

R591 RADIALL coaxial subminiature switches have a typical operating life exceeding 25 million cycles. Excellent RF & repeatability characteristics along with a guaranteed life of 10 million cycles make these switches ideal for Automated Test Equipment (ATE) and other measurement applications. These miniature switches are also an excellent choice for Mil/Aero applications due to their small size, light weight, as well as outstanding shock and vibration handling capabilities.

**PART NUMBER SELECTION**

# R 591 . . . . .

*Updated revision*
**RF connectors :**

- 3 : SMA up to 6 GHz
- 7 : SMA up to 26.5 GHz
- 8 : SMA 2.9 up to 40GHz (5)
- E : QMA up to 6 GHz (4)

**Type :**

- 0 : Normally open
- 2 : Latching, global reset
- 6 : Latching, separated reset (1)

**Actuator voltage :**

- 2 : 12 Vdc
- 3 : 28 Vdc

**Actuator Terminal :**

- 0 : Solder pins
- 5 : Micro-D connector

**Options :**

- 0 : Without option
- 1 : Positive common
- 2 : Normally open with TTL driver (high level) (2)&(3)
- 3 : With suppression diodes
- 4 : With suppression diodes and positive common

**Number of positions :**

- 4 : 4 positions
- 6 : 6 positions

- (1) : Available with "solder pins" models only
- (2) : Polarity is not relevant to application for switches with TTL driver
- (3) : Suppression diodes are already included with TTL option



(4) : The "QLF" trademark (quick lock formula®) standard applies to QMA and QN series and guarantees the full intermateability between suppliers using this trademark. Using QLF certified connectors also guarantees the specified level of RF performances.

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



In the continual goal to improve our products, we reserve the right to make any modification judged necessary.

**GENERAL SPECIFICATIONS**

Operating mode		Normally open		Latching	
<b>Nominal operating voltage</b> (across operating temperature)	Vdc	<b>12</b> (10.2 / 13)	<b>28</b> (21 / 30)	<b>12</b> (10.2 / 13)	<b>28</b> (21 / 30)
<b>Coil resistance (+/-10%)</b>	Ohms	48	250	60	285
<b>Operating current at 23°C</b>	mA	250	110	200	98
<b>Average power</b>		See Power Rating Chart on general catalog			
<b>TTL input</b>	High Level	2.2 to 5.5 Volts			
	Low Level	0 to 0.8 Volts			
<b>Switching time (max)</b>	ms	10			
<b>Life</b>		10 million cycles (SMA, QMA) / 2 million cycles (SMA 2.9)			
<b>Connectors</b>		SMA / QMA / SMA 2.9			
<b>Actuator terminals</b>		<b>Solder Pins</b> : double row connector for wrapping, soldering (250°C max / 30 sec), or connecting to 2.54 mm pitch female connector. <b>9 pin micro-D</b> receptacle M83513/07-A according to MIL-C-85513.			
<b>Operating temperature range</b>	°C	-40 to +85			
<b>Storage temperature range</b>	°C	-55 to +85			
<b>Sine vibration</b> (According to MIL STD 202, Method 204D, Cond. D)		10-2000 Hz, 20g	operating		
<b>Random vibration</b> (According to MIL STD 202, Method 214A, Profile I, Cond. F)		50-2000 Hz, 20.71grms	operating		
<b>Shock</b> (According to MIL STD 202, Method 213B, Cond. C)		100g / 6 ms, ½ sine	operating		

**RF PERFORMANCES**

Connectors	Frequency Range GHz		V.S.W.R. (max)	Insertion Loss (max) dB	Isolation (min) dB	Impedance Ohms
SMA / QMA	DC – 6	DC – 3	1.20	0.20	80	50
		3 – 6	1.30	0.30	70	
SMA	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	
SMA2.9	DC – 40	18 – 26.5	1.60	0.60	55	50
		DC – 3	1.20	0.20	80	
		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	
		26.5 – 40	2.20	1.10	45	

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**TYPICAL RF PERFORMANCES**

**TYPICAL OUTLINE DRAWING (1)**

Connectors	SMA	SMA 2.9	QMA
A max (mm/ inches)	7.4/ 0.291	6.5/0.26	10.8/ 0.425



(1) : For SP4T, ways 3 and 6 not connected

all dimensions are in mm/ inches

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R591 series electrical schematics



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R591 series electrical schematics

LATCHING GLOBAL RESET WITH POSITIVE COMMON  
R591 -2- -1-



LATCHING GLOBAL RESET WITH SUPPRESSION DIODES  
R591 -2- -3-



LATCHING GLOBAL RESET WITH POSITIVE COMMON AND SUPPRESSION DIODES  
R591 -2- -4-



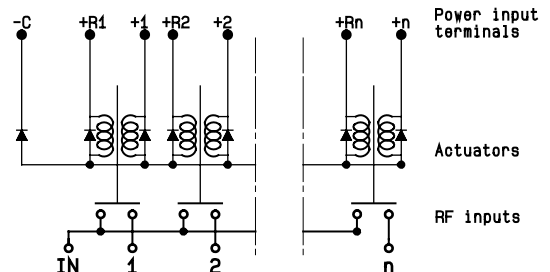
LATCHING SEPARATED RESET WITHOUT OPTION  
R591 -6- -0-



LATCHING SEPARATED RESET WITH POSITIVE COMMON  
R591 -6- -1-

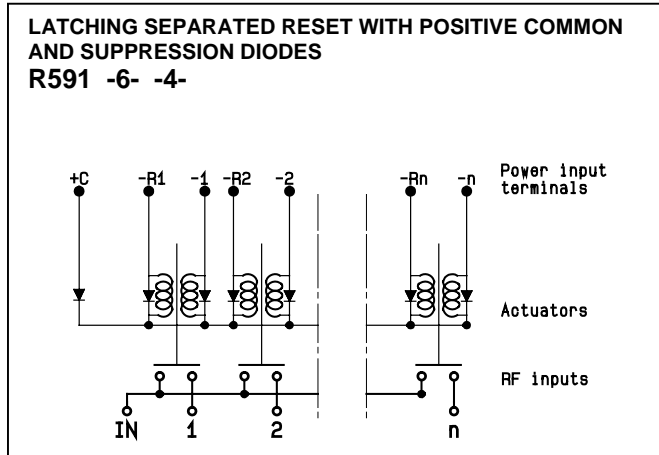


LATCHING SEPARATED RESET WITH SUPPRESSION DIODES  
R591 -6- -3-



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R591 series electrical schematics



Pin identification

Solder pins (top view)\*



9 pin Micro-D (top view )



- NC : not connected
- For SP4T, ways 3 and 6 not connected
- Pin R = reset of all paths

\* : compatible with 2.54 mm pitch double row 16 contact femelle connector

Type		PIN														
		C	V	1	2	3	4	5	6	R	R1	R2	R3	R4	R5	R6
Normally open	negative common	-C	NC	+1	+2	+3	+4	+5	+6	NC	NC	NC	NC	NC	NC	NC
	positive common	+C	NC	-1	-2	-3	-4	-5	-6	NC	NC	NC	NC	NC	NC	NC
Latching	negative common	-C	NC	+1	+2	+3	+4	+5	+6	+reset	NC	NC	NC	NC	NC	NC
global reset	positive common	+C	NC	-1	-2	-3	-4	-5	-6	-reset	NC	NC	NC	NC	NC	NC
Latching	negative common	-C	NC	+1	+2	+3	+4	+5	+6	NC	+res.1	+res.2	+res.3	+res.4	+res.5	+res.6
individual reset	positive common	+C	NC	-1	-2	-3	-4	-5	-6	NC	-res.1	-res.2	-res.3	-res.4	-res.5	-res.6
Normally open with TTL drive		Gnd or RTN	Vcc	E1	E2	E3	E4	E5	E6	NC	NC	NC	NC	NC	NC	NC

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- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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