

# Miniature Snap Switch

## Single Pole

### D4 Series



#### Features

- Choice of standard or light operating force
- Long life coil spring mechanism
- RoHS compliant
- Cadmium free
- Various aux actuators
- Various terminal types
- Agency approved extended life versions available

#### Standard Parts<sup>1</sup> (note "G2" suffix does not affect fit, form or function)

D413-R1AA	D429-R1TD	D433-R1AA	D443-R1LD	D449-R1LL	D453-R1RA
D413-R1LA	D429-R1AA	D433-R1LD	D443-R1MD	D449-R1MD	D453-R1RD
D413-R1LD	D429-R1LD	D433-R1RA	D443-R1RA	D449-R1ML	D459-R1AA
D413-R1RA	D429-R1LL	D433-R1RD	D443-R1RD	D449-R1RA	D459-R1LD
D419-R1AA	D429-R1MD	D439-R1LL	D449-R1AA	D449-R1RD	D459-R1LL
D423-R1RA	D429-R1ML	D439-V1ML	D449-R1LD	D453-B8AA	D459-R1ML
D423-R1RD		D443-R1AA		D453-R1AA	

<sup>1</sup>The part number configuration matrix below provides details to the part numbers above. For configurable part numbers that are not listed above, not listed in your region, or for custom part numbers, contact the factory or your distributor. For information on crossing discontinued U.S. only part numbers, see D4 cross-reference chart at [www.switches-sensors.zf.com](http://www.switches-sensors.zf.com).

#### Part Number Breakdown

D413-R1AA

Series	Contact Rating <sup>2</sup>		Configuration <sup>3</sup>							
D4	1	0.1 A	85 °C		125 °C		150 °C			
	2	3 A	1	SPST – NO	Standard Op. Force "Y"	G	SPST – NO	S	SPST – NO	Light Op. Force
	3	5 A	2	SPST – NC		H	SPST – NC	T	SPST – NC	
	4	10 A	3	SPDT		M	SPDT	U	SPDT	
	5	15 A	7	SPST – NO	Light Op. Force "X"	N	SPST – NO			
	8	21 A	8	SPST – NC		P	SPST – NC			
			9	SPDT		R	SPDT			

<sup>2</sup>UL AC current rating; see table on reverse for complete details

<sup>3</sup>D48 only available with light operating force

Terminal Type	Description
A1	Welding
B8	Short solder
P4	1.2 x 0.5 (0.047 x 0.020) PCB, underside*
P5	1.2 x 0.5 (0.047 x 0.020) PCB, rear*
PA	1.2 x 0.5 (0.047 x 0.020) PCB, housing side*
PB	1.2 x 0.5 (0.047 x 0.020) PCB, cover side*
Q1	4.8 x 0.8 (0.187 x 0.032) QC, straight*
Q3	4.8 x 0.8 (0.187 x 0.032) QC, dog leg*

\*not available for D48

\*\*not available for D45 or D48

Terminal Type	mm (inches)
R1	4.8 x 0.5 (0.187 x 0.020) QC, straight*
R3	4.8 x 0.5 (0.187 x 0.020) QC, dog leg**
S1	Solder with temp stop
V1	6.3 x 0.8 (0.250 x 0.032) QC, straight
V3	6.3 x 0.8 (0.250 x 0.032) QC, dog leg
W9	Screw*
X5	1.5 x 0.8 (0.059 x 0.032) QC, 2.5 mm grid
Y5	6.3 x 0.8 (0.250 x 0.032) QC, 5 mm grid

Actuator Type mm (inches)

Actuator Type	Actuation length
AA	Button N/A
JA	SS lever, standard ratio 21.2 (0.835)
JD	SS lever, standard ratio 35.6 (1.4)
JL	SS lever, standard ratio 69.9 (2.75)
KA	SS lever, high ratio 25.7 (1.01)
KD	SS lever, high ratio 40.1 (1.58)
KL	SS lever, high ratio 74.4 (2.93)
LA	Lever, standard ratio 21.2 (0.835)
LD	Lever, standard ratio 35.6 (1.4)
LL	Lever, standard ratio 69.9 (2.75)

Actuator Type	Actuation length
MA	Lever, high ratio 25.7 (1.01)
MD	Lever, high ratio 40.1 (1.58)
ML	Lever, high ratio 74.4 (2.93)
RA	Roller, standard ratio 20.6 (0.811)
RD	Roller, standard ratio 34.1 (1.34)
SA	Roller, simulated, rear mount 20.6 (0.811)
TA	Roller, high ratio 25.1 (0.988)
TD	Roller, high ratio 38.6 (1.52)
UA	Roller, simulated, front mount 25.1 (0.988)

For actuator details, see D4 actuator reference sheet at <http://switches-sensors.zf.com/us/>

[www.switches-sensors.zf.com](http://www.switches-sensors.zf.com) ZF Electronics Systems Pleasant Prairie, LLC ("ZF") acquired the rights to the CHERRY branded switches and sensors in 2008. Although ZF divested its interest in the CHERRY name in 2015, the switches and sensors remain unchanged and are now sold under the ZF brand.



## Electrical Specifications – Contact Ratings

Contact	EN61058 <sup>4</sup>	UL1054
1	0.1 (0.5) A, 250 VAC; 0.5 A, 30 VDC; 1 (1) A, 250 VAC	0.1 A, 125/250 VAC; 0.5 A, 30 VDC; 1 A, 125 VAC
2	3 (1) A, 250 VAC	3 A, 125/250 VAC; 1/10 HP, 250 VAC
3	6 (2) A, 250 VAC	5 A, 125/250 VAC; ¼ HP, 250 VAC
4	10 (3) A, 250 VAC	10 A, 125/250 VAC; 6 A, 30 VDC; ½ HP, 125/250 VAC
5	16 (4) A, 250 VAC	15 A, 125/250 VAC; ½ HP, 125-250 VAC
8	21 (8) A, 250 VAC	21 A, 250 VAC; 1 HP, 125 VAC; 2 HP, 250 VAC

UL file number E314201

<sup>4</sup>D45 with R1 terminals are not 61508 certified

## Environmental and Mechanical Specifications

Operating Temperature	-40 °C to 85, 125 or 150 °C (-40 °F to 185, 257 or 302 °F)	
Flammability Rating	UL 94V-0	
Operating life – electrical life at rated load, 85 °C		
	Contact	UL1054 <sup>5</sup>
	1	6,000
	2	6,000
	3	6,000
	4	6,000
	5	6,000
	7	6,000
	EN61058	
	1	50,000
	2	50,000
	3	50,000
	4	50,000
	5	50,000
	7	10,000

<sup>5</sup>Extended life available

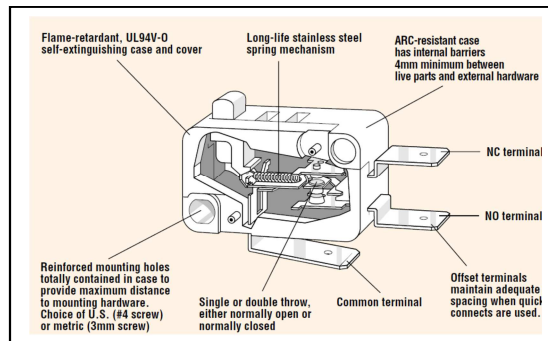
## Material Specifications

Case	Polyamide (PA) 85 °C, Thermoplastic Polyester (PET) 125 or 150 °C
Cover	Polyamide (PA) 85 °C, Thermoplastic Polyester (PET) 125 or 150 °C
Actuating Button	Thermoplastic Acetyl (POM) 85 °C, Thermoplastic Polyester (PET) 125 or 150 °C
Contacts	Gold Cross Point (D41), Silver (D42), Silver Alloy (D43-D48)
Terminals	Brass
Auxiliary Actuator	Stainless Steel or Cold-Rolled Steel (Nickel Plated)
Moving Blade	Silver Plated Brass

## Environmental Specifications

Ambient Temperature	-40 °C to 85 °C/120 °C (-40 °F to 185 °F/248 °F)
Operating Force	45 – 400 cN (model dependent, without actuator)
Total Travel	1.6 mm
Ingress Protection	IP40

## Dimensions mm (inches) and terminal configurations



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