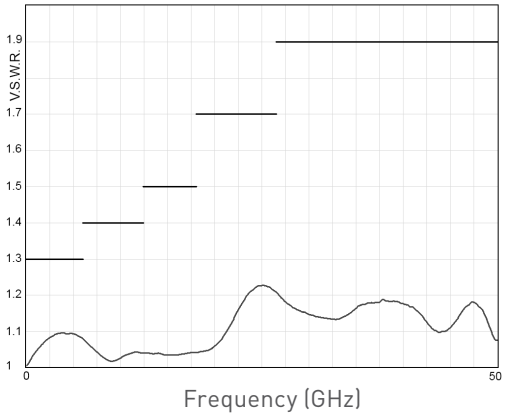


Example: DP3T 2.4 mm up to 50 GHz

Insertion Loss and Isolation



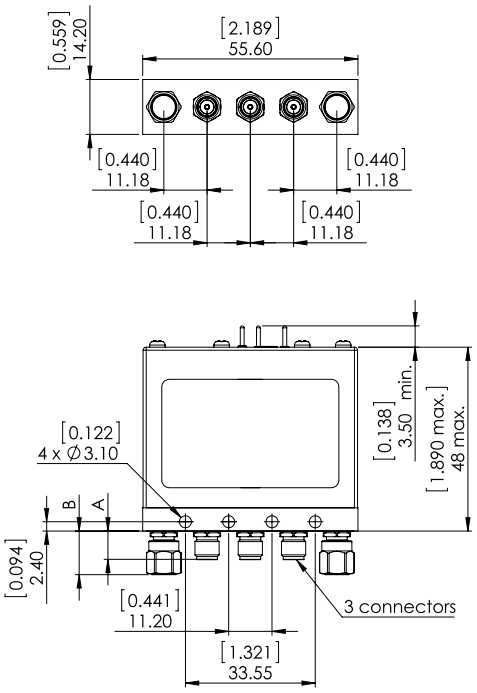
V.S.W.R.



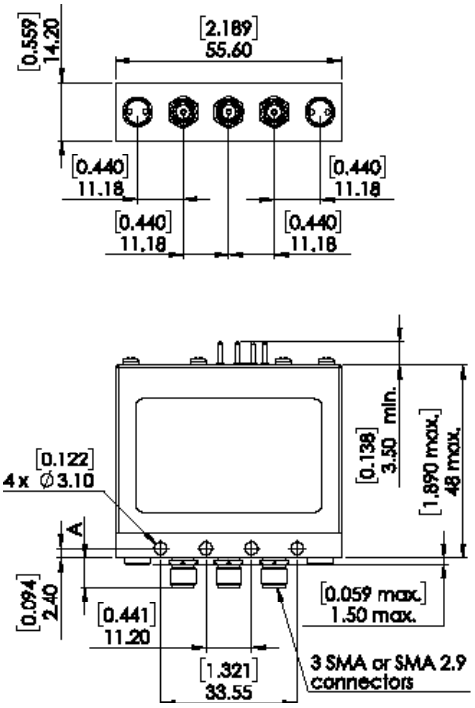
DP3T and Terminated SPDT up to 50 GHz

SMA - SMA 2.9 - 2.4 mm

TYPICAL OUTLINE DRAWING



Terminated SPDT switch / external terminations
R585 --- 4--
R585 --- 5--



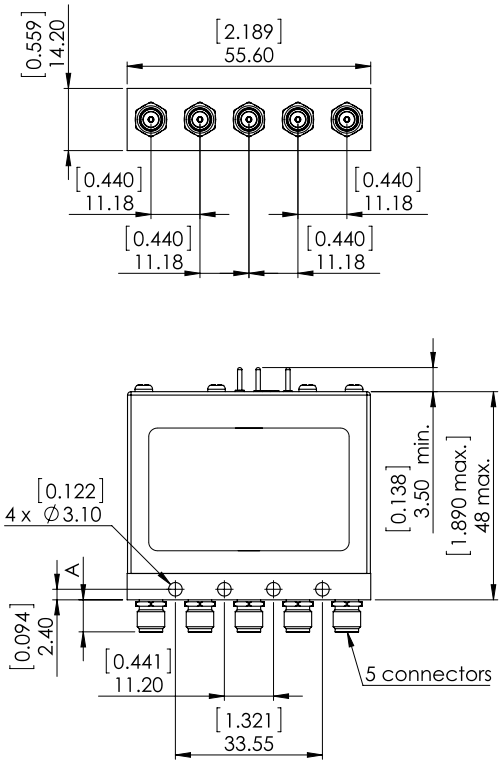
Terminated SPDT switch / internal terminations
R585 --- 2--
R585 --- 3--

All dimensions are in millimeters [inches].
See page 3-13 for pin indentification.

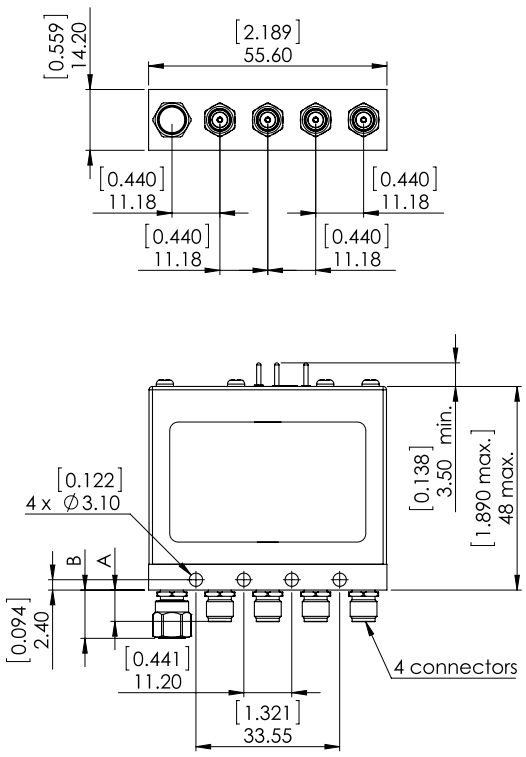
Connectors	A max (mm [inches])	B max (mm [inches]) if applicable
SMA up to 18 GHz	7.7 [0.303]	13.5 [0.118]
SMA up to 26.5 GHz	7.7 [0.303]	21 [0.827]
SMA 2.9 up to 40 GHz	6.7 [0.264]	21 [0.827]
2.4 mm up to 50 GHz	6.7 [0.264]	21 [0.827]

DP3T and Terminated SPDT up to 50 GHz

SMA - SMA 2.9 - 2.4 mm



Non-terminated 5 port DP3T switch
R585 --- 0--
R585 --- 1--



Terminated 4 port bypass switch / external termination
R585 --- 6--
R585 --- 7--

All dimensions are in millimeters [inches].
See page 3-13 for pin indentification.

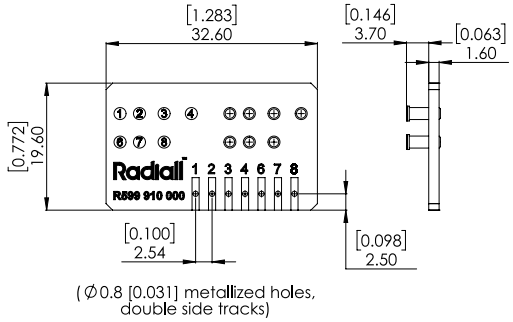
Connectors	A max (mm [inches])	B max (mm [inches]) if applicable
SMA up to 18 GHz	7.7 [0.303]	13.5 [0.118]
SMA up to 26.5 GHz	7.7 [0.303]	21 [0.827]
SMA 2.9 up to 40 GHz	6.7 [0.264]	21 [0.827]
2.4 mm up to 50 GHz	6.7 [0.264]	21 [0.827]

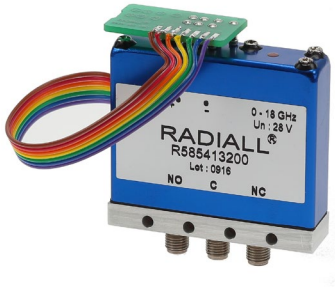
Coaxial DP3T & Terminated SPDT

R585 Series

ACCESSORIES

A printed circuit board interface connector (ordered separately) has been designed for easy mounting on terminals.
For DP3T model R585 series = Radiall part number: **R599910000**





All dimensions are in millimeters [inches].

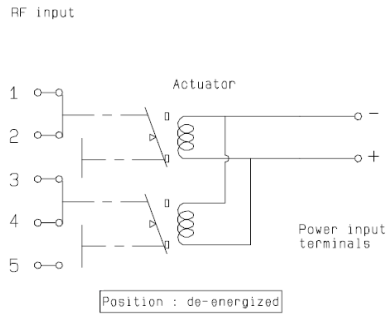
PCB accessory pin number assignment is independant from the pin identification table of the switch.

Coaxial DP3T & Terminated SPDT - Electrical Schematics

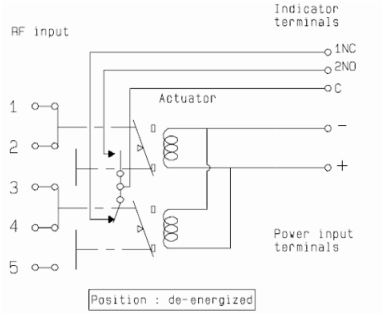
R585 Series

FAILSAFE

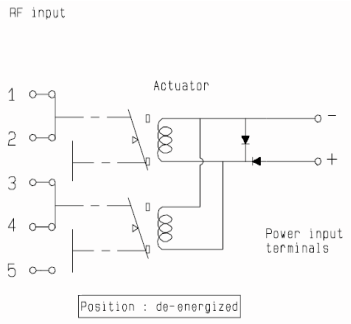
WITHOUT OPTION
R585 -1- 000 / R585 -1- 200 / R585 -1- 400



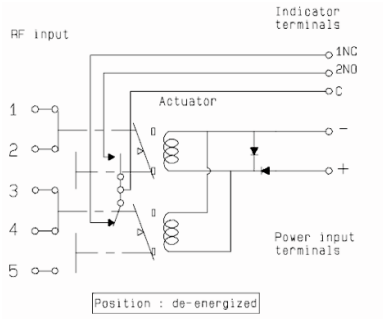
WITH INDICATOR CONTACT
R585 -2- 000 / R585 -2- 200 / R585 -2- 400



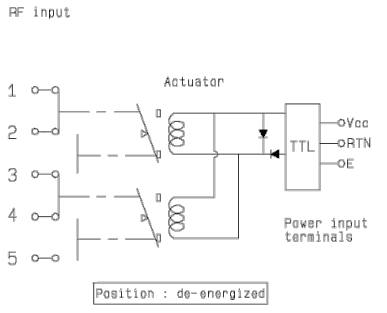
WITH SUPPRESSION DIODES
R585 -1- 030 / R585 -1- 230 / R585 -1- 430



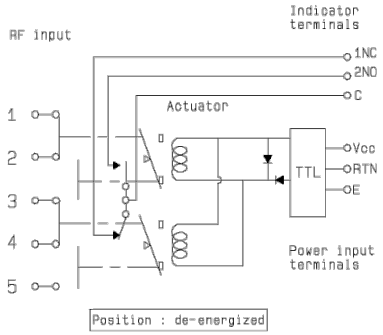
WITH SUPPRESSION DIODES AND INDICATOR CONTACT
R585 -2- 030 / R585 -2- 230 / R585 -2- 430



WITH TTL DRIVER
(supression diodes are included)
R585 -1- 100 / R585 -1- 300 / R585 -1- 500



WITH TTL DRIVER AND INDICATOR CONTACT
(supression diodes are included)
R585 -2- 100 / R585 -2- 300 / R585 -2- 500

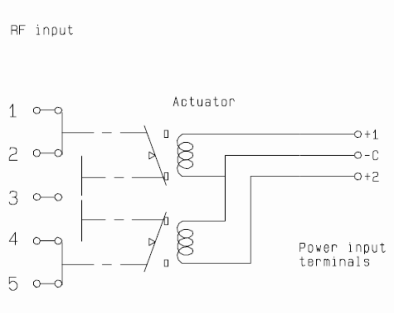


Coaxial DP3T & Terminated SPDT - Electrical Schematics

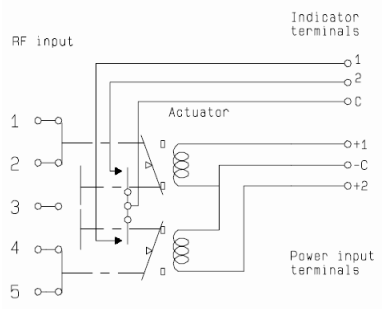
R585 Series

NORMALLY OPEN

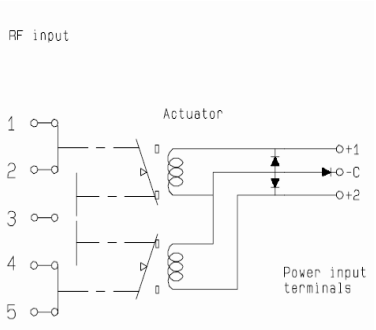
WITHOUT OPTION
R585 -7- 000 / R585 -7- 200 / R585 -7- 400



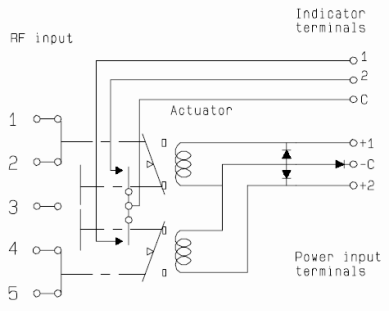
WITH INDICATOR CONTACT
R585 -8- 000 / R585 -8- 200 / R585 -8- 400



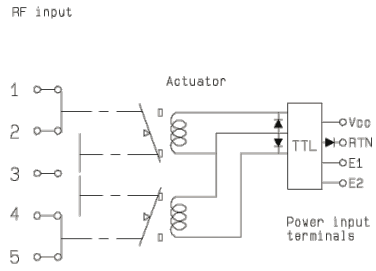
WITH SUPPRESSION DIODES
R585 -7- 030 / R585 -7- 230 / R585 -7- 430



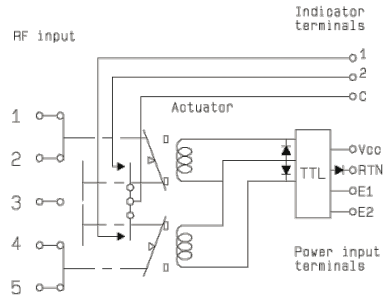
WITH SUPPRESSION DIODES AND INDICATOR CONTACT
R585 -8- 030 / R585 -8- 230 / R585 -8 - 430



WITH TTL DRIVER
(supression diodes are included)
R585 -7- 100 / R585 -7- 300 / R585 -7- 500



WITH TTL DRIVER AND INDICATOR CONTACT
(supression diodes are included)
R585 -8- 100 / R585 -8- 300 / R585 -8- 500

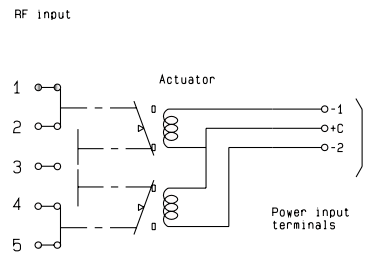


Coaxial DP3T & Terminated SPDT - Electrical Schematics

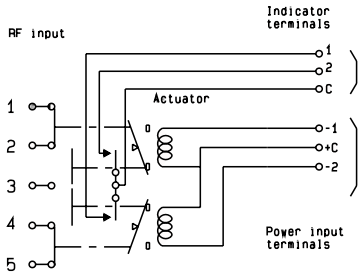
R585 Series

NORMALLY OPEN AND LATCHING

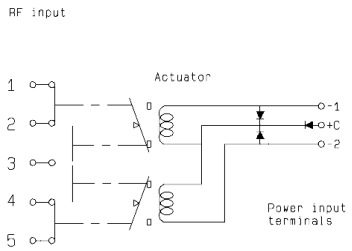
WITH POSITIVE COMMON, NO OPTION
R585 -7- 010 / R585 -7- 210 / R585 -7- 410



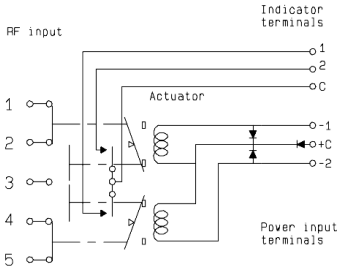
WITH POSITIVE COMMON AND INDICATOR CONTACT
R585 -8- 010 / R585 -8- 210 / R585 - 8 - 410



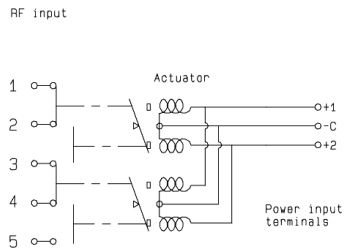
WITH POSITIVE COMMON AND SUPPRESSION DIODES
R585 -7- 040 / R585 -7- 240 / R585 -7- 440



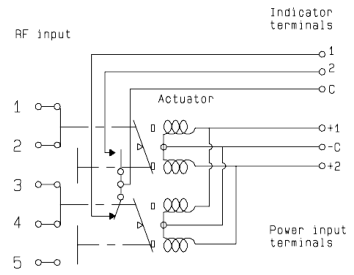
WITH POSITIVE COMMON, INDICATOR CONTACT AND SUPPRESSION DIODES
R585 -8- 040 / R585 -8- 240 / R585 -8- 440



WITHOUT OPTION
R585 -3- 000 / R585 -3- 200 / R585 -3- 400



WITH INDICATOR CONTACT
R585 -4- 000 / R585 -4- 200 / R585 -4- 400



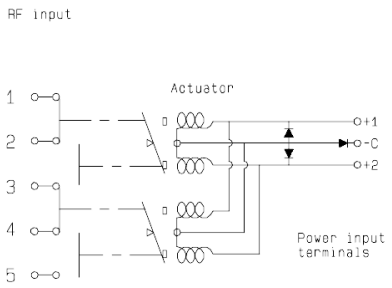
Coaxial DP3T & Terminated SPDT - Electrical Schematics

R585 Series

LATCHING

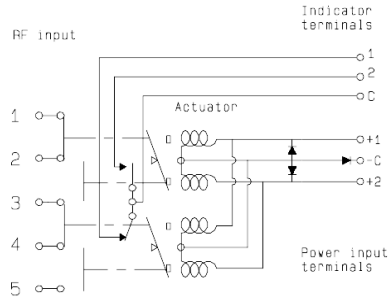
WITH SUPPRESSION DIODES

R585 -3- 030 / R585 -3- 230 / R585 -3- 430



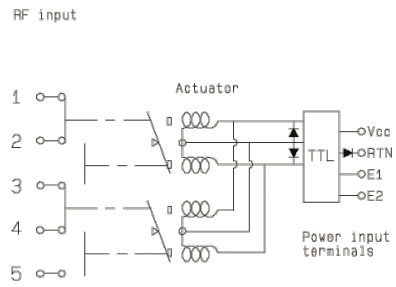
WITH SUPPRESSION DIODES AND INDICATOR CONTACT

R585 -4- 030 / R585 -4- 230 / R585 -4- 430



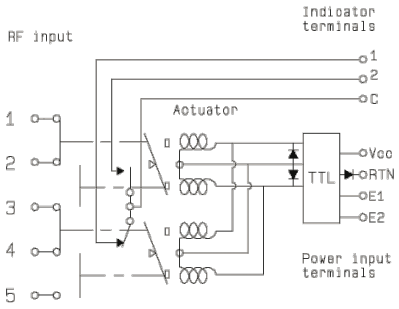
WITH TTL DRIVER
(suppression diodes are included)

R585 -3- 100 / R585 -3- 300 / R585 -3- 500



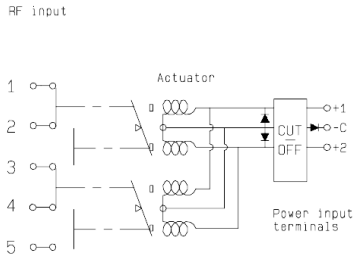
WITH TTL DRIVER AND INDICATOR CONTACT
(suppression diodes are included)

R585 -4- 100 / R585 -4- 300 / R585 -4- 500



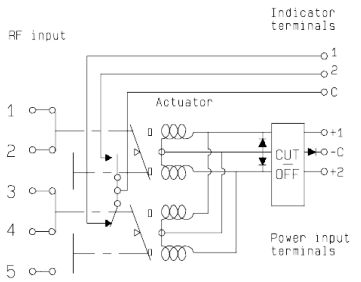
WITH CUT-OFF
(supression diodes are included)

R585 -5- 000 / R585 -5- 200 / R585 -5- 400



WITH CUT-OFF AND INDICATOR CONTACT
(supression diodes are included)

R585 -6- 000 / R585 -6- 200 / R585 -6- 400

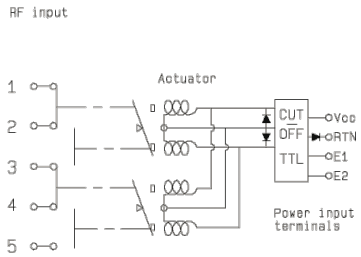


Coaxial DP3T & Terminated SPDT - Electrical Schematics

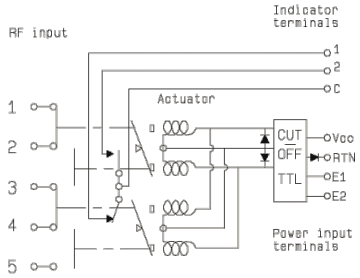
R585 Series

LATCHING

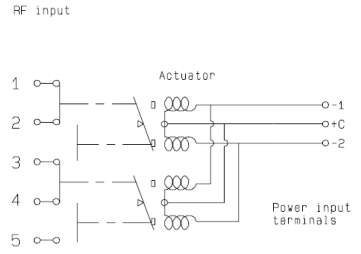
WITH CUT-OFF AND TTL DRIVER
(suppression diodes are included)
R585 -5- 100 / R585 -5- 300 / R585 -5- 500



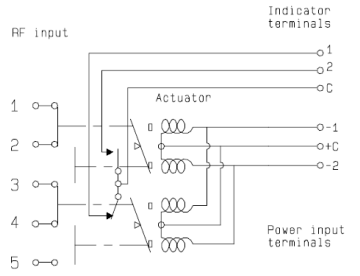
WITH CUT-OFF, TTL DRIVER AND INDICATOR CONTACT
(suppression diodes are included)
R585 -6- 100 / R585 -6- 300 / R585 -6- 500



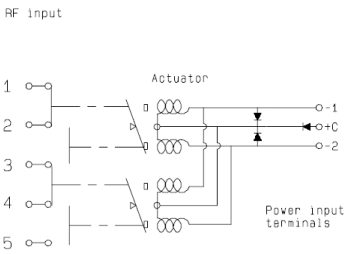
WITH POSITIVE COMMON, NO OPTION
R585 -3- 010 / R585 -3- 210 / R585 -3- 410



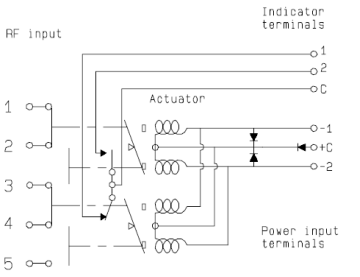
WITH POSITIVE COMMON AND INDICATOR CONTACT
R585 -4- 010 / R585 -4- 210 / R585 -4- 410



WITH POSITIVE COMMON AND SUPPRESSION DIODES
R585 -3- 040 / R585 -3- 240 / R585 -3- 440



WITH POSITIVE COMMON, SUPPRESSION DIODES AND INDICATOR CONTACT
R585 -4- 040 / R585 -4- 240 / R585 -4- 440

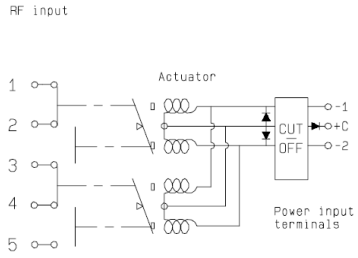


Coaxial DP3T & Terminated SPDT - Electrical Schematics

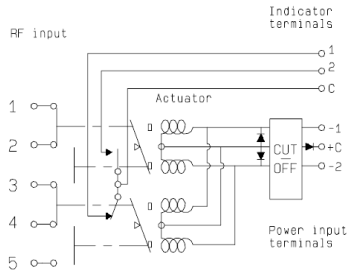
R585 Series

LATCHING

WITH POSITIVE COMMON AND CUT-OFF
(suppression diodes are included)
R585 -5- 010 / R585 -5- 210 / R585 -5- 410



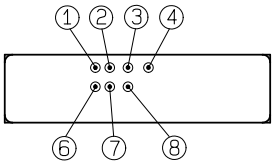
WITH POSITIVE COMMON, CUT-OFF AND INDICATOR CONTACT
(suppression diodes are included)
R585 -6- 010 / R585 -6- 210 / R585 -6- 410



PIN IDENTIFICATION

Type	PIN						
	1	2	3	4	6	7	8
Failsafe	+		-				
Failsafe + I.C.	+		-		2NO	1NC	C
Failsafe + TTL	E		RTN	VCC			
Failsafe + I.C. + TTL	E		RTN	VCC	2N0	1NC	C
Latching Latching + Cut-off	-2 or +2	-1 or +1	+C or -C				
Latching + I.C. Latching + I.C. + Cut-off	-2 or +2	-1 or +1	+C or -C		2	1	C
Latching + TTL Latching + TTL + Cut-off	E2	E1	RTN	VCC			
Latching + TTL + I.C. Latching + TTL + I.C. Cut-off	E2	E1	RTN	VCC	2	1	C
Normally open	-2 or +2	-1 or +1	+C or -C				
Normally open + I.C.	-2 or +2	-1 or +1	+C or -C		2	1	C
Normally open + TTL	E2	E1	RTN	VCC			
Normally open + TTL + I.C.	E2	E1	RTN	VCC	2	1	C

TOP VIEW



High performance DP3T & Terminated SPDT up to 40 GHz

SMA - SMA 2.9

Radiall's PLATINUM series switches are optimized to perform at a high level over an extended life cycle. With outstanding RF performance, and a guaranteed insertion loss repeatability of 0.03 dB over a life span of 10 million switching cycles. PLATINUM series switches are perfect for automated test and measurement equipment, as well as signal monitoring devices.

Example of P/N:
R595F63215 is a Terminated SPDT SMA 26.5 GHz, latching with Self Cut-Off, 24 Vdc, Indicators, D-Sub connector.

PART NUMBER SELECTION

R 595

RF Connectors:
3: SMA up to 6 GHz [2]
4: SMA up to 20 GHz [2]
F: SMA up to 26.5 GHz [2]
8. SMA 2.9 up to 40 GHz [1] [3]

Type:
3: Latching
4: Latching + I.C.
5: Latching + S.C.O.
6: Latching + S.C.O. + I.C.

Actuator Voltage:
3: 24 Vdc
7: 15 Vdc

Switch Model:
2: Terminated SPDT switch
3: Terminated 4 port bypass switch
4: Non-terminated 5 port DP3T switch

Documentation:
-: Certificate of conformity
C: Calibration certificate
R: Calibration certificate + RF curves

Actuator Terminals:
0: Solder pins
5: D-Sub connector

Options:
1: Without option (positive common)
2: Compatible TTL driver

NOTE:
I.C.: Indicator contact/S.C.O.: Self Cut-Off
(1): Connector SMA 2.9 is equivalent to "K connector®", registered trademark of Anritsu
(2): The terminated models are fitted with internal terminations
(3): The terminated models are fitted with external terminations

High performance DP3T & Terminated SPDT up to 40 GHz

SMA - SMA 2.9

GENERAL SPECIFICATIONS

Operating mode		Latching	
Nominal operating voltage (across operating temperature)	Vdc	24 (20 to 32)	15 (12 to 20)
Coil resistance (+/-10%)	Ω	175	60
Nominal operating current at 23°C	mA	140	250
Average power		RF path: Cold switching: see Power Chart on page **3-21** Hot switching: 1 Watt CW	
		Internal terminations: 1 Watt average into 50 Ω External terminations: 1 Watt average into 50 Ω	
TTL input	High Level	3 to 7 V: 800 µA max at 7 V	
	Low Level	0 to 0.8 V: 20 µA max at 0.8V	
Switching time (Max)	ms	15	
Life (Min)	SMA	10 million cycles	
	SMA2.9	5 million cycles	
Connectors		SMA - SMA2.9	
Actuator terminals		D-Sub 9 pin female Solder pins	
Weight	g	<100	

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range	-25°C to +75°C
Storage temperature range	-55°C to +85°C
Temperature cycling (MIL STD 202F, Method 107D, Cond.A)	-55°C to +85°C (10 cycles)
Sine vibration operating (MIL STD 202, Method 204D, Cond.D)	10-2000 Hz, 20g
Random vibration operating	16.91G (rms) 50-2000 Hz 3min/axis
Shock operating (MIL STD 202, Method 213B, Cond.G)	50g / 11ms, sawtooth
Humidity operating	15 to 95% relative humidity
Humidity storage (MIL STD 202, Method 106E, Cond.E)	65°C, 95% RH, 10 days
Altitude operating	15,000 feet (4,600 meters)
Altitude storage (MIL STD 202, Method 105C, Cond.B)	50,000 feet (15,240 meters)

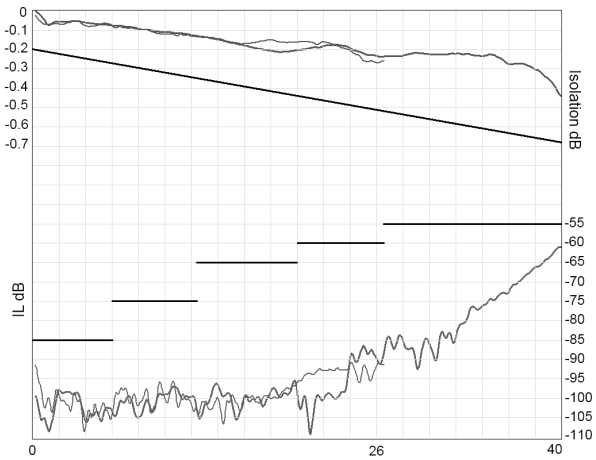
High performance DP3T & Terminated SPDT up to 40 GHz

SMA - SMA 2.9

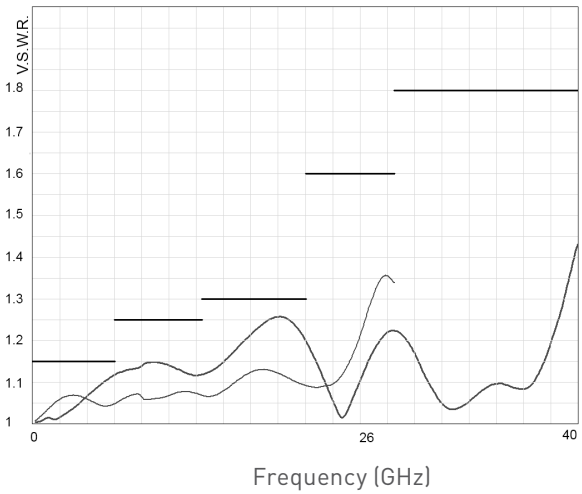
RF PERFORMANCE

Part Number		R5953-----	R5954-----		R595F-----		R5958-----	
Frequency Range	GHz	DC to 6	DC to 20		DC to 26.5		DC to 40	
Impedance	Ω	50						
Insertion Loss (max)	dB	0.20 + (0.45 / 26.5) x frequency (GHz)						
Isolation (Min)		85	DC to 6 GHz 6 to 12.4 GHz 12.4 to 20 GHz	85 75 65	DC to 6 GHz 6 to 12.4 GHz 12.4 to 20 GHz 20 to 26.5 GHz	85 75 65 60	DC to 6 GHz 6 to 12.4 GHz 12.4 to 20 GHz 20 to 26.5 GHz 26.5 to 40 GHz	85 75 65 60 55
V.S.W.R. (Max)		1.15	DC to 6 GHz 6 to 12.4 GHz 12.4 to 20 GHz	1.15 1.25 1.30	DC to 6 GHz 6 to 12.4 GHz 12.4 to 20 GHz 20 to 26.5 GHz	1.15 1.25 1.30 1.60	DC to 6 GHz 6 to 12.4 GHz 12.4 to 20 GHz 20 to 26.5 GHz 26.5 to 40 GHz	1.15 1.25 1.30 1.60 1.80
Repeatability (Up to 10 million cycles at 25°C)		0.03 dB maximum					0.05 dB maximum	

Insertion Loss and Isolation



V.S.W.R.



SMA ——— SMA 2.9 ———

High performance DP3T & Terminated SPDT up to 40 GHz

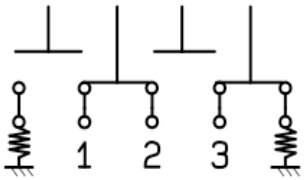
SMA - SMA 2.9

SWITCH MODEL: TERMINATED SPDT SWITCH

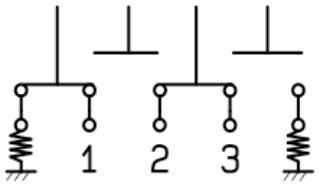
The terminated SPDT switch is a single pole double throw switch where unused ports are terminated into 50 ohms. This switch is considered a "break-before-make."

RF SCHEMATIC DIAGRAM

Position E1

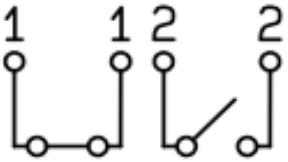


Position E2

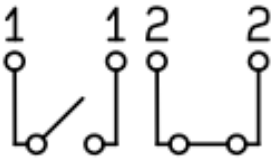


POSITION INDICATORS

State 11

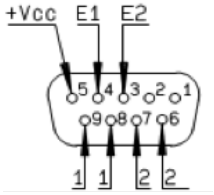


State 22

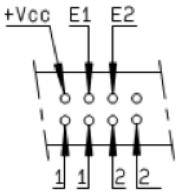


Standard drive option "1"
(Positive common):

- Connect pin +Vcc to supply (+20 Vdc to +32 Vdc)
- Select desired RF path by applying ground to the corresponding "close" pin (Ex: ground pin E1 to switch to position E1. RF path 1-2 closed and RF path 2-3 open)
- To open desired path and close the new RF path, connect ground to the corresponding "close" pin (Ex: ground pin E2 to open RF path 1-2 and close RF path 2-3)



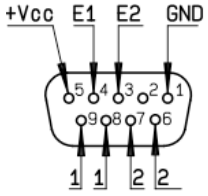
D-sub Connector



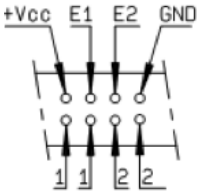
Solder Pins

TTL drive option "2"

- Connect pin GND to ground
- Connect pin +Vcc to supply (+20 Vdc to +32 Vdc)
- Select (close) desired RF path by applying TTL "High" to the corresponding "drive" pin. (Ex: apply TTL "High" to pin E1 to switch to position E1. RF path 1-2 closed and RF path 2-3 open)
- To open desired path and close the new RF path, apply TTL "High" to the "drive" pin which corresponds to the desired RF path. (Ex: apply TTL "High" to pin E2 to open RF path 1-2 and close RF path 2-3)



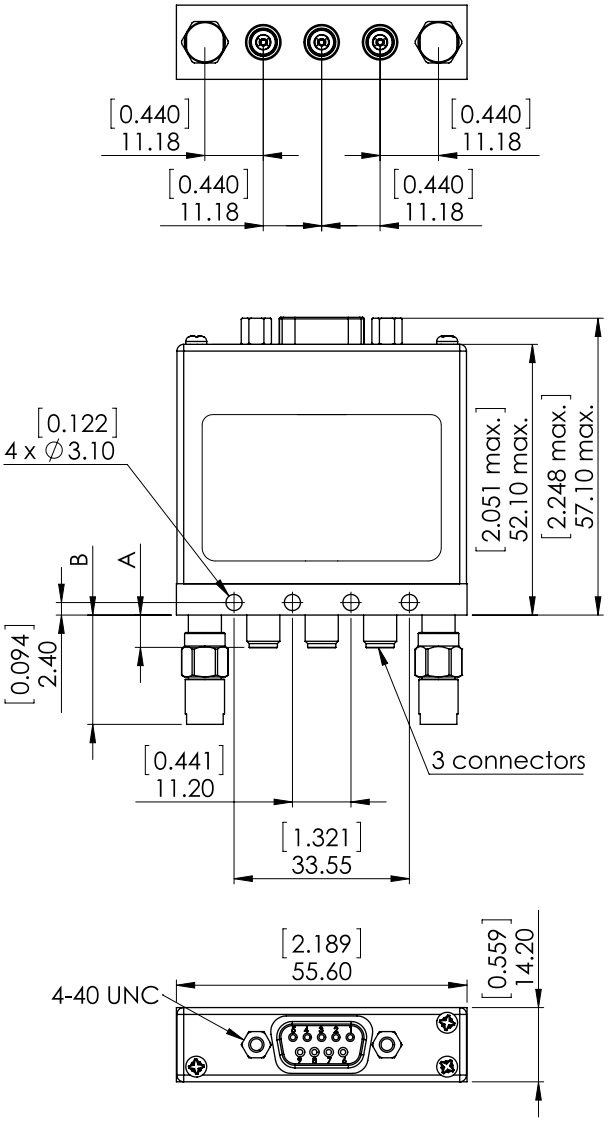
D-sub Connector



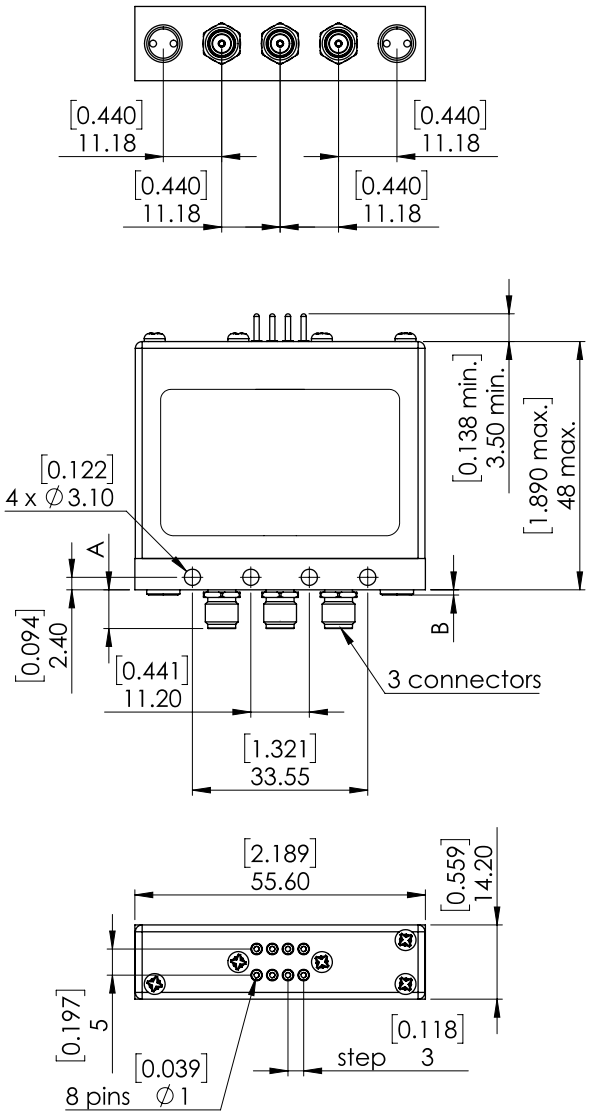
Solder Pins

SWITCH MODEL: TERMINATED SPDT SWITCH

With D-Sub connector



With solder pins



All dimensions are in millimeters [inches].

Connectors	A max (mm [inches])	B max (mm [inches])	Terminations
SMA	7.7 [0.303]	1.5 [0.059]	Internal
SMA 2.9	6.7 [0.264]	21 [0.827]	External

High performance DP3T & Terminated SPDT up to 40 GHz

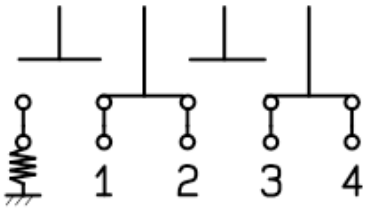
SMA - SMA 2.9

SWITCH MODEL: TERMINATED 4 PORT BYPASS SWITCH

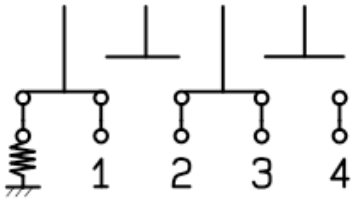
The terminated 4 port bypass switch can terminate into the 50 ohms device under test.
This switch is considered a "break-before-make."

RF SCHEMATIC DIAGRAM

Position E1

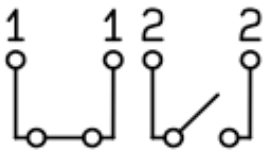


Position E2

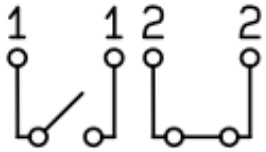


POSITION INDICATORS

State 11

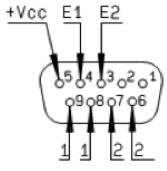


State 22

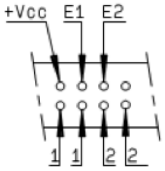


Standard drive option "1"
(Positive common):

- Connect pin +Vcc to supply (+20 Vdc to +32 Vdc)
- Select desired RF path by applying ground to the corresponding "close" pin (Ex: ground pin E1 to switch to position E1. RF path 1-2 and RF path 3-4 closed and RF path 2-3 open)
- To open desired path and close the new RF path, connect ground to the corresponding "close" pin (Ex: ground pin E2 to open RF path 1-2 and 3-4 and close RF path 2-3)



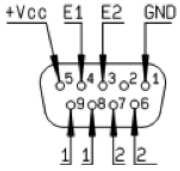
D-Sub connector



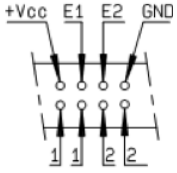
Solder pins

TTL drive option "2":

- Connect pin GND to ground
- Connect pin +Vcc to supply (+20 Vdc to +32 Vdc)
- Select (close) desired RF path by applying TTL "High" to the corresponding "drive" pin (Ex: apply TTL "High" to pin E1 to switch to position E1. RF path 1-2 and 3-4 closed and RF path 2-3 open)
- To open desired path and close the new RF path, apply TTL "High" to the "drive" pin which corresponds to the desired RF path (Ex: apply TTL "High" to pin E2 to open RF path 1-2 and 3-4 and close RF path 2-3)



D-Sub connector



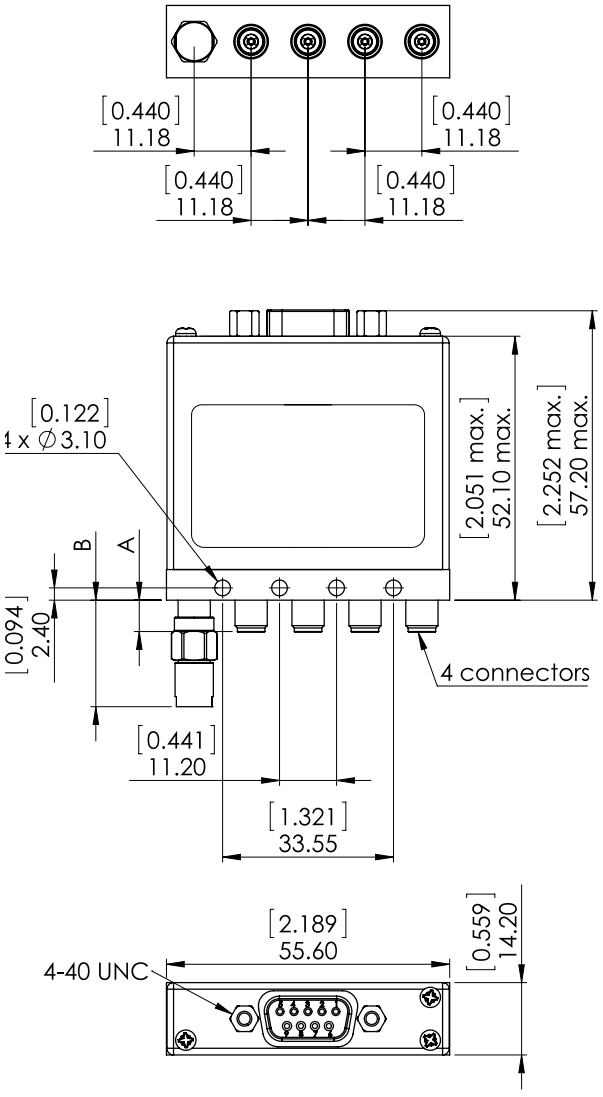
Solder pins

High performance DP3T & Terminated SPDT up to 40 GHz

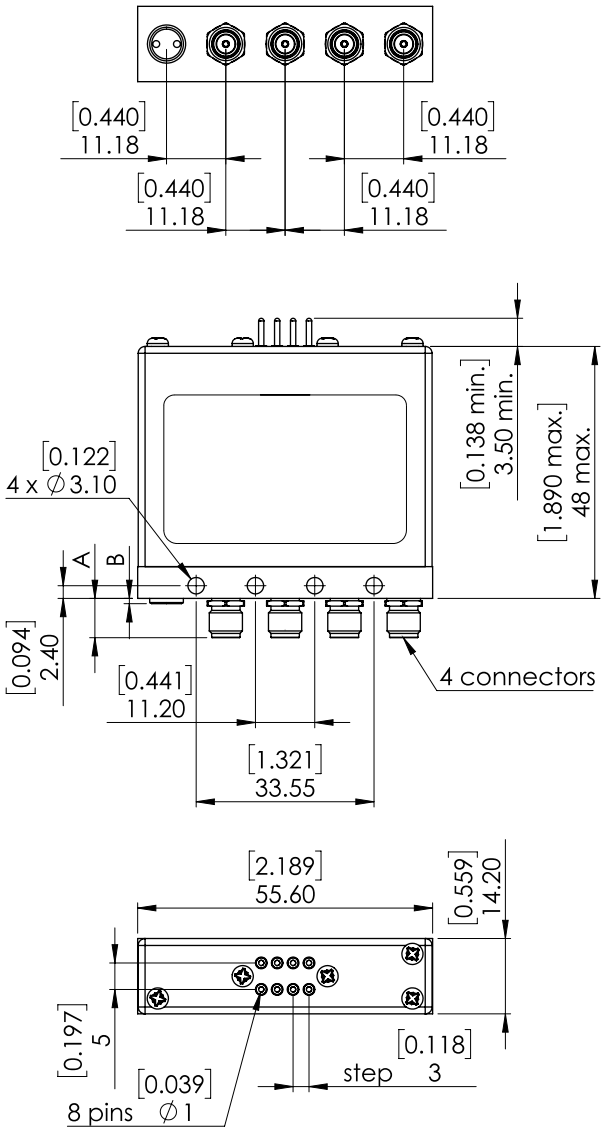
SMA - SMA 2.9

SWITCH MODEL: TERMINATED 4 PORT BYPASS SWITCH

With D-Sub connector



With solder pins



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Connectors	A max (mm [inches])	B max (mm [inches])	Terminations
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SMA 2.9	6.7 [0.264]	21 [0.827]	External

High performance DP3T & Terminated SPDT up to 40 GHz

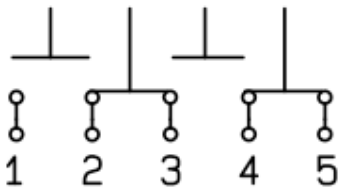
SMA - SMA 2.9

SWITCH MODEL: NON-TERMINATED 5 PORT DP3T SWITCH

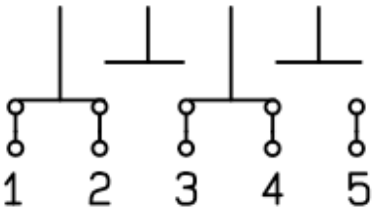
The non-terminated 5 port DP3T switch can be used as SPDT with high power terminations, as a bypass switch. In this application, the fifth port can be terminated externally with a high power termination. These switches are considered a "break-before-make."

RF SCHEMATIC DIAGRAM

Position E1

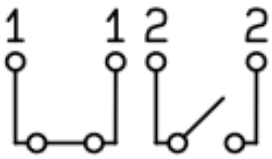


Position E2

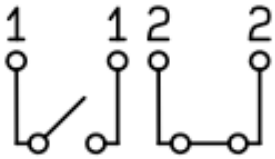


POSITION INDICATORS

State 11

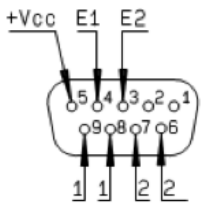


State 22

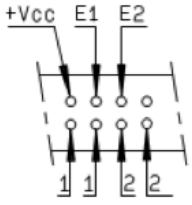


Standard drive option "1"
(Positive common):

- Connect pin +Vcc to supply (+20 Vdc to +32 Vdc)
- Select desired RF path by applying ground to the corresponding "close" pin (Ex: ground pin E1 to switch to position E1. RF path 2-3 and RF path 4-5 closed and RF path 1-2 and RF path 3-4 open)
- To open desired path and close the new RF path, connect ground to the corresponding "close" pin (Ex: ground pin E2 to open RF path 2-3 and 4-5 and close RF path 1-2 and 3-4)



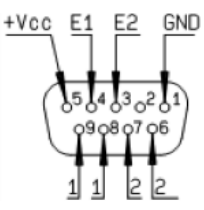
D-Sub connector



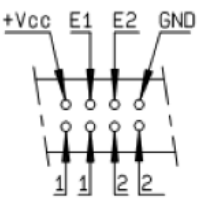
Solder pins

TTL drive option "2":

- Connect pin GND to ground
- Connect pin +Vcc to supply (+20 Vdc to +32 Vdc)
- Select (close) desired RF path by applying TTL "High" to the corresponding "drive" pin (Ex: apply TTL "High" to pin E1 to switch to position E1. RF path 2-3 and RF path 4-5 closed and RF path 1-2 and 3-4 open)
- To open desired path and close the new RF path, apply TTL "High" to the "drive" pin which corresponds to the desired RF path. (Ex: apply TTL "High" to pin E2 to open RF path 2-3 and 4-5 and close RF path 1-2 and 3-4)



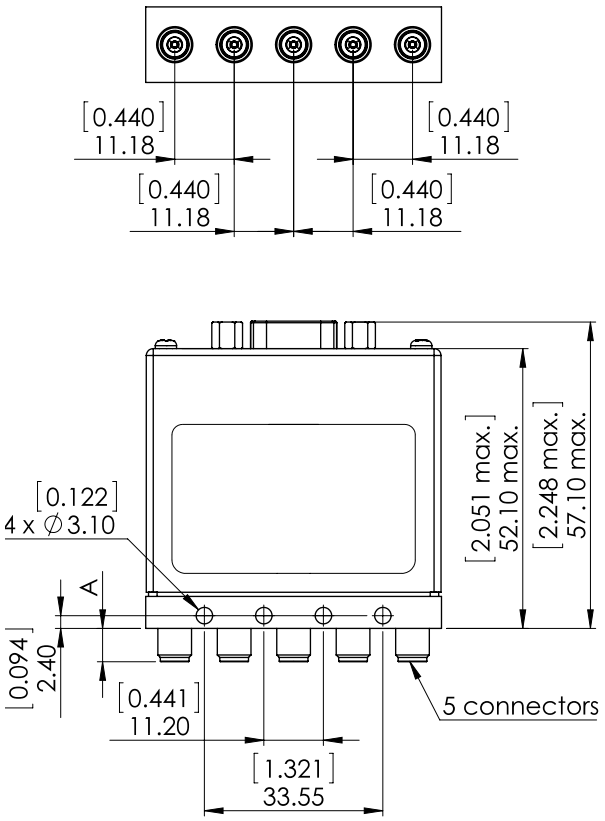
D-Sub connector



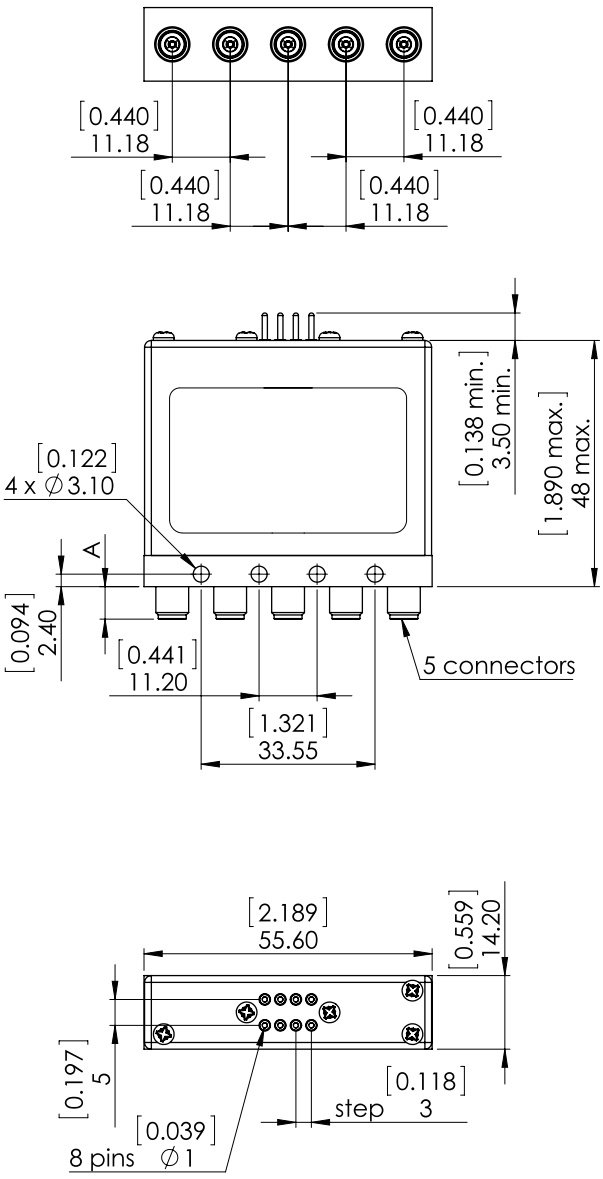
Solder pins

SWITCH MODEL: NON-TERMINATED 5 PORT DP3T SWITCH

With D-Sub connector



With solder pins



All dimensions are in millimeters [inches].

Connectors	A max (mm [inches])
SMA	7.7 [0.303]
SMA 2.9	6.7 [0.264]

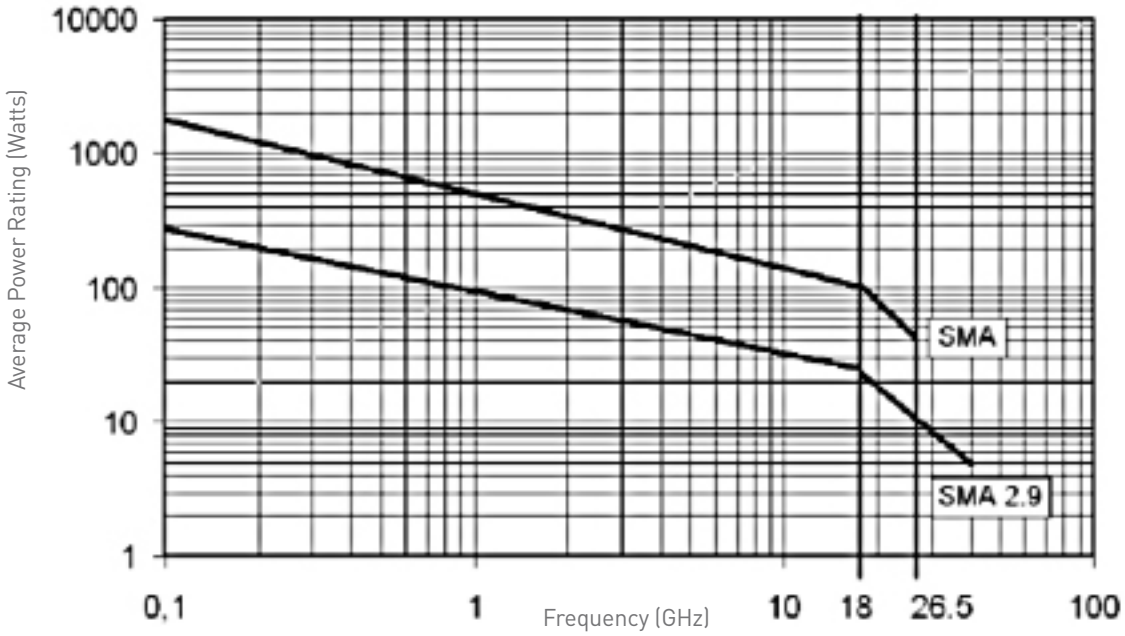
High performance DP3T & Terminated SPDT up to 40 GHz

SMA - SMA 2.9

POWER RATING CHART

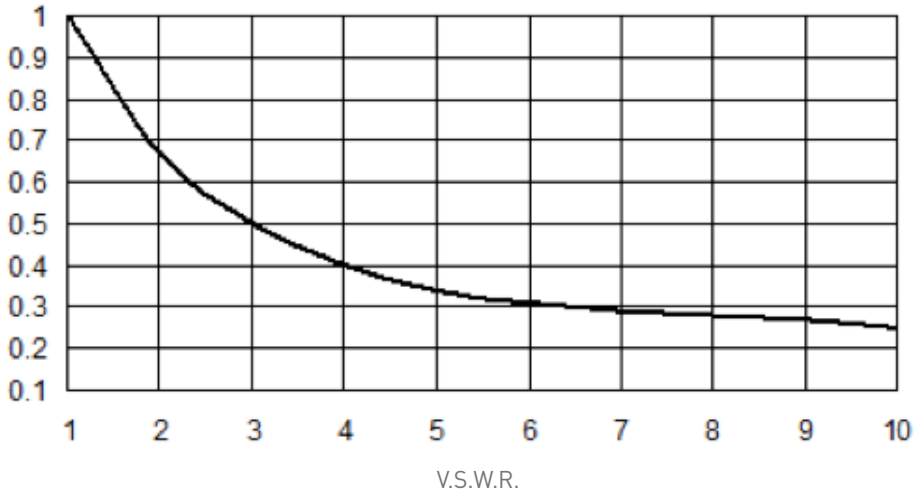
This graph is based on the following conditions:

- Ambient temperature: + 25°C
- Sea level
- V.S.W.R.: 1 and cold switching



DERATING FACTOR VERSUS V.S.W.R.

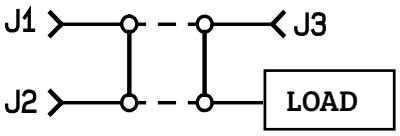
The average power input must be reduced for load V.S.W.R. above 1.1



Optional features for DP3T switches

GENERAL

RADIALL DP3T / SPDT terminated are only designed with SMA, SMA 2.9 and 2.4 mm connectors. For all other connectors (N, BNC etc..), the same function as SPDT terminated can be easily performed with a standard DPDT and an external load.



POS 1 : J1 to J2 / J3 to load

Examples of dedicated applications:

This SPDT terminated switch is composed of a DP3T with SMA connectors, and cable load for medium power terminations. The Key advantage of this solution is the ability to mount the switch with external terminations at the desired power level.

This is an example of an SPDT terminated switch that was designed with two seperate coils for a specific test network application.

Mouser Electronics

Authorized Distributor

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