



## Features

- IEEE 802.3 Ethernet compatible
- Fully integrated for adapter, hub and motherboard applications
- Expanded temperature range: -40 to +125 °C
- AEC-Q200 Qualified, automotive grade
- RoHS compliant\*

## Applications

- Automotive
- LAN
- Ethernet

# SM13072APEL - 10/100 Base-T Transformer

### Electrical Specifications @ 25 °C

|  |                               |
|--|-------------------------------|
| Inductance (100 kHz, 0.1 V, 8 mADC)                    | 350 $\mu$ H Min.              |
| Leakage Inductance (100 kHz, 0.1 V)                    |                               |
| TD with TX Shorted                                     | 0.5 $\mu$ H Max.              |
| RD with RX Shorted                                     | 0.5 $\mu$ H Max.              |
| C <sub>sw</sub> (TD to TX & RD to RX @ 100 kHz, 0.1 V) | 35 pF Max.                    |
| Turns Ratio  |                               |
| TD : TX  | 1 : 1 ( $\pm 2$ %)            |
| RD : RX  | 1 : 1 ( $\pm 2$ %)            |
| DCR  |                               |
| TD & RD  | 1.4 ohm Max.                  |
| TX & RX  | 1.0 ohm Max.                  |
| Insertion Loss (TD to TX & RD to RX)                   |                               |
| 1-100 MHz  | -1.1 dB Max.                  |
| Return Loss (TD to TX & RD to RX with 100 ohm load)    |                               |
| 1-40 MHz   | -16 dB Min.                   |
| 40-100 MHz   | -10+20*log (f/80 MHz) dB Min. |
| Cross Talk (Between Each Channel)                      |                               |
| 1-60 MHz   | -40 dB Min.                   |
| 60-100 MHz   | -35 dB Min.                   |
| Common Mode Rejection (TD to TX & RD to RX)            |                               |
| 1-60 MHz   | -37 dB Min.                   |
| 60-100 MHz   | -30 dB Min.                   |
| Hi-Pot (TD to TX & RD to RX @ 1 mA, 60 sec.)           | 1500 Vrms & 2250 Vdc          |
| Storage Temperature                                    | -40 to +125 °C                |
| Operating Temperature                                  | -40 to +125 °C                |

### Packaging Specifications

Tape & Reel ..... 600 pcs./reel



#### Asia-Pacific:

Tel: +886-2 2562-4117  
Email: asiacus@bourns.com

#### Europe:

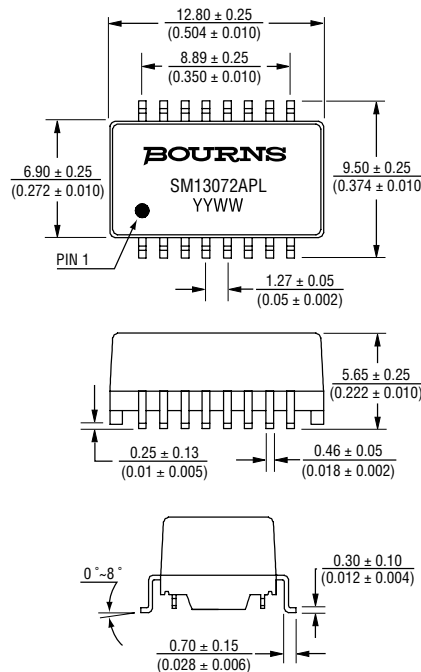
Tel: +36 88 520 390  
Email: eurocus@bourns.com

#### The Americas:

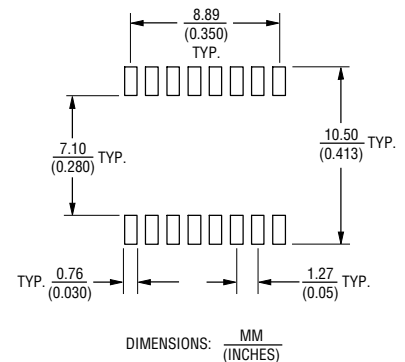
Tel: +1-951 781-5500  
Email: americus@bourns.com

[www.bourns.com](http://www.bourns.com)

### Product Dimensions



### Recommended Layout



### How To Order

Model **SM13072 A P E L**

AEC-Q200 Qualified

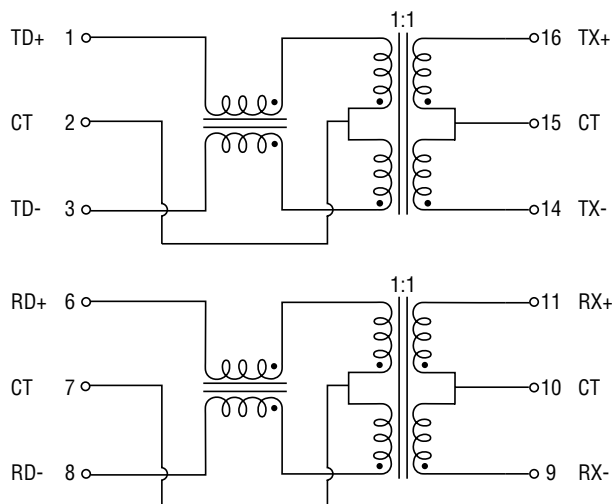
Automotive Grade

Construction  
P = Potted

Packaging  
E = Tape and Reel (600 pcs./reel)

Termination  
L = Cu/Ni/Sn (RoHS Compliant)

### Electrical Schematic



\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

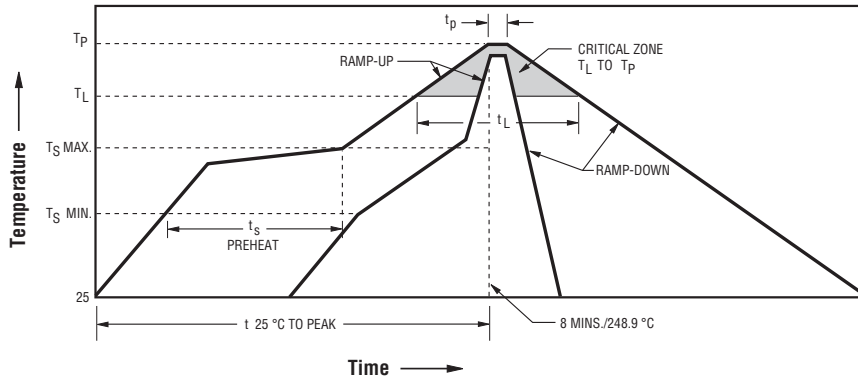
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

# SM13072APEL - 10/100 Base-T Transformer

**BOURNS®**

## Solder Profile



Ramp-up rate = 3 °C/sec. max.  
 Ramp-down rate = 6 °C/sec. max.  
 $T_L = 217 \text{ °C}$   $t_L = 60\text{-}150 \text{ sec.}$   
 $T_P = 250 \text{ °C} \pm 3 \text{ °C}$   
 Time within 5 °C of actual Peak Temp ( $t_p$ ) = 20~40 sec.  
 $T_S \text{ min} = 150 \text{ °C}$   $T_S \text{ max} = 200 \text{ °C}$   
 $T_S \text{ min to } T_S \text{ max} = 60\text{-}180 \text{ sec.}$   
 25 °C to Peak Temperature = 8 min. max.

## Packaging Specifications

