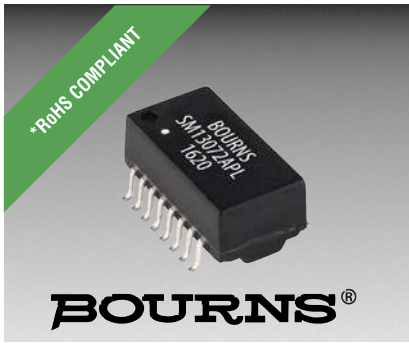




**THE DATASHEET OF  
SM13072APEL**





## Features

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

## Applications

- LAN
- Ethernet

# SM13072APL - 10/100 Base-T Transformer

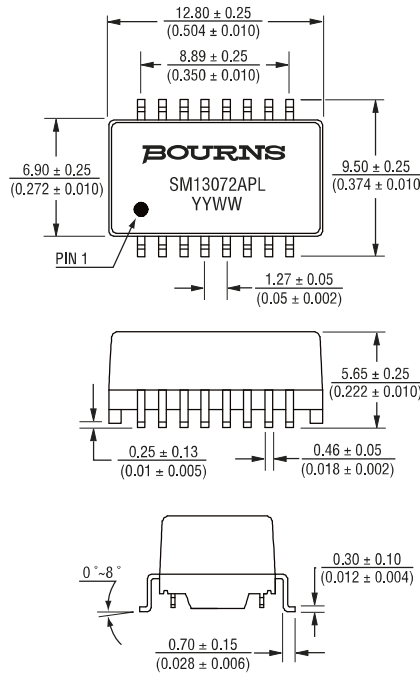
### Electrical Specifications @ 25 °C

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.
Cww (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.
Differential to Common Mode Rejection Ratio (TD to TX & RD to RX)	
30 MHz	-35 dB Min.
60 MHz	-35 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

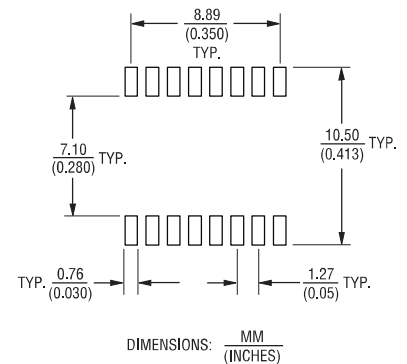
### Packaging Specifications

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

### Product Dimensions



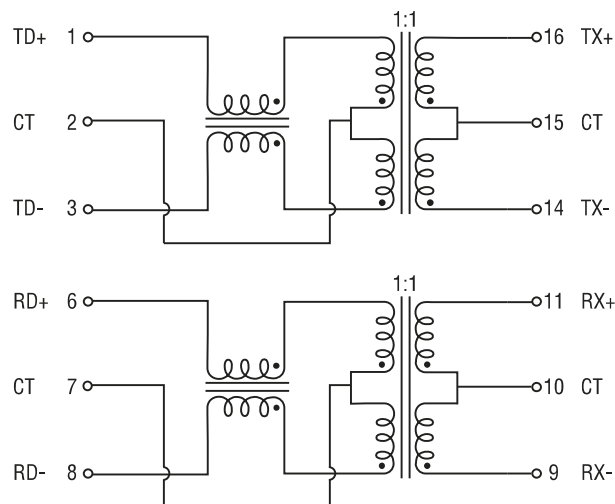
### Recommended Layout



### How To Order

Model	SM13072A P E L
Construction	P = Potted
Packaging	E = Tape and Reel (600 pcs./reel)
Termination	L = Cu/Ni/Sn (RoHS Compliant)

### Electrical Schematic



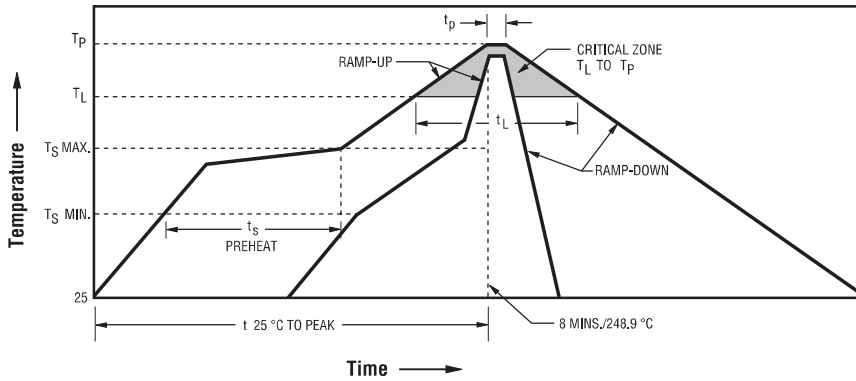
**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*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. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf).

# SM13072APEL - 10/100 Base-T Transformer

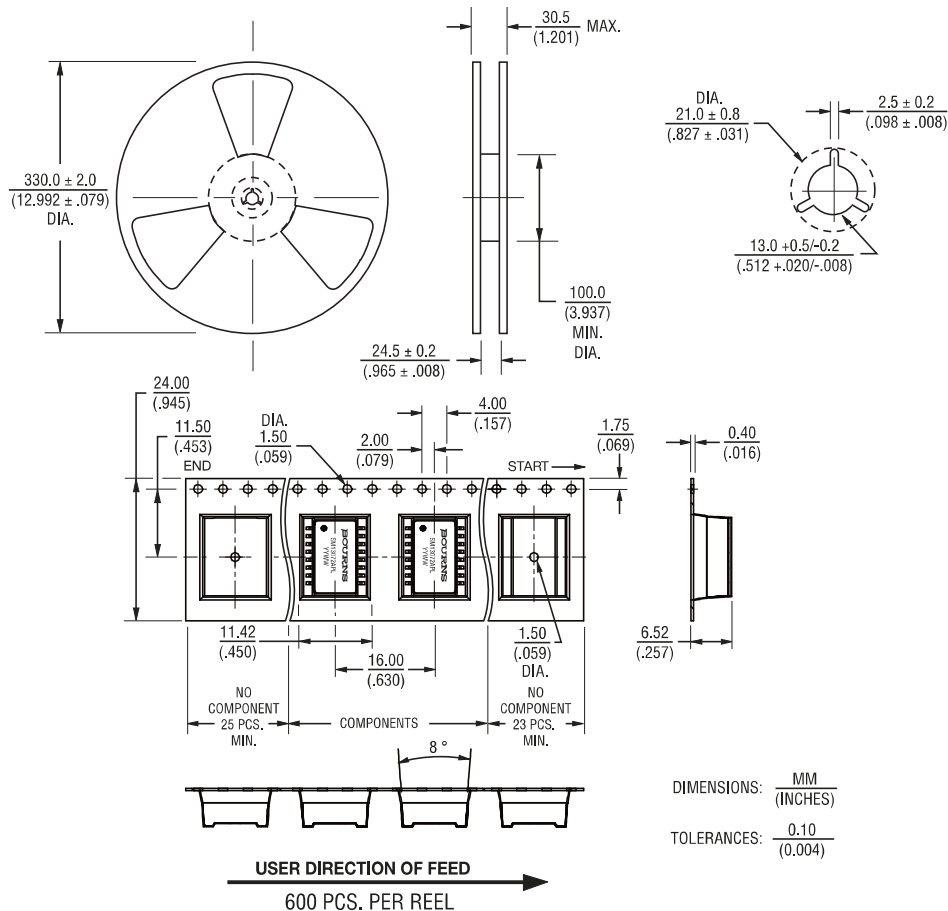
**BOURNS®**

## 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



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$   
 TOLERANCES:  $\frac{0.10}{(0.004)}$

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