Series 229

Pushbutton Switch (Key Switch)

- Surface Mount Technology (SMT)
- Compatible with Lead-Free Soldering Processes
- Durable with Options for Extended Operating Life
- DPST, SPST and SPST w/LED Configurations
- Options for Actuation Force
- REACH & RoHS Compliant
- Available with IP67 Rating for Harsh Environment Use

Description

The series 229 pushbutton switch from CTS Corporation is a durable and dependable means of manual circuit control. Also known as a 'key switch', the series 229 pushbutton switch provides excellent tactile feel with three different actuation forces and can be configured as either SPST or DPST. It comes with options for LED illumination, and as a SMT device, it can be soldered directly onto a PCB. Thanks to a robust internal structure and an optional IP67 rating, the series 229 will operate seamlessly even in harsh and humid environments, industrial or otherwise. Ideal applications for the pushbutton switch include:

- Multi-Function Handgrip or Joysticks in Open or Closed Cab Work Vehicles
- Handheld Remote Controllers for Robotics & Unmanned Vehicles
- Portable Medical Electronics e.g., Defibrillators
- Bellybox Transmitters (Remote Control Transmitter)
- Marine & Motorcycles
- Scooters & Off-Road Vehicles

Ordering Information

Series	Style	Circuit	Contacts	Operation Force	LED Color
229	A	S	1	03	W

Code	Style
A	Unsealed Flat Base
AP	Unsealed w/Posts
AC	Unsealed w/Central Post Only
S	Sealed Flat Base
SP	Sealed w/Posts
SC	Sealed w/Central Post Only

Code	Circuit
S	SPST
D	DPST
L	SPST w/LED

Code	Contacts
1	Normally Open
2	Normally Close

Code	Operation Force
03	3N (no tactile)
06	6N
10	10N

Code	LED Color
Blank	no LED
R	Red
G	Green
B	Blue
Y	Yellow
W	White

(only for SPST w/LED)

Electrical Specifications

Parameter	Conditions & Remarks	Min	Nominal	Max	Unit
Contact Resistance (Initial)				100	mΩ
Contact Resistance (after test)				200*	mΩ
Switching Voltage		2		30	VDC
Switching Current		10		100	mADC
Insulation Resistance		1000			MΩ
Dielectric Strength		300			Vrms
Switch Bounce				10	ms

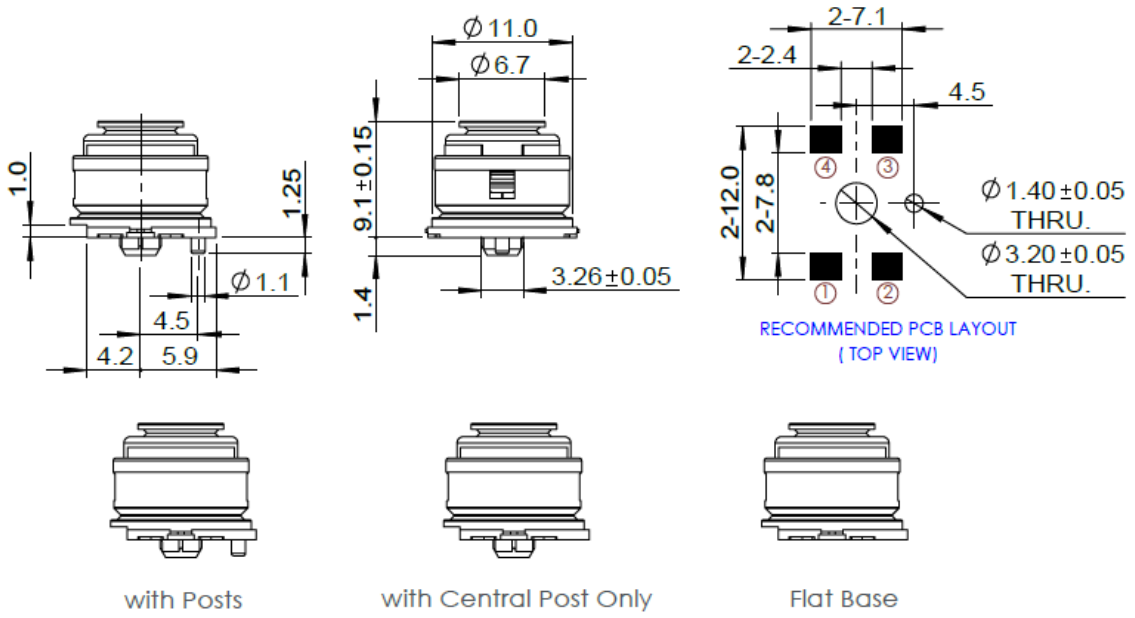
* Operating Life: > 10^6 Activations (3N version) / $2x10^5$ Activations (6N and 10N versions)

Mechanical and Environmental

Actuation Force (3N, 6N, 10N)	Operation Force: 3N (no tactile) Operation Force: 6N Operation Force: 10N
RoHS	Lead-Free. Fully Compliant to RoHS Directive
Mechanical Shock	per MIL-STD-202, Method 213, Test Condition I
Vibration	10-500Hz (10G Peak), per MIL-STD-202, Method 204, Test Condition A
IP Rating	Unsealed: IP 40 Sealed: IP 67 (only after conformal coating operation)
Packaging	Reels of 200 Pieces
Operating Temperature:	-40°C to +85°C
Storage Temperature:	-40°C to +95°C
Coplanarity	< 0.1mm
Total Travel	1.5mm

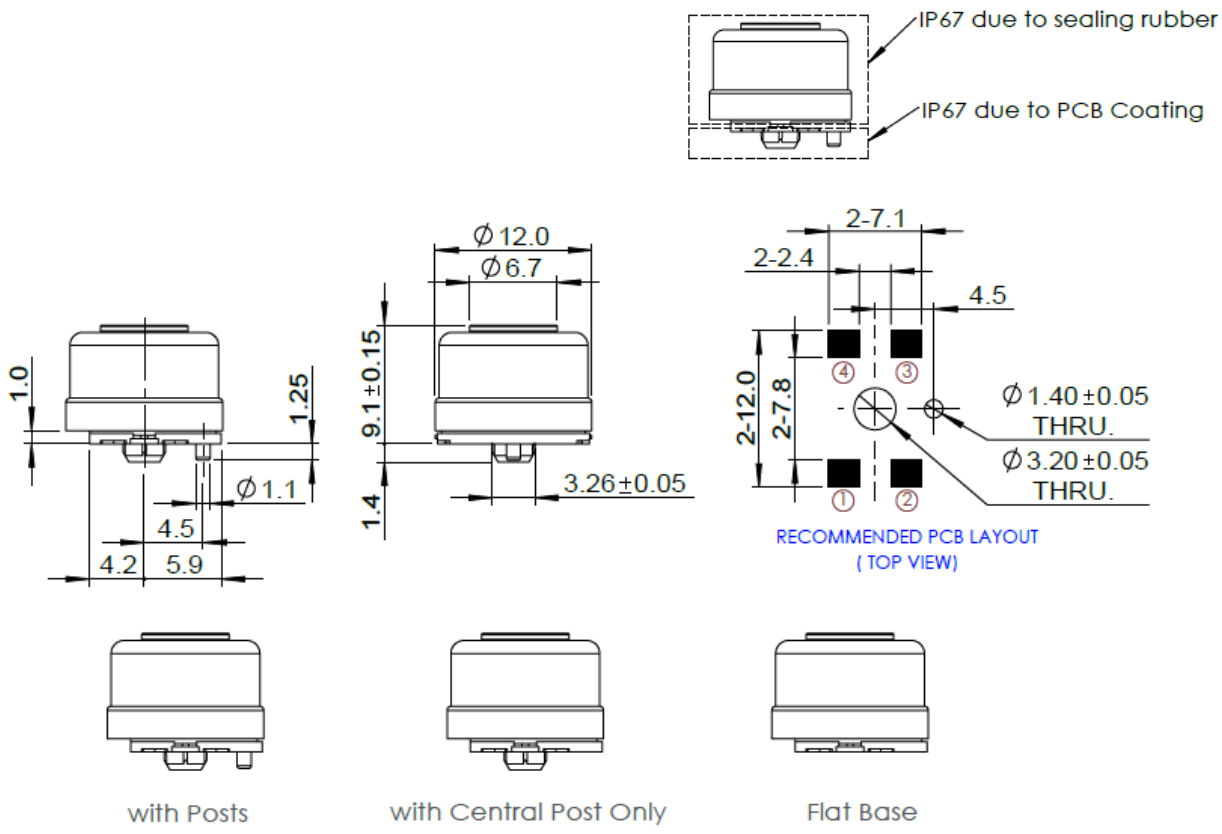
229A / 229AP / 229AC IP40

(Unit: mm)

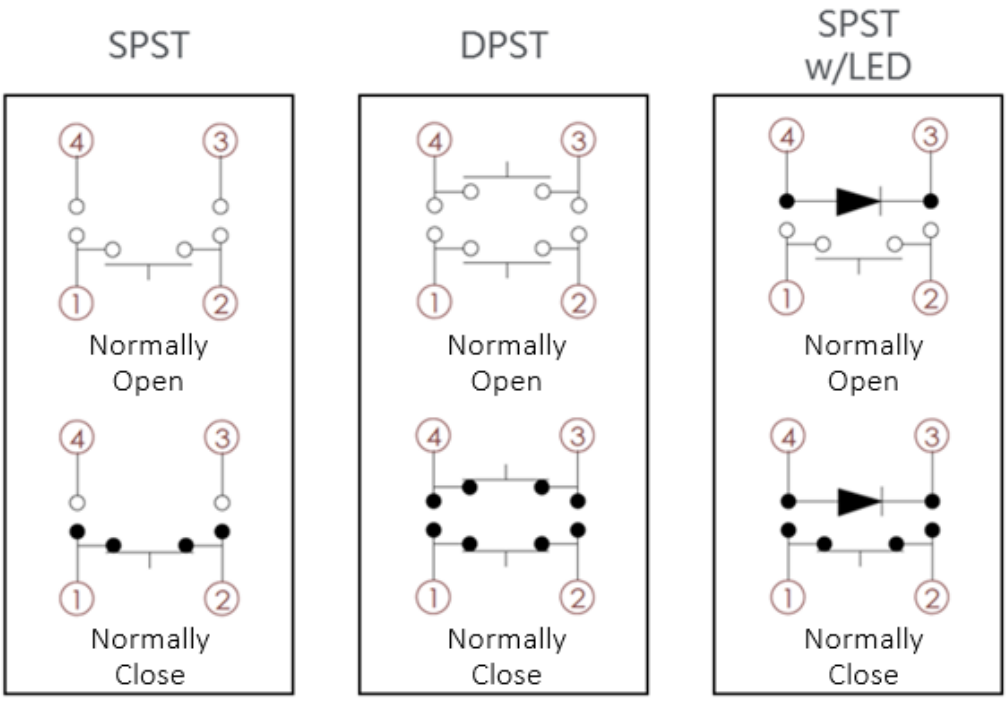


229S / 229SP / 229SC IP67

(Unit: mm)



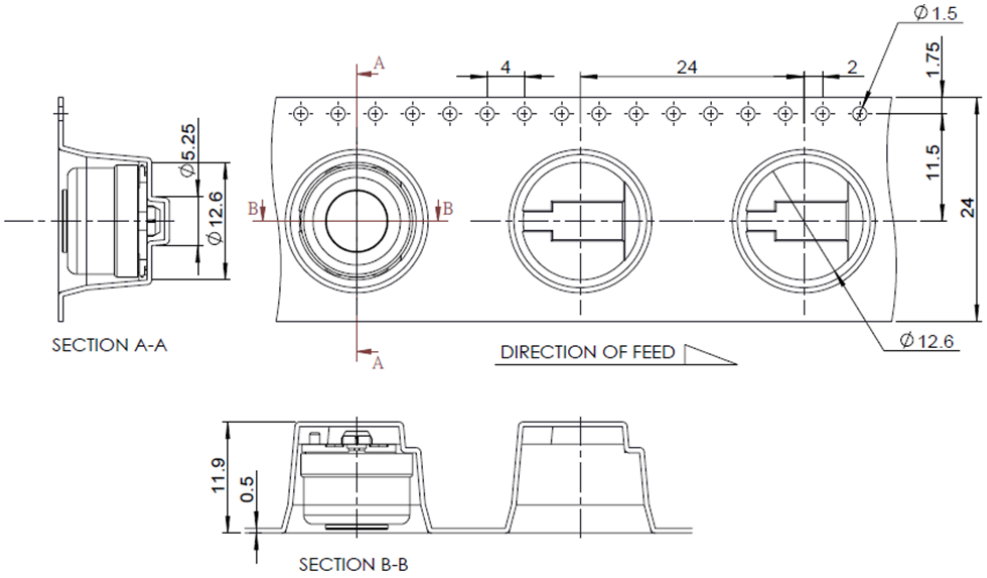
SPST / DPST



LED Characteristics (@T=25°C)

COLOR	WAVE LENGTH	LUMINOUS INTENSITY (mcd)	FORWARD VOLTAGE (V)	FORWARD CURRENT (mA)
RED	624nm	72 MIN., 110 TYP., I = 20mA	2.0 TYP., 2.4 MAX., I = 20mA	25 [50 MAX.]
GREEN	518nm	180 MIN., 360 MAX., I = 20mA	2.7 MIN., 3.7 MAX., I = 20mA	25 [50 MAX.]
BLUE	468nm	18 MIN., 45 MAX., I = 5mA	2.7 MIN., 3.2 TYP., I = 5mA	10 [40 MAX.]
YELLOW	585.9nm	45 MIN., 112 MAX., I = 20mA	1.75 MIN., 2.35 MAX., I = 5mA	25 [50 MAX.]
WHITE	CCT = 7046K	72 MIN., 180 MAX., I = 5mA	2.7 MIN., 3.15 MAX., I = 5mA	10 [40 MAX.]

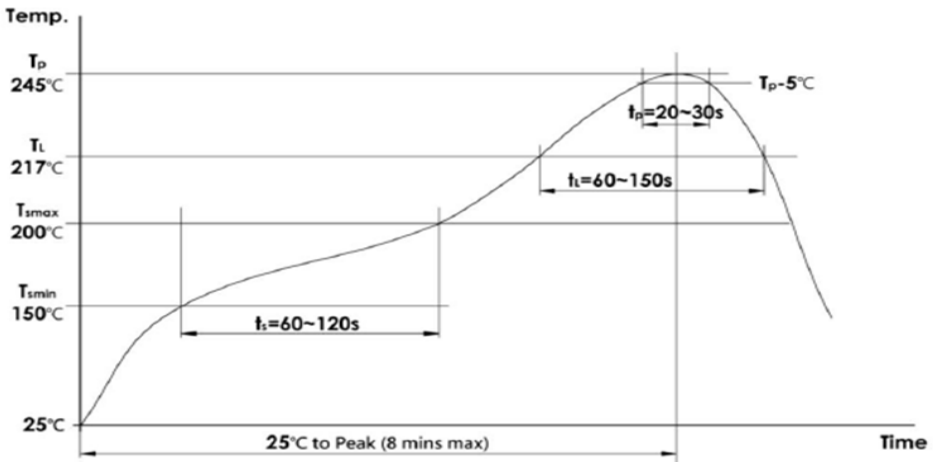
Tape and Reel Packaging



* Reels of 200 Pieces

Reflow Soldering Profile

Refer to IPC/JEDEC J-STD-020E



	Symbol	Minimum	Recimmended	Maximum	Unit
Ramp up rate to T_{Smin}			2	3	℃/s
Soak Time T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp up rate T_{Smax} to T_P			2	3	℃/s
Liquidus Temperature	T_L		217		℃
Time above Liquidus	tL		80	100	s
Peak Temperature	T_P	235	245		℃
Time within 5℃ of T_P	t_P	20	N/A	30	s
Ramp down rate T_P to 100℃			3	6	℃/s
Time 25℃ to T_P				480	s

Hand Soldering: Soldering Iron Temp 350°C for 5 seconds