SIZE 1000 Power Capacity 1 to 10kW

Description

The Payton **SIZE 1000** provides a patented planar isolation solution for high power applications (such as welding, induction heating etc.) providing high efficiency, low EMI, excellent repeatability, low profile and weight with an operating temperature range of -40°C to +130°C.

U.S.A Patent No. 5010314
European Patent No. 0476114B1

1. Transformer Application

POWER CAPACITY	DIMENSIONS (mm)	TYPICAL WEIGHT	DIELECTRIC ISOLATION	OPERATING VOLTAGE	OPERATING CURRENT (RMS)
1kW, forward at 50 kHz 10kW, full bridge at 250 kHz	L = 90-150 W = 65-90 H = 15-40	500 gr. - 1 kg.	500 V_{DC} 4k Vrms	1000 Vpeak max.	1000 A max.

Typical efficiency: 97-99%
Recommended frequency range: 50 kHz – 2.0 MHz.

Topologies:
Full bridge; Half bridge; Push-Pull; Forward; Flyback; Boost; Buck; Resonant topologies (in order of preference).

Mounting Options: a. Horizontal b. Vertical

2. Inductor Application

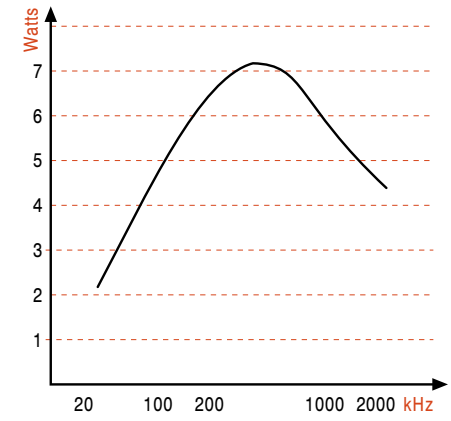
STANDARD A_L (nH/t^2)	1600	1000	630	400	315	250	160
TYPICAL VALUE OF MAX. Amper Turns	94	144	250	376	445	570	695

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDE HEATSINK (Hot Spot - Heatsink)
4.2°/W	2.5°/W	1.6°/W	0.8°/W

Power Capacity vs. Frequency*



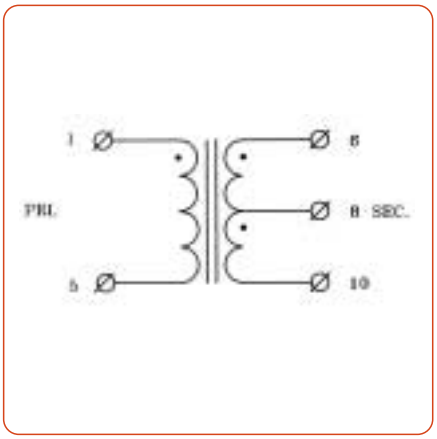
*For single output AC to AC full bridge power supply transformer with turns ratio of 3.

Transformer Type T1000 AC P.N. 100142

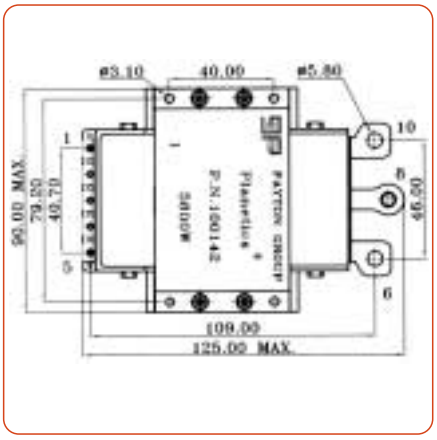
This T1000AC-11-2C, high power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density AC-DC converter and may be applicable for electrical car battery charger, providing:

Transformer Specifications

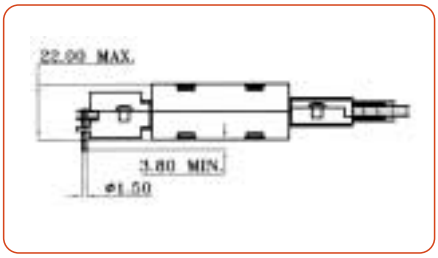
Total output power	5.6kW (28 Vdc@200 Adc)
Operating frequency	100 kHz
Input voltage range	430 - 680 Vdc
Topology	Full bridge, ZVT.
Max. Volt-Sec. product	3343V- µsec
Duty cycle	0.729 max.
Primary current	24.93 Arms
Primary to half Sec. ratio	11 : 1
Dielectric strength pri. to sec.+core sec. to core	 3750 Vrms 1250 Vrms
Creepage and clearance pri. to sec. pri. to core sec. to core	 12.6 mm. min. 8 mm. min. 4.6 mm. min.
Ambient temperature	-40°C to +50°C
Total losses (With both sides 85°C heat sink)	65W
Hot spot temperature (With both sides 85 °C heat sink)	125°C
Weight	410 gr.



ELECTRICAL DIAGRAM



TOP VIEW



SIDE VIEW

(All dimensions are given in mm.)