

# HCTSM100308BAL

## High Clearance and Creepage Transformer



**\*RoHS  
AEC-Q200 COMPLIANT**

### Features

- Working voltage up to 1000 Vrms
- Hi-Pot: 4000 VDC, 1 mA, 60 s or 4400 VDC, 1 mA, 2 s
- Reinforced insulation
- Clearance/creepage distance >10 mm
- Overvoltage Category II, Pollution Degree 2, up to 2 km above sea level
- Complies with IEC/UL 60950-1, 62368-1
- AEC-Q200 compliant
- RoHS compliant\*

### Applications

- Battery Management Systems (BMS)
- Energy Storage Systems (ESS)
- CAN interface digital input modules
- RS-485 and RS-232 isolation
- Designed for isolation power supplies using TI SN6501 & SN6505B

### Sustainability

- Small size reduces material use
- ISO 14001, low-impact energy
- Responsibly sourced and produced
- Meets EU 94/62/EC standards

### Product Overview

The Bourns® Model HCTSM100308BAL transformer provides reinforced insulation with a working voltage up to 1000 V, a creepage/clearance distance of 10 mm+, and 4000 VDC

### General Specifications

| Specification                                                                       | Value             |
|-------------------------------------------------------------------------------------|-------------------|
| Primary Inductance (100 kHz/1 V)                                                    | 300 µH min.       |
| Leakage Inductance (100 kHz/0.1 V) with Pin 2, 3 Shorted and Pin 5, 6, 7, 8 Shorted | 0.7 µH max.       |
| DCR                                                                                 |                   |
| 1-3, 2-4                                                                            | 0.2 Ω max.        |
| 5-7, 6-8                                                                            | 0.45 Ω max.       |
| Turns Ratio & Polarity (1-4):(8-5)                                                  | 0.38 ± 5 %        |
| Hi-pot (PRI.-SEC.)                                                                  |                   |
| 4000 VDC                                                                            | 1 mA, 60 s        |
| 4400 VDC                                                                            | 1 mA, 2 s         |
| Working Voltage                                                                     | Up to 1000 Vrms   |
| Operating Temperature                                                               | -40 °C to +125 °C |
| Storage Temperature                                                                 | -25 °C to +85 °C  |
| Moisture Sensitivity Level                                                          | 1                 |
| ESD Classification (HBM)                                                            | N/A               |

### How to Order

Model **HCTSM100308B A L - E**

AEC-Q200 Compliancy Designator \_\_\_\_\_

RoHS Compliancy Designator \_\_\_\_\_

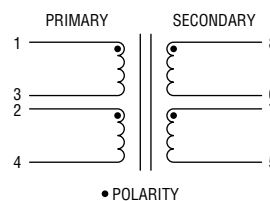
Packaging \_\_\_\_\_

E = 400 pcs. per 13-inch Reel, 5 Reels per Box

### Packaging Specifications

| Packaging   | Pieces per 13-inch Reel |
|-------------|-------------------------|
| Tape & Reel | 400                     |

### Electrical Schematic



### Contact Information

|              | Phone            | Email                                                        |
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\* RoHS Directive 2015/863, Mar 31, 2015 and Annex. Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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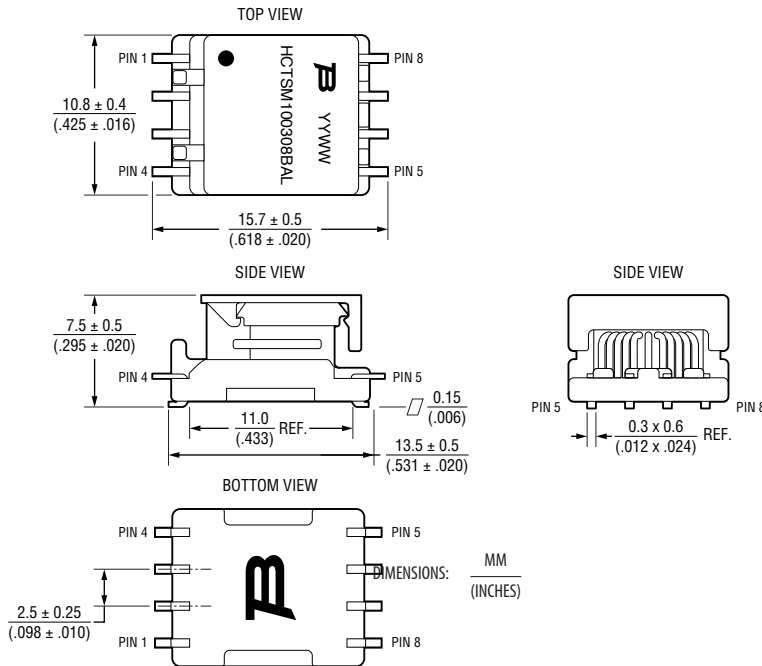
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## High Clearance and Creepage Transformer

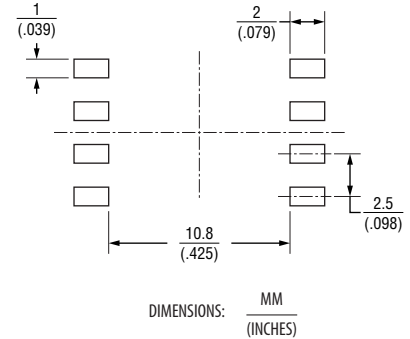


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&  
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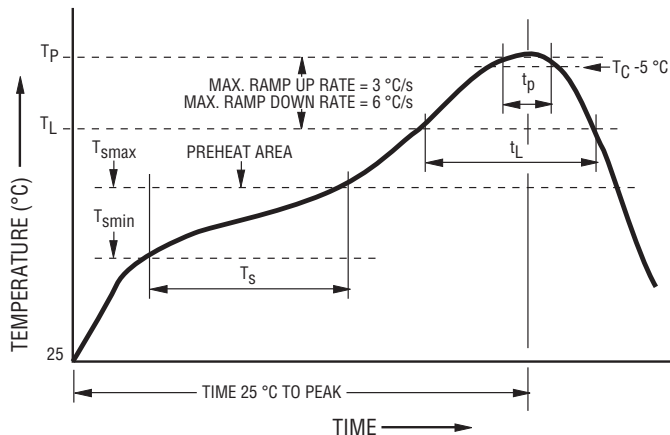
### Product Dimensions



### Recommended Layout



### Solder Profile



| Profile Feature                                                                                                                           | Pb-Free Assembly                   |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Preheat / Soak:<br>Temperature Min. ( $T_{smin}$ )<br>Temperature Max. ( $T_{smax}$ )<br>Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ ) | 150 °C<br>200 °C<br>60~120 seconds |
| Ramp Up Rate ( $T_L$ to $T_P$ )                                                                                                           | 3 °C / second max.                 |
| Liquidous Temperature ( $T_L$ )<br>Time ( $t_L$ ) maintained above $T_L$                                                                  | 217 °C<br>60~150 seconds           |
| Peak Package Body Temperature ( $T_P$ )                                                                                                   | $T_P \leq T_C$ (see table below)   |
| Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_C$ )                                                         | < 30 seconds                       |
| Ramp Down Rate ( $T_P$ to $T_L$ )                                                                                                         | 6 °C / second max.                 |
| Time 25 °C to Peak Temperature                                                                                                            | 8 minutes max.                     |

### Pb-Free Process Classification Temperatures ( $T_C$ )

| Package Thickness | Volume mm <sup>3</sup> < 350 | Volume mm <sup>3</sup> 350 - 2000 | Volume mm <sup>3</sup> > 2000 |
|-------------------|------------------------------|-----------------------------------|-------------------------------|
| < 1.6 mm          | 260 °C                       | 260 °C                            | 260 °C                        |
| 1.6 mm - 2.5 mm   | 260 °C                       | 250 °C                            | 245 °C                        |
| > 2.5 mm          | 250 °C                       | 245 °C                            | 245 °C                        |

#### NOTE:

The product has been tested under this reflow condition. Deviations from this, especially higher temperatures for longer duration, could impact performance.

Refer to IPC/JEDEC J-STD-020

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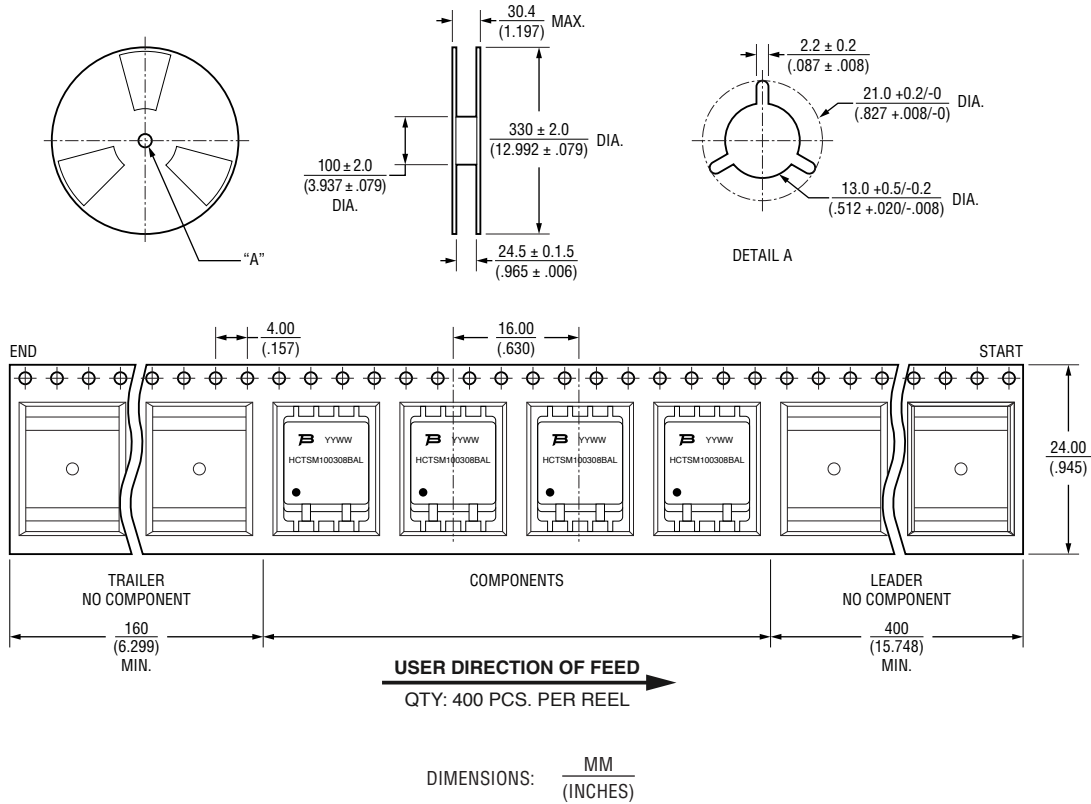
## High Clearance and Creepage Transformer



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### Packaging Specifications

Specifications and tolerances comply with EIA-481 requirements.



REV. 01/26

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