



## Features

- Planar technology primarily for BMS signal applications
- Working voltage: up to 1000 VDC
- Hi-Pot: 4300 VDC or 2500 VAC
- Basic insulation compliant with IEC 60664/62368-1
- Creepage distance 5 mm minimum, overvoltage category II

- Clearance distance 5 mm minimum up to 5000 m altitude, pollution degree 2, material group CTI I
- Developed for use with Analog Device's LTC6815 series, NXP's MC33771C series and Texas Instruments' model BQ79616
- AEC-Q200 compliant
- RoHS compliant\* and halogen free\*\*

## SM91801AL BMS Planar Transformer

### Additional Information

Click these links for more information:



### Electrical Specifications @ 25 °C

OCL (100 kHz / 0.1 V)  
(-40 °C to +125 °C) ..... 150~450  $\mu$ H  
Leakage Inductance (100 kHz / 0.1 V)  
..... 1.2  $\mu$ H max. (0.82  $\mu$ H typ.)  
DCR  
Pri. and Sec. .... 1.2  $\Omega$  max.  
Interwinding Capacitance ..... 20 pF max.  
Turns Ratio ..... 1 : 1  $\pm$  2 %  
Insertion Loss  
4 MHz ..... -0.25 dB max.  
Return Loss  
4 MHz ..... -16 dB min.  
Hi-Pot (1 mA, 60 sec.)  
..... 4300 VDC or 2500 VAC  
Insulation Resistance ..... 50 M $\Omega$  min.  
Partial Discharge Level ..... 1200 V  
per IEC 60664  
Impulse Voltage ..... up to 4 kV, 1.2/50  $\mu$ s  
with conformal coating  
Working Voltage ..... up to 1000 VDC  
Operating Temperature  
..... -40 °C to +125 °C  
Storage Temperature (Component)  
..... -40 °C to +125 °C  
Moisture Sensitivity Level ..... 1

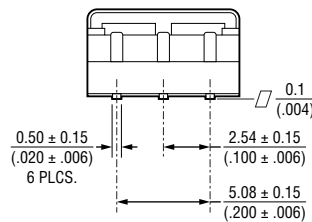
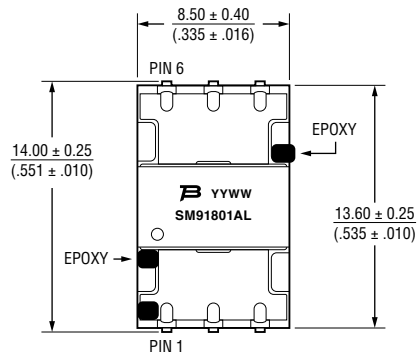
### Packaging Specification

Tape & Reel ..... 600 pcs. per 13-inch reel

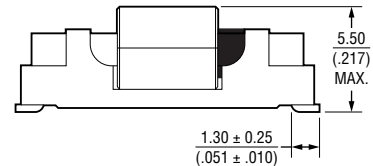
### How To Order

Model **SM91801 A L - E**  
AEC-Q200 Compliancy Designator  
Termination  
L = Tin (RoHS Compliant)  
Packaging  
E = 600 pcs. per 13-inch Reel

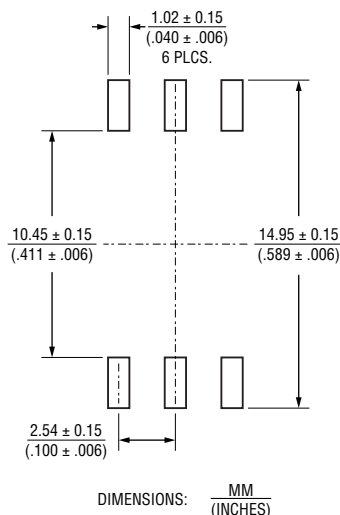
### Product Dimensions



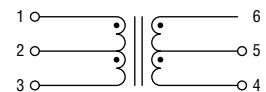
DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$



### Recommended Layout



### Electric Schematic



### Agency Recognition

| Agency | Category  | File No.                |
|--------|-----------|-------------------------|
| UL     | UL62368-1 | <a href="#">E515965</a> |

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**WARNING Cancer and Reproductive Harm** [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

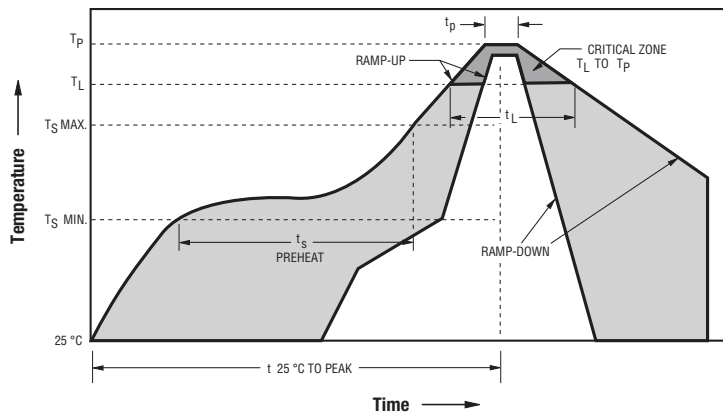
\*\* Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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# SM91801AL BMS Planar Transformer

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## Reflow Solder Profile



| Profile Feature                                                                                                     | Pb-Free Assembly                   |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Average Ramp-Up Rate                                                                                                | 3 °C / second max.                 |
| PREHEAT:<br>Temperature Min. ( $T_{smin}$ )<br>Temperature Max. ( $T_{smax}$ )<br>Time ( $T_{smin}$ to $T_{smax}$ ) | 150 °C<br>200 °C<br>60~180 seconds |
| Liquidus Temperature ( $T_L$ )                                                                                      | 217 °C                             |
| Time Above Liquidus Temperature ( $t_L$ )                                                                           | 60~150 seconds                     |
| Peak Temperature ( $T_p$ )                                                                                          | 245-250 °C                         |
| Time within 5 °C of Actual Peak Temperature ( $t_p$ )                                                               | 20~40 seconds                      |
| Ramp-Down Rate from Peak Temperature                                                                                | 6 °C / second max                  |
| Time 25 °C to Peak Temperature ( $T_p$ )                                                                            | 8 minutes max.                     |
| Do Not Exceed                                                                                                       | 250 °C                             |

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Technical drawing of a reel of components, showing top, side, and detail views.

**Top View (Left):** A circular reel with five spokes. A dimension line indicates a diameter of  $100.0 \pm 2.0$  (3.937  $\pm$  .039) DIA.

**Side View (Middle):** A cross-section of the reel. Dimensions include a total width of  $30.4$  (1.120) MAX., a central diameter of  $330.0 \pm 2.0$  (12.992  $\pm$  .079) DIA., and a flange thickness of  $24.4 \pm 2.0/-0$  (.961  $\pm$  .079/-0). A dimension of  $100.0 \pm 2.0$  (3.937  $\pm$  .039) DIA. is also shown.

**Detail A (Right):** A circular detail view of a component. Dimensions include a minimum diameter of  $1.5$  (.059) MIN., a minimum diameter of  $20.2$  (.795) MIN. DIA., and a diameter of  $13.2 \pm 0.2$  (.520  $\pm$  .008) DIA.

**Reel Layout (Bottom):** A side view of the reel showing the arrangement of components. The reel is divided into three sections: TRAILER (NO COMPONENT), COMPONENTS, and LEADER (NO COMPONENT). The total length of the reel is  $160$  (6.299) MIN. The length of the TRAILER section is  $4.00$  (.157). The length of the COMPONENTS section is  $16.00$  (.630). The length of the LEADER section is  $400$  (15.748) MIN. The total length of the reel is  $24.00$  (.945). The reel is labeled "END" and "START".

**USER DIRECTION OF FEED** (indicated by an arrow pointing right).

**QTY: 600 PCS. PER REEL**

DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

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