

Integrated LLC Transformer / Inductor



FEATURES

- 5.5 kW transformer / inductor design for unidirectional LLC applications
- Magnetizing and leakage inductance fully tunable
- Turns ratio can be customized per application
- No interconnects or jumpers needed from resonant inductor to the transformer winding
- Operating frequencies from 100 kHz to 350 kHz
- Designs for 400 V to 800 V inputs
- Bracket included for cold plate mounting with raised bosses (flush mount options available)
- Minimal parasitic variation optimizes capacitor selection
- Built in voltage isolation elevates corona inception
- Designed for cold plate cooling at 65 °C to 75 °C
- Lead lengths and terminal types can be easily customized
- Can be provided with thermal gap pad on mounting surface
- MRTI design; PATENT(S): www.vishay.com/patents

APPLICATIONS

- Charging power supplies for 400 V / 600 V batteries
- Unidirectional LLC converters from 4 kW to 6 kW
- Industrial control, alternative energy, military, avionic, and construction equipment

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | CONDITIONS | LIMITS | UNITS |
|---------------------------------|-----------------|---------------|-----------------|
| Dielectric withstand voltage | Pri - sec, 5 s | 3500 | V _{AC} |
| | All - core; 5 s | 2500 | V _{AC} |
| Rated power | | 4000 to 6000 | W |
| Rated hot spot temperature | | +155 | °C |
| Storage temperature | Continuous | -55 to +155 | °C |
| Frequency | | 100 to 350 | kHz |
| Size (L x W x H) ⁽¹⁾ | | 88 x 102 x 56 | mm |
| Terminals | M4 ring | | |

Note

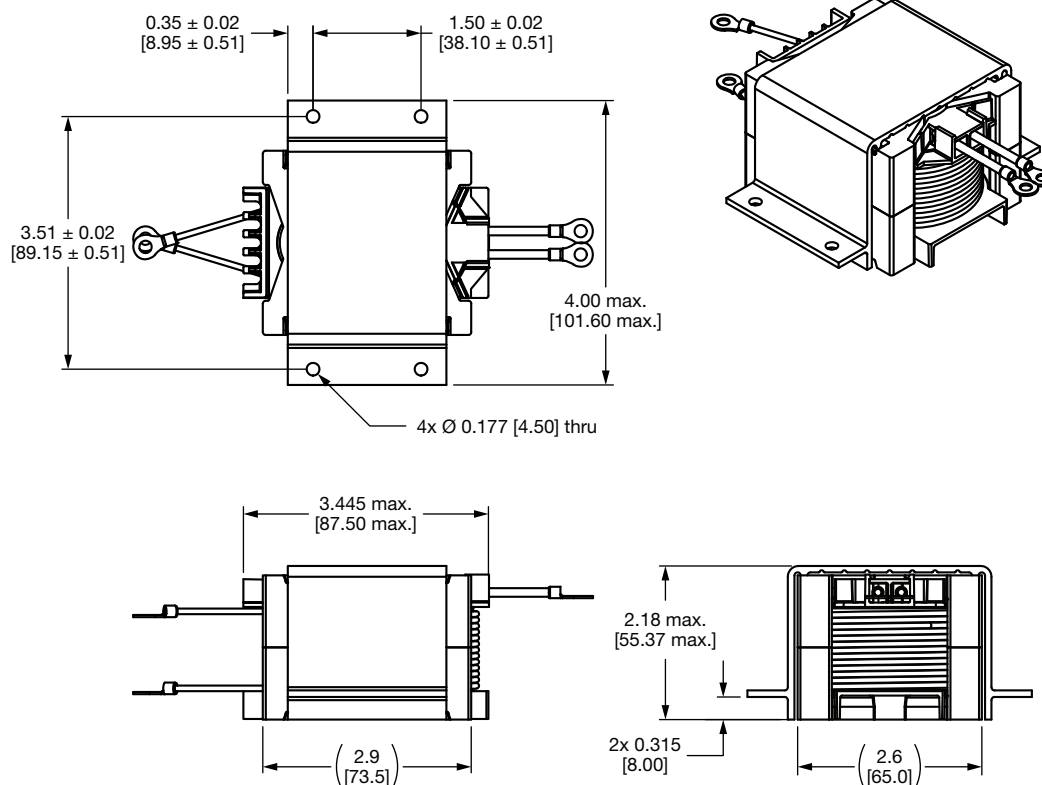
⁽¹⁾ Size includes the mounting bracket

STANDARD ELECTRICAL SPECIFICATIONS

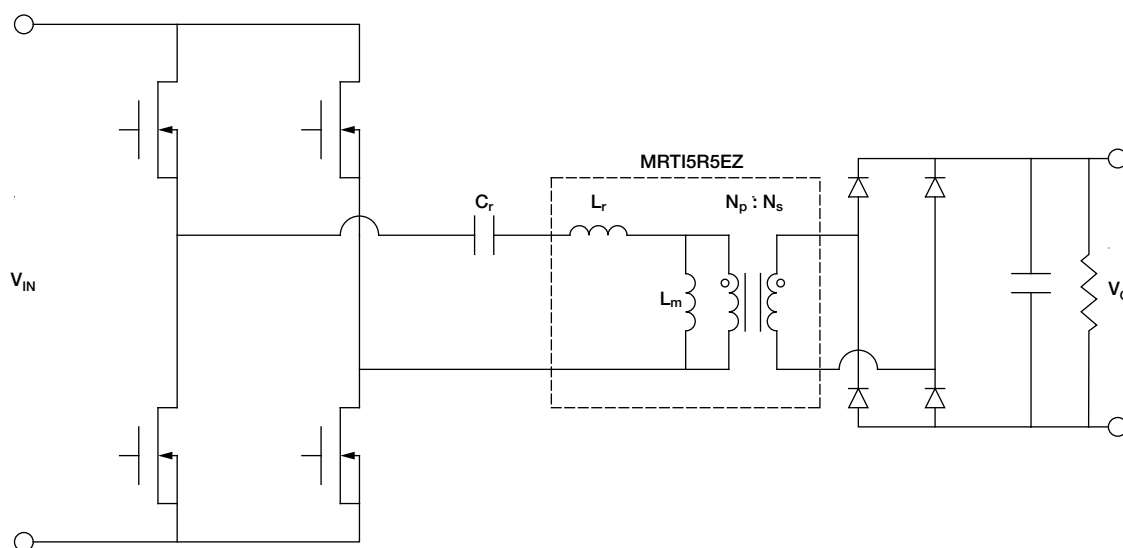
| PART NUMBER | MAGNETIZING INDUCTANCE (μH) ⁽¹⁾ | LEAKAGE INDUCTANCE (μH) ⁽²⁾ | TOTAL PRIMARY INDUCTANCE (μH) | SECONDARY INDUCTANCE (μH) | TRANSFER RATIO PRI : SEC | NOMINAL DCR (mΩ) ⁽³⁾ | | RATED PRIMARY CURRENT (A _{RMS}) |
|------------------|--------------------------------------------|----------------------------------------|-------------------------------|---------------------------|--------------------------|---------------------------------|-----|-------------------------------------------|
| | | | | | | PRI | SEC | |
| MRTI5R5EZ1513K10 | 50 | 10 | 60 | 68 | 1.3 : 1.5 | 38 | 13 | 28 |
| MRTI5R5EZ1010K10 | 60 | 6.2 | 66 | 60 | 1.0 : 1.0 | 38 | 10 | 17 |
| MRTI5R5EZ1015K10 | 74 | 12 | 86 | 32 | 1.5 : 1.0 | 12 | 18 | 17 |

Notes

- Alternative configurations available upon request
- ⁽¹⁾ 1.0 V and 100 kHz
- ⁽²⁾ 1.0 V and 100 kHz with secondary shorted
- ⁽³⁾ At 25 °C

DIMENSIONS in inches

Note

- Lead lengths 8" to 8.5" (203 mm to 216 mm)

SIMPLIFIED FULL BRIDGE LLC CIRCUIT




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