



Technical Data

Through-hole / SMD / Right angle
single pole / momentary
50mA/24VDC
10,000,000 operations life time (Max.)
Meet IP67
Contact resistance : 30mΩ
Insulation resistance : > 10MΩ
Basic temp.: -40/+115 °C
High temp.: -40/+160 °C
Max actuation Force : 100N for 10 Sec.
Push force : 400N +/-100N
Available With LED

PATENTED



4FH/T	4FS	Material colors : 1. Through-hole : base & Actuator with Blue color 2. SMD : base & actuator with Black color 3. Cover : with White color
Dimensions (through-hole)	Dimensions (SMD)	
6FH/T Dimensions (through-hole)	6FS Dimensions (SMD)	6FY Dimensions (right-angle) PCB layout / Circuit Diagram

How to order

4 F



3X



1 F



1 TRANS

TM series

4F
6F

Mounting

H through-hole
T through-hole reflow
S surface mount
Y right angle

LED colour codes

01 blue
21 green
42 yellow
61 white
82 red
2142 green/yellow
8221 red/green
8242 red/yellow

CAP



Colour codes

00 Blue
02 Green *
03 Grey
04 Yellow *
06 White
08 Red
09 Black

* CAP MOQ: 2000pcs per order
CAP color cross with MEC color by RAL no.

Electrical Specifications

Contact resistance	< 30m Ω - typ. 10m Ω
Insulation resistance	> 10M Ω
Recommended load	0.5 μ -50mA 24VDC
Contact bounce	<2mS- typically 0.5mS

Mechanical Specifications

Standard actuation force (switch)	3.0N typ.
Max. actuation force without cap	100N for 10sec.
Key travel (switch)	1 mm
Life time (switch)	10.000.000 cycles(Max.)

Temperature Range

Basic temperature	-40/+115 $^{\circ}$ C
Working temperature	Min. -40 $^{\circ}$ C Max. +160 $^{\circ}$ C
Storage temperature	Min. -40 $^{\circ}$ C Max. +160 $^{\circ}$ C

Soldering IEC 68-2-20

Infrared, vapour phase, wave-max. 240 $^{\circ}$ C for max. 40 sec. or max. 260 $^{\circ}$ C for max. 30 sec. Soldering Iron- max. 350 $^{\circ}$ C for max. 3 sec. Flux tight.

Soldering

(1)Hand Soldering

Soldering iron 30W or under at 350 $^{\circ}$ C for 3 sec max or at 270 $^{\circ}$ C for 5 sec max.

(2)Reflow Soldering

260 $^{\circ}$ C $\pm$ 5 $^{\circ}$ C within 30 sec for reflow. In-line or Batch system.

(3)Wave soldering

For lead free wave solder simulation of typical components. the solder bath temperature Shall be maintained to 275 $^{\circ}$ C. The hold time in the solder shall be 10 +2/-0 seconds.

※Any flux enters the switch may influence contact function .

* All CAP un-allow pass through Soldering procss.

Environmental Endurance IEC 68-2-3

Temperature	+40 $^{\circ}$ C
Humidity	93% RH
Duration	21 Days

Temperature Cycling IEC 68-2-14

Temperature limit	Min. -55 $^{\circ}$ C - Max. +85 $^{\circ}$ C
Number of cycles	200
Exposure time at each temperature	10 min
Recovery time before measurements	16 hrs.
Sealing IEC 529	meet IP-67

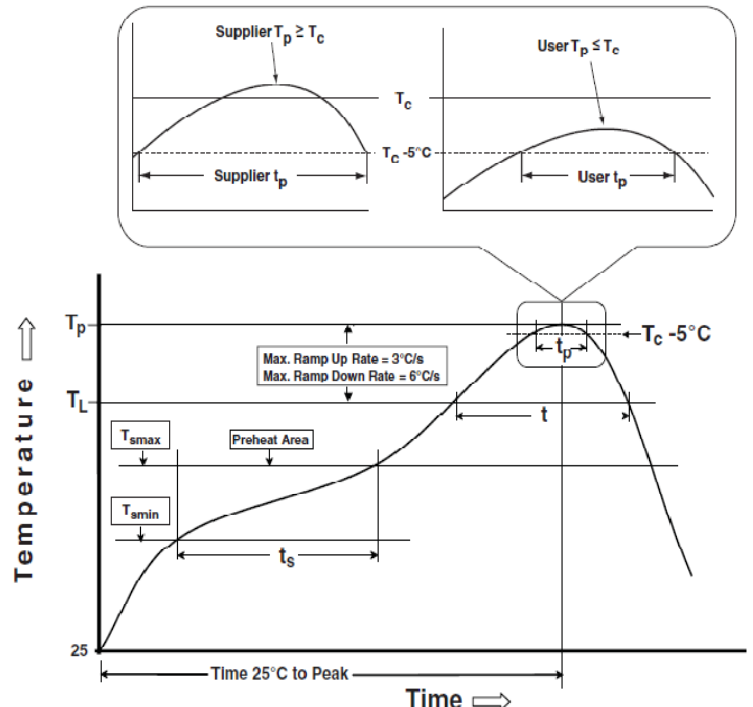
Vibration Test : meet IEC 68-2-6

Classification Reflow Profiles

Profile Feature	Pb-Free Assembly
Preheat & Soak	
Temperature Min (T_{smin})	150 $^{\circ}$ C
Temperature (T_{smax})	200 $^{\circ}$ C
Time(t_s) from (T_{smin} to T_{smax})	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 $^{\circ}$ C/second max.
Liquidous temperature (T_L)	217 $^{\circ}$ C
Time at liquidous (t_L)	60-150 seconds
Peak package body temperature(T_p)*	For user T_p must not exceed the Classification temp: 260 $^{\circ}$ C For suppliers T_p must equal or exceed Classification temp: 260 $^{\circ}$ C
Time (t_p) within 5 $^{\circ}$ C of the specified classification temperature (T_c)	30 seconds
Average ramp-down rate (T_p to T_{smax})	6 $^{\circ}$ C/second max.
Time 25 $^{\circ}$ C to Peak Temperature	8 minutes max.

*Tolerance for peak profile temperature(T_p) is defined as a supplier minimum

Reflow Soldering Standard Conditions



Note 1: All temperatures refer to topside of the package, measured on the package body surface.

Note 2: Time within 5 $^{\circ}$ C of actual peak temperature (t_p) specified for the reflow profiles is a "supplier" minimum and "user" maximum.