TM Series
Miniature Snap-acting Switches



Features/Benefits

- *Broad range of operating forces available*
- *Wide variety of actuator and terminal styles*
- *Cost-effective solution*

Typical Applications

- *Pumps and motors*
- *White goods*
- *Consumer appliances*

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Specifications

CONTACT RATING: From low level* to 15 AMPS @ 250 V AC.

ELECTRICAL LIFE: 150,000 cycles at 15 AMPS @ 250 V AC, models with 150 grams operating force. 350,000 cycles at 10 AMPS @ 250 V AC, models with 75 grams operating force.

INSULATION RESISTANCE: 1,000 M ohms min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –67°F to 302°F (–55°C to 150°C).

OPERATING FORCE: 50, 75 and 150 grams at actuator available; refer to chart for lever style forces.

MOUNTING: Torque screws 2-5 in/lbs.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

Materials

SWITCH HOUSING: Thermoplastic or general purpose phenolic (UL 94V-0).

ACTUATOR BUTTON: Thermoplastic (UL 94V-0).

SPRING: Copper alloy.

PIVOT: Brass alloy.

MOVABLE CONTACTS: Gold alloy for ratings 1 AMP @ 125 V AC or less. Fine silver for ratings greater than 1 AMP @ 125 V AC.

STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less. Fine silver for ratings greater than 1 AMP.

TERMINALS: Brass alloy for ratings up to 10 AMPS @ 250 V AC. Copper alloy for 15 AMPS @ 250 V AC ratings.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-26 through J-31. For additional options not shown in catalog, consult Customer Service Center.

Available extended electrical life per UL 1054, rated for 100,000 operations, consult factory.

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Series
TM SP, Mom.

Operating Force
CG 2.65 oz./75 grams
CJ 5.29 oz.,/150 grams
CF 1.76 oz./50 grams

Electrical Rating
D6 10 A @ 125 & 250 V AC; 1/3 HP @ 125 & 250 V AC;1/2 A @ 125 V DC; 1/4 A @ 250 V DC
G6 15 A @ 125 & 250 V AC; 1/4 A @ 250 V DC; 1/2 A @ 125 V DC; 1/2 HP @ 125 & 250 V AC; 3 A @ 125 V AC "L"
F5 1 A @ 125 V AC; 1 A @ 30 V DC
H3 5 A @ 250 V AC; 1/6 HP @ 125 & 250 V AC

Mounting Style
S Standard
V Metric

Actuator
P00 Pin plunger
A10 .81" lever roller, high force
A15 1.34" lever roller, high force
A20 1.02" lever roller, low force
A25 1.56" lever roller, low force
T10 .84" lever, high force
T13 1.34" simulated roller, high force
T14 1.29" simulated roller, high force
T15 1.40" lever, high force
T16 2.34" lever, high force
T17 2.00" lever, high force
T18 2.75" lever, high force
T20 1.06" lever, low force
T23 1.56" simulated roller, low force
T24 1.50" simulated roller, low force
T25 1.62" lever, low force
T26 2.56" lever, low force
T27 2.22" lever, low force
T28 2.97" lever, low force

Terminations
40 .187" quick connect
10 Solder
4A .250" quick connect
60 Screw

Circuitry
C SPDT
W SPST N.C.
Y SPST N.O.

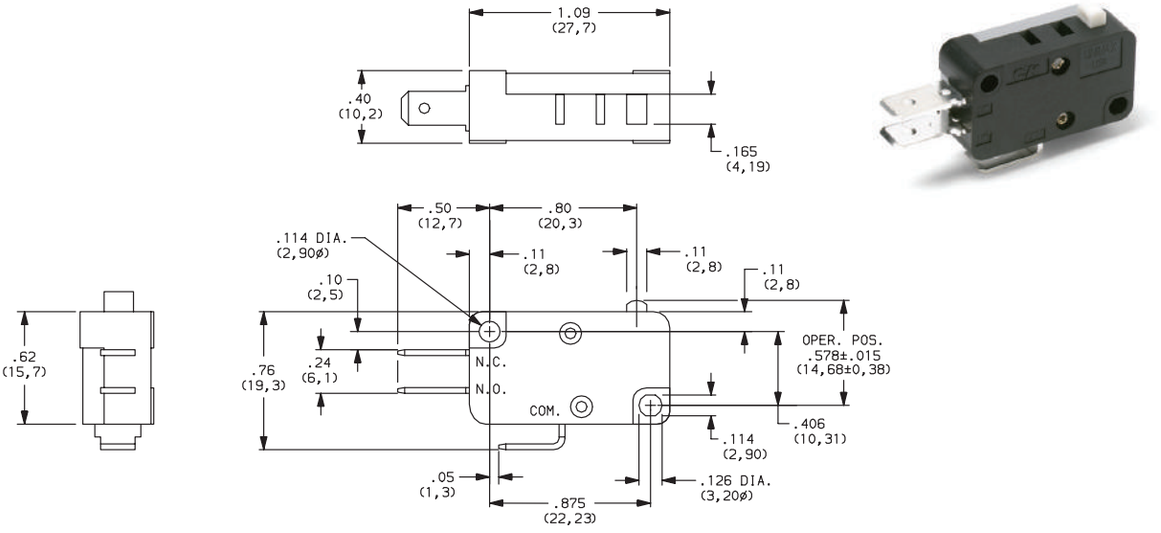
* All models c UL us

Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

SERIES

TM MINIATURE SNAP-ACTING SWITCHES – SP MOMENTARY



OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
CG	2.65 75
CJ	5.29 150
CF	1.76 50

Operating Force option 'CF' not available with 'T18, T27 and T28' actuator options. Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL		ELECTRICAL RATING
			MOVABLE CONTACT	STATIONARY CONTACT	
D6	Yes	Yes	Fine Silver	Fine Silver	10 AMPS @ 125 & 250 V AC; 1/3 HP @ 125 & 250 V AC; 1/2 AMP @ 125 V DC; 1/4 AMP @ 250 V DC.
F5	Yes	Yes	Gold alloy	Gold alloy	From low level* to 1 AMP @ 125 V AC, 1 AMP @ 30 V DC.
G6	Yes	Yes	Fine Silver	Fine Silver	15 AMPS @ 125 & 250 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 1/2 HP @ 125 & 250 V AC; 3 AMPS @ 125 V AC "L".
H3	Yes	Yes			5 AMPS @ 250 V AC; 1/6 HP @ 125 & 250 V AC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

* All models cULus

Contact Customer Service Center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

Third Angle Projection

Dimensions are shown: Inches (mm)
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TM Series
Miniature Snap-acting Switches

ELECTRICAL RATING

AVAILABLE COMBINATIONS

ELECTRICAL RATING	MAXIMUM OPERATING FORCE (OZ./GRAMS)		
	1.76/50 CF	2.65/75 CG	5.29/150 CJ
D6	•	•	•
F5	•	•	•
G6	X	X	•
H3	•	•	•

• AVAILABLE
X NOT AVAILABLE

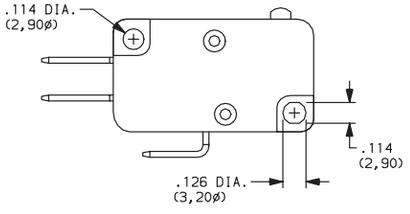
* All models

Contact Customer Service Center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

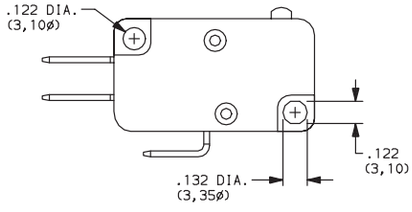
MOUNTING STYLE

S Standard



Recommended maximum screw size: 4-40.

V Metric



Recommended maximum screw size: 3 mm.

NOTE: Torque mounting screws 2-5 in/lbs.

Third Angle Projection

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Specifications and dimensions subject to change

ACTUATOR

OPTION CODE	FIG.	DIM. A	DIM. B	DIM. C	DIM. D
P00	2	.80 (20,3)	—	.578 ± .015 (14,68 ± 0,38)	—
A10	1	.81 (20,6)	.36 (9,1)	.810 ± .020 (20,57 ± 0,51)	.19 dia. (4,8Ø)
A15	1	1.34 (34,0)	.36 (9,1)	.810 ± .040 (20,57 ± 1,02)	.19 dia. (4,8Ø)
A20	1	1.03 (26,2)	.58 (14,7)	.810 ± .050 (20,57 ± 1,27)	.19 dia. (4,8Ø)
A25	1	1.56 (39,6)	.58 (14,7)	.810 ± .080 (20,57 ± 2,03)	.19 dia. (4,8Ø)
T10	3	.84 (21,3)	.36 (9,1)	.600 ± .020 (15,24 ± 0,51)	—
T13	4	1.34 (34,0)	.36 (9,1)	.810 ± .040 (20,57 ± 1,02)	.19 dia. (4,8Ø)
T14	4	1.28 (32,5)	.36 (9,1)	.743 ± .050 (18,9 ± 1,3)	.236 dia. (6,0Ø)
T15	3	1.40 (35,6)	.36 (9,1)	.600 ± .040 (15,24 ± 1,02)	—
T16	3	2.34 (59,4)	.36 (9,1)	.600 ± .062 (15,24 ± 1,57)	—
T17	3	2.00 (50,8)	.36 (9,1)	.600 ± .052 (15,24 ± 1,57)	—
T18	3	2.75 (69,9)	.36 (9,1)	.600 ± .093 (15,24 ± 2,36)	—
T20	3	1.06 (26,9)	.58 (14,7)	.600 ± .045 (15,24 ± 1,14)	—
T23	4	1.56 (39,6)	.58 (14,7)	.810 ± .065 (20,57 ± 1,65)	.19 dia. (4,8Ø)
T24	4	1.50 (38,1)	.58 (14,7)	.743 ± .090 (18,80 ± 2,29)	.236 dia. (6,0Ø)
T25	3	1.62 (41,1)	.58 (14,7)	.600 ± .080 (15,24 ± 2,03)	—
T26	3	2.56 (65,0)	.56 (14,7)	.600±.125 (15,24±3.18)	—
T27	3	2.22 (56,4)	.58 (14,7)	.600±.125 (15,24±3.18)	—
T28	3	2.97 (75,4)	.58 (14,7)	.600±.187 (15,24±4.75)	—

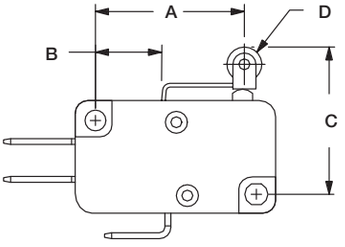


FIG. 1
Lever Roller

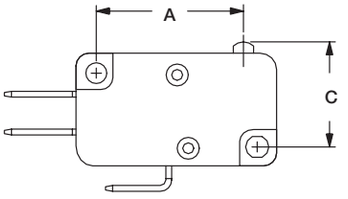


FIG. 2
Pin Roller

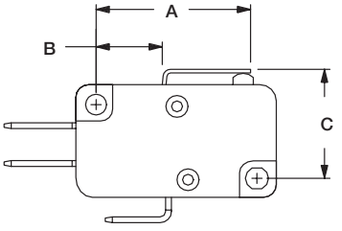


FIG. 3
Lever

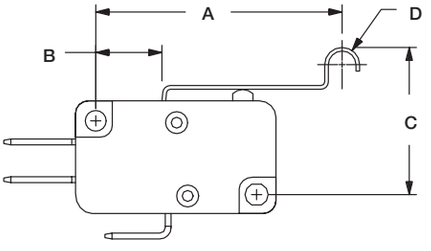
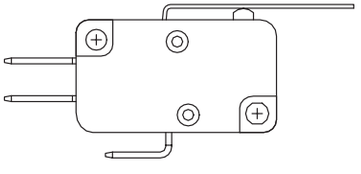


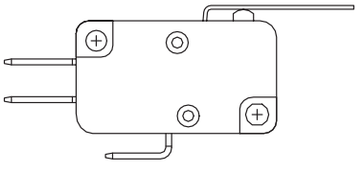
FIG. 4
Simulated Roller

HIGH FORCE, LOW MOTION PIVOT POSITION



Available with actuators A10, A15, T10, T13, T14, T15, T16, T17 and T18.

LOW FORCE, HIGH MOTION PIVOT POSITION



Available with actuators A20, A25, T20, T23, T24, T25, T26, T27 and T28.

NOTE: Lever actuator options are available in either of two pivot positions.
Levers located in the forward pivot position have lower forces and higher motions.
Levers located in the rear pivot position have higher forces and lower motions.

Third Angle Projection

Dimensions are shown: Inches (mm)
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TM Series
Miniature Snap-acting Switches

ACTUATOR

SWITCH CHARACTERISTICS

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)			MINIMUM RELEASE FORCE (OZ./GRAMS)			MINIMUM RETURN FORCE (OZ./GRAMS)			MAXIMUM DIFFERENTIAL TRAVEL	MAXIMUM PRETRAVEL	MINIMUM OVERTRAVEL
	CF (50)	CG (75)	CJ (150)	CF (50)	CG (75)	CJ (150)	CF (50)	CG (75)	CJ (150)	ALL FORCES	ALL FORCES	ALL FORCES
T10	2.12 60	3.17 90	6.35 180	.49 14	.99 28	1.69 48	.25 7	.53 15	1.06 30	.013 (0,33)	.080 (2,03)	.035 (0,89)
T13	1.06 30	1.59 45	2.82 80	.21 6	.35 10	.71 20	.11 3	.14 4	.35 10	.030 (0,76)	.160 (4,06)	.065 (1,65)
T13	1.06 30	1.76 50	3.17 90	.25 7	.35 10	.71 20	.11 3	.14 4	.35 10	.050 (1,27)	.140 (3,56)	.062 (1,57)
T15	1.06 30	1.59 45	2.28 80	.21 6	.32 9	.71 20	.11 3	.14 4	.35 10	.032 (0,81)	.160 (4,06)	.075 (1,90)
T16	.53 15	.71 20	1.41 40	.11 3	.18 5	.35 10	.05 1.5	.07 2	.18 5	.090 (2,29)	.312 (7,92)	.140 (3,56)
T17	.71 20	.88 25	1.76 50	.14 4	.21 6	.42 12	.07 2	.07 2	.21 6	.062 (1,57)	.220 (5,59)	.110 (2,79)
T18	N/A	.71 20	1.23 35	N/A	.14 4	.28 8	N/A	.04 1	.14 4	.078 (1,98)	.375 (9,52)	.160 (4,06)
T20	1.06 30	1.59 45	3.17 90	.21 6	.32 9	.71 20	.11 3	.18 5	.35 10	.030 (0,76)	.160 (4,06)	.065 (1,65)
T23	.53 15	1.06 30	1.59 45	.11 3	.18 5	.35 10	.04 1	.07 2	.18 5	.070 (1,78)	.312 (7,92)	.125 (3,18)
T24	.53 15	1.23 35	1.76 50	.11 3	.18 5	.35 10	.05 1.5	.07 2	.18 5	.080 (2,03)	.312 (7,92)	.110 (2,79)
T25	.71 20	1.06 30	1.41 40	.07 2	.14 4	.32 9	.04 1	.07 2	.16 4.5	.070 (1,78)	.330 (8,38)	.100 (2,54)
T26	N/A	.35 10	.71 20	N/A	.07 2	.18 5	N/A	.04 1	.07 2	.110 (2,79)	.500 (12,7)	.250 (6,35)
T27	N/A	.60 17	.88 25	N/A	.11 3	.21 6	N/A	.04 1	.11 3	.125 (3,18)	.500 (12,70)	.200 (5,08)
T28	N/A	.42 12	.63 18	N/A	.07 2	.14 4	N/A	.04 1	.07 2	.187 (4,75)	.750 (19,05)	.280 (7,11)
A10	2.12 60	3.17 90	6.35 180	.49 14	.99 28	1.69 48	.25 7	.53 15	1.06 30	.013 (0,33)	.070 (1,78)	.035 (0,89)
A15	1.06 30	1.59 45	2.82 80	.21 6	.35 10	.71 20	.11 3	.14 4	.35 10	.030 (0,76)	.160 (4,06)	.065 (1,65)
A20	1.06 30	1.76 50	3.17 90	.25 7	.35 10	.71 20	.11 3	.18 5	.35 10	.025 (0,64)	.140 (3,56)	.060 (1,52)
A25	.53 15	1.06 30	1.59 45	.11 3	.18 5	.35 10	.04 1	.07 2	.18 5	.070 (1,78)	.312 (7,92)	.125 (3,18)
P00	1.76 50	2.65 75	5.29 150	.71 20	.99 28	2.12 60	.35 10	.53 15	1.06 30	.013 (0,33)	.056 (1,42)	.035 (0,89)

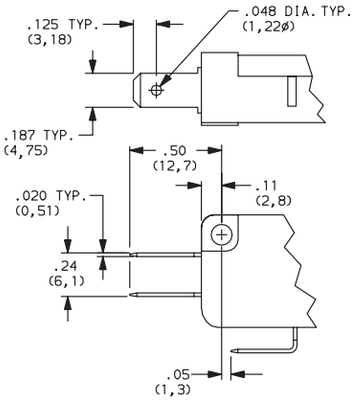
NOTE: For basic switch operating forces, see page J-26.

Third Angle Projection

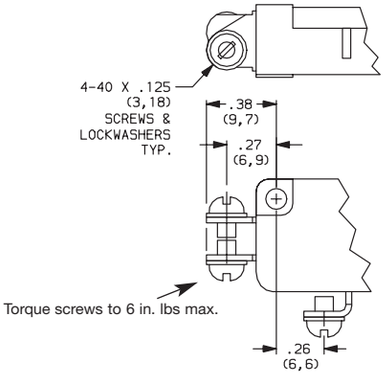
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

TERMINATIONS

40 .187" QUICK CONNECT

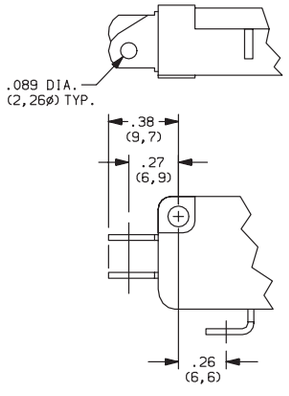


60 SCREW TERMINALS



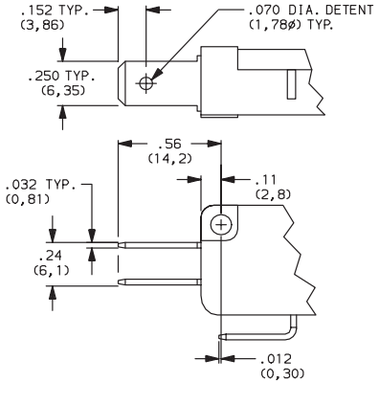
Not available with 'F5' rating option.

10 SOLDER



Not available with 'F5' rating option.

4A .250" QUICK CONNECT



Not available with 'F5' rating option.

CIRCUITRY

C SPDT (Single Pole, Double Throw)

W SPST N.C. (Single Pole, Single Throw, Normally Closed)

Y SPST N.O. (Single Pole, Single Throw, Normally Open)

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change