

### Features

- Compliant with IEEE802.3 standards
- Designed for 10/100/1000 Base-T and PoE+
- 5K VAC dielectric withstanding voltage
- RoHS compliant\*

### Applications

- LAN
- Ethernet
- Power over Ethernet - PoE

## SM51589PEL LAN 10/100/1000 Base-T Transformer (PoE+) Modules

### Electrical Specifications @ 25 °C

Turns Ratio ( $\pm 5\%$ )	..... 1CT:1CT
OCL (@ 100 kHz, 0.1 V, 8 mA, DC Bias)	..... 350 $\mu$ H min.
Leakage Inductance (@ 100 kHz, 0.1 V)	..... 0.5 $\mu$ H max.
Interwinding Capacitance @ 100 kHz, 0.1 V	..... 35 pF max.
Isolation Hi-Pot	..... 5000 VAC, 1 mA, 2 seconds
Insertion Loss 1-100 MHz	..... -1.0 dB max.
Return Loss (@ 100 Ohms) 1-30 MHz	..... -18 dB min.
40 MHz	..... -14.4 dB min.
50 MHz	..... -13.1 dB min.
60-80 MHz	..... -12 dB min.
100 MHz	..... -10 dB min.
Cross Talk 30 MHz	..... -45 dB min.
60 MHz	..... -40 dB min.
80 MHz	..... -35 dB min.
DCMR 30 MHz	..... -43 dB min.
60 MHz	..... -37 dB min.
80 MHz	..... -33 dB min.
PoE+ Current	..... Up to 720 mADC
Operating Temperature Range	..... -40 °C to +85 °C
Storage Temperature Range	..... -40 °C to +125 °C
Moisture Sensitivity Level	..... 1
ESD Classification (HBM)	..... N/A

### Environmental Specifications

Moisture Sensitivity Level	..... 1
ESD Classification (HBM)	..... N/A

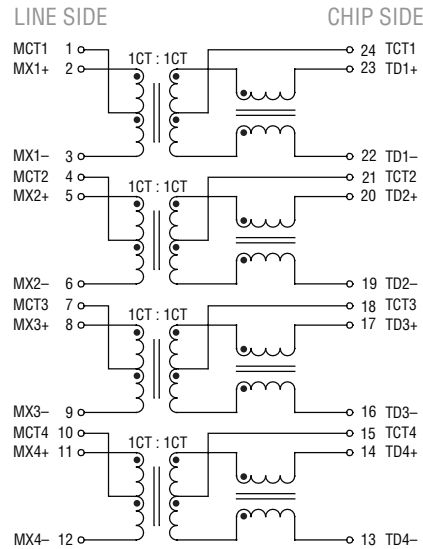
### Packaging Specifications

Tape & Reel ..... 350 pcs./reel

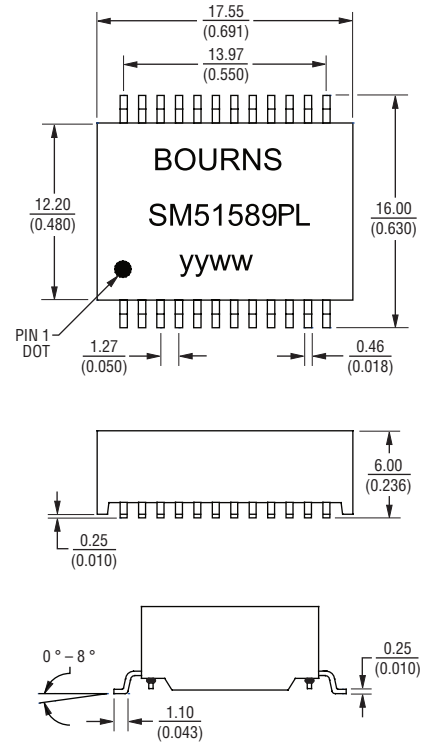
### How To Order

Model	SM51589 P E L
Construction	P = Potted
Packaging	E = Tape and Reel (400 pcs./reel)
Termination	L = Tin (RoHS Compliant)

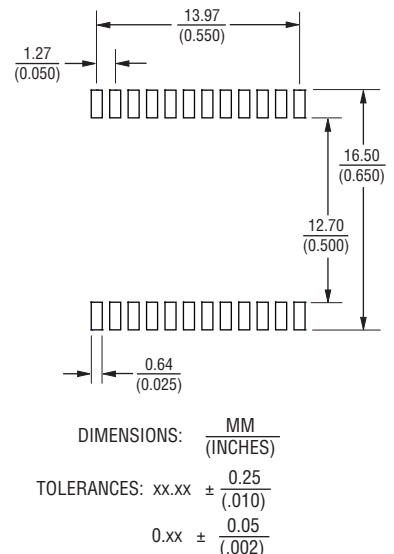
### Electrical Schematic



### Product Dimensions



### Recommended Layout



\*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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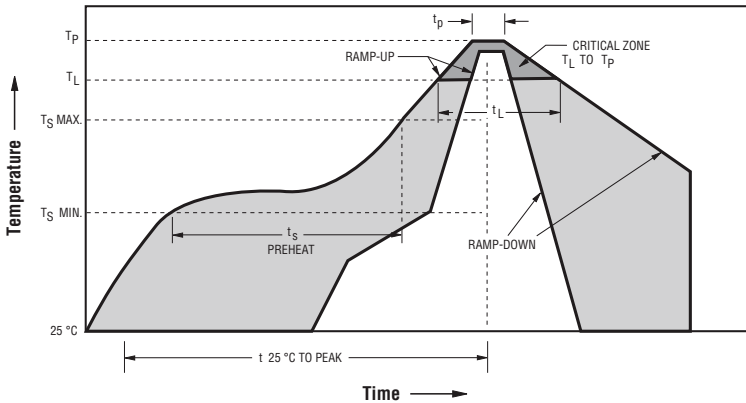


**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# SM51589PEL LAN 10/100/1000 Base-T Transformer (PoE+) Modules

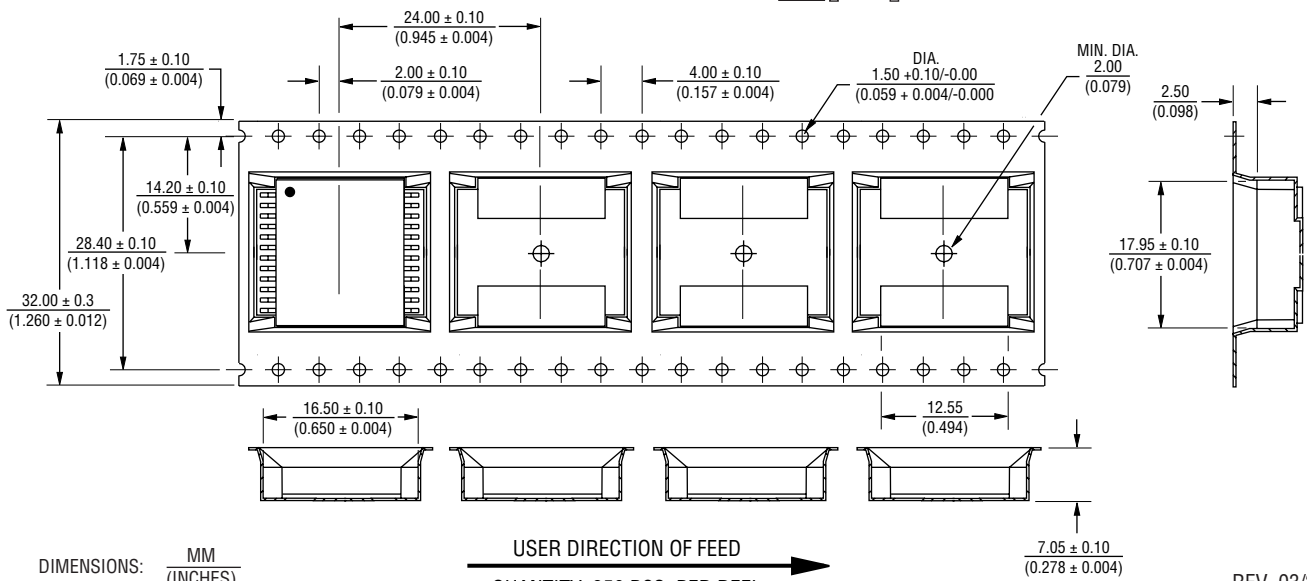
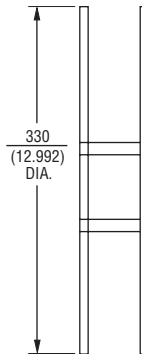
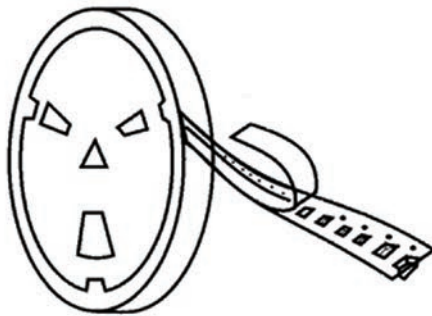


## Solder Profile



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



REV. 03/20

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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