

Versatile Planar Transformer


RoHS
COMPLIANT

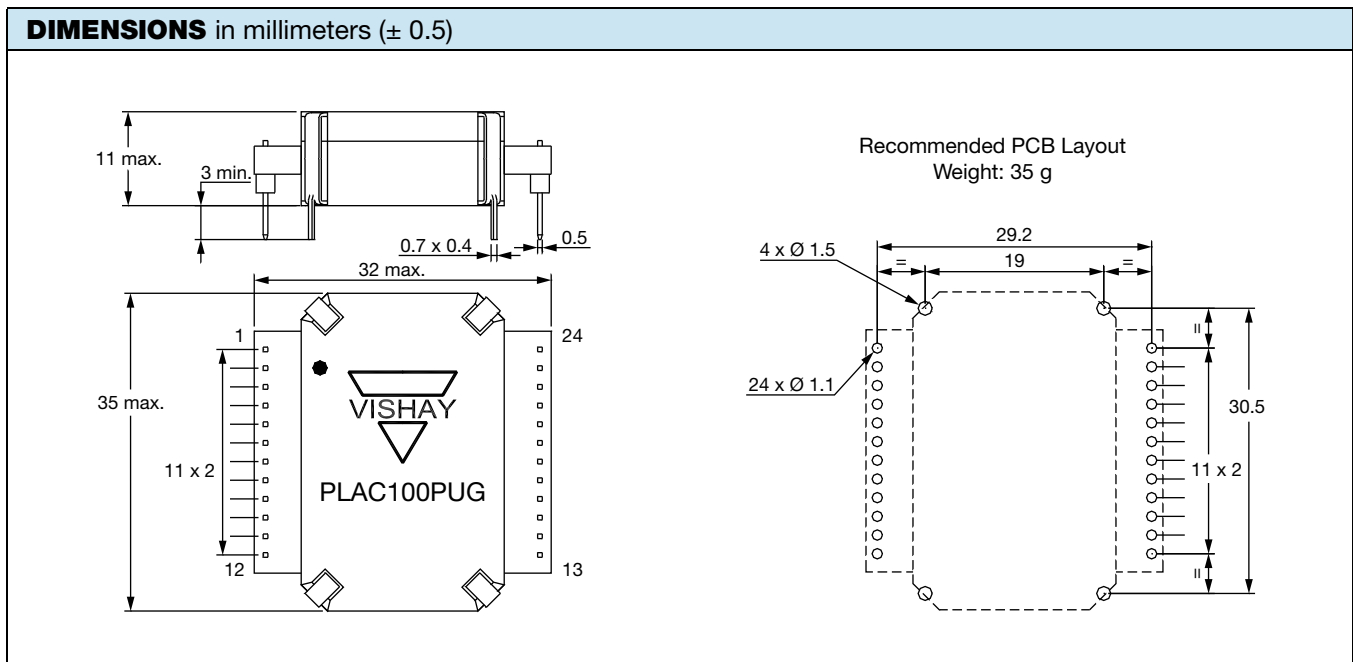
FEATURES

- Designed for switch mode power supply applications (transformer and choke inductor)
- End user configures the transformer by using a software supplied
- Frequency range: 50 kHz to 400 kHz
- Suitable for through hole
- UL 94 V-0 material
- High power up to 220 W
- Operating temperature: -55 °C to +125 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS: DC/DC POWER SUPPLY

- Switching mode power supplies
- DC/DC converters

QUICK REFERENCE DATA	
Type	Transformer
Size (L x W x H)	40 mm x 35 mm x 12 mm
Terminals	Through holes
Power	Up to 220 W
Frequency range	50 kHz to 400 kHz
Inductance range	5.2 μH to 4032 μH



TECHNOLOGY

PLAC 100 is a highly flexible planar transformer. Inhouse the design engineer can adapt the different combinations of serial and parallel configurations of the windings to give a substantial number of ratio and current possibilities via the supplied software.

The transformer is one of the first critical components in the design of power supply and converters. PLAC 100 allows a great versatility for many power supply topologies: forward, flyback, half-bridge, bridge ...

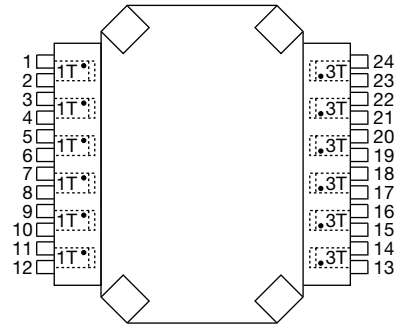
Thanks to this adaptability it enables user to reduce and optimize times during the development and the production of power supplies.

PRINCIPLE OF USE

Available windings:

- 6 windings with 1 turn
- 6 windings with 3 turns

The user determines their own configuration of the windings via the PCB layout - software provided PLAC 100 SOFT.


Note

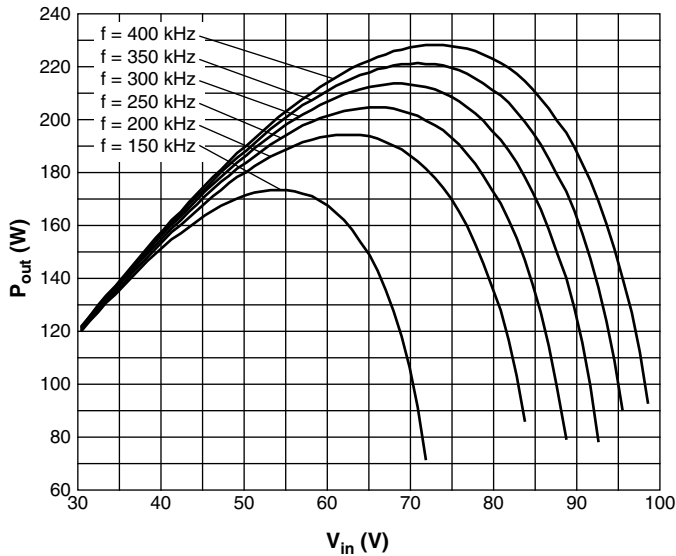
- See also application note: www.vishay.com/doc?59056

TECHNICAL DATA ALLOWING CONCEPTION		
B_{sat}	Saturation flux density	< 300 mT à 100 °C
A_e	Effective cross-sectional area of a core	113 mm ²
V_e	Effective volume of a core	4234 mm ³
R_{th}	Thermal resistance	22 °C/W
P_c	Core power loss	f: 50 kHz to 200 kHz (excluded) $P_c = 5.8 \times 10^{-6} f(\text{Hz})^{1.51} \left(\frac{B(T)}{2}\right)^{2.94}$ f: 200 kHz (included) to 400 kHz $P_c = 11 \times 10^{-9} f(\text{Hz})^{1.96} \left(\frac{B(T)}{2}\right)^{2.55}$ f: frequency; B: peak-peak flux density

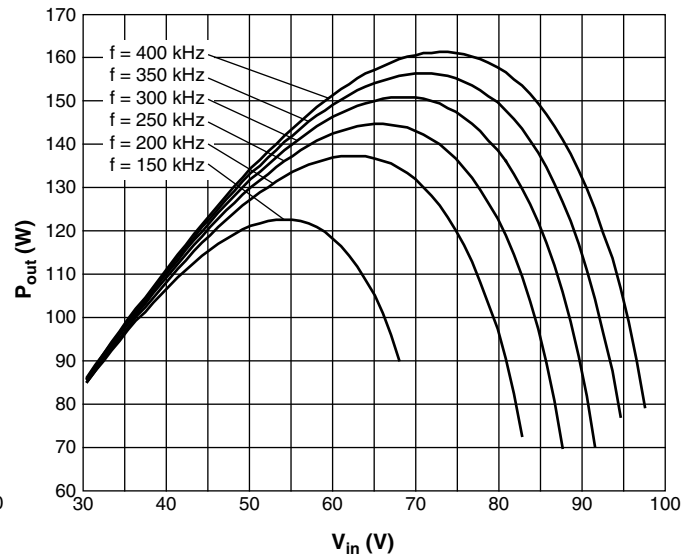
STANDARD ELECTRICAL SPECIFICATIONS				
MODEL	INDUCTANCE μH	POWER RANGE W	FREQUENCY kHz	POWER SUPPLY TOPOLOGY
PLAC 100	7 to 63	Up to 220	50 to 400	Flyback; forward; push-pull; bridge; half-bridge

ELECTRICAL CHARACTERISTICS at 25 °C		
3 turn coil (13 to 24) Inductance without air gap (0.1 V, 10 kHz)	63 μH ± 25 %	
1 turn coil (1 to 12) Inductance without air gap (0.1 V, 10 kHz)	7 μH ± 25 %	
Al (nH) without air gap (UG)	7000	
Al (nH) expendable	100; 160; 250; 400; 630	
R_{DC} 1 turn coil (1 to 12) (typical value)	3 mΩ	
R_{DC} 3 turn coil (13 to 24) (typical value)	35 mΩ	
Hipot between 1 turn winding/3 turns winding with if < 100 μA	1000 V _{AC}	
Hipot between 1 turn winding with if < 100 μA	300 V _{AC}	
Hipot between 3 turn winding with if < 100 μA	300 V _{AC}	
Hipot between winding and ground with if < 100 μA	800 V _{AC}	

FORWARD: $P_{out\ max.}$; Duty cycle = 0.45



FLYBACK: $P_{out\ max.}$; Duty cycle = 0.45



MARKING

- Vishay trademark
- Part number
- Manufacturing date

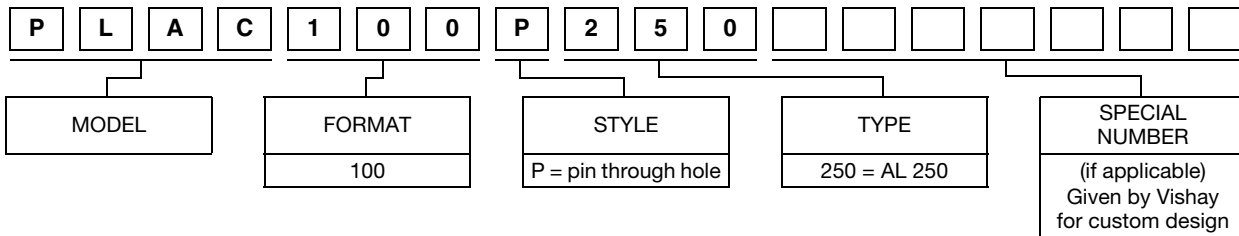
TERMINALS FINISH

- e3 = pure tin

PACKAGING

- Box of 15 pieces

SAP PART NUMBERING





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