



Series 228D

6.8 x 5.0mm Illuminated Tactile Switch

- Surface mount gull-wing terminal and standard through hole configurations
- Compatible with IR reflow, and manual soldering
- Single color display during illumination
- Variety of LED color options
- Variety of cap styles, colors, and laser etching options



Ordering Information

Series	Terminal Type	Actuating Direction	Actuation Force	LED Color	LED Type	Cap Style	Cap Color	Laser Etching	Packaging
228D	M	S1	A	R	F	A	MS	A	R

Code	Spec.
D1	Standard through hole (black actuator), terminal length 1.5mm
M	Surface mount gull wing (black actuator)

↓

Code	Spec.
S1	Side, height: 3.5mm from cap center to PCB

↓

Code	Spec.
A	220 gf

↓

Code	Spec.
F	Flat

↓

Code	Spec.
R	Red
Y	Yellow
G	Pure Green
B	Blue
W	White
A	Amber
RG	Red & Green
RB	Red & Blue
YG	Yellow & Green
RA	Red & Amber
AW	Amber & White

Blank – No Etching (only available on Natural color caps) See table on page.2

Blank – No Cap See table on page 2

Blank – No Cap See table on pages 2

Code	Spec.
R	Tape & reel packaging (only available for surface mount type)
Blank	Tray packaging (only available for standard through hole type)

Note: Caps supplied in bulk for surface mount terminal constructions and must be installed after IR reflow soldering.

Cap Style

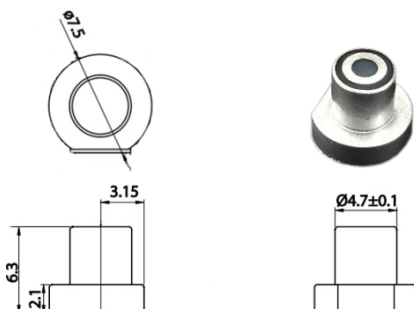
Code	Spec.
A	Cylinder on 3/4 circle

Cap Color




Code	Spec.
MS	Misty Silver
W	White
BB	Bright Black
R	Red
MB	Misty Black
A	Orange
N	Natural

Cap Style Details

Style A: Cylinder on 3/4 round



Cap Etching

Code	Style
A	
B	
C	

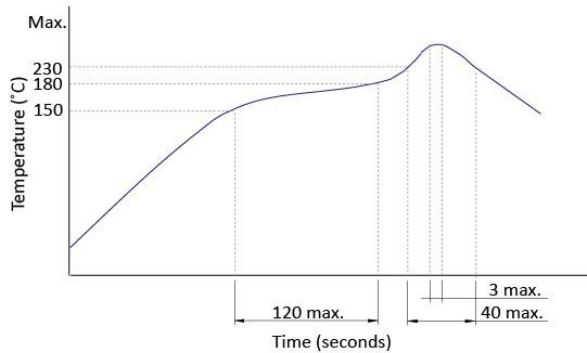
Electrical Specifications

Parameter	Conditions & Remarks	Min	Max	Unit
Contact Resistance			100	milliohms
Insulation Resistance	Between insulated terminals	100		megohms
Dielectric Strength	1 minute between adjacent switches		250	VAC
Nonswitching Rating			50 or 12	mA or VDC

Mechanical and Environmental

Soldering	Maximum reflow temperature, 260°C for 5 seconds Maximum manual temperature, 350°C for 3 seconds
RoHS	Lead-Free. Fully compliant to RoHS Directive 2011/65/EU and 2015/863/EU
Operating Force	220±50 gf
Actuation Life	100,000 cycles
Actuator Strength	2 Kgf maximum
Travel	0.25±0.1mm
Packaging	Standard tape and reel packaging for surface mount gull wing terminal Tray packaging for standard through hole
Operating Temperature Range	-25°C to +70°C
Storage Temperature Range	-30°C to +80°C
MSL Level	1 for through hole product 3 for SMD product

Soldering Profile



LED Specifications

Color	Reversed Voltage	Forward Current	Recommended Operating Current	Forward Voltage	
				Nor	Max
Red	5 Vdc	20 mA	20 mA	1.7V	2.4V
Green	5 Vdc	20 mA	20 mA	1.9V	2.4V
Yellow	5 Vdc	20 mA	20 mA	1.9V	2.4V
Blue	5 Vdc	20 mA	20 mA	3.0V	3.6V
White	5 Vdc	20 mA	20 mA	3.0V	3.6V

Mechanical Specifications

Figure 1 – 228DD1S1..., Standard Though Hole, Terminal Length 2.1mm, Side Actuation, Height: 3.5mm from cap center to PCB

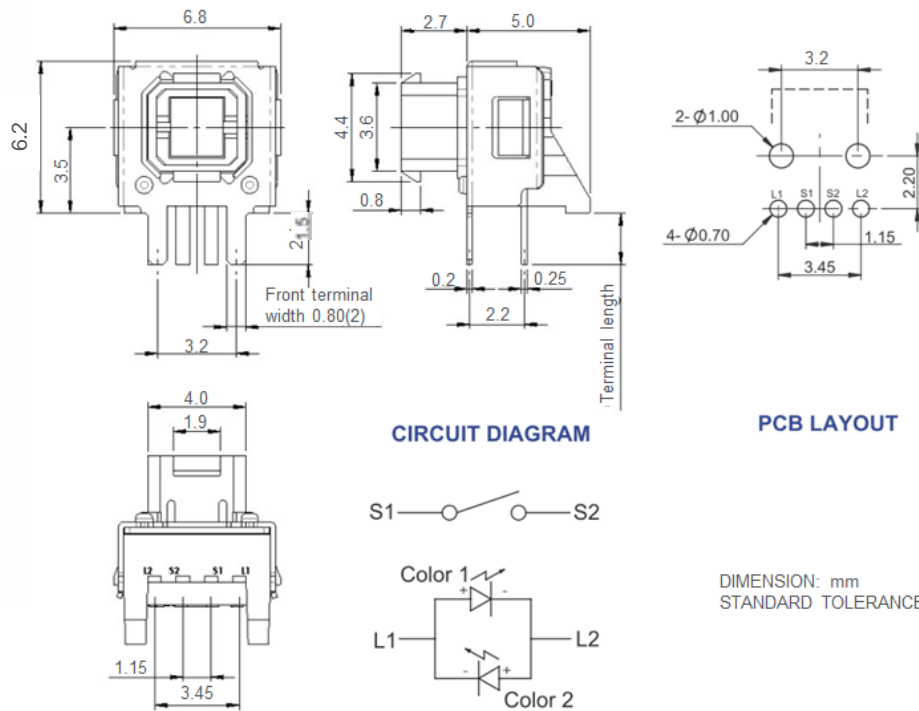
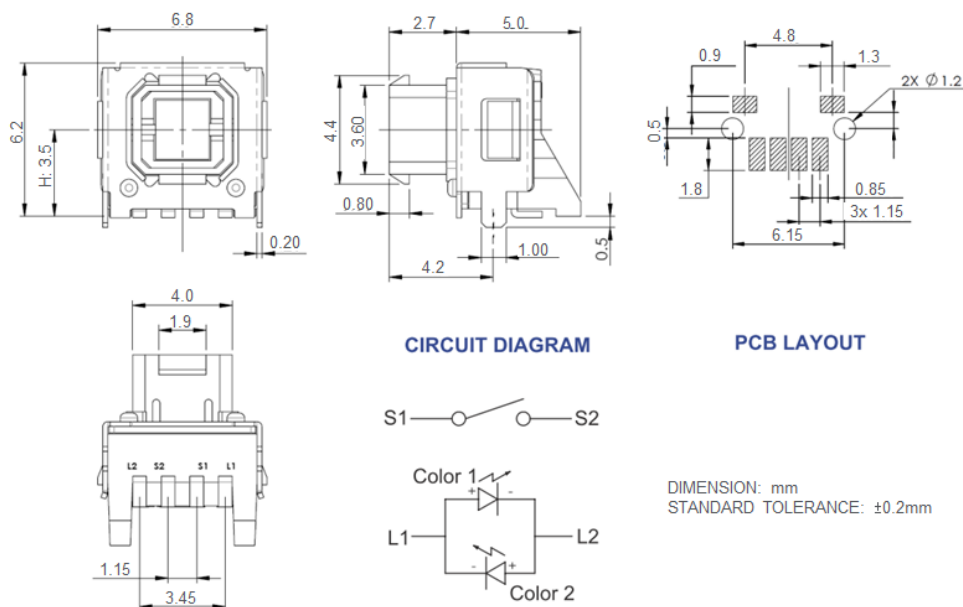


Figure 2 – 228DMS, Surface Mount Gull Wing, Vertical Actuation

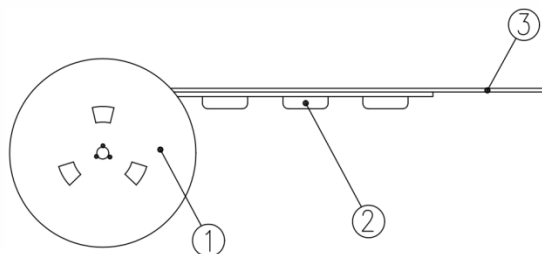


Packing: Tape and Reel

Surface Mount Gull Wing, Actuator Height 7.0mm

The packing specifications:

1. Structure and materials:



No	PART NAME	MATERIAL
①	REEL	POLYSTYRENE
②	CARRIER TAPE	POLYSTYRENE
③	COVER TAPE	POLYESTER

2. Packing quantity: 500 pcs/reel
3. More than 15 empty pockets should remain at each end of the carrier tape for each reel.
4. Shortage of less than 10 pcs a reel is acceptable but no more than 3 consecutive empty pockets are allowed.
5. Stripping strength of cover tape is between 10 gf to 130 gf and stripping angle should be within 165°~180°.
6. The product in the pocket of carrier tape should be placed in a specified correct position.
7. Tape and reel per EIA-481.
8. Dimensions:

