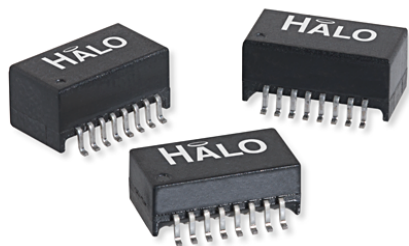


# ULTRA<sup>TM</sup> Family of Transformers

SMD Single Port 10/100BASE-TX Transformer

**HALO**  
ELECTRONICS, INC.



US Patent Numbers:  
5,656,985 6,297,721 B1  
6,297,720 B1 6,320,489 B1  
6,344,785 B1 6,662,431 B1

## Product Features:

- ULTRA<sup>TM</sup>, E-ULTRA<sup>TM</sup>, and ULTRA-II<sup>TM</sup>
- IEEE802.3u Compliant
- UL/EN60950 Recognized
- 100% Compliance Testing
- 1500Vrms Hi-Pot
- Patented Open Frame Construction

| Part Number                 | Circuit | Package | Temp.<br>Range | Turns Ratio $\pm 3\%$ |            | Cw/w<br>(pF) | PRI/SEC              |                            | Compliance |
|-----------------------------|---------|---------|----------------|-----------------------|------------|--------------|----------------------|----------------------------|------------|
|                             |         |         |                | (1-3:16-14)           | (6-8:11-9) |              | LL<br>( $\mu$ H max) | PRI DCR<br>( $\Omega$ max) |            |
| TG110-S050N2LF <sup>1</sup> | A       | N2      | 0 to 70°C      | 1CT:1CT               | 1CT:1CT    | 35 max       | 0.4                  | 0.9                        | Pb-Free    |
| TG110-S050N2RL              | A       | N2      | 0 to 70°C      | 1CT:1CT               | 1CT:1CT    | 35 max       | 0.4                  | 0.9                        | RoHS (7a)  |
| TG110-S055N2LF <sup>1</sup> | B       | N2      | 0 to 70°C      | 1CT:1CT               | 1CT:1CT    | 35 max       | 0.4                  | 0.9                        | Pb-Free    |
| TG110-S055N2RL              | B       | N2      | 0 to 70°C      | 1CT:1CT               | 1CT:1CT    | 35 max       | 0.4                  | 0.9                        | RoHS (7a)  |
| TG110-S120N2RL              | B       | N2      | 0 to 70°C      | 2CT:1CT               | 1CT:1CT    | 30 max       | 0.9                  | 0.9                        | RoHS (7a)  |
| TG110-S125N2RL              | B       | N2      | 0 to 70°C      | 1CT:1CT               | 2CT:1CT    | 35 max       | 0.4                  | 0.9                        | RoHS (7a)  |
| TG110-S131N2RL              | B       | N2      | 0 to 70°C      | 1.41CT:1CT            | 1CT:1CT    | 35 max       | 0.4                  | 1.5                        | RoHS (7a)  |
| TG110-S139N2RL              | B       | N2      | 0 to 70°C      | 1.25CT:1CT            | 1CT:1CT    | 15 typ       | 0.9                  | 0.9                        | RoHS (7a)  |
| TG110-S177N2RL              | B       | N2      | 0 to 70°C      | 1.41CT:1CT            | 1.41CT:1CT | 30 max       | 0.6                  | 0.9                        | RoHS (7a)  |
| TG110-E050N5LF <sup>1</sup> | A       | N5      | -40 to +85°C   | 1CT:1CT               | 1CT:1CT    | 35 max       | 0.4                  | 1.0                        | Pb-Free    |
| TG110-E050N5RL              | A       | N5      | -40 to +85°C   | 1CT:1CT               | 1CT:1CT    | 40 max       | 0.4                  | 1.0                        | RoHS (7a)  |
| TG110-E055N5LF <sup>1</sup> | B       | N5      | -40 to +85°C   | 1CT:1CT               | 1CT:1CT    | 35 max       | 0.4                  | 1.0                        | Pb-Free    |
| TG110-E055N5RL              | B       | N5      | -40 to +85°C   | 1CT:1CT               | 1CT:1CT    | 40 max       | 0.4                  | 1.0                        | RoHS (7a)  |
| TG110-E120N5RL              | B       | N5      | -40 to +85°C   | 2CT:1CT               | 1CT:1CT    | 40 max       | 0.9                  | 1.3                        | RoHS (7a)  |
| TG110-E125N5RL              | B       | N5      | -40 to +85°C   | 1CT:1CT               | 2CT:1CT    | 40 max       | 0.9                  | 1.1                        | RoHS (7a)  |
| TG110-E139N5RL              | B       | N5      | -40 to +85°C   | 1.25CT:1CT            | 1CT:1CT    | 30 typ       | 0.4                  | 1.3                        | RoHS (7a)  |
| TG110-S141N5RL              | B       | N5      | 0 to 70°C      | 1CT:1.41CT            | 1CT:1CT    | 35 typ       | 0.4                  | 0.9                        | RoHS (7a)  |
| TG110-3506N6RL <sup>2</sup> | C       | N6      | 0 to 70°C      | 1CT:1CT               | 1CT:1CT    | 20 typ       | 0.4                  | 1.3                        | RoHS (7a)  |
| TG110-S101N6RL <sup>2</sup> | D       | N6      | 0 to 70°C      | 1CT:1CT               | 1CT:1CT    | 20 typ       | 0.4                  | 1.3                        | RoHS (7a)  |

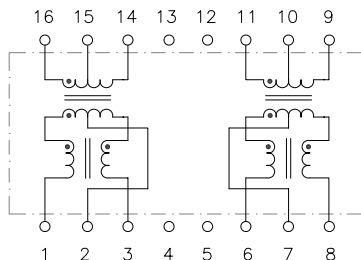
<sup>1</sup> Recommended for new designs using 1CT:1CT turns ratios

<sup>2</sup> Not for use in Auto-MDIX circuits/auto-transformer must be on the TX channel

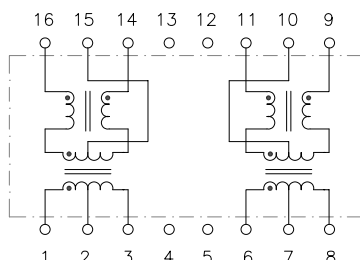
\* Contact your local representative or factory for part specific datasheets

# HALO ULTRA 10/100BASE-TX Ethernet Transformers

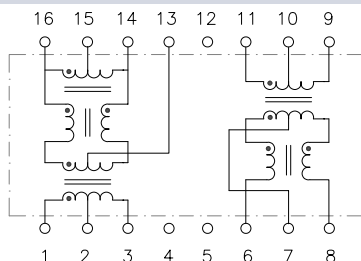
## Circuit A



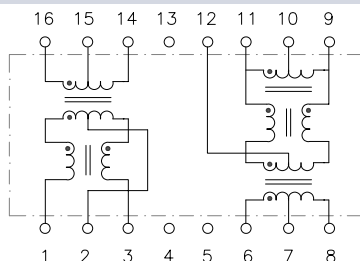
## Circuit B



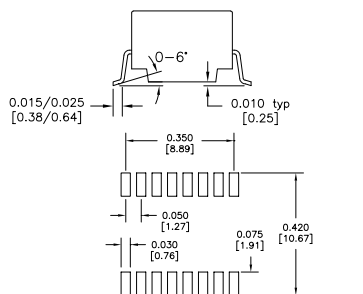
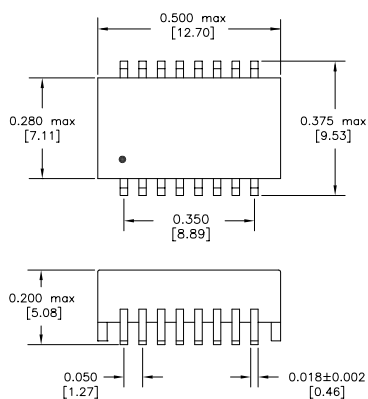
## Circuit C



## Circuit D

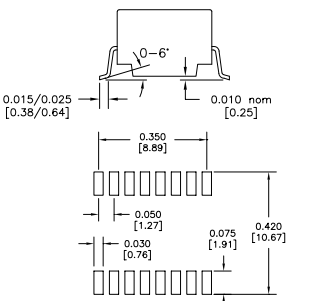
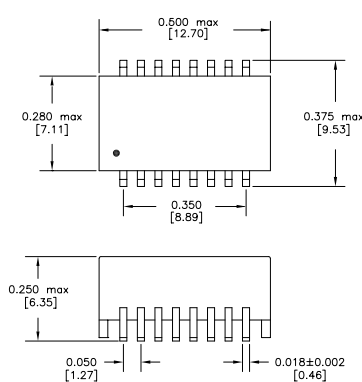


## N2 Package



Recommended Solder Pad Dimensions

## N5 Package

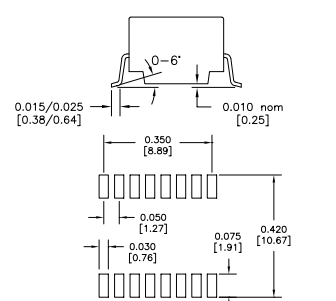
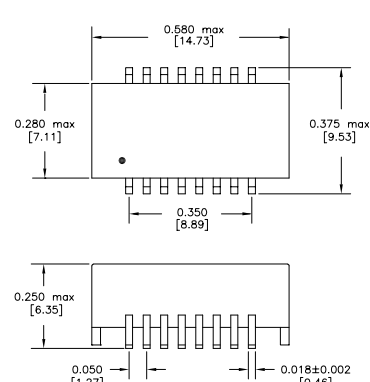


Recommended Solder Pad Dimensions

Dimensions: inch [mm]

Co-Planarity: 0.004 [0.10]

## N6 Package



Recommended Solder Pad Dimensions

**HALO**  
ELECTRONICS, INC.

2880 Lakeside Drive #116  
Santa Clara, CA 95054  
(650) 903-3800

[www.halo-electronics.com](http://www.halo-electronics.com)

HALO® Electronics is a leading supplier of high quality communication magnetics including signal transformers, filters, CMR chokes, PoE power transformers, DC/DC converters, and integrated Ethernet connectors. HALO's leading edge technology solutions are manufactured in ISO9001 and ISO14001 factories offering high quality products at a competitive price.

© Copyright 2014 HALO Electronics, Inc. All rights reserved.

Revised 8/2014. Download the latest version at [www.halo-electronics.com/pdf/discrete-ultra-100baset.pdf](http://www.halo-electronics.com/pdf/discrete-ultra-100baset.pdf)