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ISOLATION TRANSFORMERS

10BASE-T

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ETHERNET

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ISOLATION TRANSFORMERS FOR 10BASE-T

For Adapter Cards, MAUs, Hubs, and Motherboard Applications



- ➊ Designed to meet or exceed IEEE 802.3, 10Base-T specifications
- ➋ Available with common mode chokes for EMI suppression
- ➌ Surface mount, IC grade, transfer-molded package withstands 235°C peak temperature profile
- ➍ Through hole, auto-insertable, 16-pin DIP package

Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

| Part Number | Turns Ratio (±5%) | | Primary Pins | Common Mode Choke | Sine Wave Inductance OCL ¹ (μH MIN) | Interwinding Capacitance C _{ww} ¹ (pF MAX) | Leakage Inductance L _L ¹ (μH MAX) | DCR (Ω MAX) | Hi-Pot (Vrms) | Schem. | Mech. |
|----------------------------------|-------------------|----------|--------------------|-------------------|--|--|---|-------------|---------------|---------|---------|
| | Transmit | Receive | | | | | | | | | |
| SURFACE MOUNT² | | | | | | | | | | pp. 6-7 | pp. 8-9 |
| PE-65454 | 1:√2 | 1:1 | 3-4/1-2 | | 140 | 12 | 0.2 | 0.4 | 2000 | T1 | SMT2 |
| E5017 | 1CT:1CT | 1CT:1CT | 1-3/6-8 | X | 200 | 10 | 0.25 | 1.0 | 1500 | T6 | SMT4 |
| PE-65726 | 1CT:1CT | 1CT:1CT | 1-3/6-8 | | 200 | 10 | 0.2 | 0.3 | 2000 | T4 | SMT4 |
| 23Z114SM | 1CT:1CT | 1CT:1CT | 1-3/6-8 | | 200 | 12 | 0.3 | 0.3 | 2000 | T4 | SMT5 |
| PE-68048 | 1CT:√2CT | 1CT:1CT | 6-8/1-3 | X | 110 | 15 | 0.4 | 1.0 | 1500 | T5 | SMT4 |
| PE-65745 | 1CT:√2CT | 1CT:1CT | 6-8/1-3 | | 140 | 12 | 0.2 | 0.3 | 2000 | T4 | SMT4 |
| 23Z128SM | 1CT:√2CT | 1CT:1CT | 6-8/1-3 | | 200 | 15 | 0.5 | 0.4 | 2000 | T4 | SMT5 |
| 23Z356SM | 1CT:√2CT | 1CT:1CT | 6-8/1-3 | X | 200 | 12 | 0.5 | 0.6 | 2000 | T7 | SMT5 |
| 23Z435SM | 2CT:1CT | 1CT:1CT | 1-3/6-8 | | 100 | 10 | 0.4 | 0.5 | 2000 | T4 | SMT5 |
| PE-68052 | 2CT:1CT | 1CT:1CT | 1-3/6-8 | X | 140 | 12 | 0.3 | 1.0 | 1500 | T6 | SMT4 |
| E4001 | 1CT:2CT | 1CT:1CT | 6-8/1-3 | X | 112 | 8 | 0.3 | 0.8 | 1500 | T5 | SMT4 |
| PE-68041 | 1CT:2CT | 1CT:1CT | 6-8/1-3 | | 112 | 8 | 0.3 | 0.5 | 1500 | T4 | SMT4 |
| 23Z467SM | 1CT:2CT | 1CT:1CT | 6-8/1-3 | X | 140 | 12 | 0.1 | 0.6 | 2000 | T7 | SMT5 |
| PE-68023 | 1CT:2CT | 1CT:1CT | 1-3/6-8 | X | 200 | 12 | 0.3 | 1.0 | 1500 | T6 | SMT4 |
| PE-68042 | 2√2CT:1 | 1:1 | 2-4/7-9 | | 200 | 14 | 1 | 0.5 | 1500 | T9 | SMT1 |
| PE-68810 | — | 1:1 (4X) | 1-2/3-4 | | 140 | 12 | 0.2 | 0.4 | 2000 | T3 | SMT4 |
| PE-68820 | 1:√2 (4X) | — | 1-2/3-4 5-6/7-8 | | 140 | 12 | 0.2 | 0.4 | 2000 | T3 | SMT4 |
| THROUGH HOLE | | | | | | | | | | pp.6-7 | p. 10 |
| 23Z435 | 2CT:1CT | 1CT:1CT | 1-3/6-8 | | 80 | 10 | 0.4 | 0.5 | 2000 | T4 | TH3 |
| 23Z128 | 1CT:√2CT | 1CT:1CT | 6-8/1-3 | | 140 | 15 | 0.5 | 0.4 | 2000 | T4 | TH3 |
| PE-65263 | 1CT:1CT | 1CT:1CT | 1-3/6-8 | | 200 | 15 | 0.25 | 0.3 | 2000 | T4 | TH4 |

NOTES:

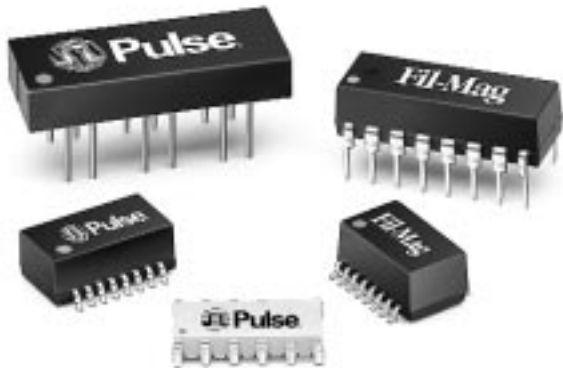
1. OCL, C_{ww} and L_L are measured at 20 mVrms, 100 KHz.

2. To order Tape & Reel packaging for surface mount parts, add the suffix "T" to the part number (Example: PE-65454T). The "T" will appear on all paper work, but will not be marked on parts.

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ISOLATION TRANSFORMERS FOR ETHERNET

AUI Transformers



- ⊕ Low leakage inductance and coupling capacitance for faster rise times
- ⊕ Small form factor, 50 mil lead spacing
- ⊕ Through hole, auto-insertable, 16-pin DIP package

Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

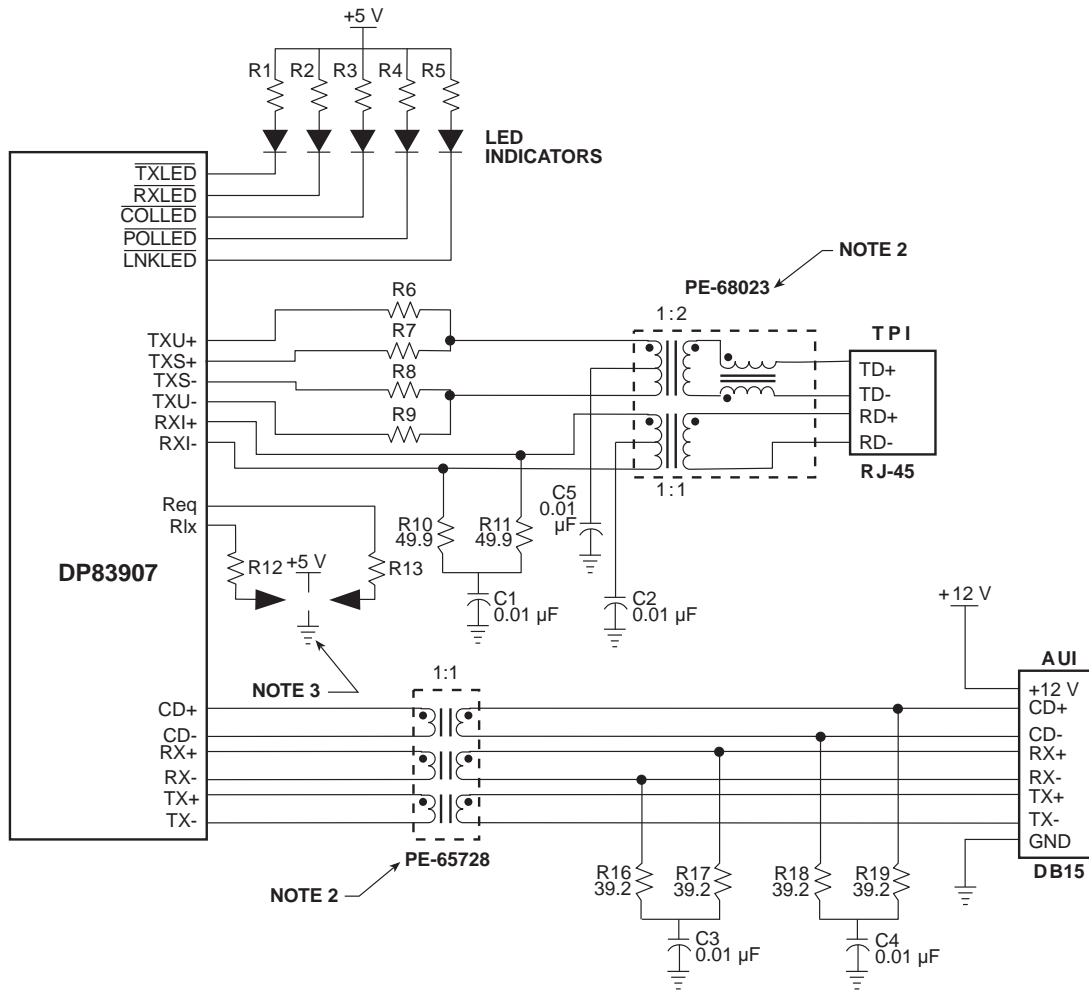
| Part Number | Turns Ratio (±5%) | Primary Pins | Primary Sine Wave OCL ¹ (μH ±20%) | Primary ET-Constant (V-μs MIN) | Rise Time ² (ns MAX) | Interwinding Capacitance C _{ww} ¹ (pF MAX) | Leakage Inductance L _L ¹ (μH MAX) | DCR (Ω MAX) | Schem. | Mech. | Hipot (Vrms) |
|----------------------------------|-------------------|--------------|--|--------------------------------|---------------------------------|--|---|-------------|---------|---------|--------------|
| SURFACE MOUNT³ | | | | | | | | | pp. 6-7 | pp. 8-9 | |
| E6002 | 1:1 | 1-2/4-5/7-8 | 40 (MIN) | 2.1 | 3.0 | 8 | 0.20 | 0.25 | T2 | SMT4 | 2000 |
| PE-65723 | 1:1 | 1-2/4-5/7-8 | 75 | 1.8 | 3.0 | 8 | 0.20 | 0.30 | T2 | SMT4 | 2000 |
| PE-68801 | 1:1 | 1-2/3-4/5-6 | 75 | 1.8 | 3.0 | 12 | 0.20 | 0.30 | T8 | SMT3 | 2000 |
| 23Z90SM | 1:1 | 1-2/4-5/7-8 | 75 | 2.4 | 3.0 | 10 | 0.20 | 0.20 | T2 | SMT5 | 2000 |
| PE-65728 | 1:1 | 1-2/4-5/7-8 | 100 | 1.8 | 3.0 | 9 | 0.20 | 0.30 | T2 | SMT4 | 2000 |
| 23Z91SM | 1:1 | 1-2/4-5/7-8 | 100 | 2.4 | 3.0 | 10 | 0.20 | 0.30 | T2 | SMT5 | 2000 |
| PE-65727 | 1:1 | 1-2/4-5/7-8 | 150 | 1.2 | 3.0 | 12 | 0.20 | 0.30 | T2 | SMT4 | 2000 |
| PE-65733 | 1:1 | 1-2/4-5/7-8 | 350 | 2.6 | 3.5 | 16 | 0.30 | 0.35 | T2 | SMT4 | 2000 |
| 23Z108SM | 1:1 | 1-2/4-5/7-8 | 350 | 2.5 | 3.5 | 16 | 0.30 | 0.35 | T2 | SMT5 | 2000 |
| THROUGH HOLE | | | | | | | | | pp. 6-7 | p. 10 | |
| PE-64102 | 1:1 | 1-2/4-5/7-8 | 75 | 2.1 | 3.0 | 10 | 0.20 | 0.20 | T2 | TH4 | 500 |
| PE-64107 | 1:1 | 1-2/4-5/7-8 | 75 | 2.4 | 3.5 | 10 | 0.25 | 0.30 | T2 | TH2 | 2000 |
| PE-64502 | 1:1 | 1-2/4-5/7-8 | 75 | 2.1 | 3.0 | 10 | 0.20 | 0.20 | T2 | TH4 | 2000 |
| PE-64103 | 1:1 | 1-2/4-5/7-8 | 100 | 2.1 | 3.0 | 10 | 0.20 | 0.30 | T2 | TH4 | 500 |
| PE-64108 | 1:1 | 1-2/4-5/7-8 | 100 | 2.1 | 3.5 | 10 | 0.25 | 0.40 | T2 | TH2 | 2000 |
| PE-64503 | 1:1 | 1-2/4-5/7-8 | 100 | 2.1 | 3.0 | 10 | 0.20 | 0.30 | T2 | TH4 | 2000 |
| PE-64104 | 1:1 | 1-2/4-5/7-8 | 150 | 2.1 | 3.5 | 12 | 0.20 | 0.30 | T2 | TH4 | 500 |
| PE-64109 | 1:1 | 1-2/4-5/7-8 | 150 | 3.0 | 3.0 | 15 | 0.20 | 0.45 | T2 | TH2 | 2000 |

NOTES:

1. OCL, C_{ww} and L_L are measured at 20 mVrms, 100 KHz.
2. Rise time is measured in 75 Ω systems.
3. To order Tape & Reel packaging for surface mount parts, add the suffix "T" to the part number. Example: PE-65723T. The "T" will appear on all paper work, but will not be marked on parts.

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Typical Application Circuit

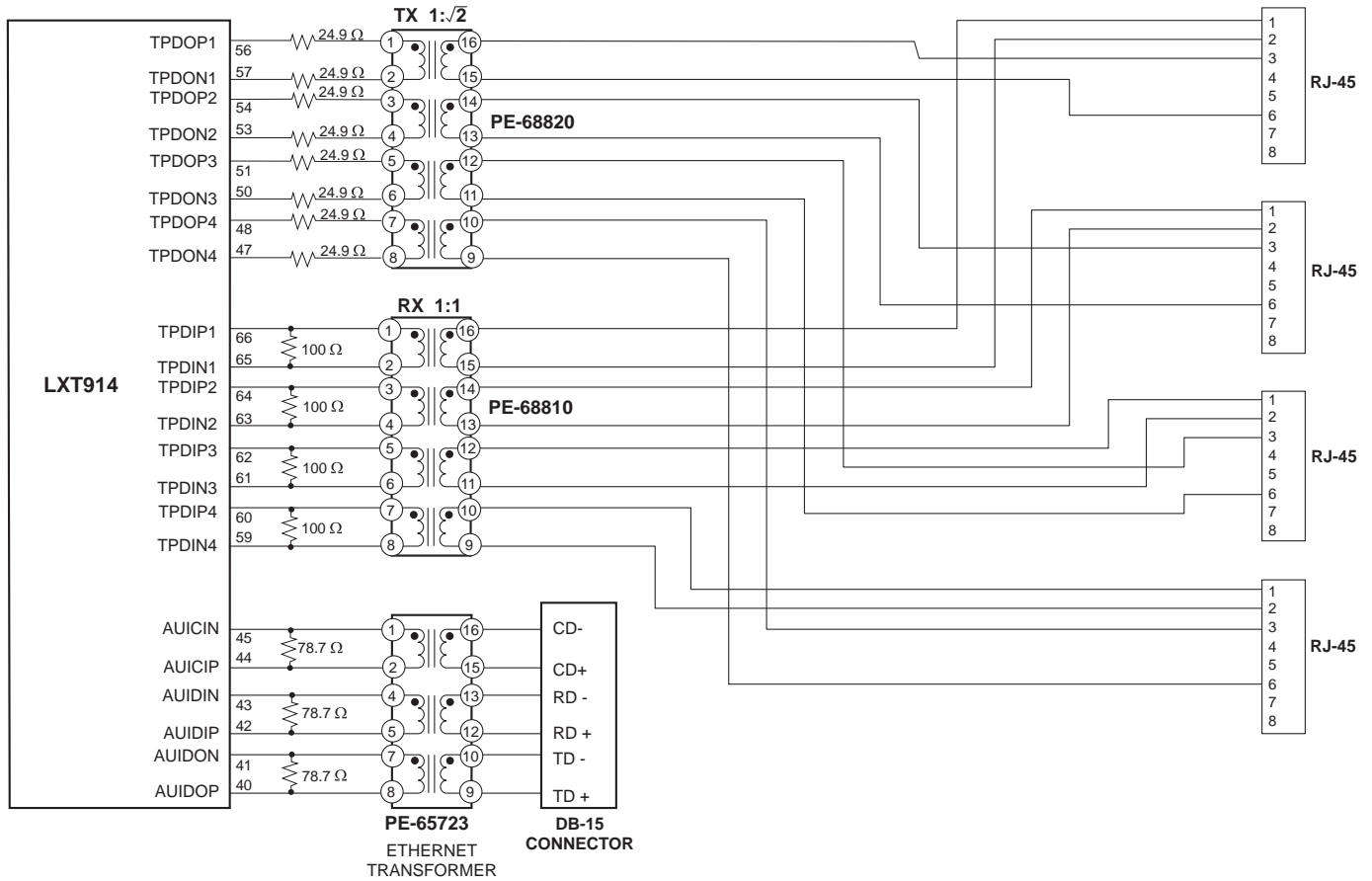


NOTES:

1. Connections at pins 12 and 13 apply to PE-68023 only. These are test points. **Do not ground.**
2. For specific information, see pages 2 and 3 in this catalog.
3. For specific connection, refer to National's Application Notes.

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Typical 10Base-T Application Circuit



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