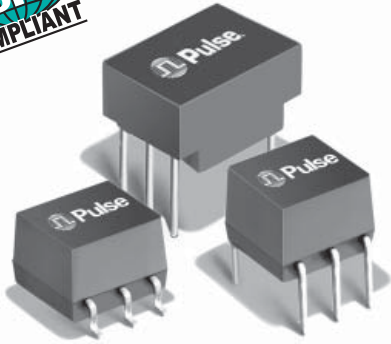


# T3/DS3/E3/STS-1 TRANSFORMERS

## Designed for T3, DS3, E3 and STS-1 Interfaces



-  RoHS peak reflow temperature rating: 245°C
-  Return loss meets requirements of G.703
-  Fast rise time compatible with standards
-  Through hole and surface mount packages available
-  UL recognized

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

| RoHS Compliant Part Number | Turns Ratio (±2%) | OCL Primary (μH MIN) | OCL @ -40°C (μH MIN) | LL (μH MAX) | C <sub>w/w</sub> (pF MAX) | Bandwidth 75 Ω System (MHz TYP) | Isolation Voltage (V <sub>rms</sub> MIN) | Package/ Schematic | Primary Pins |
|----------------------------|-------------------|----------------------|----------------------|-------------|---------------------------|---------------------------------|------------------------------------------|--------------------|--------------|
| PE-65663NL                 | 1:1               | 40                   | 30                   | .12         | 13                        | —                               | 1500                                     | QC-1/A THT         | 2-6          |
| PE-65664NL                 | 1:2CT             | 35                   | 20                   | .12         | 10                        | —                               | 1500                                     | QC-1/B THT         | 2-6          |
| PE-65779NL                 | 1:4CT             | 150                  | —                    | .30         | 15                        | —                               | 1500                                     | QC-1/B THT         | 2-6          |
| PE-65856NL                 | 1:1.73CT          | 50                   | —                    | .10         | 12                        | .060-300                        | 1500                                     | LC-1/C THT         | 4-6          |
| PE-65966NL                 | 1:1               | 40                   | —                    | .10         | 10                        | .200-340                        | 1500                                     | LC-1/E THT         | 4-6          |
| PE-65967NL                 | 1:1               | 40                   | —                    | .10         | 10                        | .200-340                        | 1500                                     | LS-1/E SMT         | 4-6          |
| PE-65968NL                 | 1:2CT             | 19                   | —                    | .06         | 10                        | .250-500                        | 1500                                     | LS-1/C SMT         | 4-6          |
| PE-65969NL                 | 1:2CT             | 19                   | —                    | .06         | 10                        | .250-500                        | 1500                                     | LC-1/C THT         | 4-6          |
| PE-68629NL                 | 1:1               | 40                   | —                    | .10         | 5                         | —                               | 3000 <sup>4</sup>                        | HC-1/A THT         | 1-5          |
| PE-68630NL                 | 1:2CT             | 19                   | —                    | .06         | 10                        | —                               | 3000 <sup>4</sup>                        | HC-1/D THT         | 1-5          |

### Electrical Specifications @ 25°C

| RoHS Compliant Part Number | Turns Ratio (Pri:Sec ±5%) | OCL @ 25°C (mHMIN) | C <sub>w/w</sub> (pF MAX) | L <sub>L</sub> (μH MAX) | DCR Pri (Ω MAX) | DCR Sec (Ω MAX) | Isolation Voltage (V <sub>rms</sub> MIN) | Package/ Schematic | Primary Pins |
|----------------------------|---------------------------|--------------------|---------------------------|-------------------------|-----------------|-----------------|------------------------------------------|--------------------|--------------|
| PE-64934NL                 | 1:1                       | 1.20               | 25                        | 0.50                    | 0.70            | 0.70            | 1500                                     | HC-1/1S            | 1-2          |

### Packaging Information

| Package | Type | Part Weight | Parts/Tube | Parts/Reel | Reel Diameter | Tape Width | Pitch |
|---------|------|-------------|------------|------------|---------------|------------|-------|
| LS-1    | SMT  | 0.6 grams   | 70         | 600        | 13 inches     | 24mm       | 16mm  |
| LC-1    | THT  | 0.6 grams   | 65         | —          | —             | —          | —     |
| HC-1    | THT  | 1.2 grams   | 60         | —          | —             | —          | —     |
| QC-1    | THT  | 0.8 grams   | 60         | —          | —             | —          | —     |

# T3/DS3/E3/STS-1 TRANSFORMERS

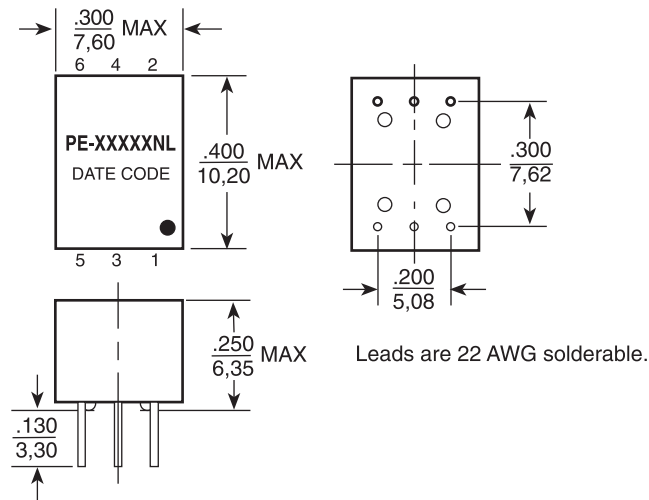
## Designed for T3, DS3, E3 and STS-1 Interfaces



### Mechanical

### Schematic

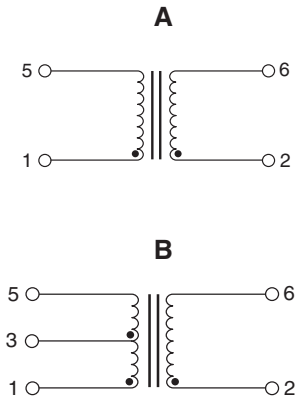
#### QC-1



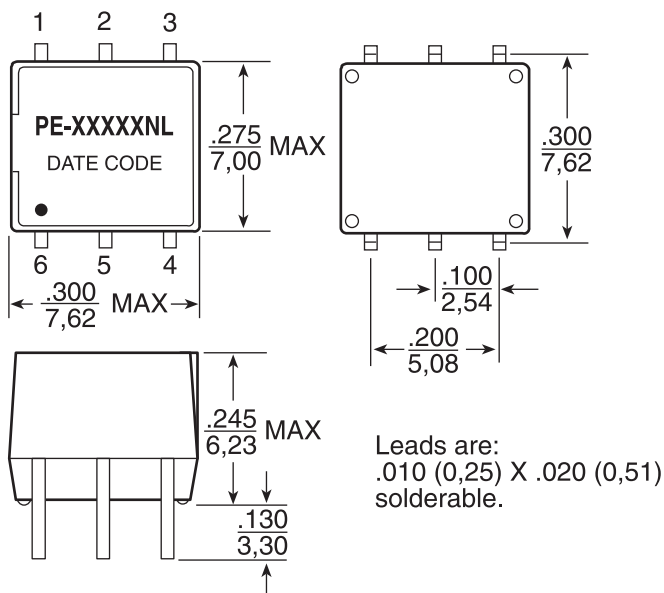
Leads are 22 AWG solderable.

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified all tolerances are  $\pm \frac{.010}{0,25}$



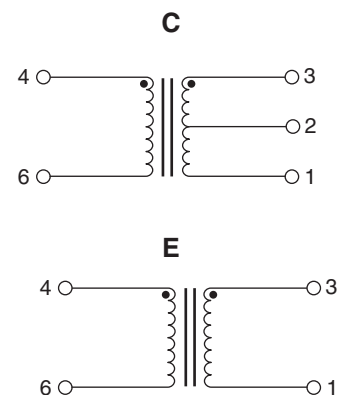
#### LC-1



Leads are: .010 (0,25) X .020 (0,51) solderable.

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified all tolerances are  $\pm \frac{.010}{0,25}$



# T3/DS3/E3/STS-1 TRANSFORMERS

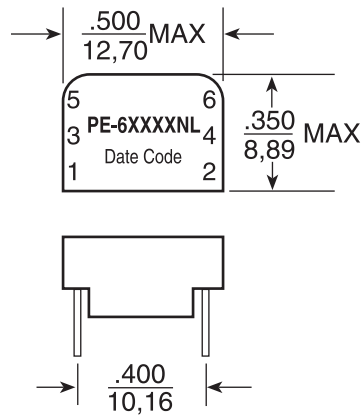
## Designed for T3, DS3, E3 and STS-1 Interfaces



### Mechanical

### Schematic

#### HC-1

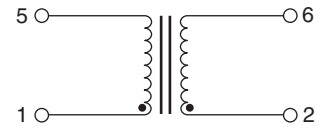


**Notes:** Leads are 24 AWG solderable.  
Unused pins not provided.

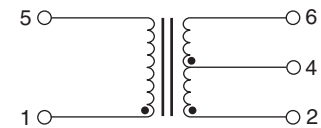
**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified all tolerances are  $\pm \frac{.010}{0,25}$

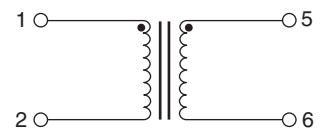
**A**



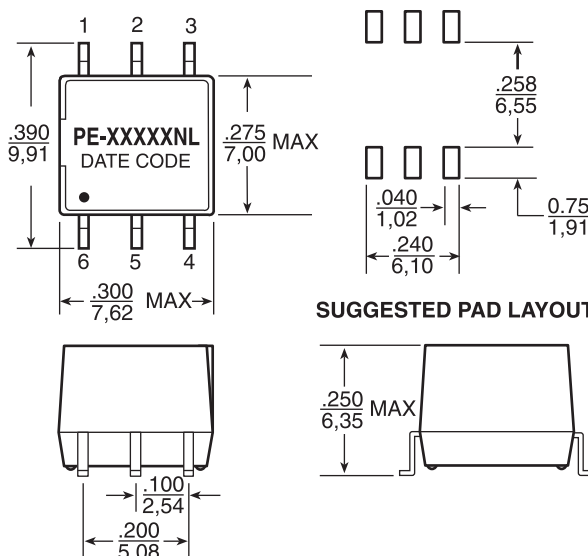
**D**



**1S**



#### LS-1

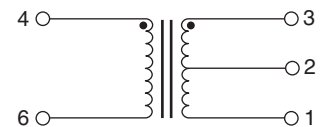


**SUGGESTED PAD LAYOUT**

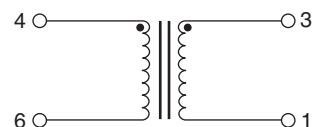
**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified all tolerances are  $\pm \frac{.010}{0,25}$

**C**



**E**



# T3/DS3/E3/STS -1 TRANSFORMERS

## Designed for T3, DS3, E3 and STS-1 Interfaces



**Transformer Selection Guide**

| Chip Manufacturer | IC                            | Surface Mount |            | Through Hole (1500 VRMS) |            | Through Hole (3000 VRMS) |            |
|-------------------|-------------------------------|---------------|------------|--------------------------|------------|--------------------------|------------|
|                   |                               | Transmit      | Receive    | Transmit                 | Receive    | Transmit                 | Receive    |
| Lucent            | T7296                         | PE-65967NL    | —          | PE-65966NL               | —          | PE-68629NL               | —          |
| Exar              | XR-T7296                      | PE-65967NL    | —          | PE-65966NL               | —          | PE-68629NL               | —          |
| Silicon Systems   | SSI 78P236, DS3               | PE-65968NL    | PE-65967NL | PE-65969NL               | PE-65966NL | PE-68630NL               | PE-68629NL |
|                   | SSI 78P7200, DS3              | PE-65968NL    | PE-65967NL | PE-65969NL               | PE-65966NL | PE-68630NL               | PE-68629NL |
|                   | SSI 78P7200, E3               | PE-65968NL    | PE-65968NL | PE-65969NL               | PE-65969NL | PE-68630NL               | PE-68630NL |
|                   | SSI 78P2361, STS-1            | PE-65968NL    | PE-65967NL | PE-65969NL               | PE-65966NL | PE-68630NL               | PE-68629NL |
|                   | SSI 78P2362, E3               | PE-65968NL    | PE-65967NL | PE-65969NL               | PE-65966NL | PE-68630NL               | PE-68629NL |
| Transwitch        | MRT TXC-02050 <sup>4</sup> E3 | PE-65968NL    | PE-65967NL | PE-65969NL               | PE-65966NL | PE-68630NL               | PE-68629NL |
|                   | ART 02020 DS3, STS-1          | PE-65967NL    | PE-65967NL | PE-65966NL               | PE-65966NL | PE-68629NL               | PE-68629NL |

### Application Notes

1. The transformers have been developed for use as transmit and receive transformers in T3 or DS3 links, using bit rates of 44.736 Mbps and B3ZS coding on coaxial cable. The characteristics allow compliance with the pulse templates of CCITT G.703 as well as ATT T.A.34. The transformers are also suitable for the E3 interface at 34.368 Mbps with HDB3 coding or STS-1 applications, at 51.84 Mbps according to Bellcore TA-NWT-000253. The LC-1 and QC-1 packages are pin-compatible with T1-1 and T4-1 6-pin DIP packages.
2. Bandwidth specifications are typical in a 75  $\Omega$  system. Return loss meets the requirements of G.703. Materials used in the products are UL94-V0 recognized. Products meet the requirements of IEC 695-2-2 (Needle Flame Test).
3. The surface mount LS-1 package is available with optional Tape & Reel packaging. To order, add a "T" suffix to the part number (e.g. PE-65967NLT).
4. The Transwitch MRT TXC-02050 chip is also designed to operate in 6.312 and 8.448 Mbps interfaces. A 1:1 transformer (PE-64934) is recommended.

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