Low Power Planar Transformer 100 W to 500 W

PLA32 is highly versatile model as further detailed below

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

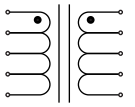
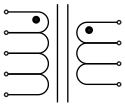
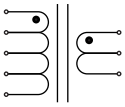
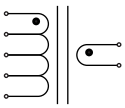
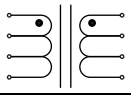
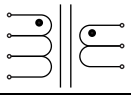
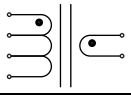
FEATURES

RoHS COMPLIANT

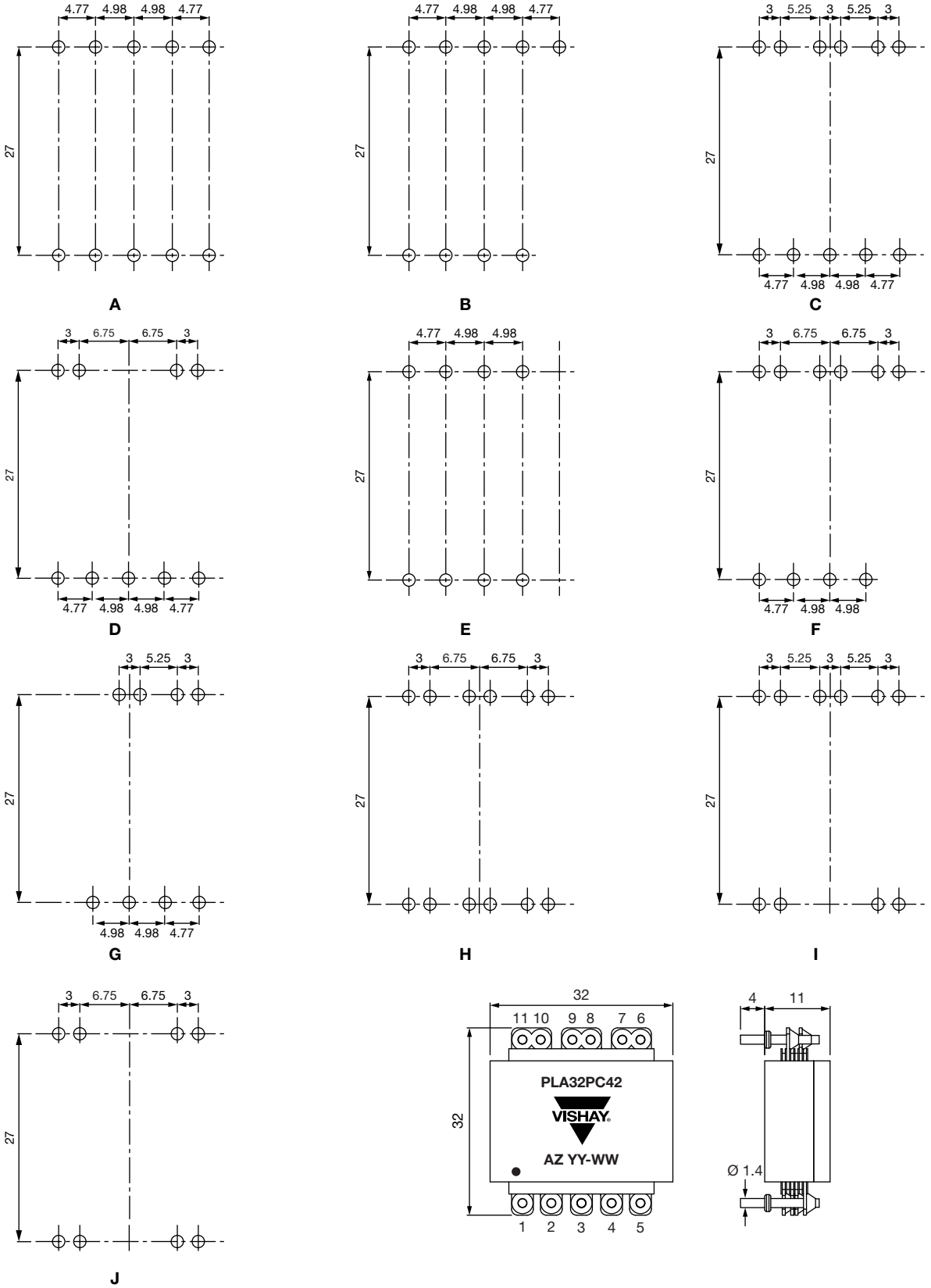
- Compact design with various configurations available upon request
- For high power density DC/DC converter application
- Very low profile and weight
- High efficiency: > 99 %
- Recommended frequency range: 50 kHz to 400 kHz
- Operating temperature range: -55 °C to 125 °C with heat sink dissipation
- Easy-assembly system for cold plates
- Material temperature grade: 180 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

QUICK REFERENCE DATA	
Type	Transformer
Size (L x W x H)	32 mm x 32 mm x 15 mm
Terminals	Through holes
Power	100 W to 500 W
Frequency range	50 kHz to 400 kHz
Inductance range	5.5 µH to 147.5 µH

CLASSICAL FRAMEWORKS - Other topologies on request

ELECTRICAL DIAGRAM	RATIO	LP (µH) ± 25 %	ET_sat ($V_{µs}$)	ET ($V_{µs}$) Core loss = 1 W 100 kHz	FOOTPRINT
	4 : 4	118	248	157.5	A
	4 : 3				B
	4 : 2				C
	4 : 1				D
	3 : 3	66.6	186	121	E
	3 : 2				F
	3 : 1				G
	2 : 2	29.6	124	80	H
	2 : 1				I
	1 : 1	7.4	62	40	J

FOOTPRINT

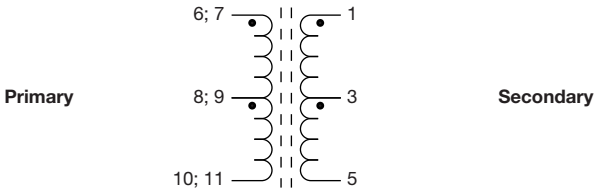


EXAMPLE OF TRANSFORMER APPLICATION: 150 W PUSH-PULL DC/DC CONVERTER, PLA32PC42

POWER SUPPLY						
TOPOLOGY	FREQUENCY	POWER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	DUTY CYCLE MAX.
Push-pull	150 kHz	150 W	11 V_{DC} to 16 V_{DC}	6 V, 16 V	10.5 A	0.73

STANDARD ELECTRICAL CHARACTERISTICS						
INDUCTANCE (10 kHz; 0.1 V)	LEAKAGE INDUCTANCE (10 kHz; 0.1 V)	TURN RATIO	$R_{DC(1-3)}$ $R_{DC(3-5)}$ 20 °C	$R_{DC(6;\ 7-8;\ 9)}$ $R_{DC(8;\ 9-10;\ 11)}$ 20 °C	POWER LOSSES	HIPOT: PRIMARY / SECONDARY 1000 V_{AC}
7.4 µH ± 25 %	< 100 nH	1:2	1.2 mΩ	0.6 mΩ	< 1.6 W	< 150 µA

ELECTRICAL SCHEMES

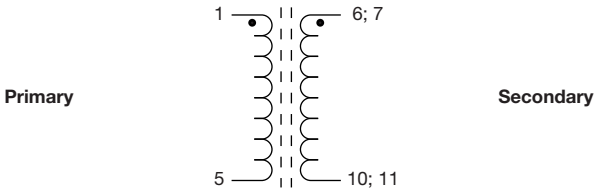


EXAMPLE OF TRANSFORMER APPLICATION: 300 W FULL-BRIDGE + CURRENT DOUBLER DC/DC CONVERTER, PLA32PD41

POWER SUPPLY						
TOPOLOGY	FREQUENCY	POWER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	DUTY CYCLE MAX.
Full-bridge + current doubler	200 kHz	300 W	30 V_{DC} to 70 V_{DC}	7 V	43 A	0.95

STANDARD ELECTRICAL CHARACTERISTICS						
INDUCTANCE (10 kHz; 0.1 V)	LEAKAGE INDUCTANCE (10 kHz; 0.1 V)	TURN RATIO	$R_{DC(1-5)}$	$R_{DC(6;\ 7-10;\ 11)}$	POWER LOSSES	HIPOT: PRIMARY / SECONDARY 1000 V_{AC}
118 µH ± 25 %	< 100 nH	4:1	2.4 mΩ	0.2 mΩ	< 2.2 W	< 150 µA

ELECTRICAL SCHEMES



RECOMMENDATIONS FOR MOUNTING

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

PACKAGING

Individual box.

SAP PART NUMBERING					
MODEL	SIZE	STYLE	FOOTPRINT	RATIO	SPECIAL
PLA	32	P = PIN (through hole)	1 digit (see page 2)	11 = 1 : 1 to 44 = 4 : 4 SR = special ratio on request	6 digits (special code)

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