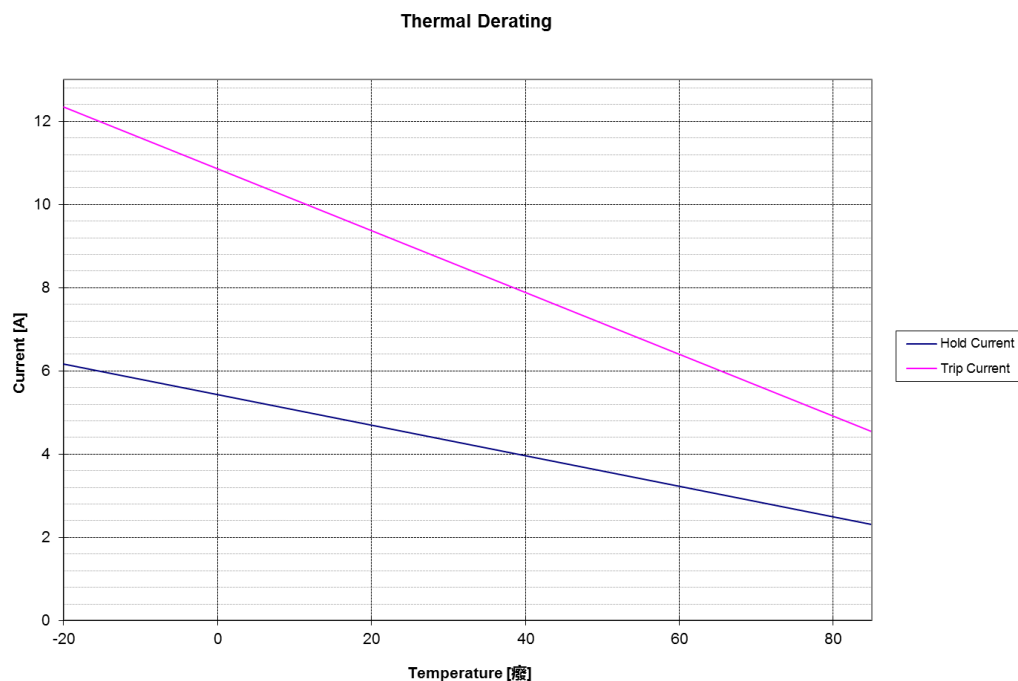


## Thermal derating curve



Notes: Values Specified were determined using PCB's with 0.115" x 1.0 ounce copper traces.

Agency Recognition:  
Reference Document: PS300  
Precedence: This specification takes precedence over documents referenced herein.  
Effectivity: Reference documents shall be the issue in effect on the date of invitation for bid.

## Materials Information

### ROHS Compliant

Directive 2002/95/EC  
Compliant

### ELV Compliant

Directive 2000/53/EC  
Compliant

### Pb-Free



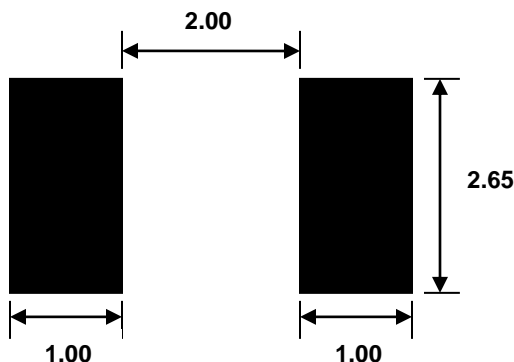
### Halogen Free\*



\* Halogen Free refers to: Br≤900ppm, Cl≤900ppm, Br+Cl≤1500ppm.

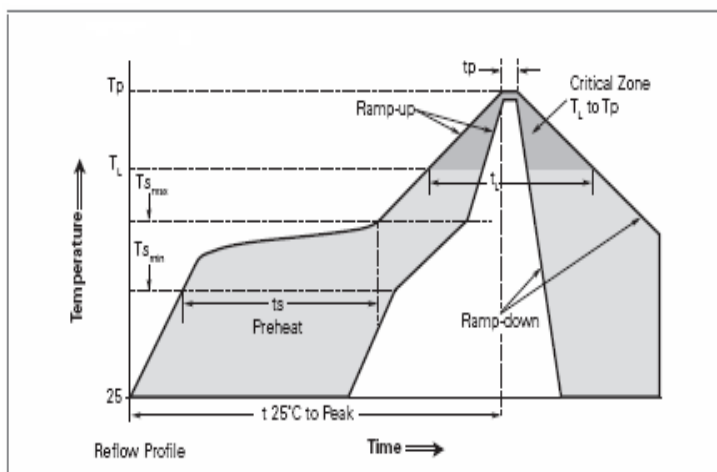
**SOLDER REFLOW RECOMMENDATIONS:**

Recommended pad layout (mm.)



Recommended reflow profile

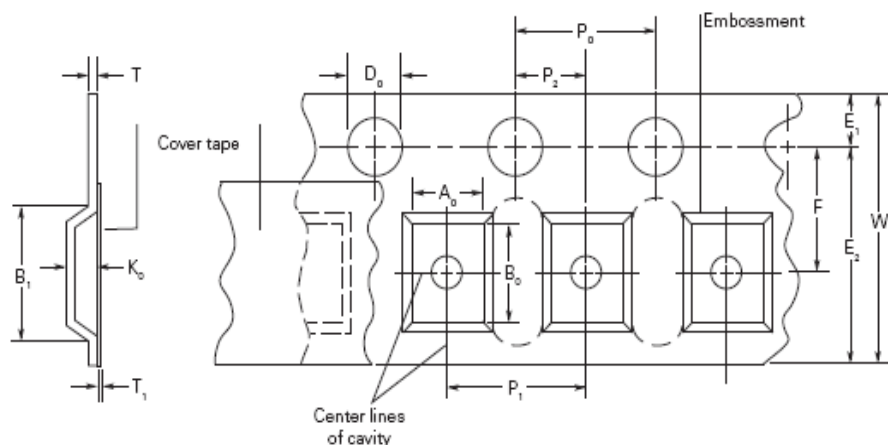
Profile Feature	Pb-Free Assembly
<b>Average ramp up rate (<math>T_{s_{max}}</math> to <math>T_p</math>)</b>	3°C/s max.
<b>Preheat</b>	
• Temperature min. ( $T_{s_{min}}$ )	150°C
• Temperature max. ( $T_{s_{max}}$ )	200°C
• Time ( $t_{s_{min}}$ to $t_{s_{max}}$ )	60-120s
<b>Time maintained above:</b>	
• Temperature ( $T_L$ )	217°C
• Time ( $t_L$ )	60-150s
<b>Peak/Classification temperature (<math>T_p</math>)</b>	260°C
<b>Time within 5°C of actual peak temperature (<math>t_p</math>)</b>	30s max.
<b>Ramp down rate</b>	2°C/s max.
<b>Time 25°C to peak temperature</b>	8 mins max.


**Notes:**

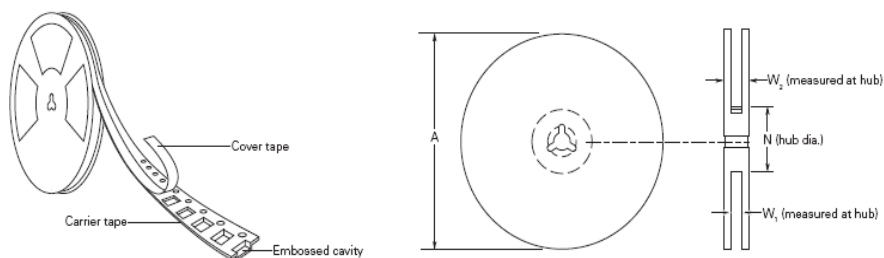
- All temperature refer to topside of the package, measured on the package body surface
- If reflow temperature exceeds the recommended profile, devices may not meet the performance requirements
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead
- Recommended maximum paste thickness is 0.25mm (0.010 inch)
- Devices can be cleaned using standard industry methods and solvents
- Devices can be reworked using the standard industry practices

## PACKAGING INFORMATION:

### Tape specification



### Reel dimensions



Description	EIA 481-1 (mm)
W	8.0 ± 0.30
P <sub>0</sub>	4.0 ± 0.10
P <sub>1</sub>	4.0 ± 0.10
P <sub>2</sub>	2.0 ± 0.05
A <sub>0</sub>	2.9 ± 0.10
B <sub>0</sub>	3.55 ± 0.10
B <sub>1</sub> max.	4.35
D <sub>0</sub>	1.55 ± 0.05
F	3.50 ± 0.05

Description	EIA 481-1 (mm)
E <sub>1</sub>	1.75 ± 0.10
E <sub>2</sub> min.	6.25
T max.	0.3
T <sub>1</sub> max.	0.1
K <sub>0</sub>	1.27 ± 0.10
Amax	179
Nmin	53.5
W1	9.5 ± 0.5
W2max	15

**Standard Pack Quantity: 3,000pcs, Minimum Order Quantity: 15,000pcs**

## STORAGE AND FLOOR LIFE:

40°C Max., 70% R.H max. Devices performance may not meet specified ratings if storage condition is exceeded. After opening the packaging, the devices should be used up one time, or the rest of devices should be re-vacuum packaged ASAP.



Expertise Applied | Answers Delivered

# PolySwitch® PTC Devices

Overcurrent (over-temperature)  
Protection Device

**PRODUCT: microSMD450LR-C-2**

DOCUMENT: SCD29116  
REV LETTER: A  
REV DATE: FEBRUARY 15, 2017  
PAGE NO.: 5 OF 5

## WARNING:

- User shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses
- Circuits with inductance may generate a voltage ( $L di/dt$ ) above the rated voltage of the PPTC device.
- Hand soldering of PTC devices on boards is generally not recommended. Users shall define and verify this process if needed
- Consult LF when the device is to be applied with thermal processes other than reflow process on the circuit board, such as molding, encapsulation. User should evaluate molding materials used in the charging cable applications to ensure there are non adverse effect on the PTC devices.

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and shall not be used for, any purpose (including, without limitation, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable Littelfuse product documentation. Warranties granted by Littelfuse shall be deemed void for products used for any purpose not expressly set forth in applicable Littelfuse documentation. Littelfuse shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Littelfuse as set forth in applicable Littelfuse documentation. The sale and use of Littelfuse products is subject to Littelfuse Terms and Conditions of Sale, unless otherwise agreed by Littelfuse.