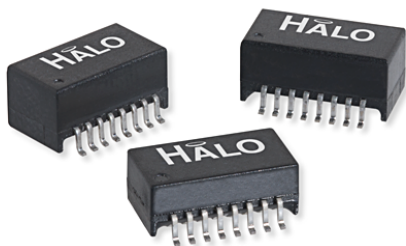


# ULTRA<sup>TM</sup> Family of Transformers

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. Range  | Turns Ratio $\pm 3\%$ |            | Cw/w (pF) | PRI/SEC           |                         | Compliance |
|-----------------------------|---------|---------|--------------|-----------------------|------------|-----------|-------------------|-------------------------|------------|
|                             |         |         |              | (1-3:16-14)           | (6-8:11-9) |           | LL ( $\mu$ H max) | PRI DCR ( $\Omega$ 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)  |

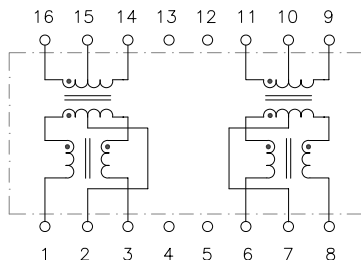
<sup>1</sup> Recommended for new designs using 1CT:1CT turns ratios

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

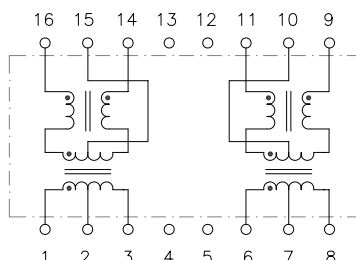
\* Contact your local representative or factory for part specific datasheets

# HALO ULTRA 10/100BASE-TX Ethernet Transformers

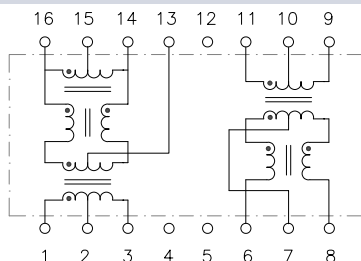
## Circuit A



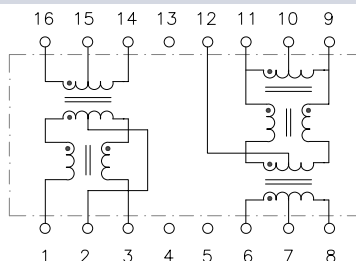
## Circuit B



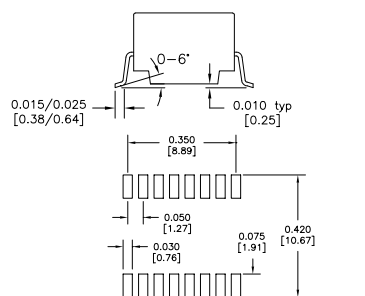
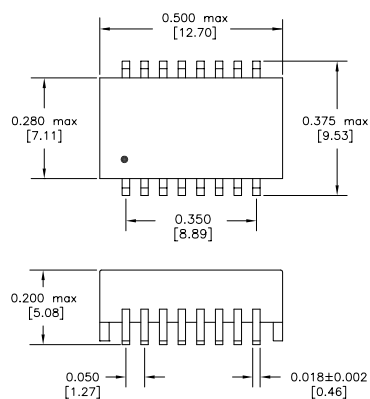
## Circuit C



## Circuit D

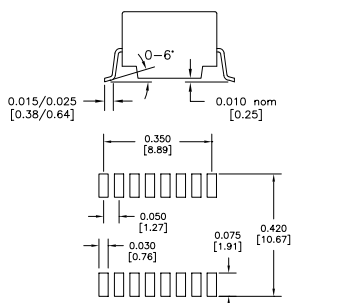
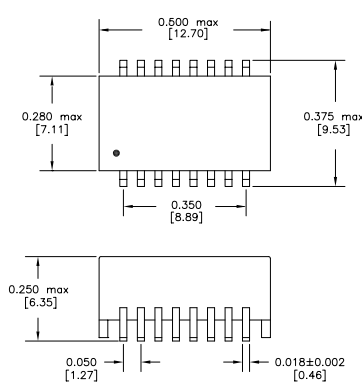


## N2 Package



Recommended Solder Pad Dimensions

## N5 Package

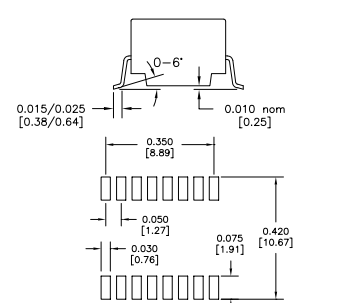
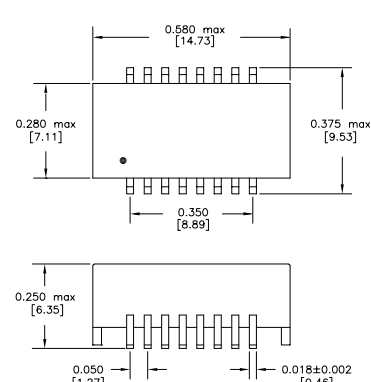


Recommended Solder Pad Dimensions

Dimensions: inch [mm]

Co-Planarity: 0.004 [0.10]

## N6 Package



Recommended Solder Pad Dimensions

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