

Profile → 04

Data Sheets (Up to 140W) → 06

Data Sheets (Up to 600W) → 14

Data Sheets (Up to 1500W) → 20

Data Sheets (Up to 20kW) → 28

Data Sheets (Common Mode Choke) → 44

Data Sheets (Off the shelf) → 46

Application Notes → 57

Request Forms → 60

Worldwide Contacts → 62

Conventional Transformers & Other Products → 64

TRACTION

ISO 14001 | ISO 9001



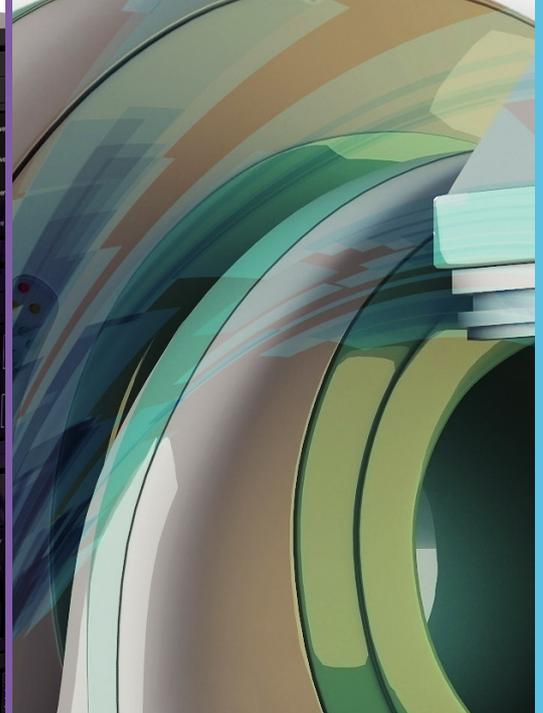
TELECOM

ISO 14001 | ISO 9001



MEDICAL

ISO 14001 | ISO 9001



SPACE & AVIATION

AS 9100



DEFENCE

AS 9100



AUTOMOTIVE

TS 16949



Payton's Planar World

Payton Planar Magnetics Ltd., the world leader in designing and manufacturing of planar & conventional transformers, is proud to present it's Products Catalogue, including the latest breakthroughs and technological innovations in the world of *Planetics*[®]

Planetics[®] Planar technology introduces a totally new concept of magnetic components into the high frequency, high efficiency Switch Mode Power Supply (SMPS) design world.

Planetics[®] Planar transformers and inductors significantly differ from conventional magnetics, as they usually do not use magnetic wires. Instead, windings are made of copper foils (Lead Frames) or flat copper spirals, laminated on thin dielectric epoxy (PCB/Multilayer) and thin Mylar, Nomex or Kapton insulators provide the necessary inter-winding insulation. By combining these pre-tooled windings in series and/or in parallel, customers' requirements can all be fulfilled. Pre-tooled PCB/ML and lead Frames winding design allow an easy and faster assembly of these transformers.

Planetics[®] AC Line and Power Transformers use a special high-isolation patented construction which conforms to the strict creepage and clearance distance safety requirements of UL, IEC and VDE standards.

A sandwiched assembly of this type greatly increases the Pri-Sec coupling and significantly reduces the parasitic leakage inductance, thereby simplifying the power supply design.

The fixed and well-defined design geometry improves the calculation precision to a level which can not be reached when using conventional wire-wound magnetics.

In the following catalogue pages we describe the characteristics of our most popular sizes of custom-design Transformers and Inductors, ranging from size T14 to size T5000 and some of our "Of-the-Shelf" components. Our highly qualified and skilled engineering team will design any new sizes in order to meet all our customers specifications and requests.

Payton Planar Magnetics Ltd. maintains a world-wide marketing network of sales-representatives which promote our technology and magnetics for a wide range of applications, i.e. Telecommunication Automotive, Industrial, Electronic, Military, Aerospace and more.

Patents

Our *Planetics*[®] core technology is protected by the following patents or patent applications:

- United States → 5010314
- European Patent → 0476114B1
- Japan → 2059228
- Hong Kong → HK1007829
- United States → 6,900,717
- United Kingdom → 2371683
- United States → 6,882,260
- United Kingdom → 2369251

Planetics[®] Advantages

Payton's state-of-the-art Magnetics offer the following unique benefits which enable us to provide innovative solutions for our customers specific applications, while incorporating the following advantages:

- Unparalleled working frequency range (from 50kHz to 3MHz).
- Dramatically reduced size and weight (approx. 5gr per 100W).
- Unique high efficiency (typically 98-99%).
- Unmatched parameters consistency.
- Very low Leakage Inductance (less than 0.2% for un-gapped cores).
- Cost effective and competitive prices.
- Minimum Electromagnetic Interference (EMI).
- Wide operating temperature range (typical -40°C to +130°C/150°C).
- High specific power density (5W-25kW per one component).
- Very high Primary-to-Secondary dielectric isolation (up to 4kV).
- High Creepage and Clearance distances between primary and secondary windings (6-16mm).
- Applicable to all SMPS topologies.
- Various mounting and terminals options (Horizontal, Vertical, Through-holes, SMT, Pins, Flying-cables and more).
- Specially designed heat-dissipating Clasps.

Standards and Certifications

Component - Systems, Electrical Insulation

Payton Planar Magnetics:

UL File E174040

Class B 130°C

Class F 155°C

Class H 180°C

Components - Wiring, Printed (PCB's, Multilayers) Payton Technology: UL File E317974

Components - Transformers

Payton Planar Magnetics:

UL File E177412 - Also certified for CANADA

Certifications

ISO 9001: 2008

ISO 14001: 2004

TS 16949: 2009

AS 9100: 2008



SIZE 14

Power Capacity 5 to 15W



Description

Payton SIZE 14 provides a planar solution for low power applications (such as telecommunication), 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 Vrms	100 Vpeak 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

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

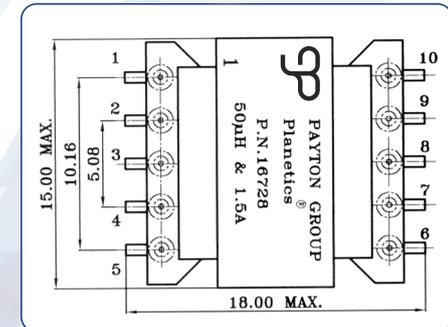
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
65°C/W	40°C/W	20°C/W	10°C/W

Inductor Type I14 P.N. 16728

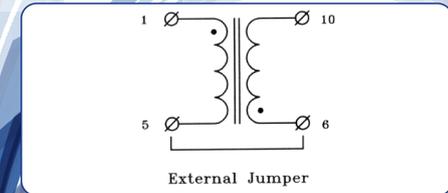
This I14-50 μ H/1.5A, high frequency, small dimensional planar inductor is developed for a high power density DC-DC converter, providing the following specifications:

Inductor Specifications

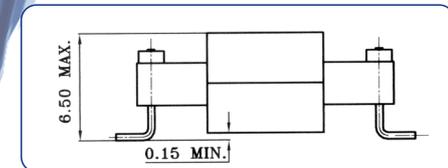
Inductance L	50 μ H \pm 10%
Operating frequency	175-225 kHz
DC current	1.5 Adc max.
Peak of ripple current	0.15 Apeak max.
Peak of total current	1.65 Apeak max.
Dielectric strength	500 Vdc
Ambient temperature	-10°C to +50°C
Total losses (Natural cooling)	0.4 W
Hot spot temperature (Natural cooling)	75°C max.
Weight	3.5 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 20

Power Capacity 10 to 40W



Description

Payton SIZE 20 provides a planar solution for low power applications (such as telecommunication) 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 Vrms	100 Vpeak 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

2. Inductor Application

STANDARD A_L (nH/t ²)	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

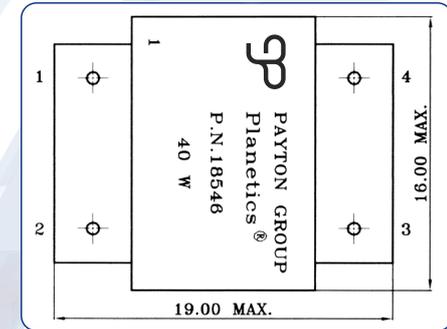
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
65°C/W	35°C/W	20°C/W	10°C/W

Transformer Type T20 DC P.N. 18546

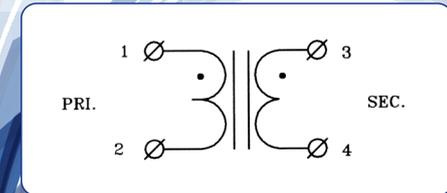
This T20-12-2, low power, miniature planar transformer is developed for a low power DC-DC converter and may be used in telecommunication equipment, providing the following specifications:

Transformer Specifications

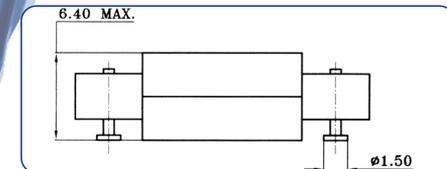
Total output power	40 W (3.3 Vdc/12 Adc)	
Operating frequency	500 -700 kHz	
Input voltage range	36 - 75 Vdc	
Topology	Forward	
Max. Volt-Sec. product	36.2V- μ Sec	
Duty cycle	0.62 max.	
Primary current	1.1 Arms	
Secondary current	6.3 Arms	
Primary to Sec. ratio	12 : 2	
Dielectric strength	pri. to sec.+core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



TOP VIEW



ELECTRICAL DIAGRAM

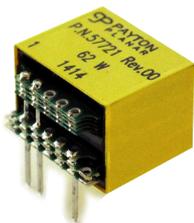


SIDE VIEW

(All dimensions are given in mm.)

SIZE 25

Power Capacity 25 to 100W



Description

Payton SIZE 25 provides a planar solution for low power applications (such as telecommunication) 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)
25W, flyback at 200 kHz 100W, full bridge at 800 kHz	L=20-23 W=19 H=4-10	7-10 gr.	Up to 1000 Vrms	150 Vpeak max.	25 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

2. Inductor Application

STANDARD A_L (nH/t ²)	1000	630	400	315	160	100
TYPICAL VALUE OF MAX. Amper Turns	4	12	23	29	60	97

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

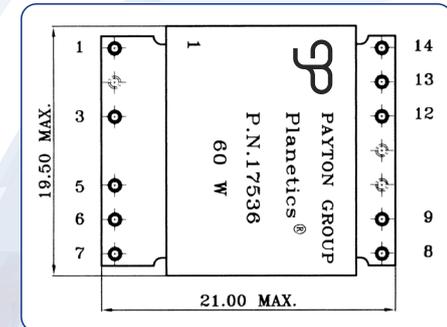
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
40°C/W	25°C/W	15°C/W	8°C/W

Transformer Type T25 DC P.N. 17536

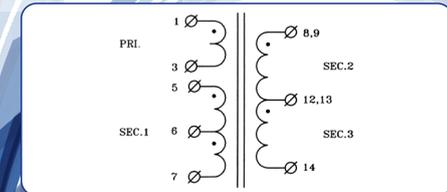
This T25-9-14C-6C, miniature planar transformer, natural cooled is developed for a low power DC-DC converter and may be used in telecommunication equipment, providing the following specifications:

Transformer Specifications

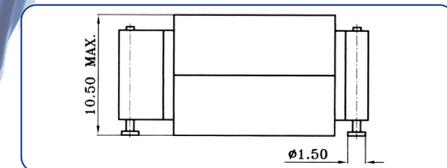
Total output power	60 W (± 12 Vdc@0.2 Adc; 5 Vdc@9 Adc; -5 Vdc@0.5 Adc)
Operating frequency	320 kHz
Input voltage range	36 - 72 Vdc
Topology	Forward
Max. Volt-Sec. product	49 V- μ Sec
Duty cycle	0.45 max.
Primary current	2.85 Arms max. 4.2 Arms max.
Primary to half Sec. 1 ratio	9 : 7
Primary to half Sec. 1 ratio	9 : 3
Primary to half Sec. 1 ratio	9 : 3
Dielectric strength	
pri. to sec.+core	1000 Vdc
sec. to core	500 Vdc
sec. to sec.	500 Vdc
Ambient temperature	-40°C to +85°C
Total losses (natural cooling)	1.2W
Hot spot temperature (natural cooling)	125°C max.
Weight	8 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 40

Power Capacity 25 to 140W



Description

Payton SIZE 40 provides a planar solution for low power applications (such as telecommunication) 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)
30W, flyback at 100 kHz 140W, forward at 350 kHz	L = 19-27 W = 20 H = 6-12	10-14 gr.	Up to 1000 Vrms	150 Vpeak max.	25 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

2. Inductor Application

STANDARD A_L (nH/t ²)	1000	630	400	315	160	100
TYPICAL VALUE OF MAX. Amper Turns	10	18	30	40	82	124

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 SIDES HEATSINK (Hot Spot - Heatsink)
36°C/W	21°C/W	14°C/W	7°C/W

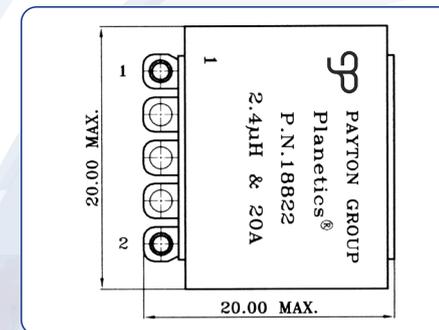


Inductor Type I40 P.N. 18822

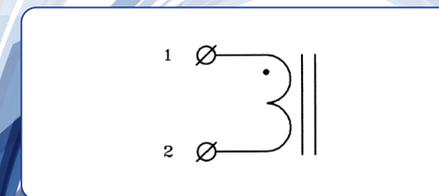
This I40-2.4 μ H/20A, high frequency, small dimensional planar inductor is developed for a high power density DC-DC converter, providing the following specifications:

Inductor Specifications

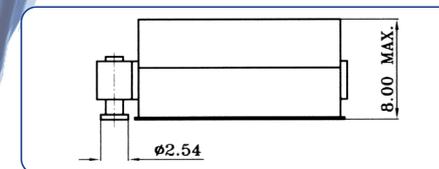
Inductance L	2.4 μ H \pm 10%
Operating frequency	100-400 kHz
DC current	20 Adc max.
Peak of ripple current	2 Apeak max.
Peak of total current	22 Apeak max.
Dielectric strength	500 Vdc
Ambient operating temperature	-10°C to +50°C
Total losses (Natural cooling)	1.0 W
Hot spot temperature (Natural cooling)	85°C max.
Weight	11 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 50

Power Capacity 50 to 400W



Description

Payton SIZE 50 provides a planar solution for low to medium power applications (such as telecommunication) 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 Vdc - 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

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

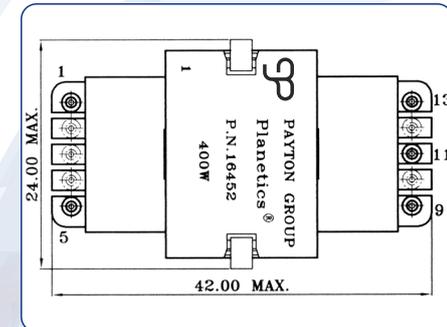
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
23°C/W	13°C/W	7°C/W	3.5°C/W

Transformer Type T50 DC P.N. 16452

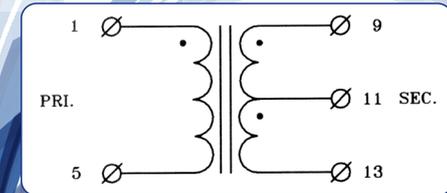
This T050DC-4-6C, medium power, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

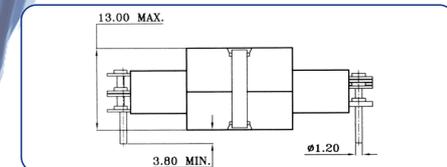
Total output power	400 W (28 Vdc/14.3 Adc)
Operating frequency	200 kHz
Input voltage range	38.3 - 60 Vdc
Topology	Full Bridge
Max. Volt-Sec. product	141.8 V- μ Sec
Duty cycle	2*0.375
Primary current	13.58 Arms max.
Primary to half Sec. 1 ratio (sec. current, max - 11.27 Arms)	4 : 3
Dielectric strength pri. to sec.+core sec. to core	500 Vrms
Ambient temperature	80°C
Total losses (With 70°C heat sink)	4.2W
Hot spot temperature (With 70°C heat sink)	105°C max.
Weight	25 gr.



TOP VIEW



ELECTRICAL DIAGRAM

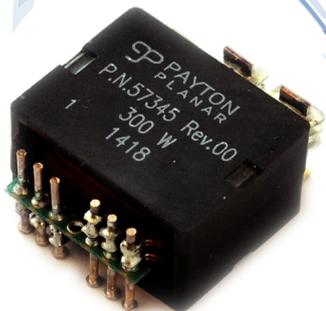


SIDE VIEW

(All dimensions are given in mm.)

SIZE 55

Power Capacity 80 to 600W



Description

Payton SIZE 55 provides a planar solution for medium power applications (such as telecommunication) 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)
80W, forward at 150 kHz 400W, full bridge at 300 kHz	L=28-45 W=27 H=6-12	40 gr.	500 Vdc - 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

2. Inductor Application

STANDARD A_L (nH/t ²)	1600	1000	630	400	315	250	160
TYPICAL VALUE OF MAX. Amper Turns	9.5	18	34	56	72	94	140

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

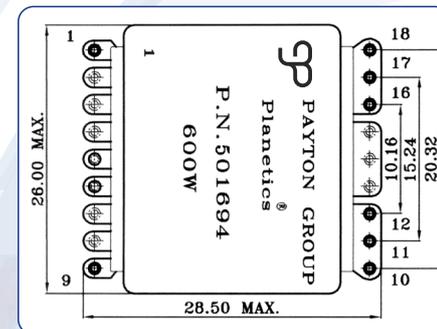
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
22°C/W	12°C/W	7°C/W	3.5°C/W

Transformer Type T55 DC P.N. 501694

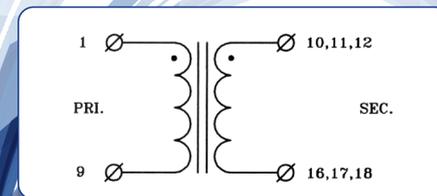
This T55DC-9-2, medium power, low input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

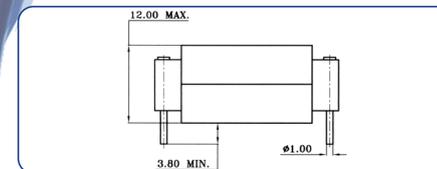
Total output power	600 W (12 Vdc@50 Adc)
Operating frequency	300 kHz
Input voltage range	180 - 350 V
Topology	Full Bridge, ZVT. (with current doubler rectifier)
Max. Volt-Sec. product	376 V- μ Sec
Duty cycle	0.64
Primary current	5.96 Arms
Secondary output current	25 Arms
Primary to Sec. ratio	9 : 2
Dielectric strength	
pri. to sec.+core	1500 Vds
sec. to core	500 Vds
Ambient temperature	-40°C to +85°C
Total losses (With 85°C heat sink)	4.7W
Hot spot temperature (With 85°C heat sink)	118°C
Weight	25 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 71

Power Capacity 30 to 500W



Description

Payton size 71 provides planar solution for low to medium power applications (such as telecommunication) 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)
30W, Flyback CCM at 300kHz 500W Forward at 200 kHz	L = 29-45 W = 26 H = 8-20	40 gr.	500 Vdc - 4k Vrms	600 Vpeak max.	40A 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

2. Inductor Application

STANDARD A_L (nH/t ²)	1600	1000	630	400	315	250	160
TYPICAL VALUE OF MAX. Amper Turns	13	25	47	75	95	120	187

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

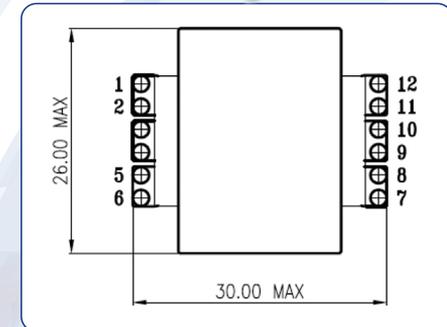
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
22°C/W	12°C/W	8°C/W	4°C/W

Transformer Type T71 P.N. 514280

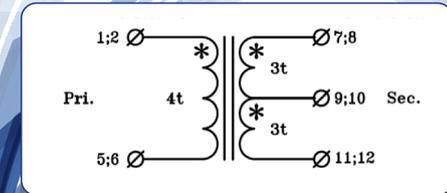
This T71DC-4-6C, medium power, low input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

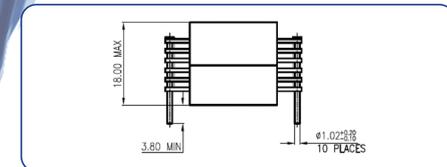
Total output power	387 W (24.2Vdc@16Adc)
Operating frequency	300 kHz
Input voltage range	18 - 36V
Topology	Full Bridge, ZVT.
Max. Volt-Sec. product	116V- μ Sec
Duty cycle	0.82
Primary current	12.8Arms
Secondary output current	16Arms
Primary to Half Sec. ratio	4 : 3
Dielectric strength	
pri. to sec.+core	500Vdc
sec. to core	500Vdc
Ambient temperature	-55°C to +85°C
Total losses (With 85°C heat sink)	5W
Hot spot temperature (With 85°C heat sink)	125°C
Weight	36 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 80

Power Capacity 200 to 1000W



Description

Payton SIZE 80 provides a planar solution for medium power applications such as 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)
200W, forward at 150 kHz 1000W, full bridge at 1 MHz	L=36-48 W=34 H=8-14	45 gr.	Up to 5k Vrms	500 Vpeak max.	100 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

2. Inductor Application						
STANDARD A_L (nH/t ²)	1600	1000	630	400	315	160
TYPICAL VALUE OF MAX. Amper Turns	15	30	50	85	103	206

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 SIDES HEATSINK (Hot Spot - Heatsink)
16°C/W	10°C/W	5°C/W	2.5°C/W

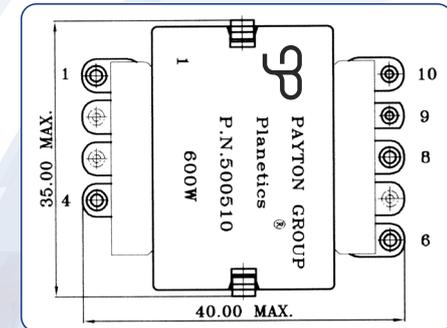


Transformer Type T80 AC P.N. 500510

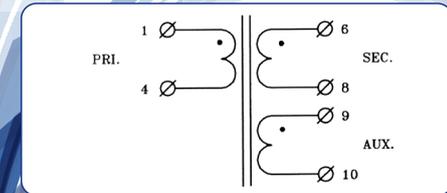
This T080DC-3-2-1, medium power, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter and may be used in UPS applications, providing the following specifications:

Transformer Specifications

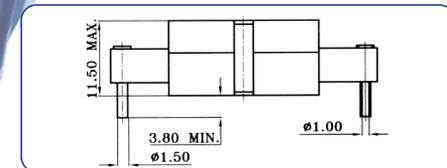
Total output power	600 W (12V/50A; 12V/0.05A)
Operating frequency range	200 kHz
Input voltage range	45 - 55 V
Topology	Full Bridge, ZVT with current doubler
Max. Volt-Sec. product	0.809
Duty cycle	181.5 V- μ Sec
Primary current	18.36 Arms (18.36 Apeak)
Primary inductance	48 μ H \pm 30%
Primary Leakage inductance, max.	100nH
Primary to Sec. ratio	3 : 2
Primary to Aux. ratio	3 : 1
Dielectric strength	
pri. + aux. to sec.	1500 Vdc
pri. + aux. + sec. to core	750 Vdc
Ambient temperature	-40°C to +60°C
Total losses	
(With 1.5 m/sec. blowing air)	4.8 W
Hot spot temperature	
(With 1.5 m/sec. blowing air)	115°C max.
Weight	45 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 125

Power Capacity 200 to 1400W



U.S.A Patent No. 5010314
European Patent No. 047611481



Description

Payton SIZE 125 provides a patented planar isolation solution (creepage and clearance of 8.0 mm) for low to medium 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)
200W, forward at 150 kHz 1400W, full bridge at 1MHz	L=40-80 W=32 H=8-30	50 gr.	Up to 5k Vrms	500 Vpeak max.	100 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

2. Inductor Application

STANDARD A_L (nH/t ²)	1600	1000	630	400	315	160
TYPICAL VALUE OF MAX. Amper Turns	22	39	65	103	129	236

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

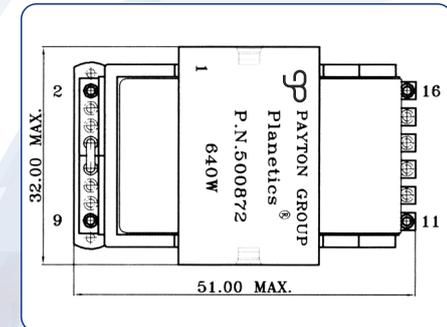
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
13°C/W	8°C/W	4°C/W	2°C/W

Transformer Type T125 AC P.N. 500872

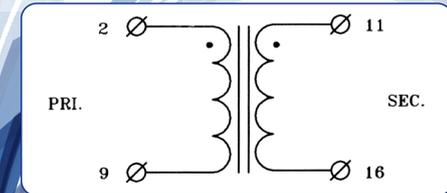
This T125AC-14-6, high power, medium frequency, small dimensional planar transformer is developed for a high power density DC-DC converter and may be used in UPS applications, providing the following specifications:

Transformer Specifications

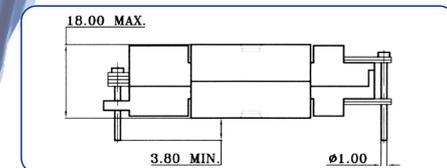
Total output power	640 W (51 Vdc/12.5 Adc)
Operating frequency	100 kHz
Input voltage range	140 - 250 Vdc.
Topology	Full bridge
Max. Volt-Sec. product	1201 V- μ Sec
Duty cycle	0.87 max.
Primary current	5.52 Arms max.
Primary to Sec. ratio (Sec. current, max - 11.66 Arms)	14: 6
Dielectric strength pri. to sec.+core sec. to core	3750 Vrms 500 Vdc
Ambient temperature	-40°C to +85°C
Total losses (With 85°C heat sink)	7.5 W
Hot spot temperature (With 85°C heat sink)	115°C
Weight	70 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 130

Power Capacity 100 to 1500W



Description

Payton SIZE 130 provides a planar solution for low to medium power applications such as 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)
100W, Flyback CCM at 100 kHz 1500W, full bridge W. current doubler at 140 kHz	L=37-60 W=34 H=8-30	60 gr.	Up to 4k Vrms	500 Vpeak max.	100 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

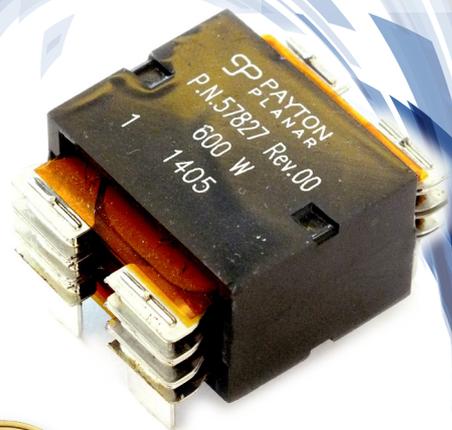
2. Inductor Application

STANDARD A_L (nH/t ²)	1600	1000	630	400	315	160
TYPICAL VALUE OF MAX. Amper Turns	22	40	67	106	132	243

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 SIDES HEATSINK (Hot Spot - Heatsink)
14°C/W	9°C/W	4.5°C/W	2.3°C/W

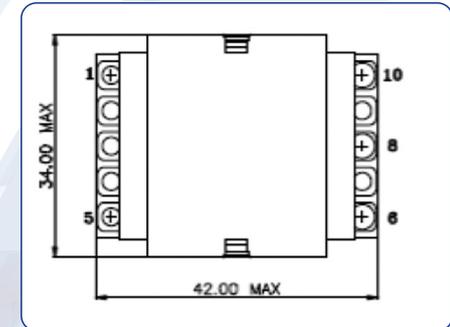


Transformer Type T130 AC P.N. 516186

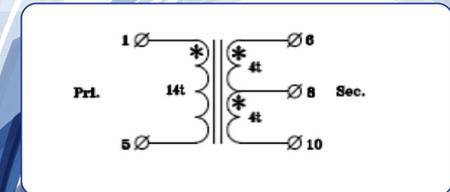
This T130DC-14-8C, high power, medium frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

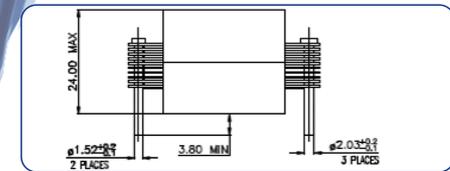
Total output power	768 W (48Vdc@16Adc)
Operating frequency range	250 kHz
Input voltage range	190 - 440 V
Topology	Full Bridge, ZVT
Max. Volt-Sec. product	0.9
Primary current	5 Arms
Sec. current	15 Arms
Primary to Hlf Sec. ratio	14 : 4
Dielectric strength	
pri. + aux. to sec.	1000 Vdc
pri. + aux. + sec. to core	500 Vdc
Ambient temperature	-40°C to +85°C
Total losses	
(With 1.5 m/sec. blowing air)	7 W
Hot spot temperature	
(With 1.5 m/sec. blowing air)	120°C max.
Weight	98 gr.



TOP VIEW



ELECTRICAL DIAGRAM

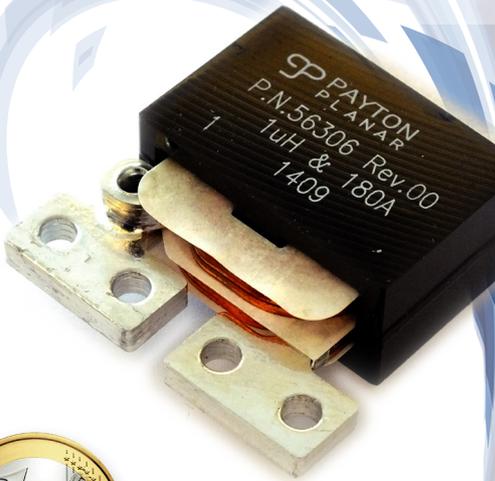


SIDE VIEW

(All dimensions are given in mm.)

SIZE 200

Power Capacity 300 to 1000W



Description

Payton SIZE 200 provides a planar solution for medium power applications (such as telecommunication) 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)
300W, forward at 100 kHz 1000W, full bridge at 200 kHz	L=40-80 W=38 H=10-20	70 gr.	500 V _{DC} - 4k V _{rms}	500 V _{peak} max.	120 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

2. Inductor Application

STANDARD A _L (nH/t ²)	1600	1000	630	400	315	250	160
TYPICAL VALUE OF MAX. Amper Turns	34	56	89	139	185	234	330

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

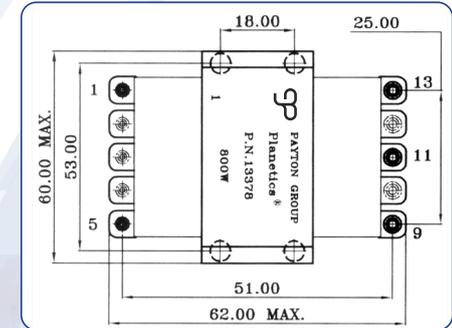
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
12°C/W	6.5°C/W	3.6°C/W	1.8°C/W

Transformer Type T200 DC P.N. 13378

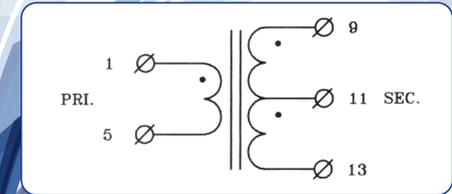
This T200DC-9-4C, medium power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

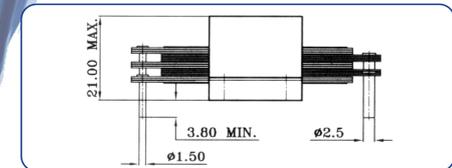
Total output power	800 W (25 Vdc@32 Adc)
Operating frequency	100 kHz
Input voltage range	110 - 150 Vdc.
Topology	Full bridge, phase shift
Max. Volt-Sec. product	1020 V- μ Sec
Duty cycle	0.94 max.
Primary current	10.7 Arms
Primary to Sec. ratio	9:2:2
Dielectric strength	
pri. to sec.+core	1500 Vdc
sec. to core	500 Vdc
Ambient temperature	-40°C to +50°C
Total losses	
(With 85°C heat sink)	8 W
Hot spot temperature	
(With 85°C heat sink)	115°C
Weight	120 gr.



TOP VIEW



ELECTRICAL DIAGRAM

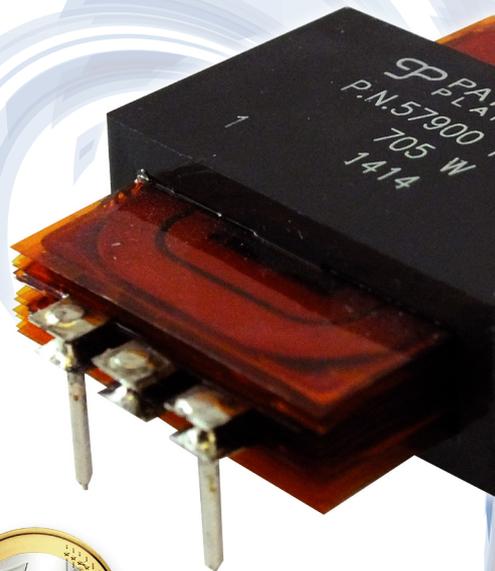


SIDE VIEW

(All dimensions are given in mm.)

SIZE 250

Power Capacity 500W to 2.6kW



Description

Payton SIZE 250 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 150 kHz 2.6kW, full bridge at 200 kHz	L=50-90 W=44-70 H=10-30	150 gr.	500 V _{DC} - 4k V _{rms}	500 V _{peak} max.	200 A max.

Typical efficiency: 97-99%

Recommended frequency range: 100 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	37	64	124	166	210	274	390

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

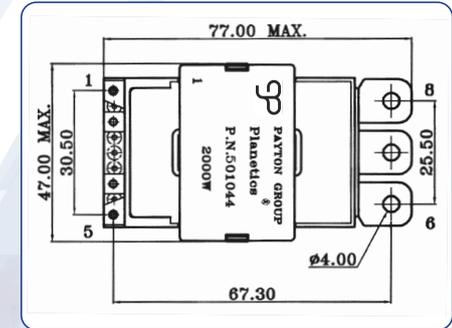
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
9°C/W	5.5°C/W	3.4°C/W	1.7°C/W

Transformer Type T250 AC P.N. 501044

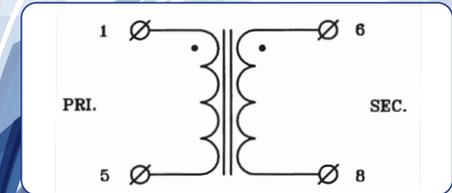
This T250AC-14-2, high power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

Total output power	2000 W (26-30Vdc/76.9-66.65 Adc)
Operating frequency	100 kHz
Input voltage range	250 - 430 V.
Topology	Full bridge, current doubler
Max. Volt-Sec. product	2362 V- μ Sec
Duty cycle	0.96 max.
Primary current	9.6 Arms max.(10.5 a peak)
Primary to Sec. ratio (sec. current, max. - 76.9 Arms)	14 : 2
Dielectric strength pri. to sec.+core sec. to core	3500 Vrms 1000 Vrms
Ambient temperature	-40°C to +85°C
Total losses (With both sides 70°C heat sink)	21W
Hot spot temperature (With both sides 70°C heat sink)	110°C
Weight	140 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 270

Power Capacity 1kW to 10kW



Power Factor Correction (PFC) Inductor



Description

Payton SIZE 270 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 $+130^{\circ}\text{C}$.

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 = 110 W = 47 H = 22	300 gr.	500 V _{DC} - 4k V _{rms}	1000 V _{peak} max.	700 A max.

Typical efficiency: 97-99%

Recommended frequency range: 50 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	86	140	235	345	415	520	645

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

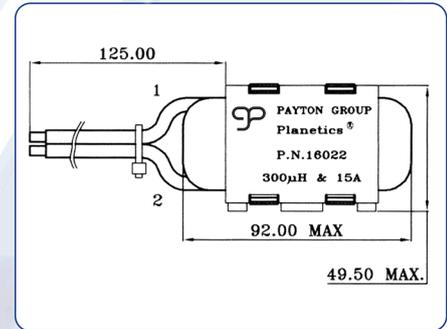
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
5.0°C/W	2.8°C/W	2.0°C/W	1.0°C/W

Inductor Type I270 P.N. 16022

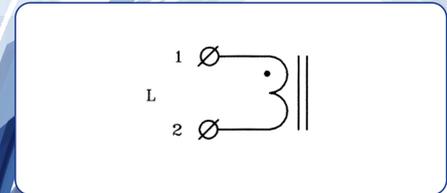
This I270-300 μ H/15A, high frequency, Power Factor Correction (PFC) planar Inductor is developed for a high power density DC-DC converter, providing the following specifications:

Inductor Specifications

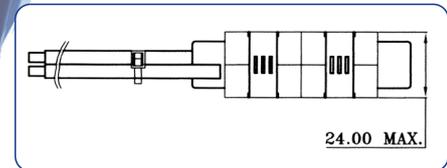
Inductance L	300 μ H + 10%\ -20%
Operating frequency	100 kHz
RMS current, max	9 Arms, at 100-120 Hz
Peak of ripple current	2 A _{peak} , at 100 kHz.
Peak of total current	15 A _{peak} max.
Dielectric strength	1800 Vrms
Ambient temperature	-40°C to +85°C
Total losses (With 95°C heat sink)	7W
Hot spot temperature (With 95°C heat sink)	100°C max.
Temperature class of insulation system	"F" (150°C)
Weight	320 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

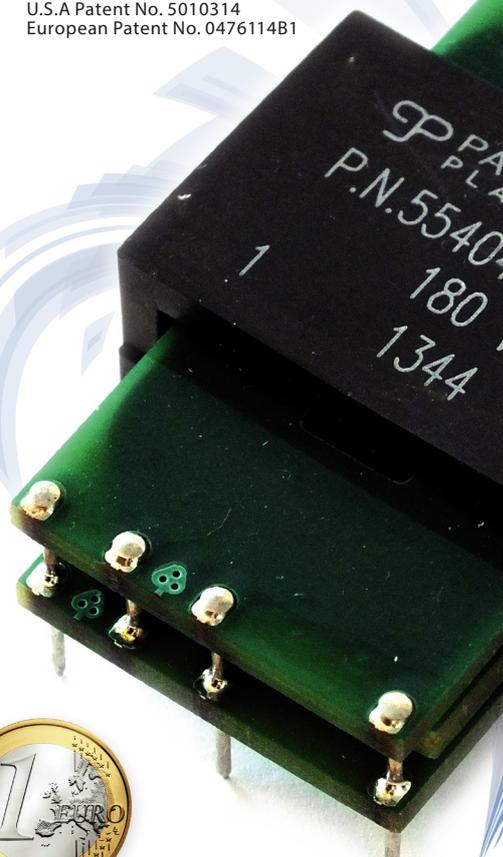
(All dimensions are given in mm.)

SIZE 500

Power Capacity 500W to 5kW



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



Description

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 V _{rms}	700 V _{peak} 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

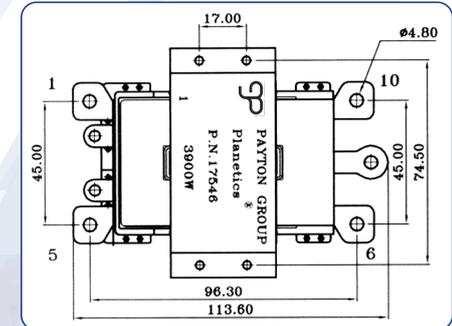
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
5.4°C/W	3.2°C/W	2°C/W	1°C/W

Transformer Type T500 AC P.N. 17546

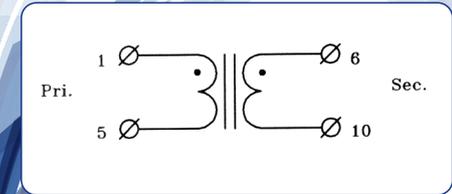
This T500AC-7-2, high power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter and may be used in welding applications, providing the following specifications:

Transformer Specifications

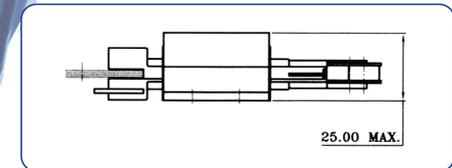
Total output power	3900 W (26 Vdc/150 Adc) Welding duty of 50%
Operating frequency	200 kHz
Input voltage range	150 - 375 Vdc link.
Topology	Forward with active clamp
Volt-Sec. product	460V- μ Sec
Operating Duty cycle	0.618 max.
Primary current (for 90% power supply effic.)	37 Arms (47 a peak)
Primary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



TOP VIEW



ELECTRICAL DIAGRAM



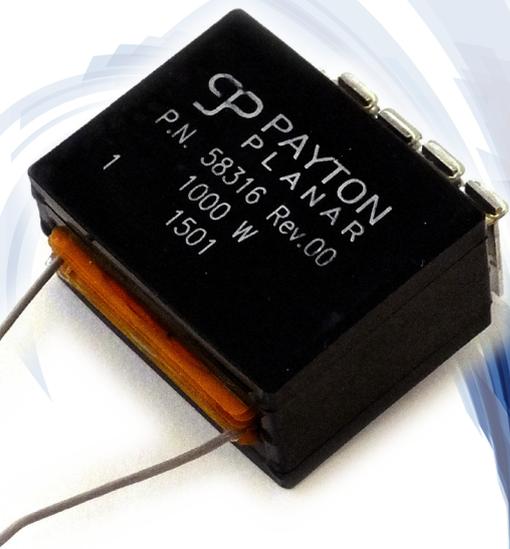
SIDE VIEW

(All dimensions are given in mm.)

SIZE 541



Power Capacity 250W to 2.1kW



Description

Payton SIZE 541 provides planar solution for medium to high power applications such as 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)
250W, half bridge at 60 kHz 2.1kW, full bridge at 150 kHz	L=42-80 W=43 H= 10-38	90 gr.	Up to 4k Vrms	500 Vpeak max.	150 A max.

Typical efficiency: 97-99%

Recommended frequency range: 100 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	37	64	122	163	206	270	385

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

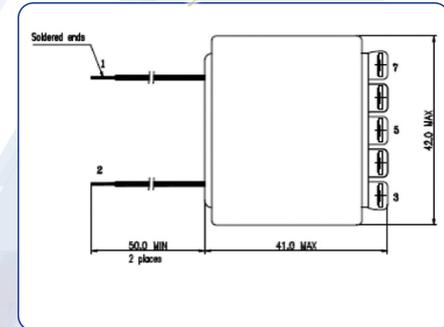
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
12°C/W	6.5°C/W	3.6°C/W	1.8°C/W

Transformer Type T541 AC P.N. 516632

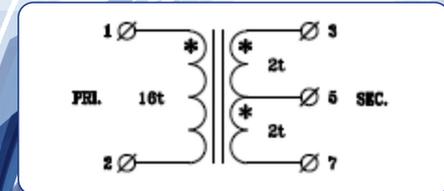
This T541AC-16-4C, high power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

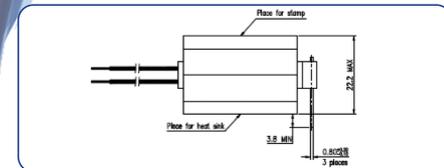
Total output power	1008 W (48Vdc @ 21Adc)
Operating frequency	250-500 kHz
Input voltage range	260 - 410 V.
Topology	Full bridge, LLC
Max. Volt-Sec. product	2X776V- μ Sec
Duty cycle	2x0.5
Primary current	3.5 Arms Sinusoidal
Sec. current	17.5Arms
Primary to Half Sec. ratio	16 : 2
Dielectric strength	
pri. to sec.+core	3000 Vdc
sec. to core	500 Vdc
Ambient temperature	-40°C to +85°C
Total losses	
(With 60°C heat sink)	8W
Hot spot temperature	
(With 60°C heat sink)	120°C
Weight	120 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

SIZE 551



Power Capacity 500W to 3.5kW



Description

Payton SIZE 551 provides planar solution for high power applications such as 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, Push-Pull at 100 kHz 3.5kW, full bridge at 250 kHz	L = 52-95 W = 53-78 H = 13-30	200 gr.	Up to 4k Vrms	700 Vpeak max.	150 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	58	100	180	268	333	420	586

A_L values not listed are available upon request.

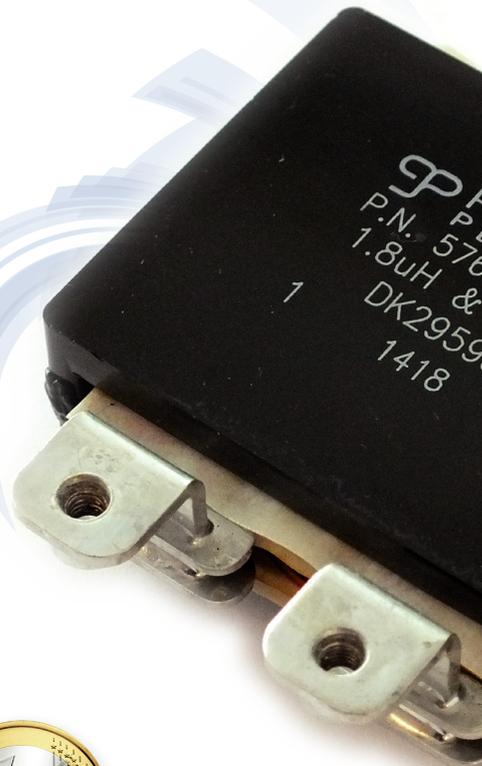
3. Typical Thermal Impedance For Different Cooling Conditions

NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
7°C/W	4°C/W	2.6°C/W	1.3°C/W



SIZE 564

Power Capacity 1.8 to 7.5 kW



Description

Payton SIZE 564 provides planar 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.

1. Transformer Application

POWER CAPACITY	DIMENSIONS (mm)	TYPICAL WEIGHT	DIELECTRIC ISOLATION	OPERATING VOLTAGE	OPERATING CURRENT (RMS)
1.8kW, full bridge w. current doubler at 100 kHz	L=55-110 W=65-90	500 gr.	Up to 4k Vrms	1000 Vpeak max.	800 A max.
7.5kW, full bridge at 250 kHz	H=15-45				

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	102	157	272	410	485	620	757

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

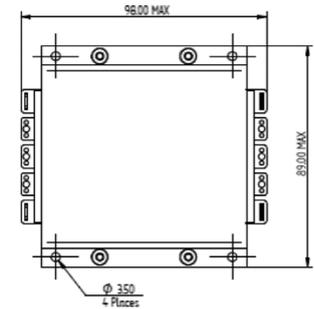
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
5.2°C/W	3.1°C/W	2°C/W	1°C/W

Transformer Type T564 P.N. 513508

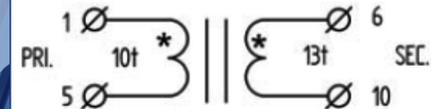
This T564DC-10-13, high power, high input voltage, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

Transformer Specifications

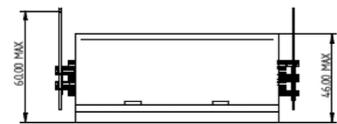
Total output power	7500W (250Vdc@30Adc - 430Vdc@17.4Adc)
Operating frequency	70 kHz
Input voltage range	375 - 480 V
Topology	Full bridge, ZVS.
Max. Volt-Sec. product	4734V- μ sec
Duty cycle	0.888
Primary current	42.3-24.6 Arms
Primary to Sec. ratio	10 : 13
Dielectric strength	
pri. to sec.+core	2700 Vdc
sec. to core	2700 Vdc
Ambient temperature	-40°C to +105°C
Total losses	
(With 75°C heat sink)	60W
Hot spot temperature	
(With 75°C heat sink)	135°C
Weight	600 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

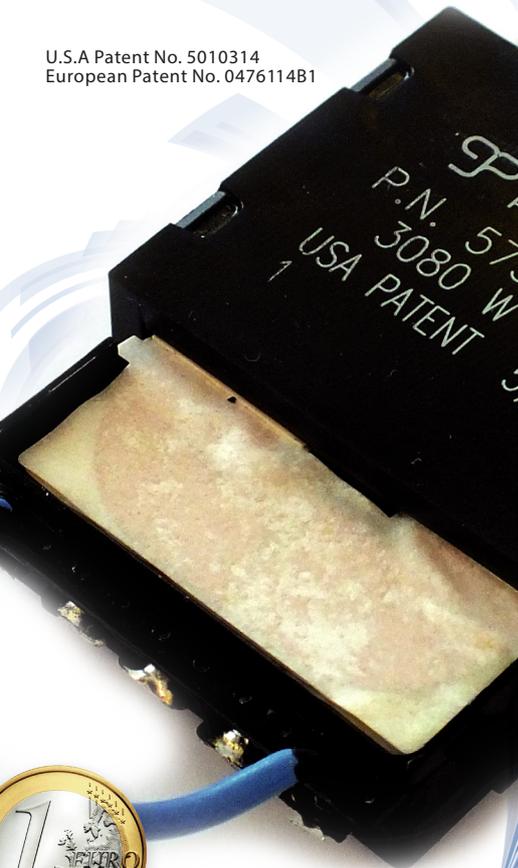
(All dimensions are given in mm.)

SIZE 1000

Power Capacity 1 to 10kW



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



Description

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.

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 V _{rms}	1000 V _{peak} 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 SIDES HEATSINK (Hot Spot - Heatsink)
4.2°C/W	2.5°C/W	1.6°C/W	0.8°C/W

SIZE 5000

Power Capacity 5 to 20kW



Description

Payton SIZE 5000 provides a planar solution for very high power applications (such as traction, 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.

1. Transformer Application

POWER CAPACITY	DIMENSIONS (mm)	TYPICAL WEIGHT	DIELECTRIC ISOLATION	OPERATING VOLTAGE	OPERATING CURRENT (RMS)
5kW, forward at 50 kHz 20kW, full bridge at 100 kHz	L = 180-230 W = 104-145 H = 20-60	2-3 kg.	500 V _{DC} - 4k V _{rms}	1000 V _{peak} max.	1000 A max.

Typical efficiency: 97-99%

Recommended frequency range: 20 kHz – 300 MHz.

Topologies:

Full bridge; Half bridge; Push-Pull; Forward; 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	190	310	490	790	950	1202	1500

A_L values not listed are available upon request.

3. Typical Thermal Impedance For Different Cooling Conditions

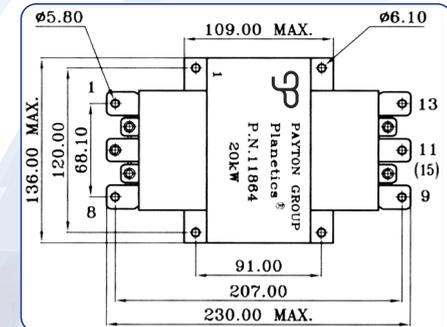
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
1.7°C/W	1.3°C/W	1.6°C/W	0.8°C/W

Transformer Type T5000 AC P.N. 11864

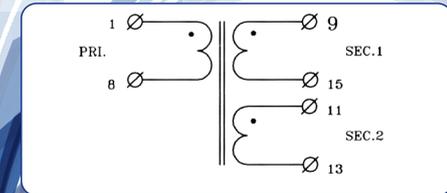
This T5000-16-6-6, super high power, high input voltage, high frequency, small dimensional planar transformer is developed for a high power density DC-DC converter and may be used in high power applications, providing the following specifications:

Transformer Specifications

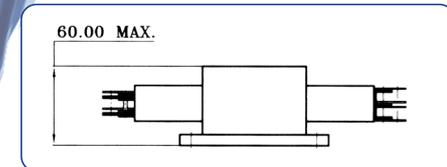
Total output power	20kW (590 Vdc@34 Adc)
Operating frequency	100 kHz
Input voltage range	815 - 900 Vdc
Topology	Full bridge, resonant
Max. Volt-Sec. product	8.15 V-msec
Duty cycle	2 x 0.5 max.
Primary current	27 Arms max.
Secondary 1,2 output current	30 Arms max.
Primary to Sec. 1 ,2 ratio	16 : 6
Dielectric strength	
pri. to sec. 1+sec. 2+core	3750 Vrms
sec. 1, sec.2 to core	1500 Vrms
Ambient temperature	-20°C to +50°C
Total losses (With 45°C heat sink)	95W
Hot spot temperature (With 45°C heat sink)	120°C max.
Weight	3000 gr.



TOP VIEW



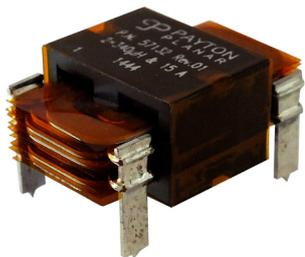
ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

Common Mode Choke



Description

Payton Common Mode Chokes provide an effective, compact, planar solution for excellent suppressing common mode noise from switch mode power supplies lines. The components have very high repeatability, low profile and weight, low leakage flux, and high impedance at applicable frequency.

1. Physical Characteristics

DIMENSIONS (mm)	TYPICAL WEIGHT	OPERATING TEMPERATURE	TEMPERATURE RISE	TERMINALS
L=29 W=27 H=12	40 gr. max.	-55° - +90°C	40°C max.	SMT/TROUGH HOLES

2. Typical Electrical Characteristics

Inductance range	60μH - 1000μH
Operating frequency	50kHz - 3MHz
Rated DC current range	4A - 300A
Peak current for 1 sec.	Up to 20%-30% I nominal
DC resistance range	3 - 18 mOhm
Dielectric strength with standing voltage (between windings)	500 Vrms
Leakage to nominal Inductance ratio	≤8.10 ⁻³ %
Interwinding capacitance range	200 pF - 700 pF

3. Typical Thermal Impedance For Different Cooling Conditions

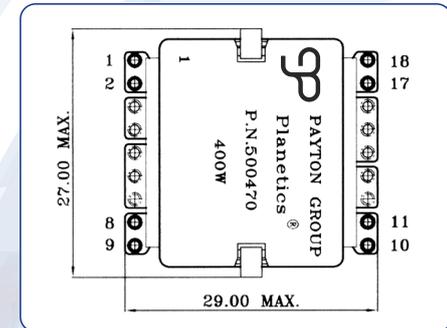
NATURAL COOLING (Hot Spot - Air)	BLOWING AIR 3m/sec (Hot Spot - Air)	ONE SIDE HEATSINK (Hot Spot - Heatsink)	TWO SIDES HEATSINK (Hot Spot - Heatsink)
22°C/W	12°C/W	7°C/W	3.5°C/W

Common Mode Choke P.N. 500470

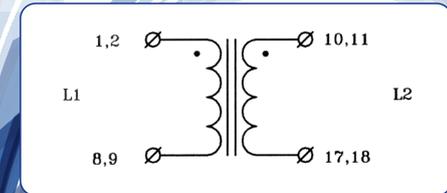
This I055-3-3 high inductance, high current, low leakage, high efficiency and small dimensions planar common mode choke is developed for suppressing common mode noise from switch mode power supplies lines, providing the following specifications:

Common Mode Choke Specifications

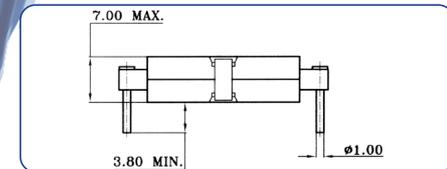
Inductance L1, L2	330 μ H \pm 30%
Rated DC Current	20A
Operating Frequency	300 kHz.
Peak Current for 1 sec.	60A _{dc}
Dielectric strength (between L1+L2 to core)	500 V _{rms}
Power losses (With 90°C heat sink)	2.7W
Ambient temperature	-55°C to +90°C
Hot spot temperature (With 90°C heat sink)	115°C
Weight	20 gr.



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)

OFF THE SHELF

SMT planar transformers



- Input voltage of power stage: 36 - 75 Vdc link.
- Power Range: up to 40W.
- Topology: Forward with resonant reset or active clamp.
- Footprint: 18.8mm x 15.2mm - Max.
- Height: 6.6 mm - Max.
- Frequency range: 400 kHz to 1000 kHz.
- Pri./Sec. isolation (operational): 1800 Vdc.
- Operating ambient temperature: -40°C to +85°C

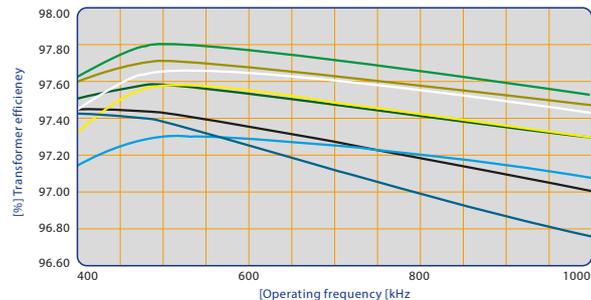
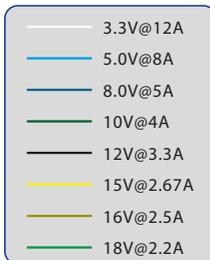


Electrical Specifications@25°C

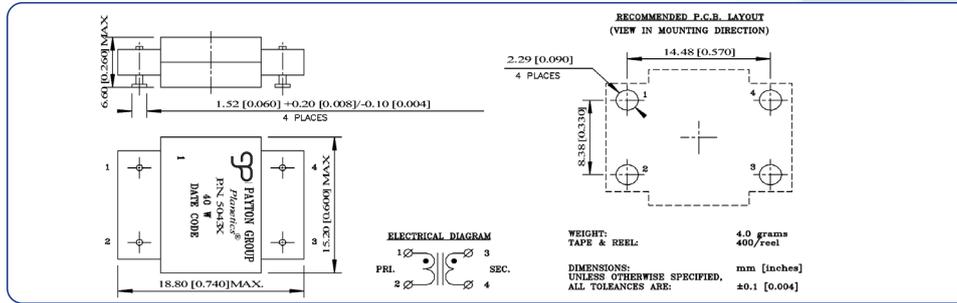
Part Number	Output Voltage & Current	Primary Side				Secondary Side		Turns Ratio	Duty Cycle Max.	Pri. to Sec. Capacitance Max.[pF]
		Number of Turns	Inductance Nominal [μH]	Leak. Ind. Maximum [μH]	DCR Max [mΩ]	Number of Turns	DCR Max [mΩ]			
50430	3.3V@12A	12	216	0.5	70	2	3	12:2	0.642	130
50431	5.0V@8A	12	216	0.5	70	3	8	12:3	0.62	130
50432	8.0V@5A -10.0V@4A	12	216	0.5	70	6	30	12:6	0.592	130
50433	12V@3.3A -15V@2.67A	12	216	0.5	70	8	55	12:8	0.655	130
50434	16V@2.5A -18V@2.2A	12	216	0.5	70	10	70	12:10	0.626	150

1. The Transformer has to be attached to a Heat Sink (PCB with Aluminum substrate) with a maximum 85°C temperature.
2. The Transformer hot spot temperature can be calculated as: $T_{hotspot} = T_{heatsink} + 20 \cdot P_{losses} [W]$.

Transformer typical efficiency



Mechanical Specifications and Electrical diagrams



OFF THE SHELF

SMT planar transformers



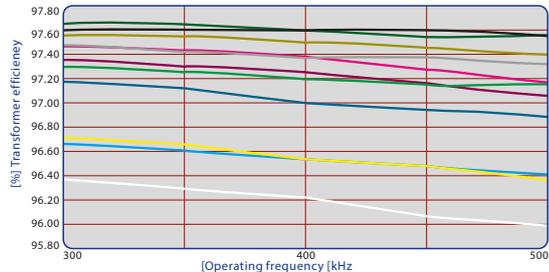
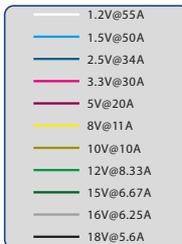
- Input voltage of power stage: 18 - 36 Vdc link.
- Power Range: up to 100W.
- Topology: Forward with resonant reset or active clamp.
- Footprint: 23.5mm x 20.1 mm - Max.
- Height: 7.4 mm - Max.
- Frequency range: 300 kHz to 500 kHz.
- Pri./Sec. isolation (operational): 1800 Vdc.
- Operating ambient temperature: -40°C to +85°C

Electrical Specifications@25°C

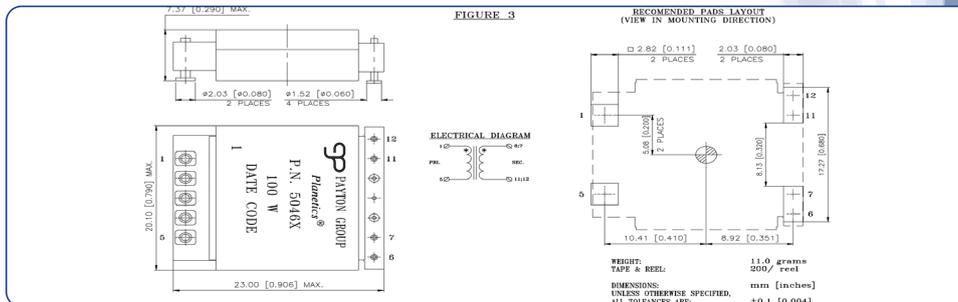
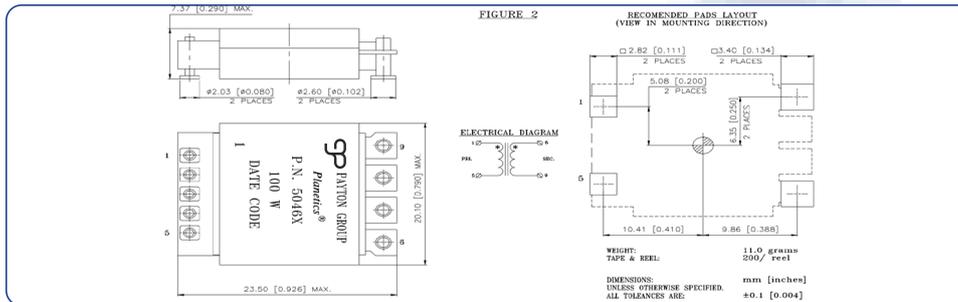
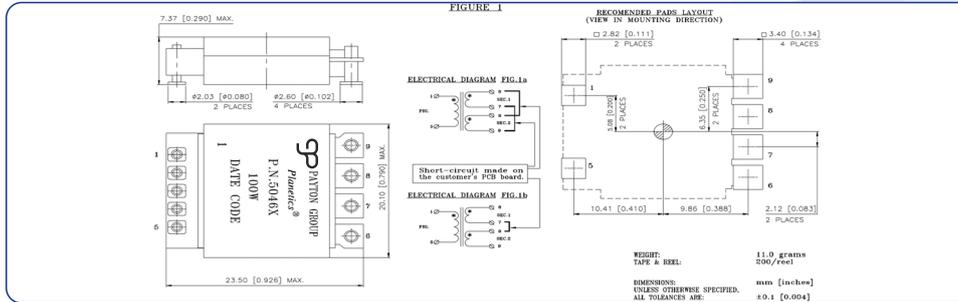
Part Number	Fig.	Output Voltage & Current	Primary Side				Secondary Side		Turns Ratio	Duty Cycle Max.	Pri.toSec. Capacitance Max.[pF]
			Number of Turns	Inductance Nominal [µH]	Leak. Ind. Maximum [µH]	DCR Max. [mΩ]	Number of Turns	DCR Max. [mΩ]			
50465	1a	1.2V@55A-1.5V@50A	6	79	0.15	10	1//1	0.5//0.5	6:1:1	0.686	150
50465	1b	2.5V@34A-3.3V@30A	6	79	0.15	10	1+1	0.5+0.5	6:1:1	0.651	150
50466	2	5.0V@20A	6	79	0.15	10	3	2.4	6:3	0.629	150
50467	3	8.0V@11A-10.0V@10A	6	79	0.15	10	6	16	6:6	0.60	200
50468	3	12V@8.33A-15V@6.67A	6	79	0.1	10	8	22	6:8	0.664	250
50469	3	16V@6.25A-18V@5.6A	6	79	0.1	10	10	30	6:10	0.634	250
50807	3	9V@11A	6	79	0.15	10	5	9	6:5	0.65	200

1. The Transformer has to be attached to a Heat Sink (PCB with Aluminum substrate) with a maximum 85°C temperature.
 2. The Transformer hot spot temperature can be calculated as: Hotspot = Theatsink+15*Plosses[W].

Transformer typical efficiency



Mechanical Specifications and Electrical diagrams



OFF THE SHELF

SMT planar transformers



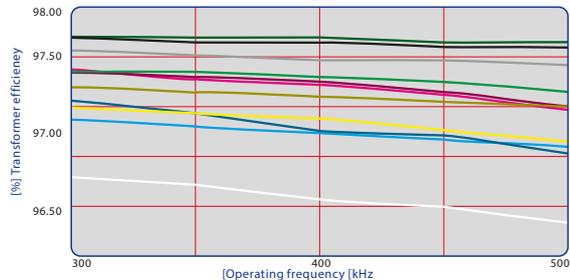
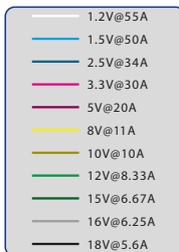
- Input voltage of power stage: 36 - 75 Vdc link.
- Power Range: up to 100W.
- Topology: Forward with resonant reset or active clamp.
- Footprint: 23.5mm x 20.1 mm - Max.
- Height: 7.4 mm - Max.
- Frequency range: 300 kHz to 500 kHz.
- Pri./Sec. isolation (operational): 1800 Vdc.
- Operating ambient temperature: -40°C to +85°C

Electrical Specifications@25°C

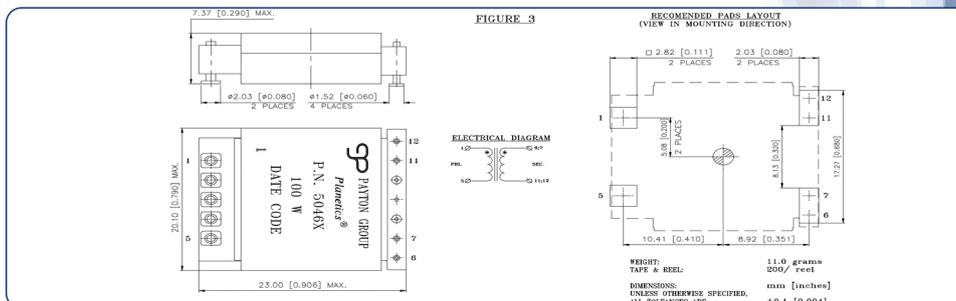
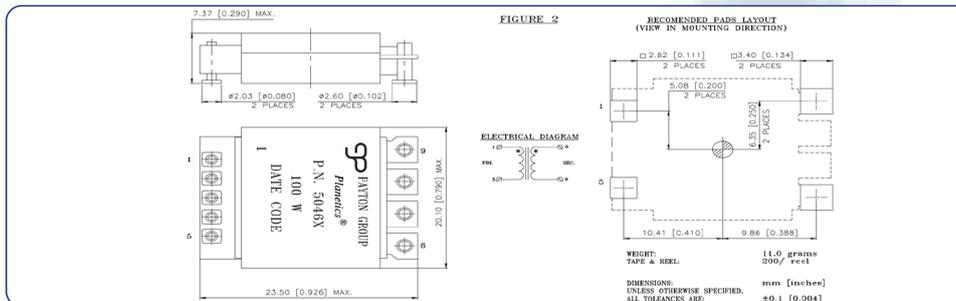
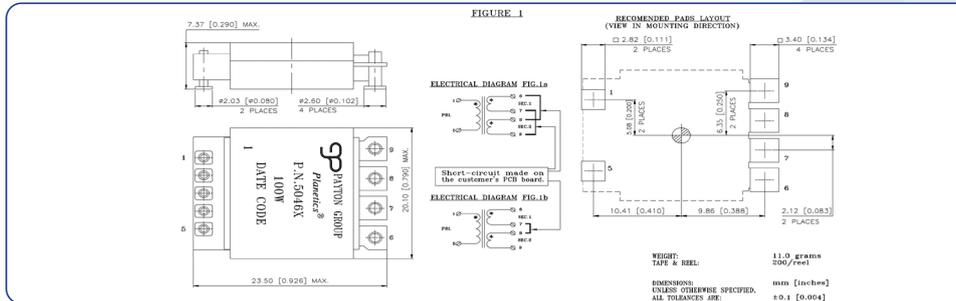
Part Number	Fig.	Output Voltage & Current	Primary Side				Secondary Side		Turns Ratio	Duty Cycle Max.	Pri.toSec. Capacitance Max.[pF]
			Number of Turns	Inductance Nominal [µH]	Leak. Ind. Maximum [µH]	DCR Max. [mΩ]	Number of Turns	DCR Max. [mΩ]			
50460	1a	1.2V@55A-1.5V@50A	12	316	0.8	40	1//1	0.5//0.5	12:1:1	0.642	150
50460	1b	2.5V@34A-3.3V@30A	12	316	0.8	40	1+1	0.5+0.5	12:1:1	0.642	150
50461	2	5.0V@20A	12	316	0.6	40	3	2.4	12:3	0.62	150
50462	3	8.0V@11A-10.0V@10A	12	316	0.3	40	6	16	12:6	0.592	200
50463	3	12V@8.33A-15V@6.67A	12	316	0.25	40	8	22	12:8	0.655	250
50464	3	16V@6.25A-18V@5.6A	12	316	0.25	40	10	30	12:10	0.625	250

1. The Transformer has to be attached to a Heat Sink (PCB with Aluminum substrate) with a maximum 85°C temperature.
2. The Transformer hot spot temperature can be calculated as: $T_{hotspot} = T_{theatsink} + 15 \times P_{losses[W]}$.

Transformer typical efficiency

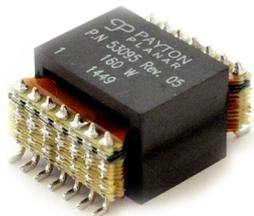


Mechanical Specifications and Electrical diagrams



OFF THE SHELF

SMT planar transformers



- Power Range: up to 140W.
- Footprint: 24.0 mm x 20.0 mm - Max.
- Height: 8.6 mm to 9.7 mm - Max.
- Frequency range: 200 kHz to 700 kHz.
- Pri./Sec. isolation (operational): 1750 Vdc.

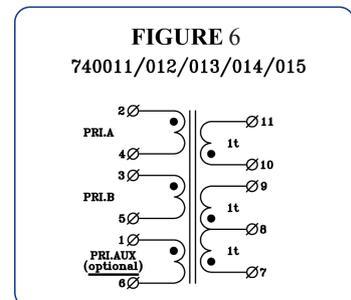
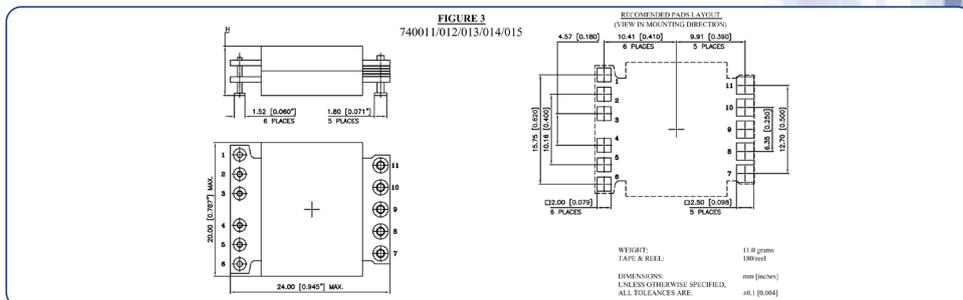
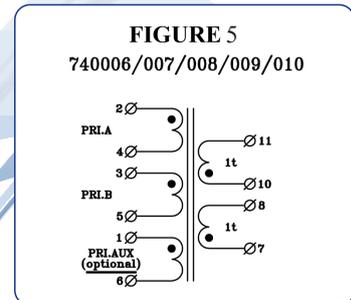
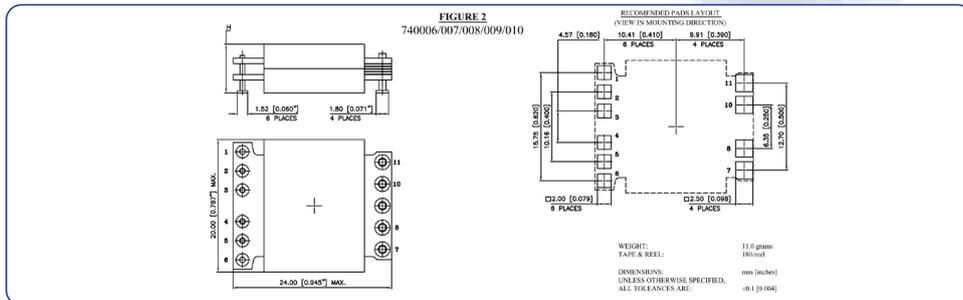
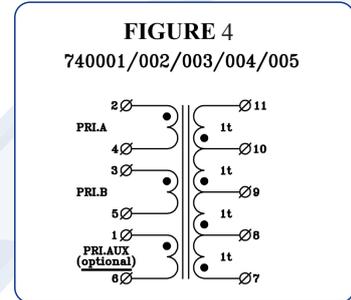
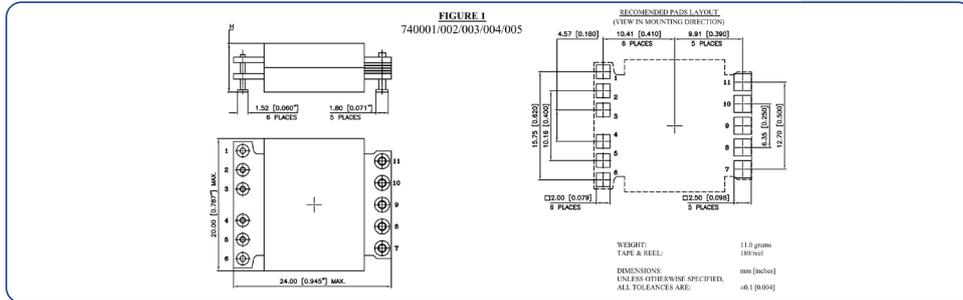


Electrical Specifications@25°C

Part Number	Fig.	Number of Turns	Primary Side			Secondary Side		Maximum Height [mm]
			Inductance Nominal [μH]	Leak. Ind. Maximum [μH]	DCR Max. [mΩ]	Number of Turns	DCR Max. [mΩ]	
740001	1.4	4//4	153	0.45	17.5//17.5	4(1+1+1+1)	5	8.6
740002	1.4	4//5	194	0.45	17.5//20	4(1+1+1+1)	5	8.6
740003	1.4	5//5	240	0.55	20//20	4(1+1+1+1)	5	8.6
740004	1.4	5//6	290	0.6	20//25	4(1+1+1+1)	5	8.6
740005	1.4	6//6	345	0.65	25//25	4(1+1+1+1)	5	8.6
740006	2.5	4//4	153	0.45	17.5//17.5	1//1	0.875//0.875	8.6
740007	2.5	4//5	194	0.45	17.5//20	1//1	0.875//0.875	8.6
740008	2.5	5//5	240	0.55	20//20	1//1	0.875//0.875	8.6
740009	2.5	5//6	290	0.6	20//25	1//1	0.875//0.875	8.6
740010	2.5	6//6	345	0.65	25//25	1//1	0.875//0.875	8.6
740011	3.6	4//4	153	0.45	17.5//17.5	2//1	1.75//1	8.6
740012	3.6	4//5	194	0.45	17.5//20	2//1	1.75//1	8.6
740013	3.6	5//5	240	0.55	20//20	2//1	1.75//1	8.6
740014	3.6	5//6	290	0.6	20//25	2//1	1.75//1	9.7
740015	3.6	6//6	345	0.65	25//25	2//1	1.75//1	9.7

1. Inductance is measured with both primary windings connected in series (2 to 5, with 3 and 4 shorted).
2. Leakage inductance is measured on winding (2,5) with (3,4) and (7,8,9,10,11) shorted.
3. Max. operating temp. means the max. ambient plus temp. rise of the transformer.

Mechanical Specifications and Electrical diagrams



OFF THE SHELF

Up to 350W planar transformers



- Power Range: up to 350W.
- Input voltage: 18 - 36 Vdc or 36 -72 Vdc.
- Height: 12.0 mm to 14.5 Max.
- Footprint: 30.0 mm x 25 mm - Max.
- Frequency range: 200 kHz to 400 kHz.
- Pri./Sec. isolation (operational): 1500 Vdc.



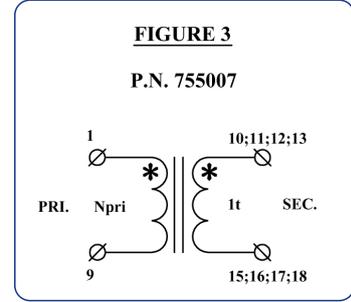
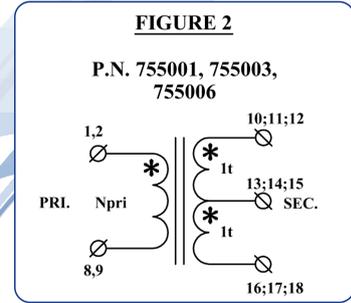
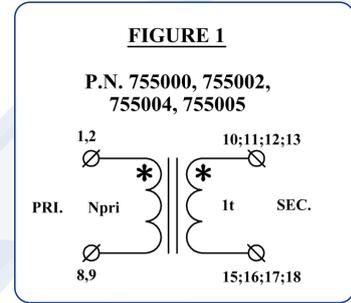
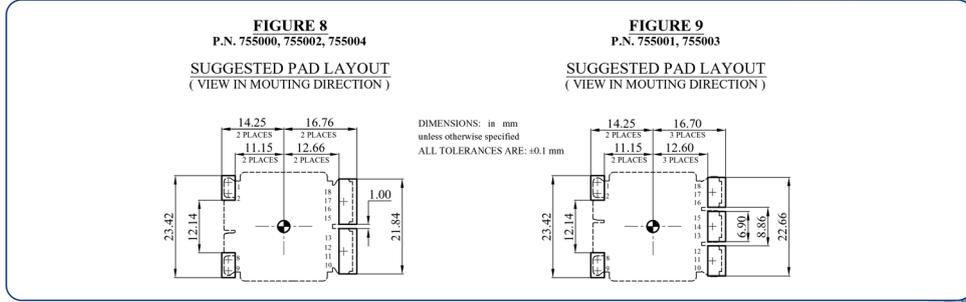
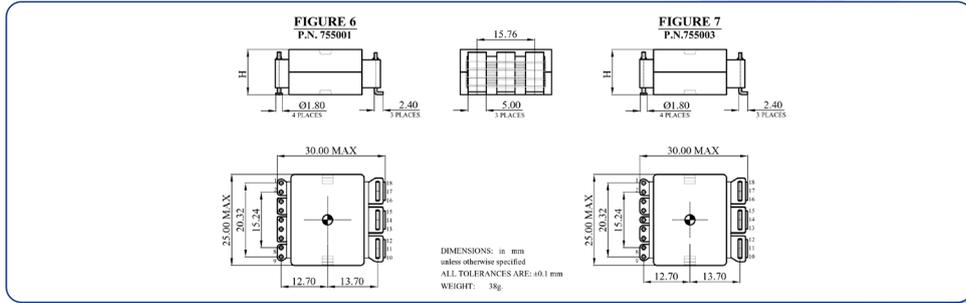
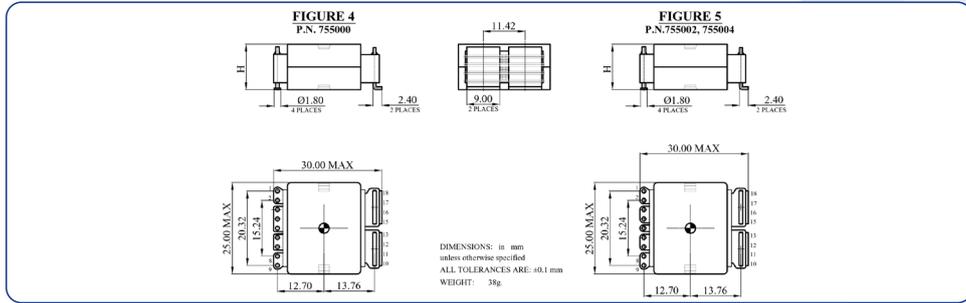
Electrical Specifications@25°C

Part Number	Fig.	Primary Side					Secondary Side			Maximum Height [mm]
		Input Voltage [Vdc]	Number of Turns	Inductance Nominal [μH]	Leak. Ind. Maximum [μH]	DCR Max. [mΩ]	Ootput Vottage [Vdc]	Number of Turns	DCR Max. [mΩ]	
755000	1,4,8	18-36	4//4	20	0.09	1.1	3,5	1	0.085	13.5
755001	2,6,9	18-36	4//5	20	0.06	1.1	7	2	0.45	13.5
755002	1,5,8	18-36	5//5	35	0.27	1.7	2,5	1	0.085	13.5
755003	2,7,9	18-36	5//6	35	0.12	1.7	5	2	0.45	13.5
755004	1,5,8	36-72	6//6	35	0.15	2.1	5	1	0.092	13.5
755005	1,10	36-72	4//4	80	0.38	3.5	3,5	1	0.085	13.5
755006	2,11	36-72	4//5	80	0.49	3.5	7	2	0.45	13.5
755007	3,12	36-72	5//5	140	0.55	6.5	2,5	1	0.085	13.5

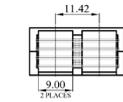
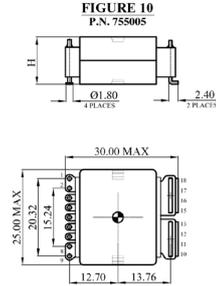
1. Leakage inductance is measured on winding (1,9) with (10,18) shorted.
2. Max. operating temp. means the max. ambient plus temp. rise of the transformer.
3. The transformer should be attached to a Heat Sink (PCB with Aluminum substrate) of a max. 85°C temp.



Mechanical Specifications and ELECTRICAL diagrams



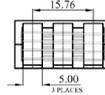
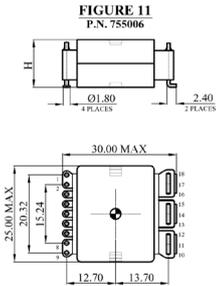
Mechanical Specifications



SUGGESTED PAD LAYOUT
(VIEW IN MOUNTING DIRECTION)



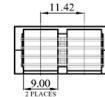
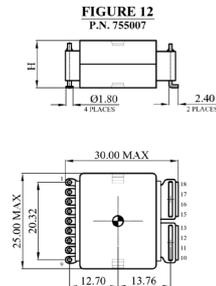
DIMENSIONS: in mm
unless otherwise specified
ALL TOLERANCES ARE: ±0.1 mm
WEIGHT: 38g



SUGGESTED PAD LAYOUT
(VIEW IN MOUNTING DIRECTION)



DIMENSIONS: in mm
unless otherwise specified
ALL TOLERANCES ARE: ±0.1 mm
WEIGHT: 38g



SUGGESTED PAD LAYOUT
(VIEW IN MOUNTING DIRECTION)



DIMENSIONS: in mm
unless otherwise specified
ALL TOLERANCES ARE: ±0.1 mm
WEIGHT: 38g

Optimal thermal management of planar magnetics in high frequency SMPS

Written by Denis Grafham, European Applications, Payton Planar Magnetics, Hautefaye, F-24300 Nontron

Abstract:

This paper focuses on the effectiveness of different mountdown methods to reduce “hot spot” temperatures in planar transformers at rated power dissipation. Methods compared include metal-loaded adhesives, simple bar clamps, clamps with vestigial fins for top-surface cooling, and “omega” shaped brackets that conduct and radiate heat away from three sides of the core at the same time. Cooling the windings separately with metal spacers trapped between windings and sink is also evaluated. Further measurements compare the effects of interface fillers such as thermal grease, dry-to-the-touch waxy compounds, thermally-enhanced polymers, graphite sheets, and “phase-change” coated aluminum foils.

These latter are solid and mess-free when cold, but liquefy when hot to expel air from the joints. Because interface enhancement is most effective when surfaces mate badly, this latter work is done with the transformer mounted on a crude stamped metal chassis.

Introduction:

Planar transformers and inductors for high frequency converters differ radical from conventional magnetics in that they do not use magnet wire. Instead, windings are copper foil lead frames or flat copper spirals laminated onto thin dielectric substrates. These windings are stacked on flat low profile ferrite “E” cores that are glued together with fine grain epoxy. Thin mylar, Kapton or high-temperature Nomex films provide the necessary inter-winding insulation.

The main benefits of planar technology are:

- Suitable for power levels from a few watts up to 20kW
- Low package profile, only 60mm high for 20kW
- Very efficient high frequency operation
- 98-99% to 3MHz and above
- Excellent repeatability thanks to pre-tooled components
- Low leakage inductance
- Easily terminated multiple windings

- Minimum skin effect
- Standard outlines compatible with application-specific custom design
- Usable in both square and sine-wave topologies
- Lend themselves to sophisticated thermal management

While core losses in ferrite-cored transformers suitable for operation above 100kHz are lowest when core “hot-spot” is about 100°C, it is uneconomic to operate at this temperature. A maximum of about 130°C is usually dictated by winding-insulator limitations, although higher temperature materials are available at increased cost. These same hot spot criteria apply to all ferrite core designs. Copper losses, on the other hand, are less troublesome in planar than in round-wire design. Due to skin effects, losses are concentrated on the surface of water-thin wide flat conductors so there is little copper wastage. Because adjacent layers are stacked tightly together like pages in a book, cooling is not difficult. By contrast, the same skin effect in round-wire designs waste copper, while minimal line contact between adjacent wires hampers heat extraction. For these reasons, raw materials are better used in planar designs, yielding smaller size and lower cost.

Most efficient heat extraction is achieved by conduction rather than by convection (radiation) cooling, that is by mounting the transformer onto a heatsink or equipment chassis. The low profile flat nature of a planar design provides an ideal large-area mounting surface for conduction cooling the core. The flat spiral-wound copper winding layers also lend themselves to conduction cooling, via metal spacers clamped between the outer winding layers and the heatsink.

Method for bonding planar transformers to aluminium heatsinks for structural heat and thermal requirements

Written by Demetrios "Jim" Marinos, Executive VP/Marketing & Engineering, Payton America Inc. October 12, 1998

1.0 Materials:

Primer: Castall 1292 primer

Adhesive: Castall s-1307 silicone adhesive, red

Filler: CAB-O-SIL fumed silica power

Glass sheres: Dragonite standards art, 31/30-0.11mm by Jaygo, Inc, Mahwah, NJ

2.0 Procedure:

Clean mating surfaces of planar and mating surface using either Freon TMS or another suitable cleaner such as isopropyl alcohol, propaklone, etc. Surfaces must be thoroughly dried before priming.

2.1
Using finger cots to prevent contamination, mix 1307 A and B adhesive carefully using an electronic balance. Mix ratio of the 1307 materials is 1 part of part A to 1 part of part B by weight. 2% of this 1307 mixture's total weight for the glass spheres and 1% for the CAB-O-SIL filler shall be mixed into the 1307 mixture. Thoroughly mix all ingredients prior to application. For example, mix 50 grams of 1307 part A and 50 grams of part B with 2.0 grams of the glass spheres and 1.0 gram of the CAB-O-SIL filler.

2.2
Prime the planar and mating surfaces with the 1292 primer to uniform film 0.5 to 1.0 mil in thickness and allow to air dry for 30-60 minutes prior to applying adhesive.

2.3
Place the combined mixture into a syringe or a small amount on a tongue depressor for application.

2.4
Carefully spread, using a serrated trowel, a continuous layer of the mixture to the mating surface for the area of the planar.

2.5
Place the planar in the proper position over the 1307 mixture on the mating surface and press the planar into the mixture to form filleting. Mixture protruding around the edges of the planar is required to form a fillet around the component. The adhesive must cover the entire mating surface of the planar interface to the mating surface with voids no larger than 0.15" and the surface coverage at least 50% and distributed over the mating surface.

2.6
Place assembly into an oven set for 175°F+/-10°F (80°C+/-5°C) for 4 hours minimum making sure that the header is level.

2.7
Upon completion of the bake cycle, remove the assembly from the oven and allow to cool for 30 minutes prior to cleaning, handling or moving to the next operation.

The following application notes are available, in their entirety, upon request:

- Optimal Thermal Management of Planar Magnetics in High Frequency SMPS
- Method for Bonding Planar Transformers to Aluminium Heatsinks for Structural and Thermal Requirements
- The Benefits of Planar Magnetics in HF Power Conversion
- Power Transformers Design for 1 MHZ Resonant Converter

To receive the aforementioned application notes, please contact us by phone, fax or e-mail.

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Total output power of the power supply: _____ (W)
 If possible, please advise application: _____

Output power duty cycle (if applicable):
 on time _____ min. off time _____ min.

Output DC voltage and DC current of the power supply:

first output: _____ Vdc(V) _____ Idc(A)
 second output: _____ Vdc(V) _____ Idc(A)
 third output: _____ Vdc(V) _____ Idc(A)
 fourth output: _____ Vdc(V) _____ Idc(A)
 fifth output: _____ Vdc(V) _____ Idc(A)
 sixth output _____ Vdc(V) _____ Idc(A)

SMPS topology

Forward Full Bridge ZVT Half Bridge ZVT
 Push-Pull Full Bridge Half Bridge
 Flyback continuous Flyback discontinuous
 Other: _____

Note: For resonant topologies please attach electrical diagram with wave forms of current and voltage.

Winding center tap:

Primary: Yes No | Secondaries: Yes No

Transformer operation frequency: _____ kHz

DC link input voltage: Min. _____ (V) Max. _____ (V)

Switching Duty Cycle: Min. _____ % Max. _____ %

Primary to secondaries turn ratios (not obligatory):

Np/Nsec 1 _____ Np/Nsec 2 _____

Np/Nsec 3 _____ Np/Nsec 4 _____

Np/Nsec 5 _____ Np/Nsec 6 _____

Notes: a. In center tap topologies Np = half of the primary, Nsec = half of the secondary.
 b. Typical 3 secondaries for OFF-LINE transformers.

Secondaries output current (Arms):

Sec 1 _____ Sec 2 _____ Sec 3 _____
 Sec 4 _____ Sec 5 _____ Sec 6 _____



Primary to secondaries isolation:
 _____ (Vdc) or _____ (Vrms)

Ambient temperature:

Min. _____ (°C) Max. _____ (°C)

Available cooling:

Blowing forced air _____ Linear M per Sec.
 (3 m/sec is recommended for fan cooling),

Attached to an external heat sink with Max. Temp _____ (°C)
 cooling condition (recommended for best power utilization of Planar)

Clearance and creepage requirements _____ (mm) (if relevant)

Dimension limitations if critical:

L _____ mm. W _____ mm. H _____ mm.

Terminals:

SMT "Through Holes" pins (TH) strips for cable shoes (ST)

Required quantity:

Samples: _____ pcs Production _____ pcs/year

Target price: USD _____

Name: _____

Title: _____

Phone: _____ Fax: _____

Country: _____ State: _____

Company: _____

E-mail: _____

Notes: _____

Total number of windings (output): _____

If possible, please advise SMPS application: _____

Inductor application:

filter Resonant PFC PFI Common mode

Other: _____

For PFC inductor only, please specify RMS current at 100-120Hz ____ (A)
and peak to peak current for operation frequency ____ (APP).

Inductance with rated current (Please specify: AC, DC, or peak):

Winding 1: _____ Winding 2: _____ Winding 3 _____
 $\mu\text{H} @ (\text{A})$ $\mu\text{H} @ (\text{A})$ $\mu\text{H} @ (\text{A})$

Winding 4: _____ Winding 5: _____
 $\mu\text{H} @ (\text{A})$ $\mu\text{H} @ (\text{A})$

Inductor operation frequency: _____ kHz

Maximum ACpp ripple current:

_____ (A) or _____ (% of rated DC current)

Ambient temperature:

Min. ____ (°C) Max. ____ (°C)

Isolation Requirements: ____ Vdc ____ Vrms

Available cooling :

Blowing forced air ____ Linear M per Sec.

(3 m/sec is recommended for fan cooling),

Attached to an external heat sink with Max. Temp ____ (°C)

cooling condition (recommended for best power utilization of Planar)

Clearance and creepage requirements ____ (mm) (if relevant)

Dimension limitations if critical:

L ____ mm. W ____ mm. H ____ mm.

Terminals:

SMT "Through Holes" pins (TH) strips for cable shoes (ST)

Required quantity:

Samples: ____ pcs Production ____ pcs/year

Target price: USD _____

Name: _____

Title: _____

Phone: _____ Fax: _____

Country: _____ State: _____

Company: _____

E-mail: _____

Notes: _____



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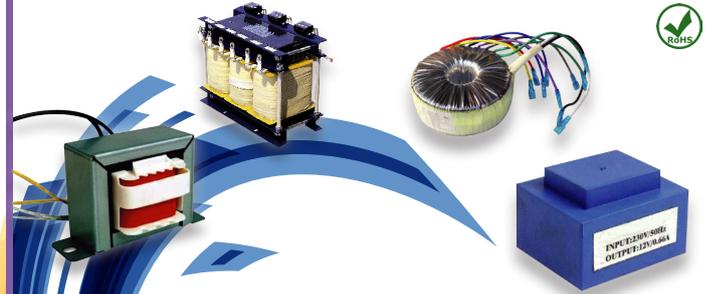
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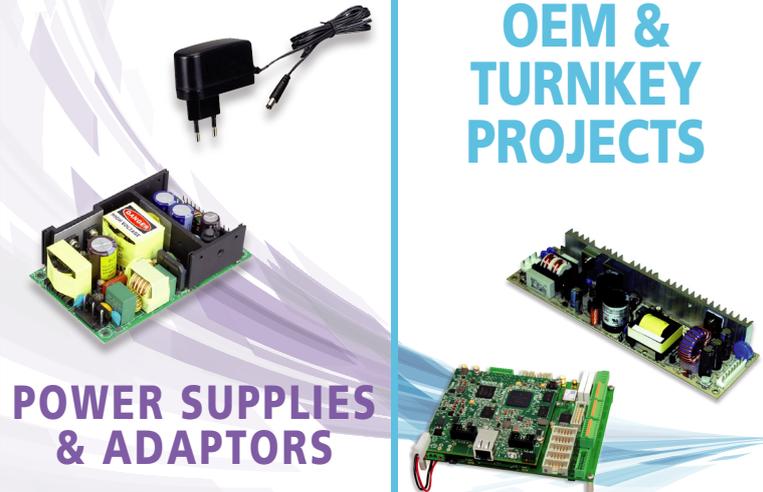
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