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# LAMINATED TRANSFORMERS OVERVIEW



With the addition of **era**'s encapsulated 50/60Hz transformers to the existing line of Pulse open frame transformers, Pulse now offers a complete line of laminated transformers for all your low power, linear transformer needs. With power ratings from 0.08VA to 175VA, fully encapsulated transformers, split bobbin designs, and a wide variety of domestic and international agency approvals, Pulse is truly the one stop shop for all your 50/60Hz needs.

## Advantages of Encapsulated Transformers:

- Better heat dissipation achieved through vacuum encapsulation, resulting in more output power from a smaller, more compact design.
- Vacuum encapsulation provides protection against external influences (e.g. wash operations) and mechanical stress (e.g. vibration). It also reduces the potential of noise through vibration.
- Dimensional accuracy of each transformer guaranteed by stable and controlled manufacturing processes, allowing for automatic pick and place operations.

This catalog serves as an overview for the Pulse Laminated Transformer product line. Please contact Pulse Power Applications Engineering for more information. For Pulse's complete line of Power Inductors, Transformers, Chokes and Current Sense Magnetics, please see the Switching Power Magnetics catalog.

**NOTE:** For additional listings of Pulse Power magnetics, see other Power data sheets at this URL: <http://www.pulseeng.com/products/dataSheets.aspx>

## OVERVIEW: LAMINATED TRANSFORMERS



### Mini-Line THT\* (EE20)

- Up to 0.5VA
- Temperature class  $t_a$  70°C/B



### Print-Line THT\* (EI30-EI54)

- Up to 16VA
- Temperature class  $t_a$  70°C/B (EI 30 / EI 42)
- Temperature class  $t_a$  40°C/B (EI 48 / EI 54)



### Low Profile THT\* (UI30)

- Up to 10VA
- Temperature class  $t_a$  40°C/B

### With Mounting Brackets\* (EI42-EI54)

- Up to 16VA
- Temperature class  $t_a$  70°C/B (EI 42)
- Temperature class  $t_a$  40°C/B (EI 48 / EI 54)



### Compact Power Supplies

- Vdc or Vac secondary
- Temperature class  $t_a$  40°C/B
- Din-rail Mounting



### Printed Circuit Mount

- International
- Split bobbin: single (ST) and dual primary (DST)
- Low profile
- Concentric vertical profile single (PC) and dual primary (DPC)



### Chassis Mount

- International
- Split bobbin: single (241) and dual primary (DP241)

\*Potted under vacuum, two-chamber bobbin, custom designs available upon request, THT = Through Hole.



For all other Pulse Inductors and Transformers, check out Pulse's SWITCHING POWER MAGNETICS catalog. To order, see our website:

[www.pulseeng.com](http://www.pulseeng.com)

Go to Products/Literature Request and ask for **SPM2007** catalog

# LAMINATED TRANSFORMERS

## Low Frequency, Open-Style Laminated, Split Bobbin, Horizontal Plug-In Series



**AGENCY APPROVALS**

- UL, 506, File E73539
- UL 1446, File E179499
- UL 1585, File E169010

Class 2 Component Recognition

- CSA 22.2#66, File LR68051-2
- UL Recognized Class B

- ⚙ High (2500V) isolation; 2500V<sub>RMS</sub> HIPOT
- ⚙ Non-concentric design - eliminates ESS
- ⚙ No crossover between primary/secondary winding leads
- ⚙ Vacuum impregnated - withstands board washing systems and reduces audible noise
- ⚙ Baked resin provides an environmentally-resistant finish
- ⚙ Rugged construction - no additional mounting hardware
- ⚙ Universal design, fits industry-standard footprints
- ⚙ Available in single or dual primary

### Mechanicals

### Schematics



### Dimensions (inches)

| Size | VA  | L    | W    | H    | A    | B    | C    | ML   | Wt. (lb.) |
|------|-----|------|------|------|------|------|------|------|-----------|
| 2    | 1.1 | 1.13 | 1.13 | 0.94 | 0.25 | 0.25 | 1.20 | ---- | 0.17      |
| 3    | 2.4 | 1.38 | 1.13 | 1.19 | 0.25 | 0.25 | 1.20 | ---- | 0.25      |
| 4    | 6.0 | 1.63 | 1.31 | 1.31 | 0.25 | 0.35 | 1.28 | 1.06 | 0.44      |
| 5    | 12  | 1.86 | 1.56 | 1.44 | 0.30 | 0.40 | 1.41 | 1.25 | 0.70      |
| 6    | 20  | 2.25 | 1.86 | 1.44 | 0.30 | 0.40 | 1.60 | 1.50 | 0.80      |
| 7*   | 36  | 2.63 | 2.19 | 1.56 | 0.40 | 0.40 | 1.80 | ---- | 1.10      |

\*Size 7 has 4 MTG. holes on 2.188" x 1.75" centers.

| Part No. 115V-6Pin     | Part No. 115/230V-8Pin  | Secondary RMS Rating |              |
|------------------------|-------------------------|----------------------|--------------|
|                        |                         | Series               | Parallel     |
| ST2-10B41 <sup>1</sup> | DST2-10B41 <sup>1</sup> | 10V C.T. @ 0.11A     | 5V @ 0.22A   |
| ST3-10B1 <sup>1</sup>  | DST3-10B1 <sup>1</sup>  | 10V C.T. @ 0.25A     | 5V @ 0.5A    |
| ST4-10B2               | DST4-10B2               | 10V C.T. @ 0.6A      | 5V @ 1.2A    |
| ST5-10B3               | DST5-10B3               | 10V C.T. @ 1.2A      | 5V @ 2.4A    |
| ST6-10B4               | DST6-10B4               | 10V C.T. @ 2A        | 5V @ 4A      |
| ST7-10B51              | DST7-10B51              | 10V C.T. @ 3.6A      | 5V @ 7.2A    |
| ST2-12B42 <sup>1</sup> | DST2-12B42 <sup>1</sup> | 12.6V C.T. @ 0.09A   | 6.3V @ 0.18A |
| ST3-12B5 <sup>1</sup>  | DST3-12B5 <sup>1</sup>  | 12.6V C.T. @ 0.2A    | 6.3V @ 0.4A  |
| ST4-12B6               | DST4-12B6               | 12.6V C.T. @ 0.5A    | 6.3V @ 1.0A  |
| ST5-12B7               | DST5-12B7               | 12.6V C.T. @ 1.0A    | 6.3V @ 2.0A  |
| ST6-12B8               | DST6-12B8               | 12.6V C.T. @ 1.6A    | 6.3V @ 3.2A  |
| ST7-12B52              | DST7-12B52              | 12.6V C.T. @ 2.85A   | 6.3V @ 5.7A  |
| ST2-16B43 <sup>1</sup> | DST2-16B43 <sup>1</sup> | 16V C.T. @ 0.07A     | 8V @ 0.14A   |
| ST3-16B9 <sup>1</sup>  | DST3-16B9 <sup>1</sup>  | 16V C.T. @ 0.15A     | 8V @ 0.3A    |
| ST4-16B10              | DST4-16B10              | 16V C.T. @ 0.4A      | 8V @ 0.8A    |
| ST5-16B11              | DST5-16B11              | 16V C.T. @ 0.8A      | 8V @ 1.6A    |
| ST6-16B12              | DST6-16B12              | 16V C.T. @ 1.25A     | 8V @ 2.5A    |
| ST7-16B53              | DST7-16B53              | 16V C.T. @ 2.25A     | 8V @ 4.5A    |
| ST2-20B44 <sup>1</sup> | DST2-20B44 <sup>1</sup> | 20V C.T. @ 0.055A    | 10V @ 0.11A  |
| ST3-20B13 <sup>1</sup> | DST3-20B13 <sup>1</sup> | 20V C.T. @ 0.12A     | 10V @ 0.24A  |
| ST4-20B14              | DST4-20B14              | 20V C.T. @ 0.3A      | 10V @ 0.6A   |
| ST5-20B15              | DST5-20B15              | 20V C.T. @ 0.6A      | 10V @ 1.2A   |
| ST6-20B16              | DST6-20B16              | 20V C.T. @ 1A        | 10V @ 2A     |
| ST7-20B54              | DST7-20B54              | 20V C.T. @ 1.8A      | 10V @ 3.6A   |
| ST2-24B45 <sup>1</sup> | DST2-24B45 <sup>1</sup> | 24V C.T. @ 0.045A    | 12V @ 0.09A  |
| ST3-24B17 <sup>1</sup> | DST3-24B17 <sup>1</sup> | 24V C.T. @ 0.1A      | 12V @ 0.2A   |
| ST4-24B18              | DST4-24B18              | 24V C.T. @ 0.25A     | 12V @ 0.5A   |
| ST5-24B19              | DST5-24B19              | 24V C.T. @ 0.5A      | 12V @ 1.0A   |
| ST6-24B20              | DST6-24B20              | 24V C.T. @ 0.8A      | 12V @ 1.6A   |
| ST7-24B55              | DST7-24B55              | 24V C.T. @ 1.5A      | 12V @ 3.0A   |
| ST2-28B46              | DST2-28B46              | 28V C.T. @ 0.04A     | 14V @ 0.08A  |
| ST3-28B21              | DST3-28B21              | 28V C.T. @ 0.085A    | 14V @ 0.17A  |
| ST4-28B22              | DST4-28B22              | 28V C.T. @ 0.2A      | 14V @ 0.4A   |
| ST5-28B23              | DST5-28B23              | 28V C.T. @ 0.42A     | 14V @ 0.84A  |
| ST6-28B24              | DST6-28B24              | 28V C.T. @ 0.7A      | 14V @ 1.4A   |
| ST7-28B56              | DST7-28B56              | 28V C.T. @ 1.3A      | 14V @ 2.6A   |
| ST2-36B47              | DST2-36B47              | 36V C.T. @ 0.03A     | 18V @ 0.06A  |
| ST3-36B25              | DST3-36B25              | 36V C.T. @ 0.065A    | 18V @ 0.13A  |
| ST4-36B26              | DST4-36B26              | 36V C.T. @ 0.17A     | 18V @ 0.34A  |
| ST5-36B27              | DST5-36B27              | 36V C.T. @ 0.35A     | 18V @ 0.7A   |
| ST6-36B28              | DST6-36B28              | 36V C.T. @ 0.55A     | 18V @ 1.1A   |
| ST7-36B57              | DST7-36B57              | 36V C.T. @ 1.0A      | 18V @ 2.0A   |
| ST2-48B48              | DST2-48B48              | 48V C.T. @ 0.023A    | 24V @ 0.046A |
| ST3-48B29              | DST3-48B29              | 48V C.T. @ 0.05A     | 24V @ 0.1A   |
| ST4-48B30              | DST4-48B30              | 48V C.T. @ 0.125A    | 24V @ 0.25A  |
| ST5-48B31              | DST5-48B31              | 48V C.T. @ 0.25A     | 24V @ 0.5A   |
| ST6-48B32              | DST6-48B32              | 48V C.T. @ 0.4A      | 24V @ 0.8A   |
| ST7-48B58              | DST7-48B58              | 48V C.T. @ 0.75A     | 24V @ 1.5A   |
| ST2-56B49              | DST2-56B49              | 56V C.T. @ 0.02A     | 28V @ 0.04A  |
| ST3-56B33              | DST3-56B33              | 56V C.T. @ 0.045A    | 28V @ 0.09A  |
| ST4-56B34              | DST4-56B34              | 56V C.T. @ 0.11A     | 28V @ 0.22A  |
| ST5-56B35              | DST5-56B35              | 56V C.T. @ 0.22A     | 28V @ 0.44A  |
| ST6-56B36              | DST6-56B36              | 56V C.T. @ 0.35A     | 28V @ 0.7A   |
| ST7-56B59              | DST7-56B59              | 56V C.T. @ 0.65A     | 28V @ 1.3A   |
| ST2-120B50             | DST2-120B50             | 120V C.T. @ 0.01A    | 60V @ 0.02A  |
| ST3-120B37             | DST3-120B37             | 120V C.T. @ 0.02A    | 60V @ 0.04A  |
| ST4-120B38             | DST4-120B38             | 120V C.T. @ 0.05A    | 60V @ 0.1A   |
| ST5-120B39             | DST5-120B39             | 120V C.T. @ 0.1A     | 60V @ 0.2A   |
| ST6-120B40             | DST6-120B40             | 120V C.T. @ 0.16A    | 60V @ 0.32A  |
| ST7-120B60             | DST7-120B60             | 120V C.T. @ 0.3A     | 60V @ 0.6A   |

<sup>1</sup> UL 1585 approved, Class 2 - Not Wet, Class 3 - Wet