

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

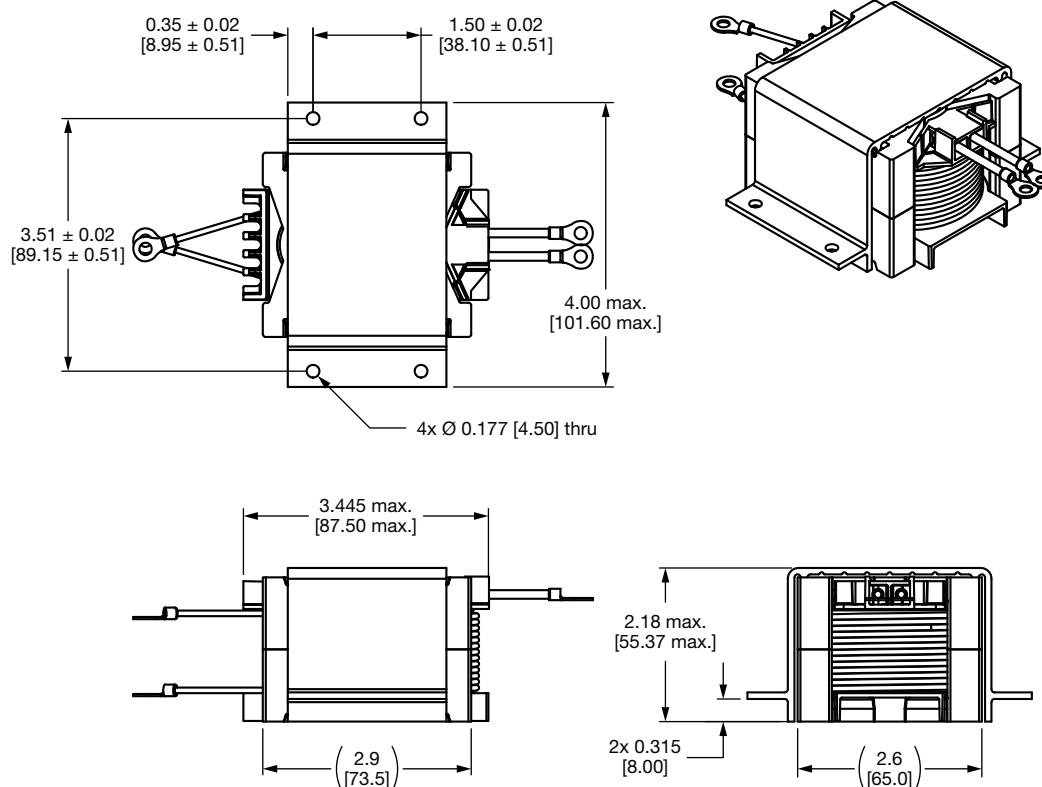
- ⁽¹⁾ Size includes the mounting bracket

STANDARD ELECTRICAL SPECIFICATIONS

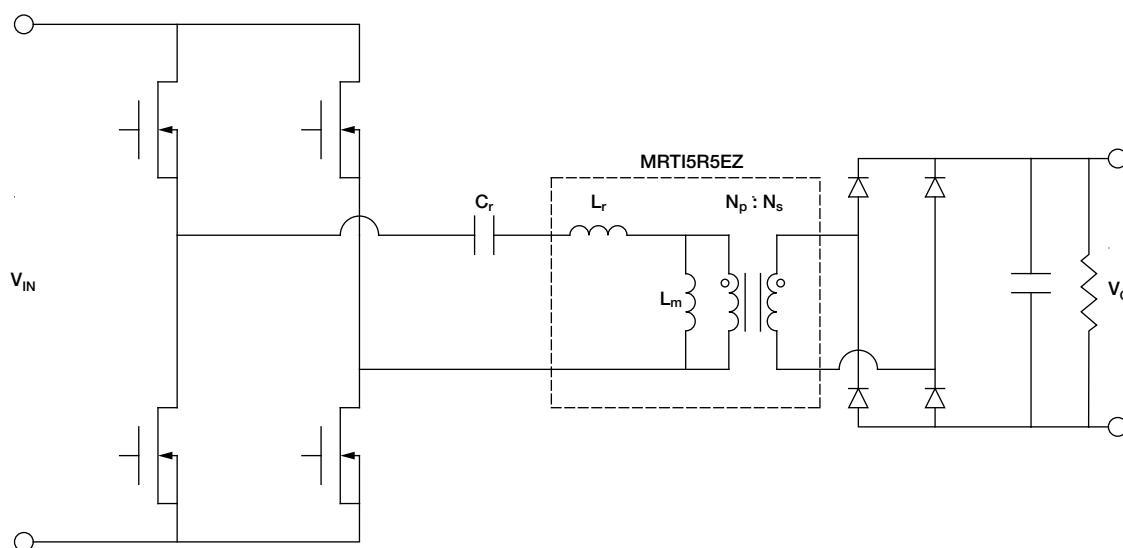
PART NUMBER	MAGNETIZING INDUCTANCE (μH) ⁽¹⁾	LEAKAGE INDUCTANCE (μH) ⁽²⁾	TOTAL PRIMARY INDUCTANCE (μH)	SECONDARY INDUCTANCE (μH)	TRANSFER RATIO PRI : SEC	NOMINAL DCR (mΩ) ⁽³⁾		RATED PRIMARY CURRENT (A _{RMS})
						PRI	SEC	
MRTI5R5EZ1513K10	50	10	60	68	1.3 : 1.5	38	13	28
MRTI5R5EZ1010K10	60	6.2	66	60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




Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.