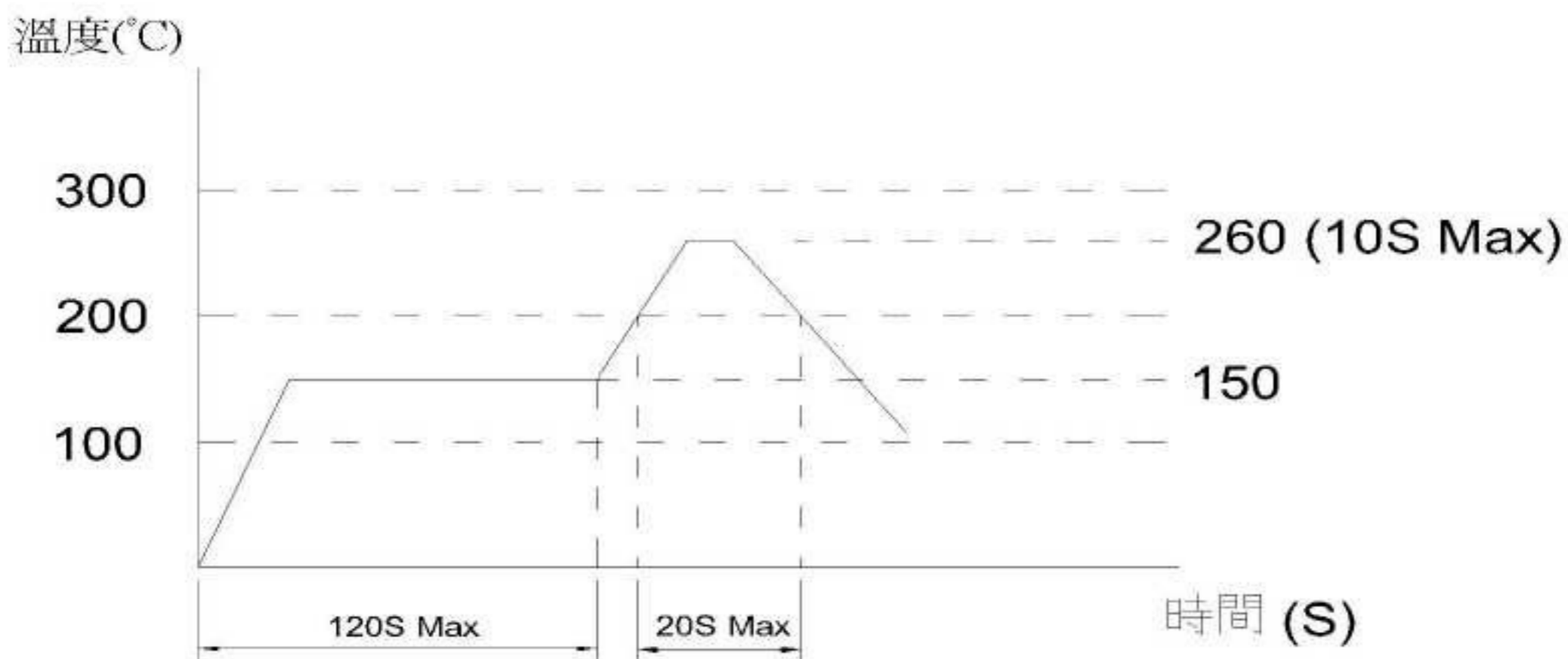


1. Switch name : Detector Switch.(push switch)
2. Part number : TPS-12NTL
3. Rating : DC 3V 50  $\mu$ A ~ DC 5V 10mA (resistance load)
4. Operating temperature range :  $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$
5. Mechanical performance :
  - 5.1 Dimension : Please see the drawing.
  - 5.2 Operating force : Less than 0.3N (31 gf).  
(direction B : with knob pushed 1.5mm inside).  
(direction C : with knob pushed 2.3mm inside).
  - 5.3 Strength of terminal : 3N (0.31kg) inactive force for 60 second.  
But the bending of terminal is acceptable.
  - 5.4 Resistibility to soldering heat:
    - 5.4.1 Reflow : As below :



- 5.4.2 Soldering iron :  $300 \pm 5^{\circ}\text{C}$  for Max 3 seconds. (15W)
- 5.5 Strength of knob : 5N (0.51 kgf) static force for 15 seconds.
6. Electrical performance :
  - 6.1 Contact resistance : Less than 1  $\Omega$  with knob pushed 2.3mm inside.
  - 6.2 Insulation resistance : More than 100 M $\Omega$  at 100 VDC.
  - 6.3 Withstanding voltage : 100VAC, 1 minute.

## 7. Environmental test :

- 7.1 Resistibility to heat : Placed in a chamber at  $85\pm 2^{\circ}\text{C}$  for 96 hours and then cooled in normal temperature and humidity for an hour.
- 7.2 Resistibility to cold : Placed in a chamber at  $-40\pm 2^{\circ}\text{C}$  for 96 hours and then cooled in normal temperature and humidity for an hour.
- 7.3 Resistibility to humidity : Placed in a chamber at  $40\pm 2^{\circ}\text{C}$  and 90~95 %RH for 96 hours and then cooled in normal temperature and humidity for an hour.

## 8. Durability :

- 8.1 Endurance with load : 100,000 cycles operations at a rate of 15~20 cycle 1 minute with 5 VDC 10mA (knob pushed 1.5mm inside).
- 8.2 Vibration proof : Measured after the switch is fixed in a chamber under below condition.
  - 8.2.1 Vibration frequency range : 10~55Hz.
  - 8.2.2 Total amplitude : 1.5mm.
  - 8.2.3 Sweep ratio : 10~55~10(Hz) approx.1 min
  - 8.2.4 Method of changing the sweep vibration of frequency : Logical or straight line.
  - 8.2.5 Direction of vibration : Three vertical directions including the control shaft.
  - 8.2.6 Test time : each 2 hours (total 6 hours).
- 8.3 Shock resistance : Applying 1 shock (50G 11 msec) 3 times along six directions.

## 9. Specification after durability and environment :

- 9.1 Operating force : Less than 0.35N (36 gf).
- 9.2 Contact resistance : Less than  $10\Omega$
- 9.3 Insulation resistance : More than  $10\text{M}\Omega$
- 9.4 Withstanding voltage : 100 VAC, 1minute

## 10. Notes :

- 10.1 Following the soldering process, do not try to clean the switch with a solvent or the like.
- 10.2 Safeguard the switch assembly against flux penetration.
- 10.3 Please have the products keep in close status and the storage time is 90 days guaranty after delivering the goods at most.
- 10.4 During the reflow process switch must be free position.

## 11. Materials :

Part Name	Material	Description
Terminals	Phosphor bronze	Ag-plated
Metal Case	Stainless steel	
Housing	LCP	
Knob	Nylon66 + 30%gf	
Spring	Phosphor bronze	Ag-plated

## 12. Drawing :

