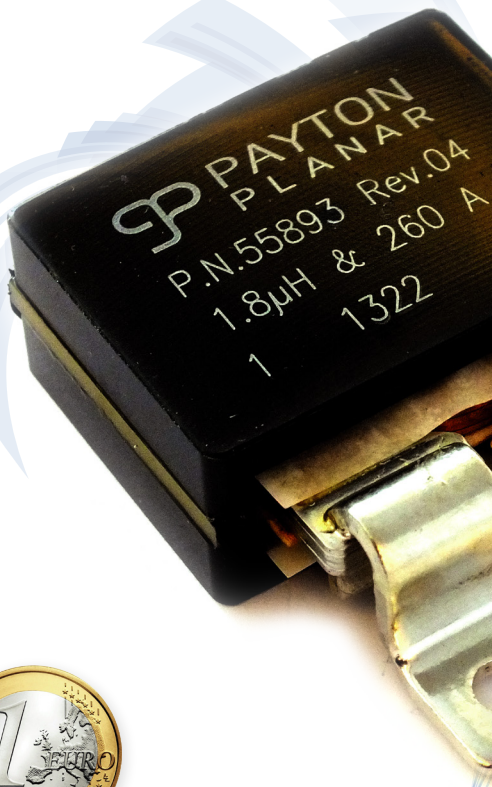


## SIZE 551



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<br>3.5kW, full bridge at 250 kHz | L = 52-95<br>W = 53-78<br>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 <sup>2</sup> ) | 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                                  |

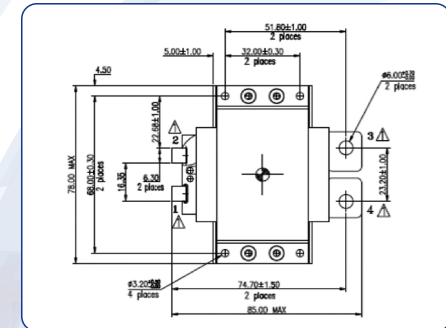


## Transformer Type T551 AC P.N. 513696

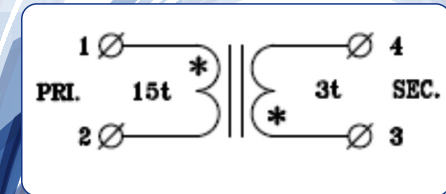
This T551DC-15-3, high power, high input voltage, small dimensional planar transformer is developed for a high power density DC-DC converter, providing the following specifications:

### Transformer Specifications

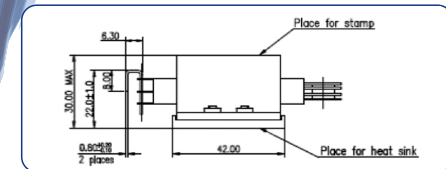
|  |                                       |
|--|---------------------------------------|
| Total output power                                 | 2596 W (16 Vdc@156 Adc)               |
| Operating frequency                                | 72 kHz                                |
| Input voltage range                                | 195 - 435V                            |
| Topology   | Full bridge ZVS, with current doubler |
| Volt-Sec. product                                  | 2252V- $\mu$ Sec                      |
| Operating Duty cycle                               | 0.84                                  |
| Primary current<br>(for 92% power supply effic.)   | 19.3 Arms                             |
| Sec. current                                       | 90 Arms                               |
| Primary to Sec. ratio<br>(sec. current - 118 Arms) | 15 : 3                                |
| Dielectric strength<br>pri. to sec.+core           | 2700 Vdc                              |
| sec. to core                                       | 2700 Vdc                              |
| Ambient temperature                                | -40°C to +105°C                       |
| Total losses<br>(With 65°C heat sink)              | 38W                                   |
| Hot spot temperature<br>(With 65°C heat sink)      | 145°C                                 |
| Weight   | 350 gr.                               |



TOP VIEW



ELECTRICAL DIAGRAM



SIDE VIEW

(All dimensions are given in mm.)