schaffner
energy efficiency and reliability

# Pulse Transformer with Single Secondary Winding

- Galvanic separation of drive and power circuit
- Voltage resistance up to 8 kV
- Ignition current up to 3 A
- Turns ratio up to 3:1

Approvals

RoHS

IT pulse transformers are designed to offer you galvanic isolation for transformer coupled gate drives. The IT series provides negligible delays and the possibility of voltage scaling. They are available with single or double secondary winding for multiple gate drives. Choosing the IT product line brings you the rapid availability of a standard gate drive transformer. A wide selection on turns ratio, ignition current and voltages are designed to offer you the desired standard product.

## Technical specifications

| | |
|---|---|
| **Nominal operating voltage** | Up to 3000 V |
| **Ignition currents** | 0.1 to 3 A @ 40 °C |
| **Max. partial discharge voltage** | 1.5 x U<sup>nom</sup> |
| **Rise time** | 0.3 to 2.3 µs |
| **Test voltage** | Up/50 Hz/2s max. according to VDE 110b |
| **Temperature range (operation and storage)** | -25 °C to +70 °C (25/70/21) |
| **Flammability corresponding to** | UL 94 V-0 listed materials |
| **Operating frequency** | 40 kHz max.<br>500 kHz max. for data transmission |

## Features and benefits

- Galvanic separation
- Voltage resistance up to 8 kV
- Allows high potential difference voltage scaling
- Optional grounded shields
- Vacuum potting
- Very low partial discharge effects
- PCB through hole mounting or faston types
- Custom-specific versions on request

## Typical applications

- Gate drive circuit
- Power supplies
- Power converters
- Frequency converters
- Switching applications
- DC/DC converters
- Line coupling transformers in high-speed data transmission

## Pulse transformer selection table

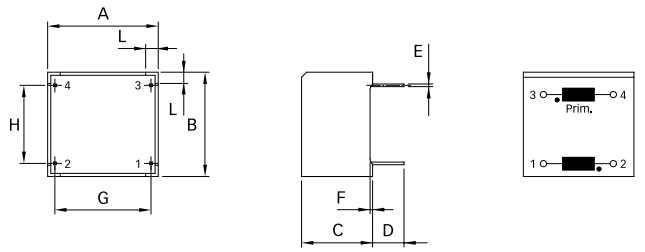
| Pulse transformer | Turns ratio | Ignition current Iign [A] | Voltage Unom [V] | Voltage Up [kV] | Voltage time area V0t [Vµs] | Rise time tr [µs] | Inductance* Lp [mH] | Inductance* Lstr [µH] | Resistance Rp [Ω] | Resistance Rs [Ω] | Coupling capacitance Ck [pF] | Input/ Output connections | | Weight [g] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IT 155** | 1:1 | 0.1 | 500 | 4 | 480 | 1 | 5 | 85 | 1.2 | 1.2 | 6 | 02 | | 13 |
| **IT 245** | 1:1 | 0.1 | 750 | 4 | 500 | 1.2 | 8 | 100 | 1.48 | 1.48 | 10 | 02 | | 6 |
| **IT 237** | 1:1 | 0.25 | 500 | 2.5 | 1100 | 1 | 25 | 35 | 1.9 | 2.2 | 50 | 02 | | 14 |
| **IT 239** | 1:1 | 0.25 | 1000 | 6 | 300 | 2.3 | 3 | 80 | 0.9 | 0.9 | 5 | 02 | | 13 |
| **IT 255** | 1:1 | 0.25 | 750 | 4 | 250 | 1.1 | 2.2 | 40 | 0.8 | 0.8 | 8 | 02 | | 6 |
| **IT 258** | 1:1 | 1 | 750 | 3.2 | 250 | 0.25 | 2.5 | 3 | 0.62 | 0.75 | 80 | 02 | | 6 |
| **IT 370** | 1:1 | 1 | 1000 | 5 | 4000 | 0.6 | 0.3 | 6 | 0.16 | 0.18 | 40 | 02 | | 71 |
| **IT 364**** | 1:1 | 3 | 3000 | 8 | 5000 | 1.7 | 1.5 | 10 | 0.16 | 0.14 | 35 | | 05 | 220 |
| | | | | | | | | | | | | | | |
| **IT 246** | 2:1 | 0.1 | 750 | 4 | 200 | 0.4 | 7 | 35 | 2.1 | 1.1 | 7 | 02 | | 6 |
| **IT 248** | 2:1 | 0.25 | 750 | 3.2 | 350 | 2.2 | 17 | 80 | 3.2 | 1.6 | 9 | 02 | | 6 |
| | | | | | | | | | | | | | | |
| **IT 260** | 3:1 | 0.1 | 500 | 3.2 | 200 | 0.3 | 12 | 30 | 2 | 0.8 | 8 | 02 | | 6 |

* Tolerance: +50%; -30%
** Not suitable for PCB-mounting.

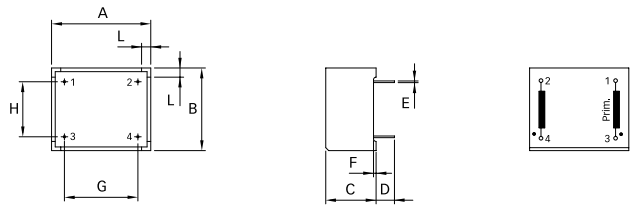
Explanations:
– tr rise time at given load resistor R and 70% of the output pulse height.
– Lp primary inductance measured at 1 kHz (secondary coile open).
– Lstr stray inductance measured at the secondary side, short circuit at the primary side. If there are several secondary coils only one at the time is connected (measuring frequency 10 kHz).
– The ignition current is a set peak value where the voltage drop over the coil resistance is still insignificant (mostly below 1 V).

## Mechanical data

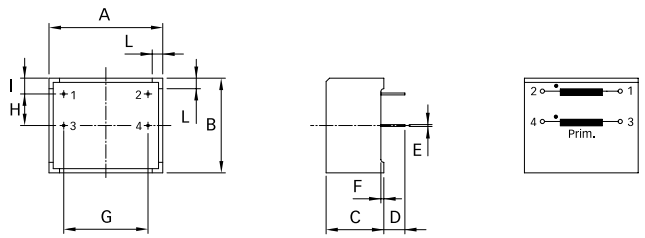
### IT 245, IT 246, IT 248, IT 255, IT 258, IT 260



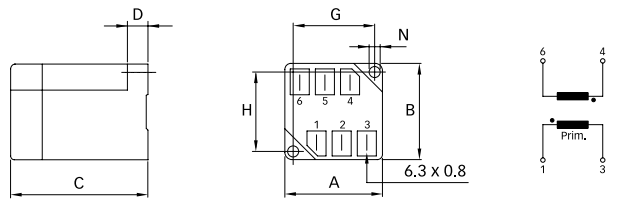

### IT 239



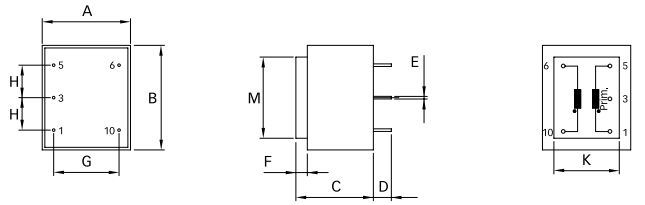

### IT 155, IT 237




### IT 364




### IT 370




## Dimensions

| | IT 245 | IT 246 | IT 248 | IT 255 | IT 258 | IT 260 | IT 239 | IT 155 | IT 237 | IT 364 | IT 370 | Tol. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | 17.6* | 17.6* | 17.6* | 17.6* | 17.6* | 17.6* | 27 | 27 | 27 | 50 | 27 | ±0.2 |
| **B** | 16.7* | 16.7* | 16.7* | 16.7* | 16.7* | 16.7* | 22.5 | 22.5 | 22.5 | 50 | 32.2 | ±0.2 |
| **C** | 11.3* | 11.3* | 11.3* | 11.3* | 11.3* | 11.3* | 13.7 | 13.7 | 13.7 | 60 | 23.7 | ±0.2 |
| **D** | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 10* | 5.5 | +1/-0 |
| **E** | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.45 | 0.45 | 0.45 | | Ø0.8 | |
| **F** | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.7 | | 3.5 | |
| **G** | 15.3 | 15.3 | 15.3 | 15.3 | 15.3 | 15.3 | 20 | 20 | 20 | 42 | 20 | ±0.2 |
| **H** | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 15 | 7.5 | 7.5 | 42 | 10 | ±0.2 |
| **I** | | | | | | | | 3.5 | 3.5 | | | ±0.2 |
| **L** | 2 | 2 | 2 | 2 | 2 | 2 | 2.5 | 2.5 | 2.5 | | | |
| **M** | | | | | | | | | | | 25 | ±0.2 |
| **N** | | | | | | | | | | Ø4.2 | | |

* Tolerance is ±0.1

All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2768-m / EN 22768-m

Please visit www.schaffner.com to find more details on connectors.

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