SIZE 500 Power Capacity 500W to 5kW

Description

The Payton **SIZE 500** provides a patented planar isolation solution for high power applications providing high efficiency, low EMI, excellent repeatability, low profile and weight with an operating temperature range of -40°C to +130°C.

1. Transformer Application

POWER CAPACITY	DIMENSIONS (mm)	TYPICAL WEIGHT	DIELECTRIC ISOLATION	OPERATING VOLTAGE	OPERATING CURRENT (RMS)
500W, forward at 50 kHz 5kW, full bridge at 200 kHz	L = 80-120 W = 60-90 H = 10-30	400 gr.	500 V_{DC} 4k Vrms	700 Vpeak max.	200 A max.

Typical efficiency: 97-99%

Recommended frequency range: 80 kHz – 1.0 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

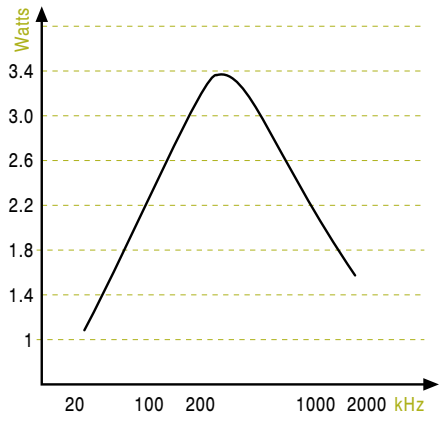
STANDARD A_L (nH/t^2)	1600	1000	630	400	315	250	160
TYPICAL VALUE OF MAX. Amper Turns	51	87	157	233	290	365	510

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)
5.4°/W	3.2°/W	2°/W	1°/W

Power Capacity vs. Frequency*



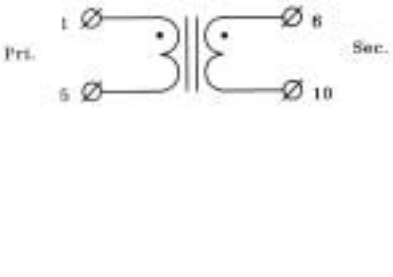
*For single output AC to DC full bridge power supply transformer with turns ratio of 4.

Transformer Type T500 AC P.N. 17546

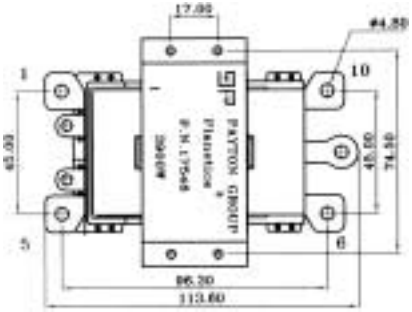
This T500AC-7-2, high power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density AC-DC converter and may be used in welding applications, providing the following specifications:

Transformer Specifications

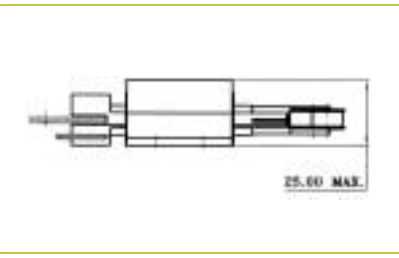
Total output power	3900 W (26 Vdc/150 Adc) Welding duty of 50%
Operating frequency	200 kHz
Input voltage range	150 - 375 Vdc link.
Topology	Forward with active clamp
volt-Sec. product	460 V-µSec
Operating Duty Cycle	0.618 max.
Primary current (for 90% power supply effic.)	37 Arms (47 a peak)
Primary to Sec. ratio (sec. current - 118 Arms)	3.5 : 1
Dielectric strength pri. to sec.+core sec. to core	 4000 Vrms 1000 Vrms
Ambient temperature	-25°C to +40°C
Total losses (With 50°c heat sink)	40 W
Hot spot temperature (With 50°c heat sink)	130°C max.
Weight	250 gr.



ELECTRICAL DIAGRAM



TOP VIEW



SIDE VIEW

(All dimensions are given in mm.)