

Miniature Sealed Switch Data Sheet



Field of application:

The primary application for this switch is the automotive industry because of its high reliability, flexibility of use, and ease of integration into large volumes assemblies.

Description of Switch:

The Switch is designed as a single integrated, normally open micro switch that is completely sealed. The switch contacts and the terminal connection points are all sealed within a single molded housing. The top and bottom of the switch are completely sealed during manufacture and do not require any subsequent sealing operations or materials. The activation point can be approached at any angle from vertical to horizontal. The unit is designed especially for ease of integration. It can be assembled via various techniques (ultrasonic, heat-stake, etc...) in a single operation, often without the need for soldering.

Mechanical and Electrical Characteristics

Operational Figures

MECHANICAL	Micro Contacts Switch	Competition
Switch Point Tolerance	+/- 0.1 mm	+/- 0.15 mm
Pretravel	Min.0.75 +/- 0.10 mm	0.50 +/- 0.15mm
Overtravel	0.75 +/- 0.10 mm	1.50 +/- 0.15 mm
Typical Total Travel	1.50 +/- 0.10 mm	2.00 +/- 0.30 mm
Operating Force	min. 50 cN, max 400 cN at Vertical	min 30cN, max 120 cN
Sustaining Force	App. 80-120 cN at 100% overtravel	App. 80-120 cN at 100% overtravel
Maximum Chamfer Approach Angle	90 [∞]	40 [∞]

ELECTRICAL	Micro Contacts Switch	Competition
Rated Voltage	12VDC	12VDC
Operational Voltage	5 to 16.5VDC	8.4 to 16.5VDC
Test Voltage	12VDC	13VDC
Currents	Dependent on service life variables	Dependent on service life variables
Load Types	Ohmic, PTC	Ohmic, PTC, motor loads
Initial Contact Resistance	< 30 mΩ	<50 mΩ
End Contact Resistance	< 100 mΩ	<150 mΩ
Bounce Time-activation at v = .25 m/s	<1.5 ms	[3.0 ms

* "Competition" switch used for comparison is a standard, sub-miniature unit adapted for water resistant applications.

Service Life

	Load type	Value	M.C. Switch ¹	Competition ²	Competition ³
Mechanical			25,000,000	500,000	200,000
Electrical	Ohmic Load	5mA	> 1,400,000		200,000
		10mA	> 1,400,000	500,000	200,000
		50mA	> 1,400,000	100,000	200,000
		100mA	> 1,400,000		200,000
		200mA	> 400,000	100,000*	
		400mA	> 200,000		

1. Micro Contacts switch tests were conducted @ 12VDC with circular activation arm. Tests were conducted at varying temperatures.
2. Competition tests in column 2 were conducted @ 13VDC with a vertical activation. Tests were conducted at room temperature.
3. Competition tests in column 3 were conducted @ 13VDC with a max. 40° slide angle. Tests were conducted at varying temperatures.

* Test conducted at 150mA instead of 200mA.

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Environmental Figures

Protection: Waterproof switch in accordance with DIN 400500T9.

	M.C. Switch	Competition
Switch Waterproof Rating	IP 68	IP 67
Terminal Waterproof Rating	IP 68	IP 00

Additional Water Resistance testing performed on Micro Contacts switch- Interior of switch pressurized with + 2 psi and operated submerged in water for 24 hrs. with no evidence of water entry into interior of switch. Same results observed with a -2 psi internal vacuum.

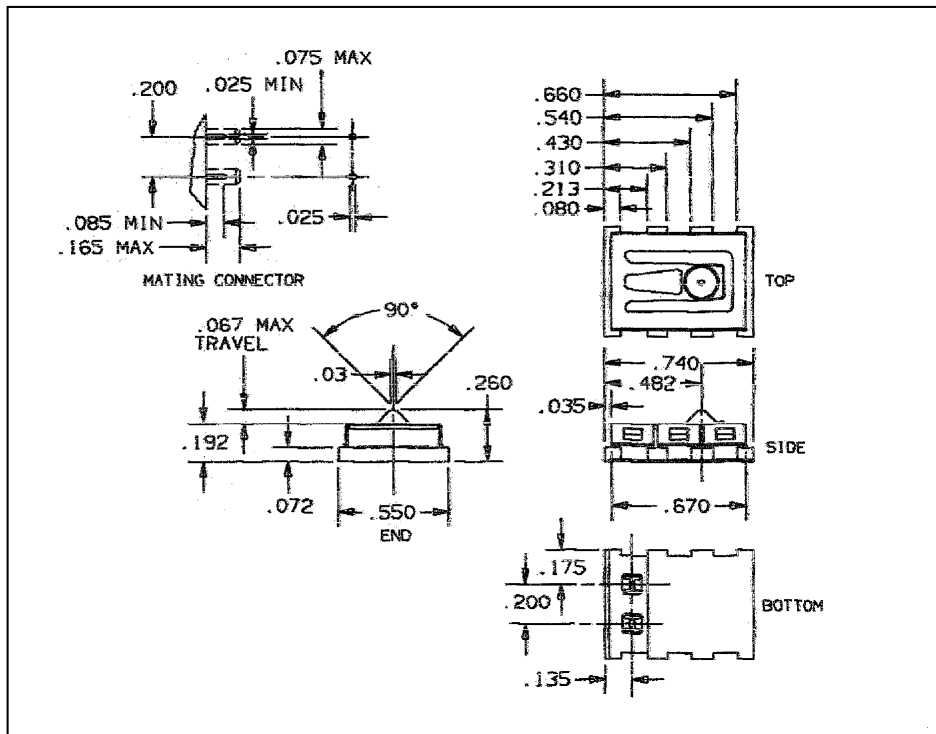
Temperature Range

	M.C. Switch	Competition
Operation Temperature	-40° to +85° C	-40° to +85° C
Storage Temperature	+85° C	+85° C
Test Temperature	+23 +/- 5° C	+23 +/- 5° C

Materials

PART DESIGNATION	Material	Remark
Switch Body	Nylon 66	White
Switch cover/ Actuator	SS 301	Natural
Upper Seal	Silicone Sheet	Out gassed
Contact	CDA 770	Selective Gold Plate
Lower Body Seal	Mylar	Natural
Terminal Seal	Closed Cell Foam	Black

Dimensions



NOTES:

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