

# 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 $\pm 3\%$<br>TX | RX  | PRI OCL<br>TX/RX<br>( $\mu\text{H}$ typ) | Cw/w<br>TX/RX<br>(pF max) | PRI LL<br>TX/RX<br>( $\mu\text{H}$ max) | PRI DCR<br>TX/RX<br>( $\Omega$ max) | Optional CMR<br>Choke | RoHS <sup>1</sup> |
|---------------|-----------------------------|-----|--|---------------------------|---|-------------------------------------|-----------------------|-------------------|
| 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](mailto: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  
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- Patented Open Frame Construction

| Part Number   | Turns Ratio ±3%<br>TX | RX  | PRI OCL<br>TX/RX<br>(μH typ) | Cw/w<br>TX/RX<br>(pF max) | PRI LL<br>TX/RX<br>(μH max) | PRI DCR<br>TX/RX<br>(Ω max) | Optional CMR<br>Choke | RoHS <sup>1</sup> |
|---------------|-----------------------|-----|------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-------------------|
| 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:

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|---------------|-----------------------|-----|------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-------------------|
| 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)         |

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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.

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

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