

# 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 ±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> |
|---------------|-----------------------|-----|------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-------------------|
| 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.
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# 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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|---------------|-----------------------|-----|------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-------------------|
| 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)         |

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 Co-Planarity: 0.004 [0.10]

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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.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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