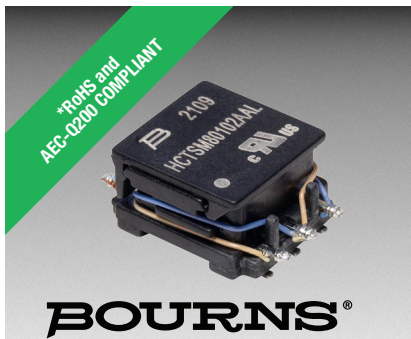




## Features

- Toroid core for high coupling and low radiation
- Complies with IEC 60950-1, IEC 62368-1 and IEC 60664-1
- UL 62368-1 recognized, File No. [E515965](#) (six models)
- Reinforced insulation for working voltage of 800 Vrms, 1000 Vpeak

- Designed for isolation power supplies using TI SN6501 and SN6505B
- AEC-Q200 compliant
- RoHS compliant\*

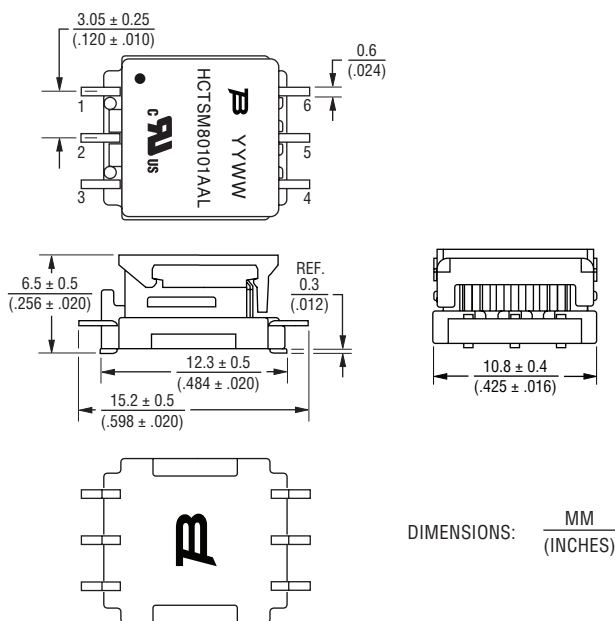
## HCTSM8 Series - High Clearance and Creepage Distance Transformers

### Electrical Specifications @ 25 °C

| Bourns Part Number** | Primary Inductance @ 100 kHz | Leakage Inductance @ 100 kHz / 0.1 V (All Sec. Pins Shorted) | Turns Ratio P(1-3) : S(6-4) | Pri. (1-3) DCR (Ω) Max. | Sec. (6-4) DCR (Ω) Max. | UL Recognition |
|----------------------|------------------------------|--------------------------------------------------------------|-----------------------------|-------------------------|-------------------------|----------------|
|                      | L 1-3 (μH) Min.              | Lk 1-3 (μH) Max.                                             |                             |                         |                         |                |
| HCTSM80101AAL        | 250                          | 0.8                                                          | 1 : 1                       | 0.30                    | 0.20                    | ✓              |
| HCTSM80102AAL        | 250                          | 0.6                                                          | 1 : 2                       | 0.30                    | 0.35                    | ✓              |
| HCTSM80201AAL        | 250                          | 1.2                                                          | 2 : 1                       | 0.30                    | 0.15                    | ✓              |
| HCTSM80304BAL        | 300                          | 0.6                                                          | 3 : 4                       | 0.30                    | 0.30                    |                |
| HCTSM80305BAL        | 300                          | 0.6                                                          | 3 : 5                       | 0.30                    | 0.30                    |                |
| HCTSM80308BAL        | 300                          | 0.7                                                          | 3 : 8                       | 0.50                    | 0.85                    |                |
| HCTSM80403AAL        | 250                          | 0.8                                                          | 4 : 3                       | 0.30                    | 0.20                    | ✓              |
| HCTSM80803AAL        | 250                          | 1.8                                                          | 8 : 3                       | 0.30                    | 0.15                    | ✓              |
| HCTSM80809AAL        | 250                          | 0.6                                                          | 8 : 9                       | 0.30                    | 0.25                    | ✓              |
| HCTSM80910BAL        | 300                          | 0.9                                                          | 9 : 10                      | 0.30                    | 0.25                    |                |
| HCTSM81017CAL        | 350                          | 0.9                                                          | 10 : 17                     | 0.42                    | 0.48                    |                |

\*\*Add E or E1 part number suffix - See How to Order.

### Product Dimensions



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

\*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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### Additional Information

Click these links for more information:



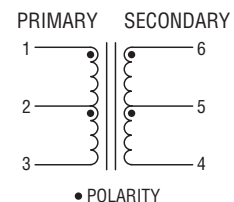
### General Specifications

Primary (1-3) E\*T Constant..11 V-μS min.  
 Rated Current.....350 mA AC  
 Hi-Pot: Primary/Secondary  
 .....5K Vdc, 60 seconds  
 Operating Temperature  
 .....-40 °C to +125 °C  
 (Temperature rise included)  
 Storage Temperature (Component)  
 .....-40 °C to +125 °C  
 Clearance/Creepage Distance  
 of Primary to Secondary ..... 8 mm min.  
 Level of Insulation..... Reinforced for a  
 working voltage of 800 Vrms,  
 1000 Vpeak, Material Group 1,  
 Overvoltage Category II, Pollution  
 degree 2, Altitude 2000 m  
 Moisture Sensivity Level..... 1  
 ESD Classification (HBM)..... N/A

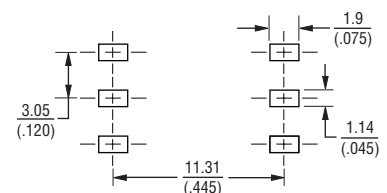
### Materials

Core.....Ferrite  
 Wire ... Enameled/triple-insulated copper  
 Terminal Finish .....Sn  
 Packaging..... 500 pcs. per 13-inch reel

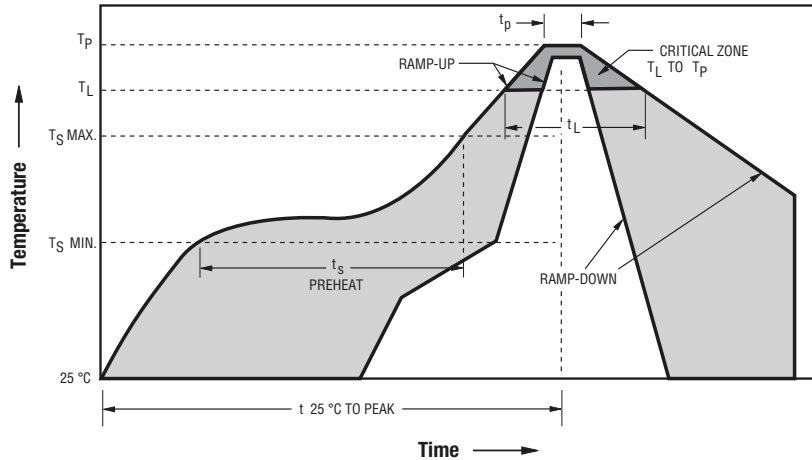
### Electrical Schematic



### Recommended Layout

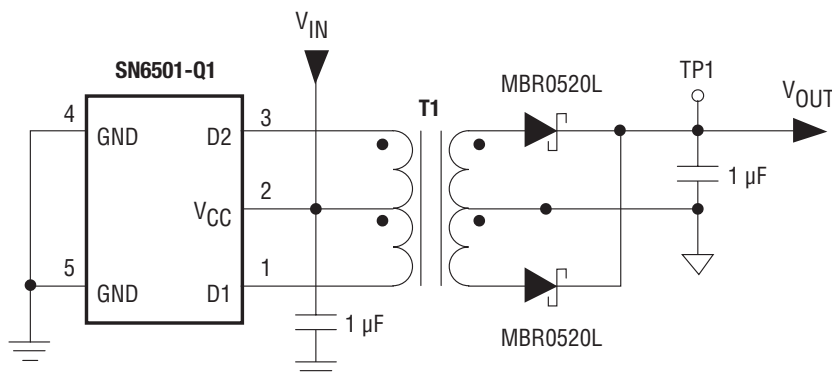


## Reflow Solder Profile



| Profile Feature                                                                                                                                   | Pb-Free Assembly                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Average Ramp-Up Rate (TS <sub>max</sub> to TP)                                                                                                    | 3 °C / second max.                 |
| PREHEAT:<br>Temperature Min. (TS <sub>min</sub> )<br>Temperature Max. (TS <sub>max</sub> )<br>Time (TS <sub>min</sub> to TS <sub>max</sub> ) (ts) | 150 °C<br>200 °C<br>60~180 seconds |
| TIME MAINTAINED ABOVE:<br>Temperature (TL)<br>Time (tL)                                                                                           | 217 °C<br>60~150 seconds           |
| Peak Temperature (TP)                                                                                                                             | 245-250 °C                         |
| Time within 5 °C of Actual Peak Temperature (tp)                                                                                                  | 20~40 seconds                      |
| Ramp-Down Rate                                                                                                                                    | 6 °C / second max.                 |
| Time 25 °C to Peak Temperature                                                                                                                    | 8 minutes max.                     |

## Typical Application



## How to Order

**HCTSM80101A A L - \***

Model \_\_\_\_\_  
AEC-Q200 Compliance Designator \_\_\_\_\_  
RoHS Compliance Designator \_\_\_\_\_  
Tape & Reel Packaging \_\_\_\_\_  
E = 500 pcs. per 13-inch Reel,  
5 Reels per Box,  
MOQ/Mult: 2500 pcs./2500 pcs.  
E1 = 500 pcs. per 13-inch Reel,  
1 Reel per Box,  
MOQ/Mult: 500 pcs./500 pcs.

Specifications are subject to change without notice.

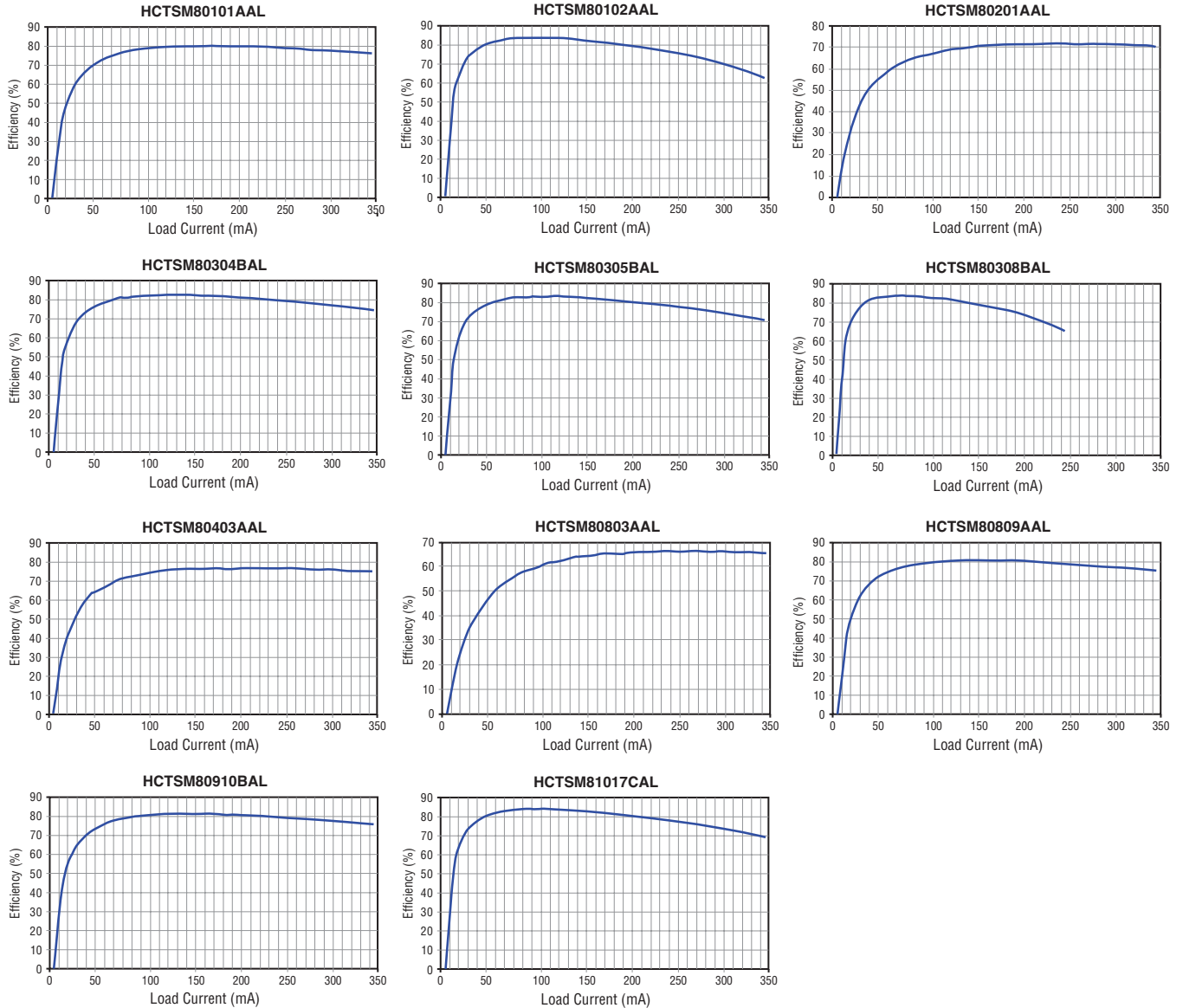
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## HCTSM8 Series - High Clearance and Creepage Distance Transformers

**BOURNS®**

### Efficiency vs. Load Curves\*



\*Measured with circuit in Typical Application, 5 VDC input, 0-350 mA DC load,  $T_a = 20\text{ }^{\circ}\text{C}$

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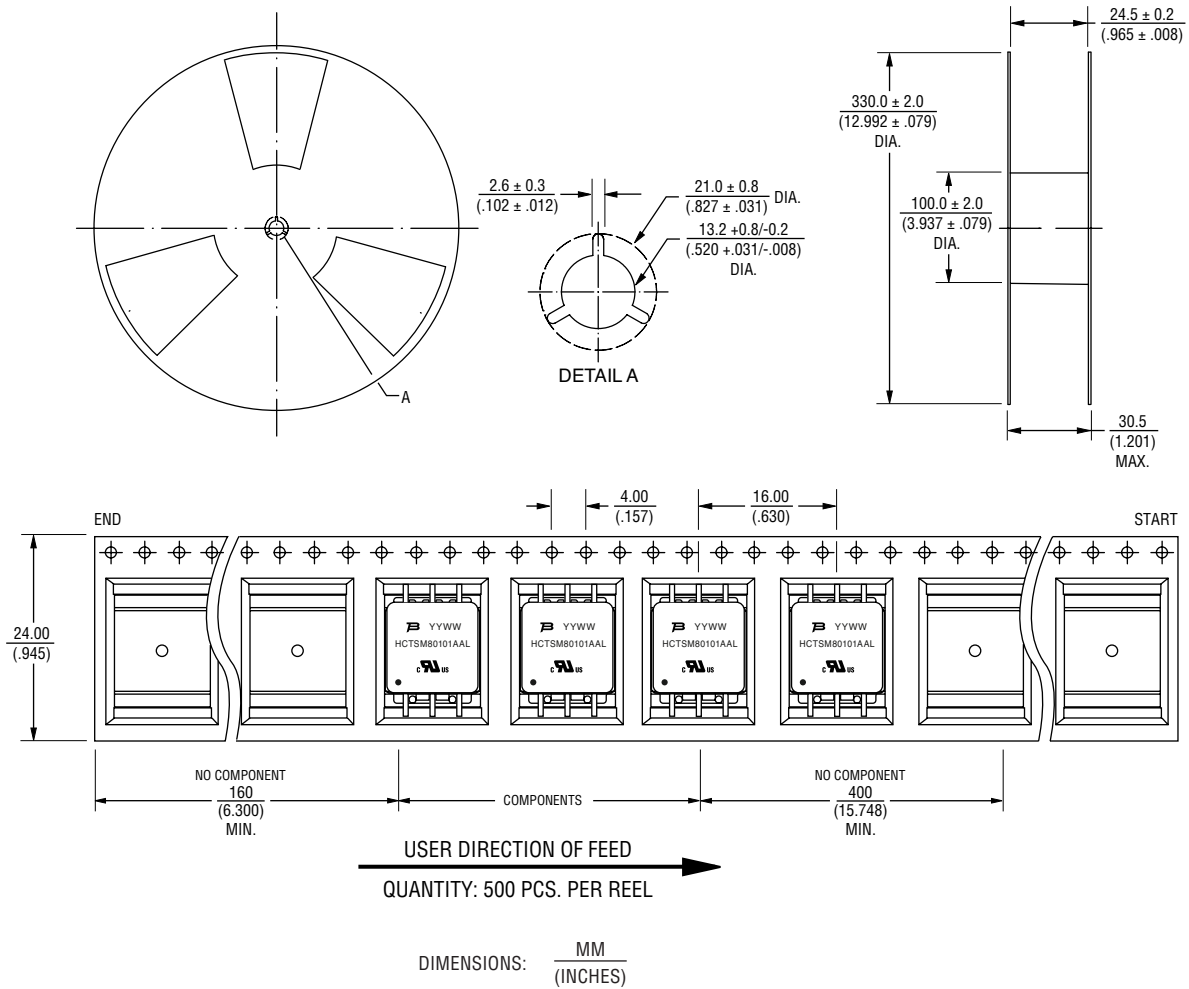
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# HCTSM8 Series - High Clearance and Creepage Distance Transformers

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## Packaging Specifications



REV. 05/22

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