SIZE 50 Power Capacity 50 to 400W

Description

The Payton **SIZE 50** provides a planar solution for low to medium power applications (such as telecommunications) 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)
50W, forward at 150 kHz 400W, full bridge at 300 kHz	L = 28-45 W = 22 H = 6-11	25 gr.	500 V_{DC}- 4k Vrms	400 Vpeak max.	50 A max.

Typical efficiency: 97-99%

Recommended frequency range: 100 kHz – 2.5 MHz.

Topologies:

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

Mounting Options: a. Horizontal b. Vertical c. SMT

2. Inductor Application

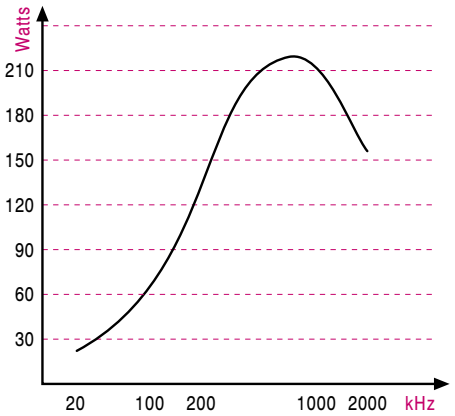
STANDARD A_L (nH/t^2)	1600	1000	630	400	315	250	160
TYPICAL VALUE OF MAX. Amper Turns	11	22	37	69	79	101	150

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)
23°/W	13°/W	7°/W	3.5°/W

Power Capacity vs. Frequency*



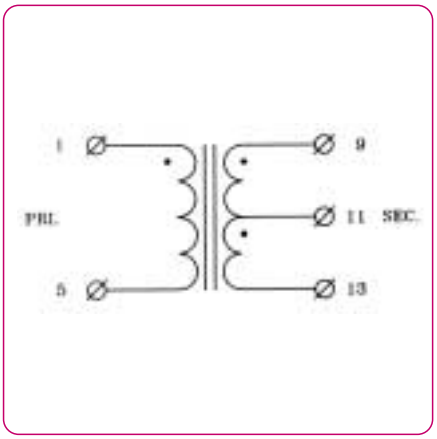
*For single output DC to DC forward power supply transformer with turns ratio of 4.

Transformer Type T50 DC P.N. 16452

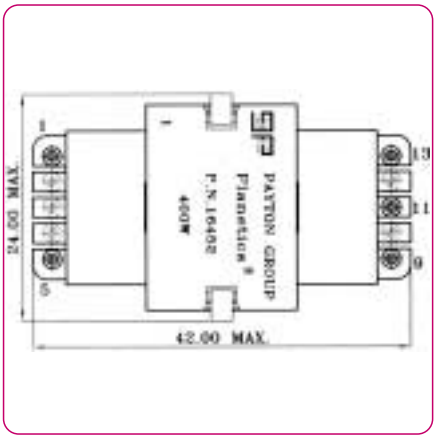
This T050DC-3-6C, high power, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

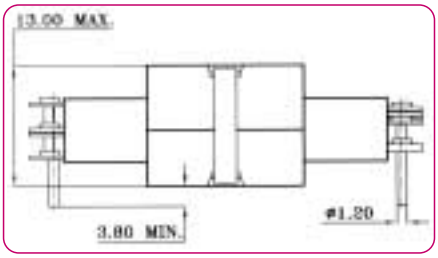
Total output power	400 W (28 Vdc/14.3 Adc)
Operating frequency	200 kHz
Input voltage range	38.3 - 60 Vdc
Topology	Full Bridge
Max. volt-Sec. product	141.8 V-µsec
Duty cycle	2*0.375
Primary current	13.58 Arms max.
Primary to half Sec. ratio (sec. current, max - 11.27 Arms)	3 :3
Dielectric strength pri. to sec.+ core sec. to core	500 Vrms
Ambient temperature	80°C
Total losses (With 70°C heat sink)	4.2 W
Hot spot temperature (With 70 °C heat sink)	105°C
Weight	10 gr.



ELECTRICAL DIAGRAM



TOP VIEW



SIDE VIEW

(All dimensions are given in mm.)