

Microswitches

Order code	Manufacturer code	Description
78-2845	AV440461	SUPER MIN.PIN PLUNGER MICRO SW
78-2850	AV442461	SUPER MIN.HINGE LEVER MICRO SW
78-2855	AV444461	SUPER MIN.SIMULATED ROLLER SW.

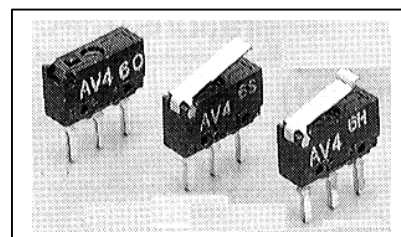
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The enclosed information is believed to be correct, Information may change 'without notice' due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E.	Revision A 04/07/2003

Super Miniature Lightweight Microswitches

Matsushita – FU (AV4) Series

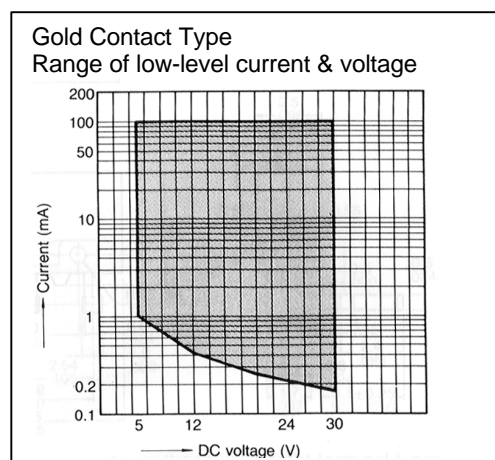
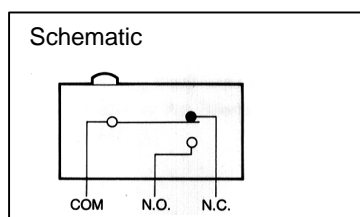
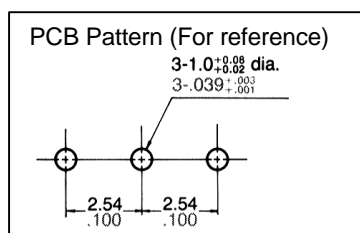
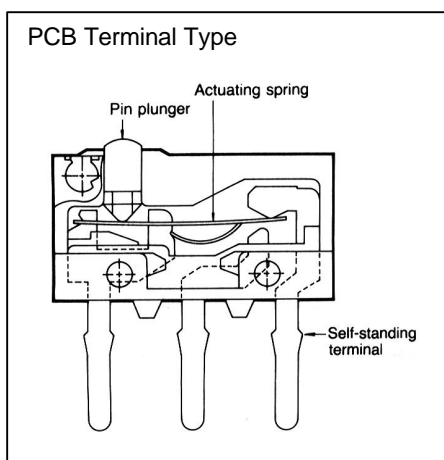
Features

- Superminiature type, light-weight snap action switch
- Mechanical life of 300,000 operations minimum
- Switches can be mounted close together in any directions



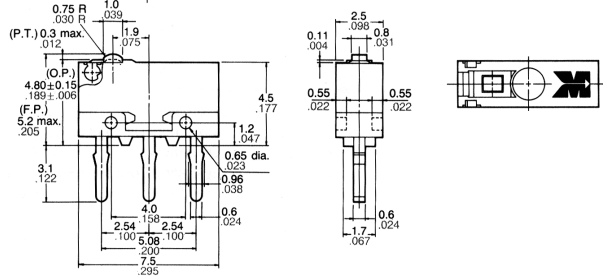
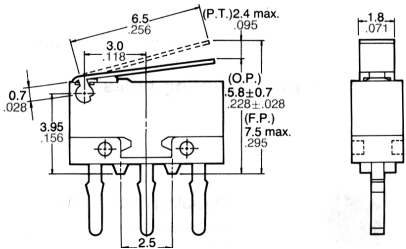
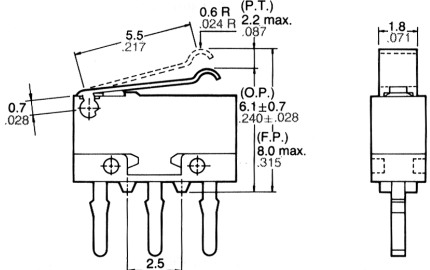
Contact Rating	
Type of contact	Resistive load (cosφ=1)
Silver contact	0.5 A 30 V DC
Gold contact	0.1 A 30 V DC

Characteristics		Characteristic	
Life	Mechanical	Min. 300,000 operations (switching frequency: 60 operations/min.)	
	Electrical	Silver contact	Min. 20,000 operations (0.5A 30V DC; switching freq.: 20 operations/min.)
		Gold contact	Min. 200,000 operations (0.1A 30V DC; switching freq.: 20 operations/min.)
Insulation resistance		Min. 100 MΩ (250V DC by insulation resistance meter)	
Voltage withstand	Between non-continuous terminals	500V AC for 1 min.	
	Between each terminal and other exposed metal parts	500V AC for 1 min.	
	Between each terminal and ground	500V AC for 1 min.	
Vibration resistance	Pin plunger type	Double amplitude 1.5mm 10 to 55Hz (contact opening: max. 1msec)	
	Lever type	Double amplitude 0.3mm 10 to 55Hz (contact opening: max. 1msec)	
Shock resistance	Pin plunger type	Min 30 G (contact opening: max. 1 msec)	
	Lever type	Min 15 G (contact opening: max. 1 msec)	
Contact resistance (Initial value)		Max. 200mΩ (by YHP4328A)	
Allowable operation speed		0.1 mm/s to 0.5 m/s (pin plunger type)	
Mechanical max. switching frequency		60 operations/min.	
Ambient temperature		-25°C to + 80°C (No freezing below 0°C)	
Ambient humidity		Max. 85% R.H.	
Unit weight		PCB terminal type: Approx. 0.2 g Solder terminal with mounting holes type: Approx. 0.3 g	



Ordering Information

Matsushita Ref No.	Type of Contact	Terminal Type	Actuator
AV440461	Gold	PCB Straight	Pin Plunger
AV442461	Gold	PCB Straight	Hinge Lever
AV444461	Gold	PCB Straight	Simulated Lever

<p align="center">PCB Straight Terminal - Pin Plunger Type</p> <p>Operating Force: 100 g max. Release Force: 10 g min. Pretravel: 0.3 max. Movement Differential: 0.1 min. Overtravel: 0.1 min. Operating Position: 4.8 ±0.15 Free Position: 5.2 max</p> <p>Dimensions in mm</p>	<p>Dimensions - mm (inch) Tolerance: ±0.15 (±0.006)</p> 
<p align="center">PCB Straight Terminal - Hinge Lever Type</p> <p>Operating Force: 25 g max. Release Force: 1.0 g min. Pretravel: 2.4 max. Movement Differential: 0.7 min. Overtravel: 0.4 min. Operating Position: 5.8 ±0.7 Free Position: 7.5 max</p> <p>Dimensions in mm</p>	<p>Dimensions - mm (inch) Tolerance: ±0.15 (±0.006)</p> 
<p align="center">PCB Straight Terminal - Simulated Lever Type</p> <p>Operating Force: 30 g max. Release Force: 1.0 g min. Pretravel: 2.2 max. Movement Differential: 0.7 min. Overtravel: 0.3 min. Operating Position: 6.1 ±0.7 Free Position: 8.0 max</p> <p>Dimensions in mm</p>	<p>Dimensions - mm (inch) Tolerance: ±0.15 (±0.006)</p> 

Notes

1. Mounting

- After mounting and wiring, the insulation distance between ground and each terminal should be confirmed as sufficient
- When the operation object is in the free position, force should not be applied to the actuator or to the pin plunger. Also force should be applied to the pin plunger from vertical direction to the switch
- In setting the movement after operation, the over-travel should be set within the range of the specified O.T. value.
- In fastening the switch body, use the M1.4 screw, with tightening torque of not more than 1 kg-cm. To prevent loosening of the screws, it is recommended that spring washers be used with the screws and adhesive applied to lock the screws

2. Soldering

- Hand soldering should be accomplished in less than 5 seconds with an iron below 18 watts. Keep the soldering tip temperature less than 320°C. Avoid applying force to the terminals
- In the case of automatically soldering bath, soldering should be done less than 5 seconds in 260°C solder bath
- Terminal portion must not be moved within 1 minute after soldering. Also no tensile strength of lead wires should be applied to the terminals
- When using the angle terminal type, insert an insulation separator between the switch body and the PCB (Insulation separator 0.2 to 0.4 mm thick) to prevent the soldering flux from flowing under the PCB

3. Cleaning

As FU switch is not completely sealed construction, avoid cleaning

4. Selection of Switch

When specifying FU switches, allow ±20% to the listed operating characteristics

5. Avoid using and keeping switches in the following conditions:

- In corrosive gases
 - In a dusty environment
 - Where silicon atmosphere prevails
- When switching low-level circuits (max. 100mA), gold plated contact types are recommended
 - When using the lever type, avoid applying force from the reverse and side direction of actuating