

Medium Power Planar Transformer 1 kW to 3 kW



In addition to this standard design of PLA51 many custom designs can be offered upon request

LINKS TO ADDITIONAL RESOURCES



FEATURES

RoHS
COMPLIANT

- For high power density DC/DC converter application
- Very low profile and weight
- High efficiency: > 99 %
- Recommended frequency range (50 kHz; 400 kHz)
- Operating temperature range: -55 °C; 125 °C with heat sink dissipation
- Easy-assembly system for cold plates
- Tapped output terminals
- Material temperature grade: 180 °C
- Excellent repeatability
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

QUICK REFERENCE DATA

Type	Transformer
Size (L x W x H)	70 mm x 53 mm x 22 mm
Terminals	Tapped outputs or wires
Power	1000 W to 3000 W
Frequency range	50 kHz to 400 kHz
Inductance range	96 µH to 160 µH

EXAMPLE OF TRANSFORMER APPLICATION: 2 kW DC/DC CONVERTER, PLA51LA32

POWER SUPPLY

TOPOLOGY	FREQUENCY	POWER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	DUTY CYCLE MAX.
Full bridge with current doubler	100 kHz	2 kW	50 V _{DC} to 110 V _{DC}	30 V	67 A	0.98

STANDARD ELECTRICAL CHARACTERISTICS

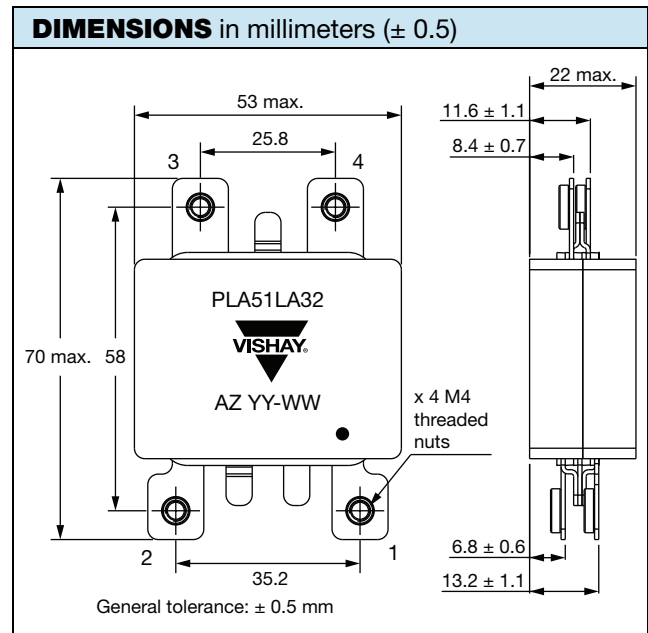
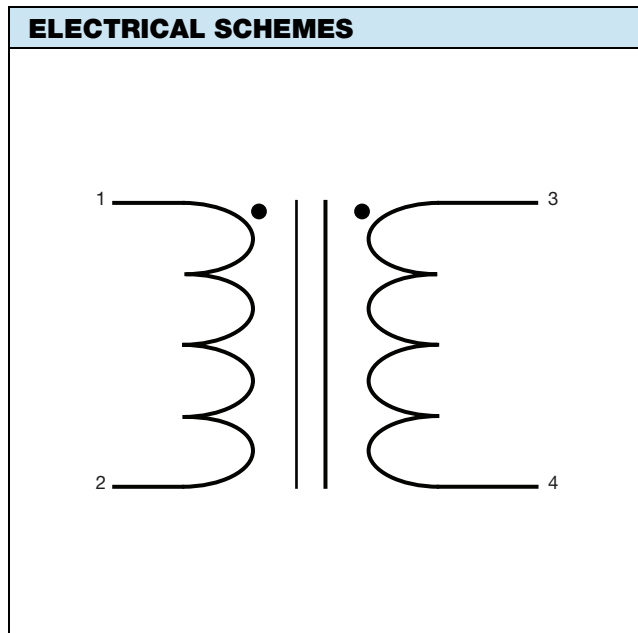
INDUCTANCE (10 kHz; 0.1 V)	LEAKAGE INDUCTANCE (10 kHz; 0.1 V)	TURN RATIO	POWER LOSSES	EFFICIENCY	HIPOT: PRIMARY / SECONDARY + CORE 1500 V _{AC}	HIPOT: SECONDARY / CORE
128 µH ± 25 %	< 150 nH (typical)	3:2	< 17 W	> 99 %	< 150 µA	< 150 µA

RECOMMENDATIONS FOR MOUNTING

Announced performances are achieved using a liquid cooling system. The internal temperature must be maintained below 160 °C. The user shall correctly size its own heatsink according to real working conditions of his device.

PACKAGING

Individual box.


Notes

- Weight ≈ 170 g
- Take care of ferrite core while handling (no shock admitted)
- Terminal fixing: with M4 screw, max. tightening: 1.2 Nm

SAP PART NUMBERING						
MODEL	SIZE	STYLE	FOOTPRINT	RATIO	SPECIAL	
PLA	51	L = leadframe with nuts W = wires	A = as shown in above drawings (other upon request)	21 = 2 : 1 (on request) 31 = 3 : 1 (on request) 32 = 3 : 2 SR = special ratio	XXXXX = special code (6 digits)	

RELATED DOCUMENTS	
APPLICATION NOTES	
Designing With the PLA51 Planar Transformer for Enhanced Power Density and Efficiency	www.vishay.com/doc?59063



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.

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.