

SIZE 14 Power Capacity 5 to 15W

Description

The Payton **SIZE 14** provides a planar solution for low 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)
5W, flyback at 100 kHz 15W, forward at 500 kHz	L = 15-20 W = 15 H = 5-7	5 gr.	Up to 750 V _{RMS}	100 V _{peak} max.	10 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

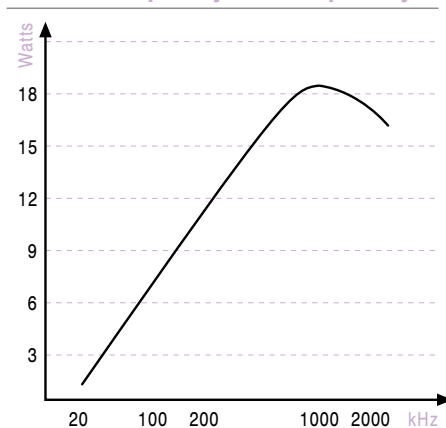
STANDARD A_L (nH/t ²)	630	400	315	160	100	63
TYPICAL VALUE OF MAX. Amper Turns	5	9.5	12.5	31	45	88

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)
65°/W	40°/W	20°/W	10°/W

Power Capacity vs. Frequency*



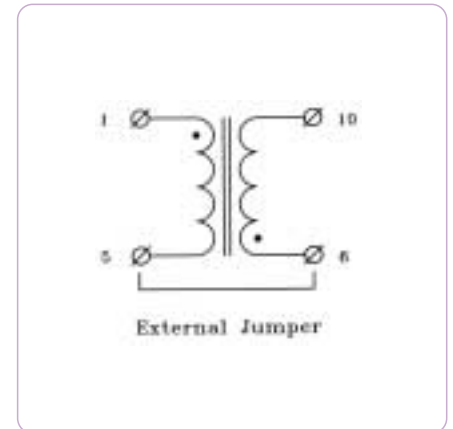
*For single output DC to DC forward power supply transformer with turns ratio of 4

EXAMPLE

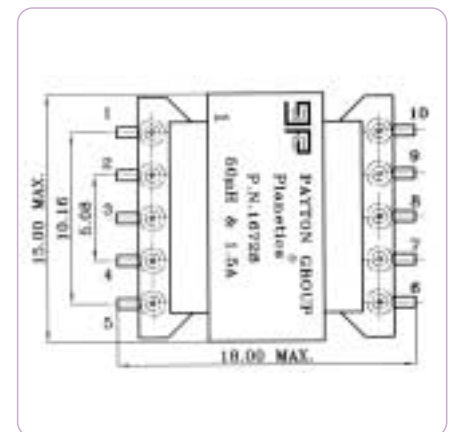
Inductor Type I14 P.N. 16728

This I14-50 $\mu\text{H}/1.5\text{A}$, high frequency, small dimensional planar inductor is developed for a high power density DC-DC converter, providing the following specifications:

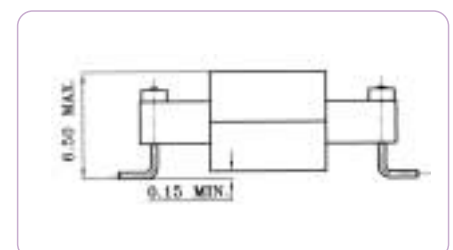
Inductor Specifications	
Inductance L	50 $\mu\text{H} \pm 10\%$
Operating frequency	175-225 kHz
DC current	1.5 Adc max.
Peak of ripple current	0.15 Apeak max.
Peak of total current	1.65 Apeak max.
Dielectric strength	500 Vdc
Ambient temperature	-10°C to +50°C
Total Losses (Natural cooling)	0.4 W
Hotspot temperature (Natural cooling)	75°C max.
Weight	3.5 gr.



ELECTRICAL DIAGRAM



TOP VIEW



SIDE VIEW

(All dimensions are given in mm.)