

Quatra™ 10BASE-T Transformer

SMD Quad Port 10BASE-T Transformer



Product Features:

- Four Port 10BASE-T
- IEEE802.3i Compliant
- UL/EN60950 Recognized
- 100% Compliance Testing
- 1500Vrms Hi-Pot
- Patented Open Frame Construction

| Part Number | Turns Ratio $\pm 3\%$ TX | RX | PRI OCL TX/RX (μH typ) | Cw/w TX/RX (pF max) | PRI LL TX/RX (μH max) | PRI DCR TX/RX (Ω max) | Optional CMR Choke | RoHS ¹ |
|---------------|-----------------------------|-----|--|---------------------------|---|-------------------------------------|-----------------------|-------------------|
| TG44-1406NXLF | 1CT:1.41 | 1:1 | 140 | 12 | 0.4 | 0.4 | N/A | Pb-Free |
| TG44-1406NXRL | 1CT:1.41 | 1:1 | 140 | 12 | 0.4 | 0.4 | N/A | RoHS (7a) |
| TG45-1406NXLF | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX | Pb-Free |
| TG45-1406NXRL | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX | RoHS (7a) |
| TG46-1406NXLF | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX/RX | Pb-Free |
| TG46-1406NXRL | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX/RX | RoHS (7a) |
| TG57-1006NXLF | 1CT:1 | 1:1 | 100 | 12 | 0.3 | 0.3 | N/A | Pb-Free |
| TG57-1006NXRL | 1CT:1 | 1:1 | 100 | 12 | 0.3 | 0.3 | N/A | RoHS (7a) |
| TG58-1006NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX | Pb-Free |
| TG58-1006NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX | RoHS (7a) |
| TG59-1006NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX/RX | Pb-Free |
| TG59-1006NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX/RX | RoHS (7a) |
| TG62-1006NXLF | 2CT:1 | 1:1 | 150 | 10 | 0.6 / 0.3 | 0.35 | N/A | Pb-Free |
| TG62-1006NXRL | 2CT:1 | 1:1 | 150 | 10 | 0.6 / 0.3 | 0.35 | N/A | RoHS (7a) |
| TG66-1006NXLF | 2CT:1CT | 1:1 | 150 | 10 | 0.9 / 0.3 | 0.35 | TX | Pb-Free |
| TG66-1006NXRL | 2CT:1CT | 1:1 | 150 | 10 | 0.9 / 0.3 | 0.35 | TX | RoHS (7a) |
| TG87-2006NXLF | 1CT:2 | 1:1 | 50 / 200 | 10 / 15 | 0.15 / 0.2 | 0.35 / 0.5 | N/A | Pb-Free |
| TG87-2006NXRL | 1CT:2 | 1:1 | 50 / 200 | 10 / 15 | 0.15 / 0.2 | 0.35 / 0.5 | N/A | RoHS (7a) |
| TG88-2006NXLF | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.15 | 0.35 / 0.5 | TX | Pb-Free |
| TG88-2006NXRL | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.15 | 0.35 / 0.5 | TX | RoHS (7a) |
| TG89-2006NXLF | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.3 | 0.35 / 0.5 | TX/RX | Pb-Free |
| TG89-2006NXRL | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.3 | 0.35 / 0.5 | TX/RX | RoHS (7a) |

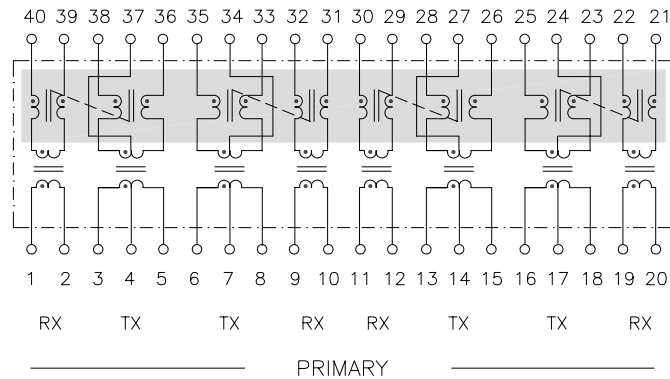
Notes:

1. Pb-Free parts are RoHS 6/6 compliant. RoHS (7a) parts contain lead per exemption 7a which is set to expire in July 2016.
2. Parts with RL suffix are not recommended for new designs.
3. The cable side CTs are not present on those TX circuits without CMR chokes.
4. Please contact the factory or representative for individual datasheets or additional information.

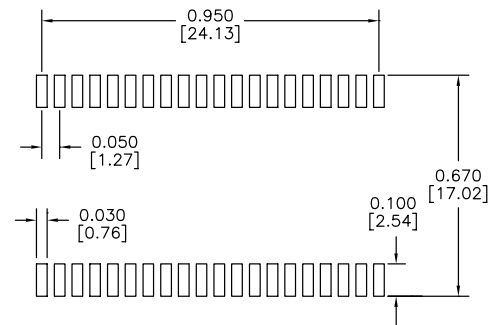
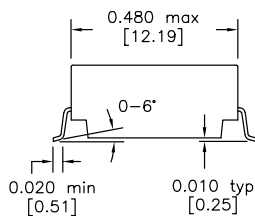
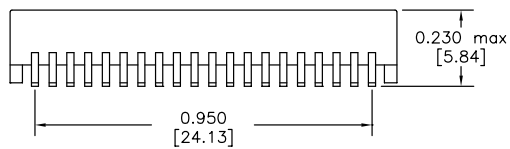
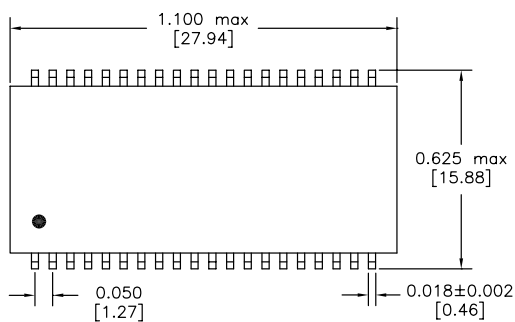
For additional information contact your [local representative](#), or HALO's support staff at (650) 903-3800 or info@haloelectronics.com

HALO Quatra 10BASE-T Transformers

Circuit Diagram



Mechanical



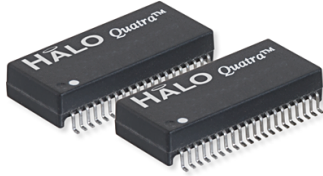
Recommended Solder Pad Layout
 Dimensions: inch [mm]
 Co-Planarity: 0.004 [0.10]

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

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| Part Number | Turns Ratio ±3% TX | RX | PRI OCL TX/RX (μH typ) | Cw/w TX/RX (pF max) | PRI LL TX/RX (μH max) | PRI DCR TX/RX (Ω max) | Optional CMR Choke | RoHS ¹ |
|---------------|-----------------------|-----|------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-------------------|
| TG41-S010NXLF | 1CT:2.5CT | 1:1 | 35 / 200 | 15 | 0.1 / 0.4 | 0.3 / 0.5 | TX/RX | Pb-Free |
| TG41-S010NXRL | 1CT:2.5CT | 1:1 | 35 / 200 | 15 | 0.1 / 0.4 | 0.3 / 0.5 | TX/RX | RoHS (7a) |
| TG44-S010NXLF | 1CT:1.41 | 1:1 | 140 | 12 | 0.4 | 0.4 | N/A | Pb-Free |
| TG44-S010NXRL | 1CT:1.41 | 1:1 | 140 | 12 | 0.4 | 0.4 | N/A | RoHS (7a) |
| TG45-S010NXLF | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX | Pb-Free |
| TG45-S010NXRL | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX | RoHS (7a) |
| TG46-S010NXLF | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX/RX | Pb-Free |
| TG46-S010NXRL | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX/RX | RoHS (7a) |
| TG57-S010NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | N/A | Pb-Free |
| TG57-S010NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | N/A | RoHS (7a) |
| TG58-S010NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX | Pb-Free |
| TG58-S010NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX | RoHS (7a) |
| TG59-S010NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX/RX | Pb-Free |
| TG59-S010NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX/RX | RoHS (7a) |
| TG62-S010NXLF | 2CT:1 | 1:1 | 150 | 10 | 0.6 / 0.3 | 0.35 | N/A | Pb-Free |
| TG62-S010NXRL | 2CT:1 | 1:1 | 150 | 10 | 0.6 / 0.3 | 0.35 | N/A | RoHS (7a) |
| TG66-S010NXLF | 2CT:1CT | 1:1 | 150 | 10 | 0.9 / 0.3 | 0.35 | TX/RX | Pb-Free |
| TG66-S010NXRL | 2CT:1CT | 1:1 | 150 | 10 | 0.9 / 0.3 | 0.35 | TX/RX | RoHS (7a) |
| TG87-S010NXLF | 1CT:2 | 1:1 | 50 / 200 | 9 / 11 | 0.75 / 0.15 | 0.35 / 0.5 | N/A | Pb-Free |
| TG87-S010NXRL | 1CT:2 | 1:1 | 50 / 200 | 9 / 11 | 0.75 / 0.15 | 0.35 / 0.5 | N/A | RoHS (7a) |
| TG88-S010NXLF | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.15 | 0.35 / 0.5 | TX | Pb-Free |
| TG88-S010NXRL | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.15 | 0.35 / 0.5 | TX | RoHS (7a) |
| TG89-S010NXLF | 1CT:2CT | 1:1 | 50 / 200 | 9 / 14 | 0.2 / 0.3 | 0.2 / 0.3 | TX/RX | Pb-Free |
| TG89-S010NXRL | 1CT:2CT | 1:1 | 50 / 200 | 9 / 14 | 0.2 / 0.3 | 0.2 / 0.3 | TX/RX | RoHS (7a) |

Notes:

1. Pb-Free parts are RoHS 6/6 compliant. RoHS (7a) parts contain lead per exemption 7a which is set to expire in July 2016.
2. Parts with RL suffix are not recommended for new designs.
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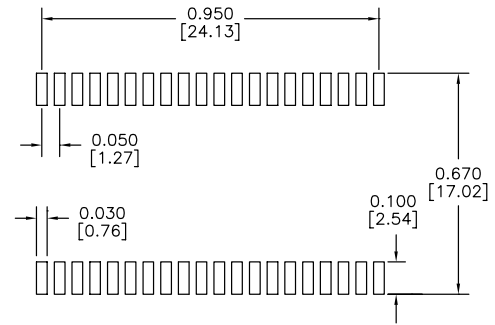
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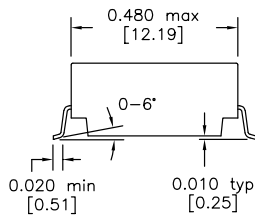
Circuit Diagram



Mechanical



Recommended Solder Pad Layout
 Dimensions: inch [mm]
 Co-Planarity: 0.004 [0.10]



US Patent Numbers:
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| Part Number | Turns Ratio ±3% TX | RX | PRI OCL TX/RX (μH typ) | Cw/w TX/RX (pF max) | PRI LL TX/RX (μH max) | PRI DCR TX/RX (Ω max) | Optional CMR Choke | RoHS ¹ |
|---------------|-----------------------|-----|------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-------------------|
| TG44-S020NXLF | 1CT:1.41 | 1:1 | 140 | 12 | 0.4 | 0.4 | N/A | Pb-Free |
| TG44-S020NXRL | 1CT:1.41 | 1:1 | 140 | 12 | 0.4 | 0.4 | N/A | RoHS (7a) |
| TG45-S020NXLF | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX | Pb-Free |
| TG45-S020NXRL | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX | RoHS (7a) |
| TG46-S020NXLF | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX/RX | Pb-Free |
| TG46-S020NXRL | 1CT:1.41CT | 1:1 | 140 | 12 | 0.4 | 0.4 | TX/RX | RoHS (7a) |
| TG57-S020NXLF | 1CT:1 | 1:1 | 100 | 12 | 0.3 | 0.3 | N/A | Pb-Free |
| TG57-S020NXRL | 1CT:1 | 1:1 | 100 | 12 | 0.3 | 0.3 | N/A | RoHS (7a) |
| TG58-S020NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX | Pb-Free |
| TG58-S020NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX | RoHS (7a) |
| TG59-S020NXLF | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX/RX | Pb-Free |
| TG59-S020NXRL | 1CT:1CT | 1:1 | 100 | 12 | 0.3 | 0.3 | TX/RX | RoHS (7a) |
| TG62-S020NXLF | 2CT:1 | 1:1 | 150 | 10 | 0.6 / 0.3 | 0.35 | N/A | Pb-Free |
| TG62-S020NXRL | 2CT:1 | 1:1 | 150 | 10 | 0.6 / 0.3 | 0.35 | N/A | RoHS (7a) |
| TG66-S020NXLF | 2CT:1CT | 1:1 | 150 | 10 | 0.9 / 0.3 | 0.35 | TX/RX | Pb-Free |
| TG66-S020NXRL | 2CT:1CT | 1:1 | 150 | 10 | 0.9 / 0.3 | 0.35 | TX/RX | RoHS (7a) |
| TG87-S020NXLF | 1CT:2 | 1:1 | 50 / 200 | 9 / 11 | 0.075 / 0.15 | 0.35 / 0.5 | N/A | Pb-Free |
| TG87-S020NXRL | 1CT:2 | 1:1 | 50 / 200 | 9 / 11 | 0.075 / 0.15 | 0.35 / 0.5 | N/A | RoHS (7a) |
| TG88-S020NXLF | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.15 | 0.35 / 0.5 | TX | Pb-Free |
| TG88-S020NXRL | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.15 | 0.35 / 0.5 | TX | RoHS (7a) |
| TG89-S020NXLF | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.3 | 0.35 / 0.5 | TX/RX | Pb-Free |
| TG89-S020NXRL | 1CT:2CT | 1:1 | 50 / 200 | 9 / 11 | 0.2 / 0.3 | 0.35 / 0.5 | TX/RX | RoHS (7a) |

Notes:

1. Pb-Free parts are RoHS 6/6 compliant. RoHS (7a) parts contain lead per exemption 7a which is set to expire in July 2016.
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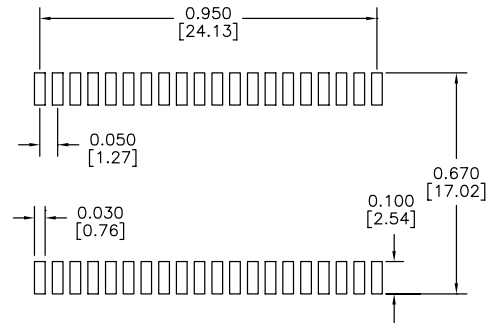
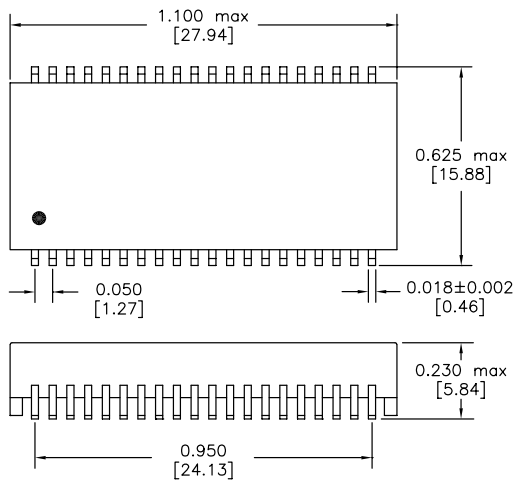
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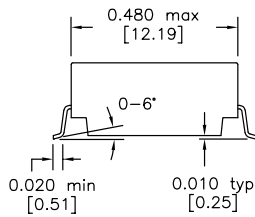
Circuit Diagram



Mechanical



Recommended Solder Pad Layout
 Dimensions: inch [mm]
 Co-Planarity: 0.004 [0.10]



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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.