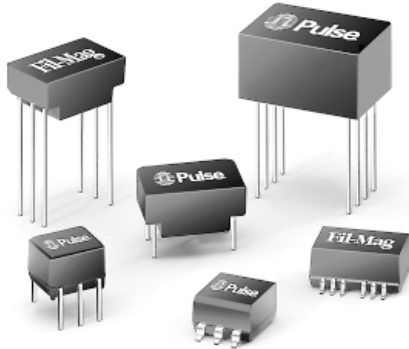






# GENERAL PURPOSE TRANSFORMERS



2 Watt Pulse, Electrostatically Shielded,  
500 mW Pulse, RF Pulse, and Control Transformers



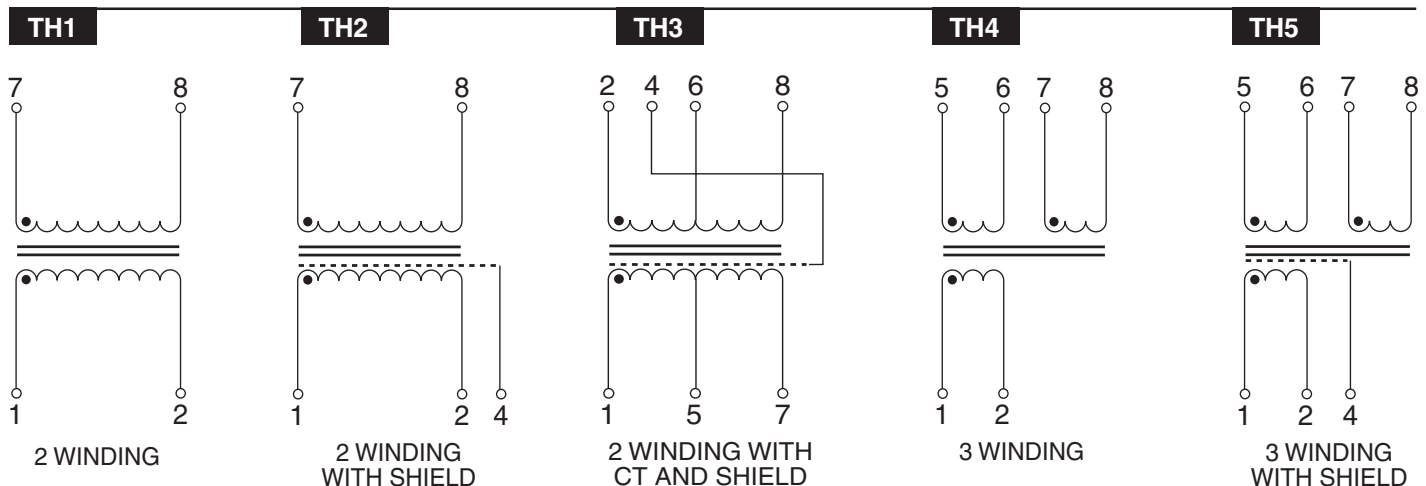
-  Wide range of inductors and turns ratios
-  Suitable for a variety of applications
-  High flux density capability
-  Available in through hole and surface mount packages

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

| Part Number                                    | Turns Ratio (±5%) | Primary Sine Wave OCL (mH MIN) | Primary ET-Constant (V-μs MIN) | Rise Time (ns MAX) | PRI/SEC* C <sub>WW</sub> (pF MAX) | Leakage Inductance PRI/SEC (μH MAX) | DCR Primary (Ω MAX) | DCR Secondary (Ω MAX) | DCR Tertiary (Ω MAX) | Hi-Pot (V <sub>rms</sub> ) | Schematic/Package Style |
|--|-------------------|--------------------------------|--------------------------------|--------------------|-----------------------------------|-------------------------------------|---------------------|-----------------------|----------------------|----------------------------|-------------------------|
| <b>2 WATT PULSE TRANSFORMERS</b>               |                   |                                |                                |                    |                                   |                                     |                     |                       |                      |                            |                         |
| PE-2227X                                       | 1:1               | 0.5                            | 46                             | 8                  | 26                                | 1.7                                 | 1.3                 | 1.4                   | —                    | 700                        | TH1                     |
| PE-2228X                                       | 1:1               | 1.3                            | 84                             | 30                 | 40                                | 3.0                                 | 3.6                 | 3.8                   | —                    | 700                        | TH1                     |
| PE-2243X                                       | 1:1               | 20.0                           | 250                            | 80                 | 87                                | 10.5                                | 27.0                | 28.0                  | —                    | 700                        | TH1                     |
| PE-2229X                                       | 1:1:1             | 1.3                            | 91                             | 30                 | 38                                | 3.2                                 | 3.6                 | 3.8                   | 3.9                  | 700                        | TH4                     |
| PE-2231X                                       | 1:1:1             | 5.0                            | 196                            | 70                 | 35                                | 13.0                                | 8.8                 | 9.6                   | 11.0                 | 700                        | TH4                     |
| PE-2671X                                       | 4:1:4             | 0.2                            | 53                             | 50                 | 17                                | 5.7                                 | 1.2                 | 0.2                   | 1.3                  | 700                        | TH4                     |
| <b>ELECTROSTATICALLY SHIELDED TRANSFORMERS</b> |                   |                                |                                |                    |                                   |                                     |                     |                       |                      |                            |                         |
| PE-5154X                                       | 1:1               | 0.2                            | 91                             | 17                 | 2.7                               | 3.1                                 | 1.6                 | 1.6                   | —                    | 700                        | TH2                     |
| PE-5156X                                       | 1:1               | 1.2                            | 77                             | 19                 | 4.1                               | 2.8                                 | 1.1                 | 1.1                   | —                    | 700                        | TH2                     |
| PE-5160X                                       | 1:1               | 10.0                           | 224                            | 200                | 4.5                               | 22.0                                | 11.0                | 11.0                  | —                    | 700                        | TH2                     |
| PE-5158X                                       | 1CT:1CT           | 1.0                            | 77                             | 21                 | 3.2                               | 2.5                                 | 1.8                 | 1.8                   | —                    | 700                        | TH3                     |
| PE-5163X                                       | 1CT:1CT           | 10.0                           | 252                            | 60                 | 2.5                               | 16.7                                | 14.0                | 14.0                  | —                    | 700                        | TH3                     |

\*NOTE: for Electrostatically Shielded Transformers, C<sub>WW</sub> is measured with shield corrected to guard voltage.

## Schematics



U.S: 858 674 8100 • U.K: 44 1483 401 700 • France: 33 3 84 35 04 04 • Singapore: 65 287 8998 • Taiwan: 886 2 2698 0228 • <http://www.pulseeng.com>

# GENERAL PURPOSE TRANSFORMERS

## 500 mW Pulse

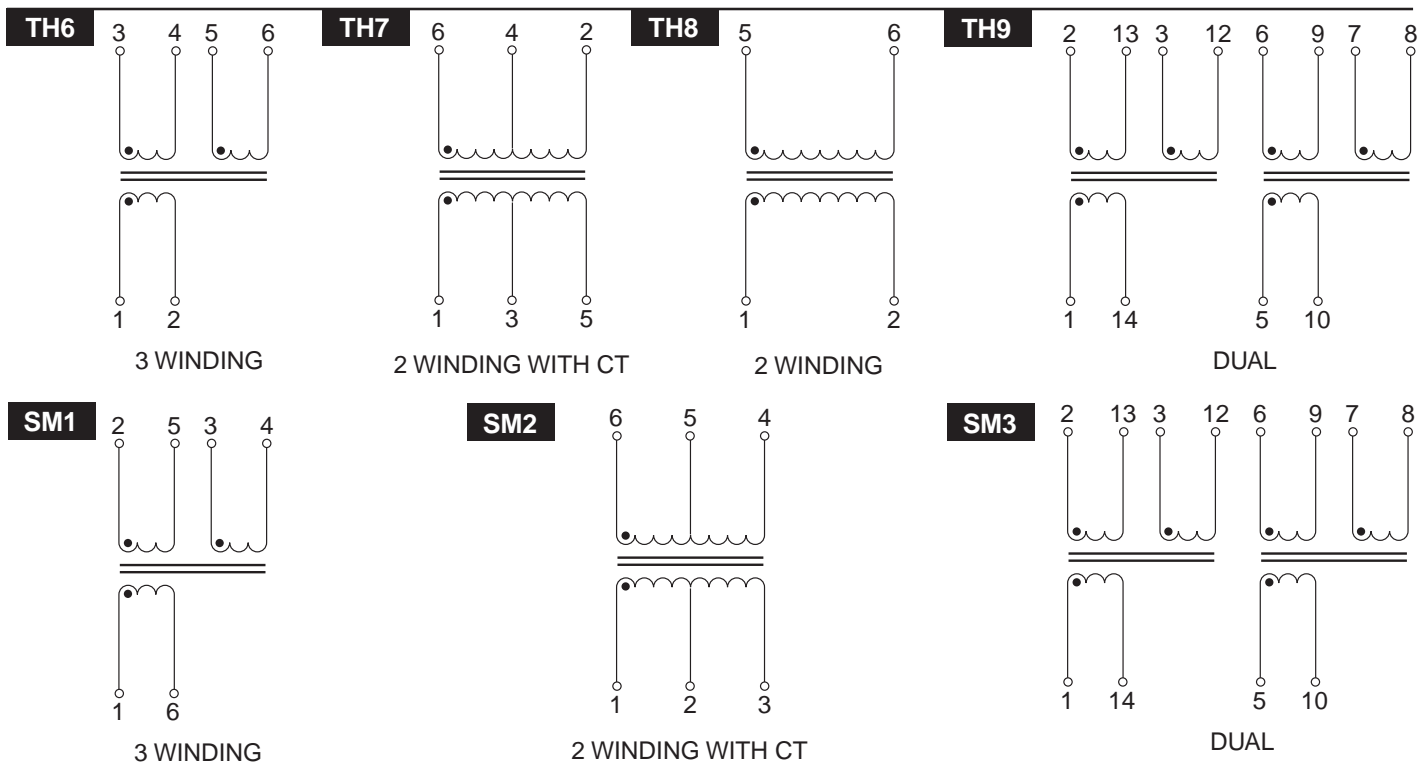


Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

| Part Number                      | Turns Ratio (±5%) | Primary Sine Wave OCL (mH MIN) | Primary ET-Constant (V-μs MIN) | Rise Time (ns MAX) | PRI/SEC C <sub>ww</sub> (pF MAX) | Leakage Inductance PRI/SEC (μH MAX) | DCR Primary (Ω MAX) | DCR Secondary (Ω MAX) | DCR Tertiary (Ω MAX) | Hi Pot V <sub>rms</sub> | Schematic Package Style |
|----------------------------------|-------------------|--------------------------------|--------------------------------|--------------------|----------------------------------|-------------------------------------|---------------------|-----------------------|----------------------|-------------------------|-------------------------|
| <b>500 mW PULSE TRANSFORMERS</b> |                   |                                |                                |                    |                                  |                                     |                     |                       |                      |                         |                         |
| PE-5760                          | 1:1:1             | 5.0                            | 25.0                           | 10.5               | 70                               | 1.3                                 | 3.9                 | 3.9                   | 3.9                  | 500                     | TH6                     |
| PE-5761                          | 1:1:1             | 2.0                            | 16.0                           | 8.2                | 37                               | 0.8                                 | 2.5                 | 2.5                   | 2.5                  | 500                     | TH6                     |
| PE-5762                          | 1:1:1             | 0.5                            | 8.5                            | 5.3                | 32                               | 0.4                                 | 1.3                 | 1.3                   | 1.3                  | 500                     | TH6                     |
| PE-5763                          | 1:1:1             | 0.2                            | 5.0                            | 4.2                | 18                               | 0.3                                 | 0.9                 | 0.9                   | 0.9                  | 500                     | TH6                     |
| PE-5764                          | 1:1:1             | 0.05                           | 5.2                            | 5.6                | 18                               | 0.5                                 | 1.3                 | 1.3                   | 1.3                  | 500                     | TH6                     |
| PE-5769                          | 2:1:1             | 0.5                            | 8.5                            | 5.6                | 11                               | 1.1                                 | 1.3                 | 0.7                   | 0.7                  | 500                     | TH6                     |
| PE-8270                          | 1CT:1CT           | 2.0                            | 16.0                           | —                  | 37                               | 0.8                                 | 2.5                 | 2.5                   | —                    | 700                     | TH7                     |
| PE-8271                          | 1CT:1CT           | 0.5                            | 8.5                            | —                  | 32                               | 0.4                                 | 1.3                 | 1.3                   | —                    | 500                     | TH7                     |
| PE-8272                          | 1CT:1CT           | 0.2                            | 5.0                            | 4.2                | 18                               | 0.3                                 | 0.9                 | 0.9                   | —                    | 700                     | TH7                     |
| PE-8276                          | 2CT:1CT           | 2.0                            | 16.0                           | —                  | 19                               | 1.8                                 | 2.5                 | 1.4                   | —                    | 500                     | TH7                     |
| PE-8277                          | 2CT:1CT           | 0.5                            | 8.5                            | —                  | 12                               | 1.2                                 | 1.4                 | 0.8                   | —                    | 700                     | TH7                     |
| PE-65502                         | 1.25:1            | 1.2                            | 10.0                           | 10.0               | 35                               | 0.8                                 | 0.8                 | 0.7                   | —                    | 1500                    | TH8                     |
| 23Z81                            | 1:1:1 dual        | .085                           | 2.5                            | 3.0                | 9.5                              | 0.2                                 | 0.20                | —                     | —                    | 500                     | TH9                     |
| 66Z1203                          | 1:1:1             | —                              | 25.0                           | 10.5               | 60                               | 1.3                                 | 3.9                 | 3.9                   | 3.9                  | 500                     | TH6                     |
| 66Z1212                          | 1:1:1             | —                              | 16.0                           | 11.0               | 19                               | 1.8                                 | 2.5                 | 1.4                   | 1.4                  | 500                     | TH6                     |
| PE-5762M                         | 1:1:1             | 0.5                            | 5.0                            | 4.2                | 25                               | 0.3                                 | 0.9                 | 0.9                   | 0.9                  | 1500                    | SM1                     |
| PE-5763M                         | 1:1:1             | 0.2                            | 4.0                            | 3.5                | 18                               | 0.2                                 | 0.7                 | 0.7                   | 0.7                  | 1500                    | SM1                     |
| PE-5769M                         | 2:1:1             | 0.5                            | 5.0                            | 4.2                | 18                               | 0.3                                 | 0.9                 | 0.45                  | 0.45                 | 1500                    | SM1                     |
| PE-8271M                         | 1CT:1CT           | 0.5                            | 5.0                            | 4.2                | 18                               | 0.3                                 | 0.9                 | 0.9                   | —                    | 1500                    | SM2                     |
| PE-8272M                         | 1CT:1CT           | 0.2                            | 4.0                            | 3.5                | 14                               | 0.2                                 | 0.7                 | 0.7                   | —                    | 1500                    | SM2                     |
| PE-8277M                         | 2CT:1CT           | 0.5                            | 5.0                            | 6.0                | 18                               | 0.7                                 | 0.9                 | 0.45                  | —                    | 1500                    | SM2                     |
| 23Z81SM                          | 1:1:1 dual        | .085                           | 2.5                            | 3.0                | 9.5                              | 0.2                                 | 0.20                | —                     | —                    | 500                     | SM3                     |
| 23Z87SM                          | 1:1:1             | .085                           | 2.5                            | 3.0                | 9.5                              | 0.2                                 | 0.20                | —                     | —                    | 500                     | SM2                     |

**NOTE:** To order Tape & Reel packaging for surface mount parts, add the suffix "T" to the part number. (Example: PE-5769MT). The "T" will appear on all paper work, but will not be marked on parts.

### Schematics



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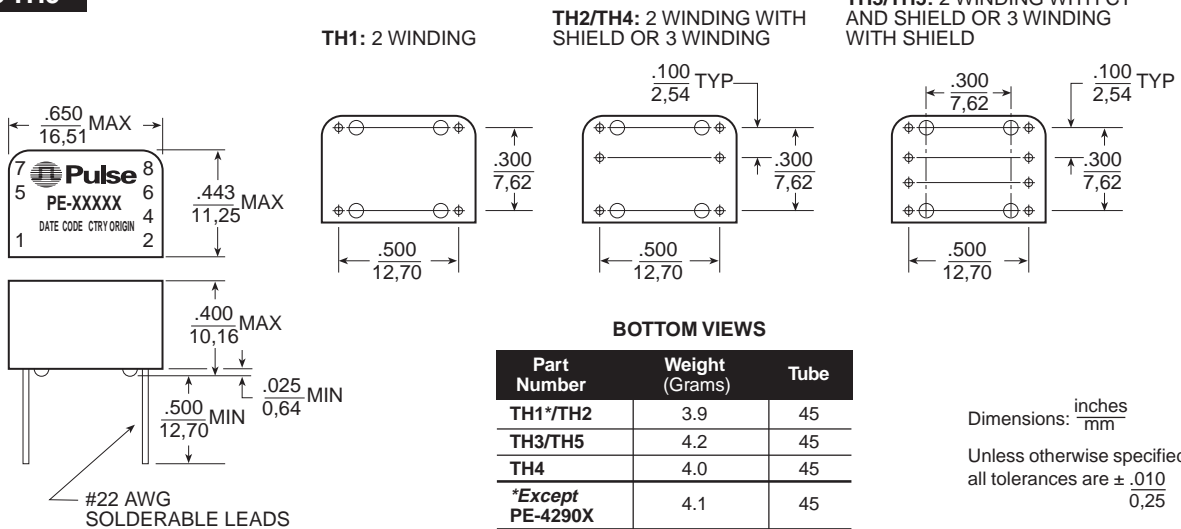
# GENERAL PURPOSE TRANSFORMERS

## 2 Watt Pulse, Electrostatically Shielded, and 500 mW Pulse Transformers

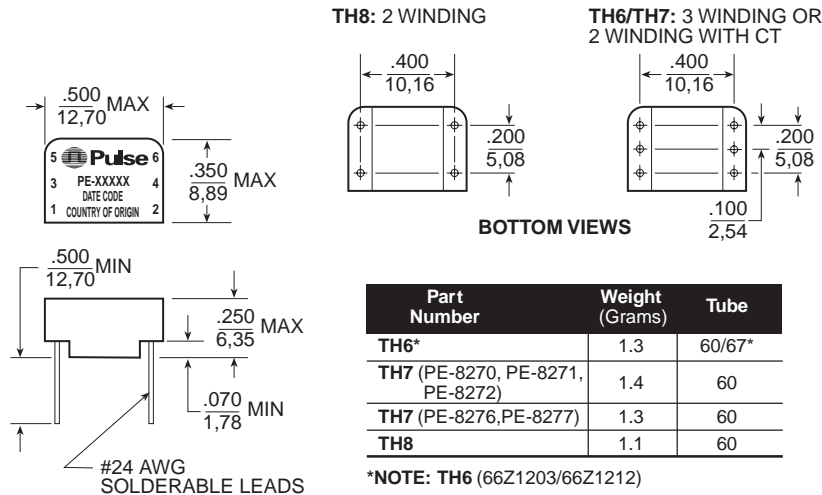


### Mechanicals

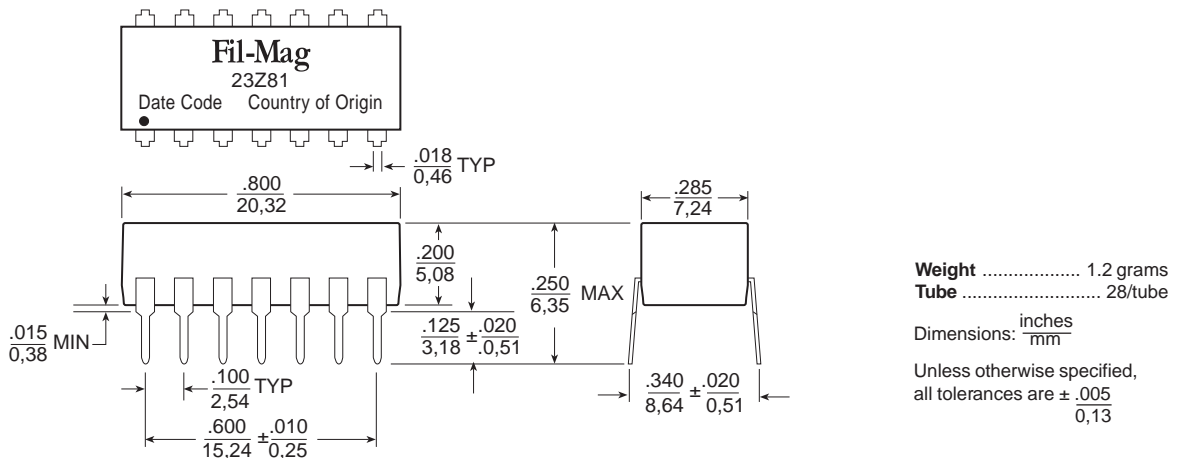
#### TH1 to TH5



#### TH6 to TH8



#### TH9



# GENERAL PURPOSE TRANSFORMERS

## 2 Watt Pulse, Electrostatically Shielded, and 500 mW Pulse Transformers



### Mechanicals

#### SM1 & SM2 (except 23Z87SM)

**SUGGESTED PAD LAYOUT**

#### 23Z87SM

**SUGGESTED PAD LAYOUT**

| Part           | Weight (Grams) | Tape & Reel | Tube |
|----------------|----------------|-------------|------|
| SM1            | 0.6            | 500         | 65   |
| <b>SM2:</b>    |                |             |      |
| PE-8271M       | 0.7            | 500         | 60   |
| PE-8272M       | 0.7            | 500         | 65   |
| PE-8277M       | 0.6            | 500         | 65   |
| Except 23Z87SM | 0.5            | 750         | 100  |

Dimensions:  $\frac{\text{inches}}{\text{mm}}$   
Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$

Dimensions:  $\frac{\text{inches}}{\text{mm}}$   
Unless otherwise specified, all tolerances are  $\pm \frac{.005}{0,13}$

#### SM3

**SUGGESTED PAD LAYOUT**

**Weight** ..... 0.9 grams  
**Tube** ..... 50/tube  
**Tape & Reel** ..... 750/reel

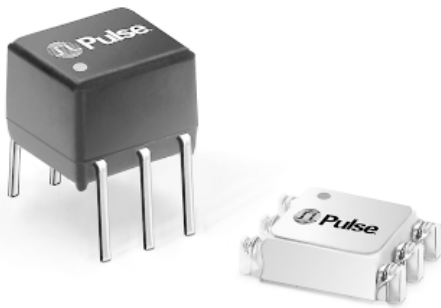
Dimensions:  $\frac{\text{inches}}{\text{mm}}$   
Unless otherwise specified, all tolerances are  $\pm \frac{.005}{0,13}$




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# GENERAL PURPOSE TRANSFORMERS

## RF Pulse



-  Designed for use in 50  $\Omega$  Wideband IC applications
-  Characterized for Pulse and wide band use at 50  $\Omega$  impedance
-  Standard 6-pin DIP package or *ThinSet* surface mount package

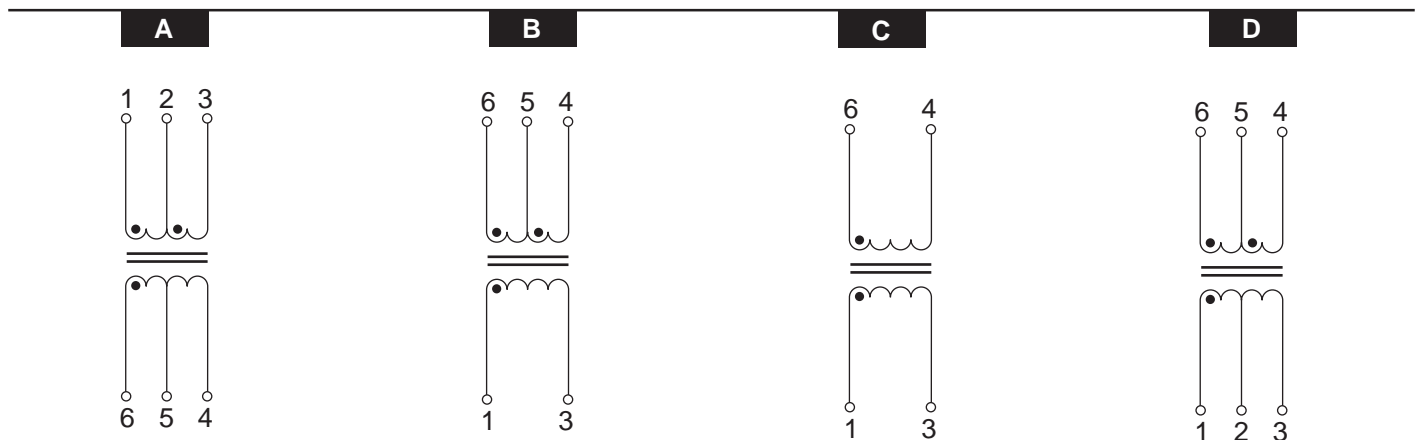
### Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

| Part Number           | Turns Ratio ( $\pm 5\%$ ) | Primary Pulse Inductance ( $\mu\text{H}$ MIN) | Primary ET-Constant (v- $\mu\text{S}$ MIN) | PRI/SEC C <sub>ww</sub> (pF MAX) | PRI/SEC Leakage Inductance ( $\mu\text{H}$ MAX) | Primary DCR ( $\Omega$ MAX) | Secondary DCR ( $\Omega$ MAX) | Bandwidth for -3 dB Loss |                 | Schematic/Package Style |
|-----------------------|---------------------------|---|--|----------------------------------|---|-----------------------------|-------------------------------|--------------------------|-----------------|-------------------------|
|                       |                           |   |  |                                  |   |                             |                               | Low Freq (MHz)           | High Freq (MHz) |                         |
| <b>SURFACE MOUNT*</b> |                           |   |  |                                  |   |                             |                               |                          |                 |                         |
| PE-65457              | 1CT:1CT                   | 80  | 2.5  | 15                               | 0.18  | 0.20                        | 0.20                          | 0.05                     | 90              | A / SMT1                |
| PE-65459              | 1CT:2CT                   | 40  | 2.0  | 15                               | 0.14  | 0.20                        | 0.30                          | 0.05                     | 110             | A / SMT1                |
| 23Z247SMD             | 1:1CT                     | 80  | 2.5  | 15                               | 0.18  | 0.20                        | 0.20                          | 0.05                     | 90              | B / SMT2                |
| <b>THROUGH HOLE</b>   |                           |   |  |                                  |   |                             |                               |                          |                 |                         |
| PE-62245A             | 1:1                       | 40  | 2.5  | 12                               | 0.15  | 0.20                        | 0.20                          | 0.05                     | 110             | C / TH10                |
| PE-62246A             | 1CT:1CT                   | 40  | 2.5  | 15                               | 0.18  | 0.20                        | 0.20                          | 0.05                     | 90              | D / TH10                |
| PE-62250A             | 1:2CT                     | 25  | 2.0  | 15                               | 0.14  | 0.20                        | 0.30                          | 0.10                     | 110             | B / TH10                |
| PE-62252A             | 1: $\sqrt{2}$ CT          | 40  | 2.5  | 18                               | 0.20  | 0.20                        | 0.30                          | 0.05                     | 80              | B / TH10                |
| PE-62254A             | 1:4CT                     | 10  | 1.25                                       | 10                               | 0.10  | 0.20                        | 0.60                          | 0.20                     | 60              | B / TH10                |

**\*NOTE:**

To order Tape & Reel packaging for surface mount parts, add the suffix "T" to the part number. (Example: PE-65457T). The "T" will appear on all paper work, but will not be marked on parts.

## Schematics



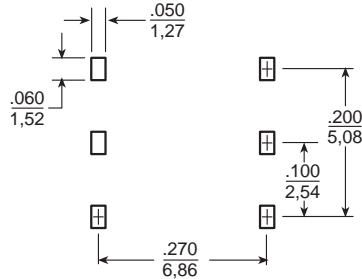
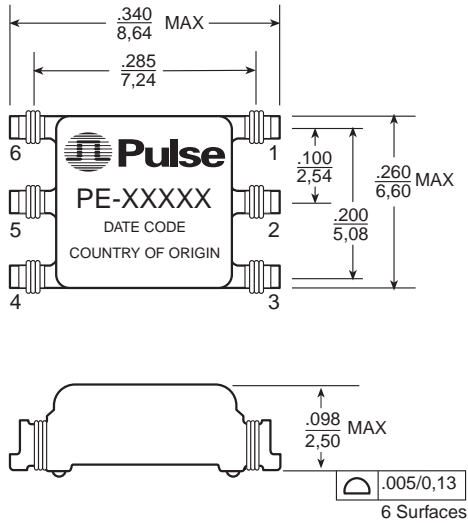
# GENERAL PURPOSE TRANSFORMERS

## RF Pulse



### Mechanicals

#### SMT 1



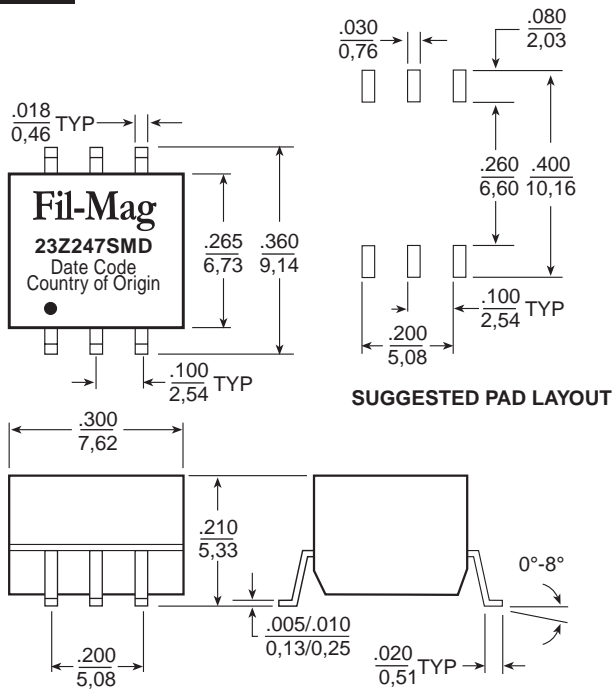
SUGGESTED PAD LAYOUT

|                   | PE-65457  | PE-65459  |
|-------------------|-----------|-----------|
| Weight .....      | 0.2 grams | 0.1 grams |
| Tube .....        | 60/tube   | 60/tube   |
| Tape & Reel ..... | 1500/reel | 1500/reel |

Dimensions: inches  
mm

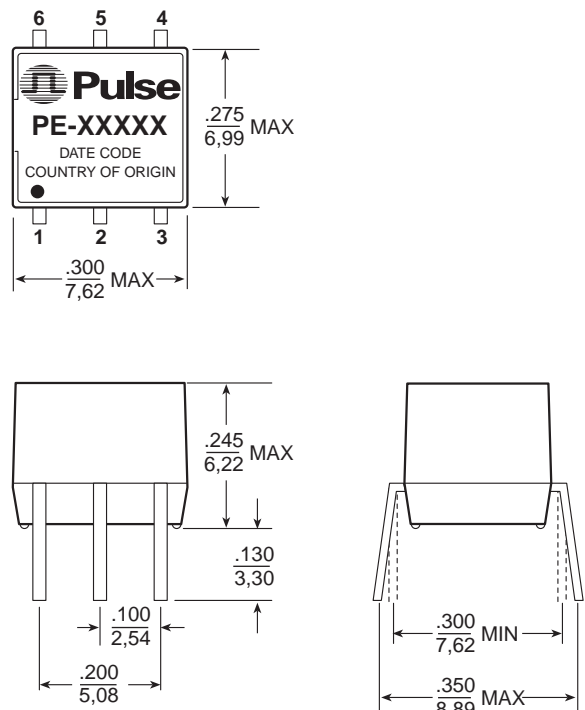
Unless otherwise specified, all tolerances are  $\pm .010$   
 $0,25$

#### SMT 2



SUGGESTED PAD LAYOUT

#### TH10



|                   |           |
|-------------------|-----------|
| Weight .....      | 0.5 grams |
| Tube .....        | 76/tube   |
| Tape & Reel ..... | 750/reel  |

Dimensions: inches  
mm

Unless otherwise specified, all tolerances are  $\pm .005$   
 $0,13$

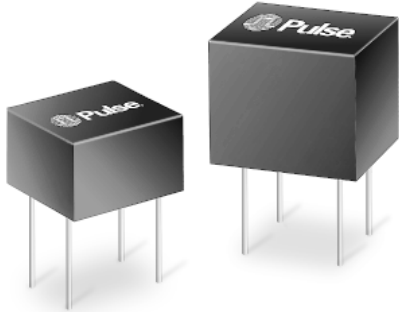
|              |           |
|--------------|-----------|
| Weight ..... | 0.6 grams |
| Tube .....   | 65/tube   |




Dimensions: inches  
mm

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

# GENERAL PURPOSE TRANSFORMERS

## Control Transformers



-  Recognized component – Underwriter's Laboratories, Inc.
-  High dielectric strength capability for industrial applications
-  High ET – product allows long pulse width

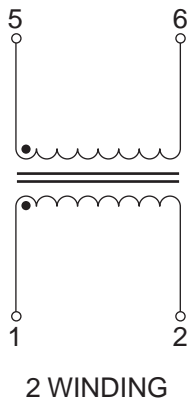
### Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

| Part Number | Turns Ratio (±10%) | Primary Sine Wave OCL (mH MIN) | Primary ET-Constant (V-μs MIN) | PRI/SEC C <sub>ww</sub> (pF MAX) | PRI/SEC Leakage Inductance | Primary DCR (Ω MAX) | Secondary DCR (Ω MAX) | Hi Pot* PRI/SEC (Vrms) | Schematic/Package Style |
|-------------|--------------------|--------------------------------|--------------------------------|----------------------------------|----------------------------|---------------------|-----------------------|------------------------|-------------------------|
| PE-61001    | 1:1                | 1.0                            | 360                            | 30                               | 15.0                       | 2.8                 | 3.1                   | 1600                   | A/TH11                  |
| PE-61003    | 2:1                | 0.2                            | 180                            | 24                               | 5.0                        | 1.4                 | 0.9                   | 1600                   | A/TH11                  |
| PE-61006    | 1:1:1              | 0.2                            | 180                            | 30                               | 5.0                        | —                   | 1.5                   | 1600                   | B/TH11                  |
| PE-61007    | 1:1:1              | 1.0                            | 360                            | 36                               | 12.0                       | 2.8                 | 3.6                   | 1600                   | B/TH11                  |
| PE-61008    | 1:1:1              | 5.0                            | 866                            | 42                               | 80.0                       | 6.0                 | 7.2                   | 1600                   | B/TH11                  |
| PE-61014    | 1:1                | 1.0                            | 700                            | 36                               | 26.0                       | 3.0                 | 3.2                   | 2400                   | A/TH12                  |
| PE-61015    | 1:1                | 5.0                            | 1500                           | 42                               | 130.0                      | 6.3                 | 7.0                   | 2400                   | A/TH12                  |
| PE-61017    | 2:1                | 1.0                            | 700                            | 36                               | 24.0                       | 3.0                 | 2.0                   | 2400                   | A/TH12                  |
| PE-61018    | 2:1                | 5.0                            | 1500                           | 42                               | 125.0                      | 6.3                 | 4.0                   | 2400                   | A/TH12                  |
| PE-61019    | 1:1:1              | 0.2                            | 290                            | 34                               | 4.7                        | 1.4                 | 1.5                   | 2400                   | B/TH12                  |
| PE-61023    | 2:1:1              | 1.0                            | 700                            | 40                               | 27.0                       | 3.0                 | 2.0                   | 2400                   | B/TH12                  |

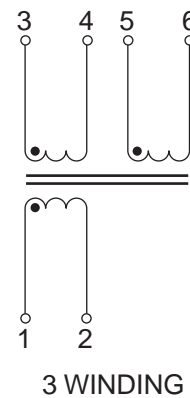
\*NOTE: PE-61001–PE-61023 Hi Pot SEC/SEC 300 Vrms. Average Power Rating: 2 Watts. UL-478 Recognized, File Number E52661.

## Schematics

A



B



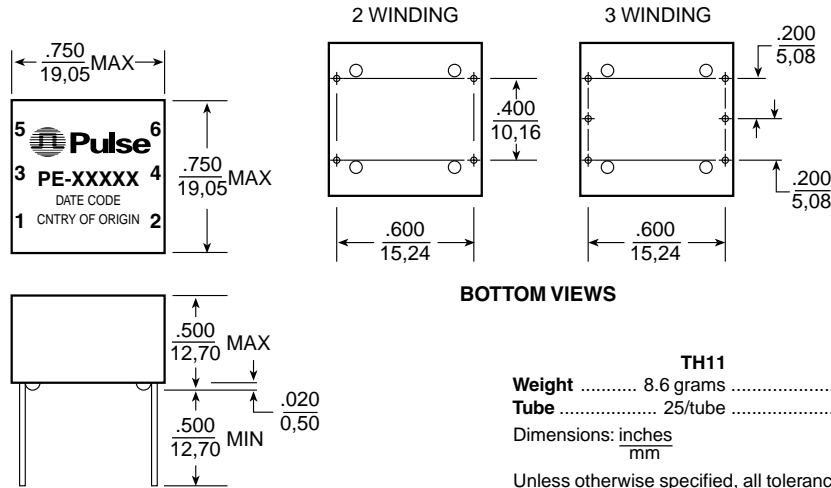
# GENERAL PURPOSE TRANSFORMERS

## Control Transformers



### Mechanicals

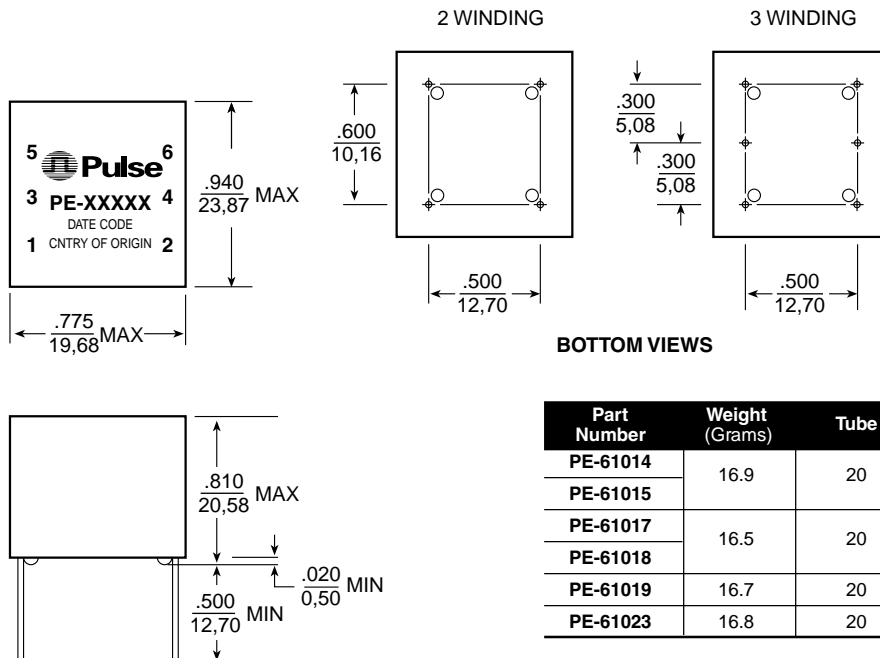
#### TH11



BOTTOM VIEWS

**TH11**                      **Except PE-61003**  
**Weight** ..... 8.6 grams ..... 8.2 grams  
**Tube** ..... 25/tube ..... 25/tube  
Dimensions: inches  
                                 mm  
Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$

#### TH12



BOTTOM VIEWS

| Part Number | Weight (Grams) | Tube |
|-------------|----------------|------|
| PE-61014    | 16.9           | 20   |
| PE-61015    |                |      |
| PE-61017    | 16.5           | 20   |
| PE-61018    |                |      |
| PE-61019    | 16.7           | 20   |
| PE-61023    | 16.8           | 20   |

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

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