

## 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](http://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 <sub>DC</sub> to 110 V <sub>DC</sub>	30 V	67 A	0.98

#### STANDARD ELECTRICAL CHARACTERISTICS

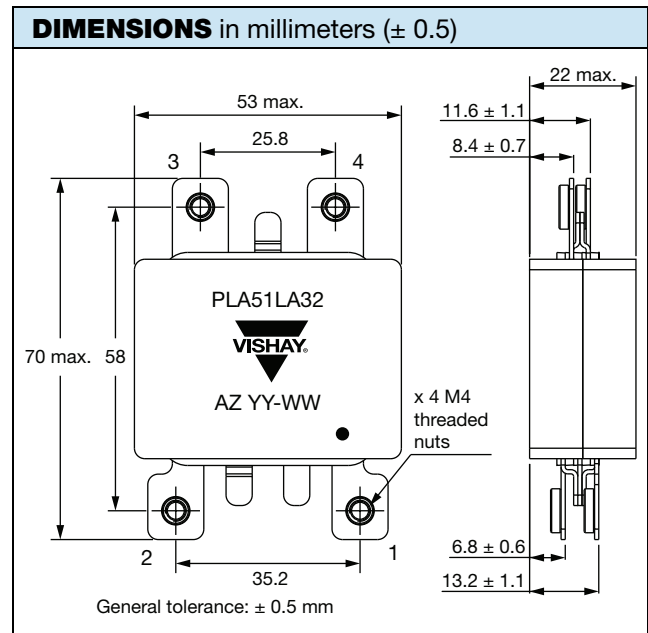
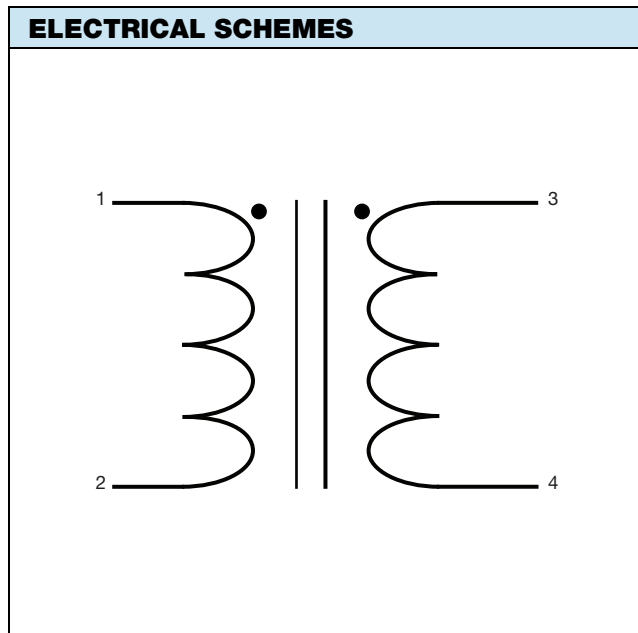
INDUCTANCE (10 kHz; 0.1 V)	LEAKAGE INDUCTANCE (10 kHz; 0.1 V)	TURN RATIO	POWER LOSSES	EFFICIENCY	HIPOT: PRIMARY / SECONDARY + CORE 1500 V <sub>AC</sub>	HIPOT: SECONDARY / CORE
128 µH ± 25 %	< 150 nH (typical)	3:2	< 17 W	> 99 %	< 150 µA	< 150 µA

**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  $\approx 170$  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	<a href="http://www.vishay.com/doc?59063">www.vishay.com/doc?59063</a>



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