

## SIZE 20 Power Capacity 10 to 40W

### Description

The Payton **SIZE 20** 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)
10W, flyback at 100 kHz 30W, forward at 500 kHz	L = 15-20 W = 16 H = 5-8	4-6 gr.	Up to 1500 V <sub>RMS</sub>	100 V <sub>peak</sub> 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. SMT

### 2. Inductor Application

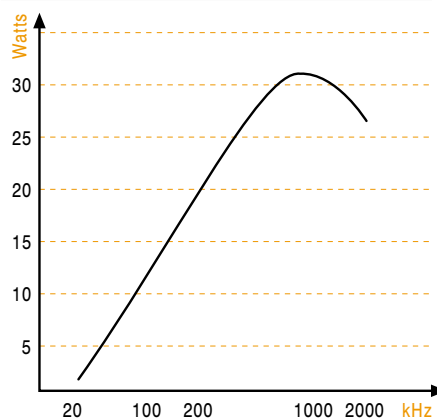
STANDARD $A_L$ (nH/t <sup>2</sup> )	630	400	315	160	100	63
TYPICAL VALUE OF MAX. Amper Turns	7	14	19	42	70	110

$A_L$  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)
60°/W	35°/W	20°/W	10°/W

### Power Capacity vs. Frequency\*



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

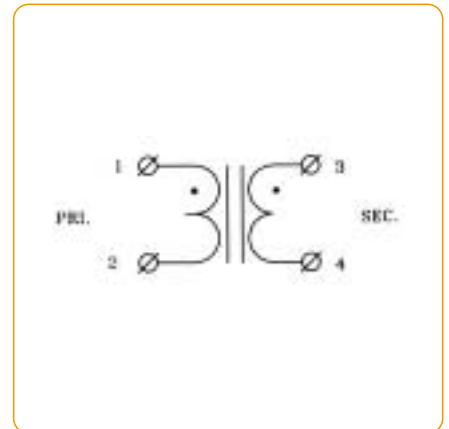
# EXAMPLE

## Transformer Type T20 DC P.N. 18546

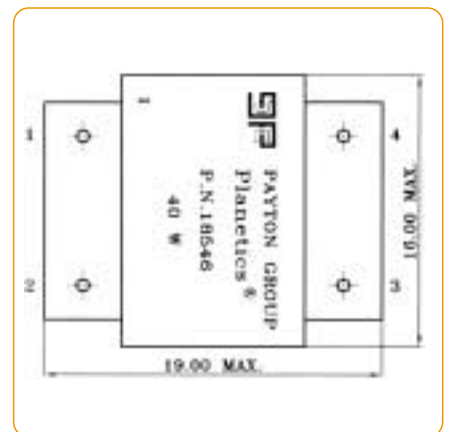
This T20-12-2, low power, miniature planar transformer is developed for a low power DC-DC converter and may be used in telecommunication equipment, providing the following specifications:

### Transformer Specifications

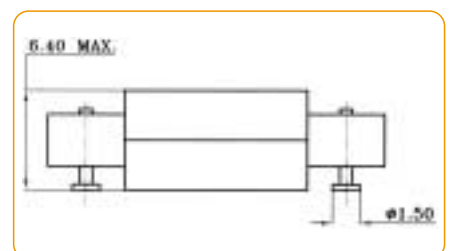
Total output power	40 W (3.3 Vdc@ 12 Adc)
Operating frequency	500 - 700 kHz
Input voltage range	36 - 75 Vdc
Topology	Forward
Max. volt-Sec. product	36.2 V- $\mu$ sec
Duty cycle	0.62 max.
Primary current	1.1 Arms
Secondary current	6.3 Arms
Primary to Sec. ratio	12:2
Dielectric strength pri. to sec. + core	1750 Vdc
sec. to core	500 Vdc
Ambient temperature	-40°C to +85°C
Total losses	0.55 W
Hot spot temperature with 85 °C heatsink	100°C max.
Weight	4 gr.



ELECTRICAL DIAGRAM



TOP VIEW



SIDE VIEW

(All dimensions are given in mm.)