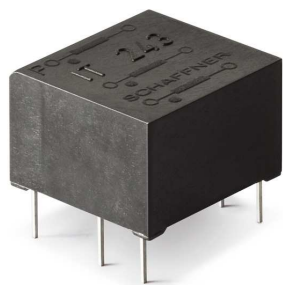


Pulse Transformer with Single Secondary Winding



- 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                                                        |
| Operating frequency                       | 40 kHz max.<br>500 kHz max. for data transmission<br>DC to 40000 Hz |
| Ignition currents                         | 0.1 to 3 A @ 40°C                                                   |
| Rise time                                 | 0.3 to 2.3 µs                                                       |
| Test voltage                              | Up/50 Hz/2 s max. according to VDE 110b                             |
| Max. partial discharge voltage            | 1.5 x U <sup>nom</sup>                                              |
| Temperature range (operation and storage) | -25°C to +70°C (25/70/21)                                           |
| Flammability corresponding to             | UL 94 V-0 listed materials                                          |

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<br>current<br><br>I <sub>ign</sub><br>[A] | Voltage                 |                        | Voltage<br>time area<br><br>V <sub>0t</sub><br>[Vμs] | Rise<br>time<br><br>t <sub>r</sub><br>[μs] | Inductance*            |                          | Resistance            |                       | Coupling<br>capacitance<br><br>C <sub>k</sub><br>[pF] | Input/ Output<br>connections |    | Weight<br><br>[g] |
|-------------------|-------------|----------------------------------------------------|-------------------------|------------------------|------------------------------------------------------|--------------------------------------------|------------------------|--------------------------|-----------------------|-----------------------|-------------------------------------------------------|------------------------------|----|-------------------|
|                   |             |                                                    | U <sub>nom</sub><br>[V] | U <sub>p</sub><br>[kV] |                                                      |                                            | L <sub>p</sub><br>[mH] | L <sub>str</sub><br>[μH] | R <sub>p</sub><br>[Ω] | R <sub>s</sub><br>[Ω] |                                                       |                              |    |                   |
| 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%

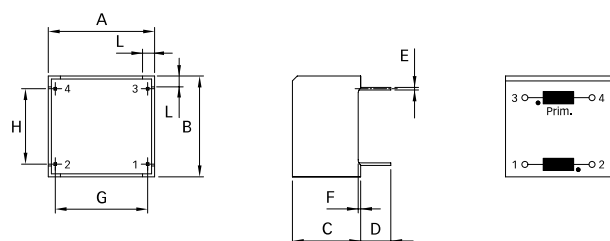
\*\* Not suitable for PCB-mounting.

Explanations:

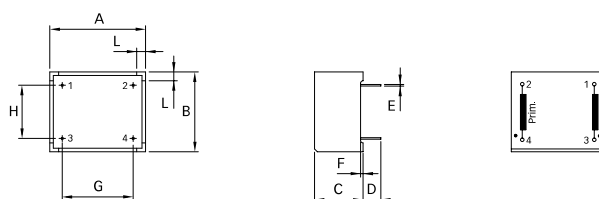
- t<sub>r</sub> rise time at given load resistor R and 70% of the output pulse height.
- L<sub>p</sub> primary inductance measured at 1 kHz (secondary coil open).
- L<sub>str</sub> stray inductance measured at the secondary side, short circuit at the primary side. If there are several secondary coils 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

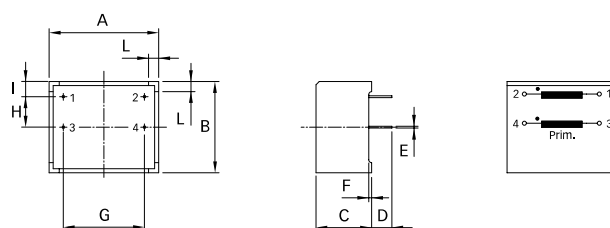
IT 245, IT 246, IT 248, IT 255, IT 258, IT 260



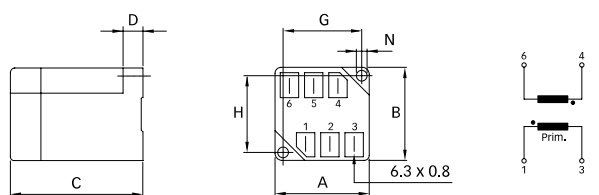
IT 239



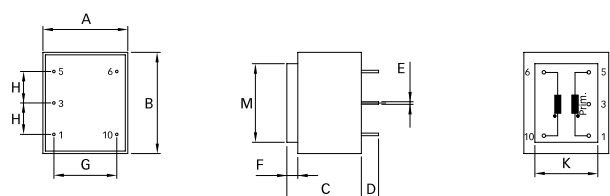
IT 155, IT 237



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.  |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| <b>A</b> | 17.6*  | 17.6*  | 17.6*  | 17.6*  | 17.6*  | 17.6*  | 27     | 27     | 27     | 50     | 27     | ±0.2  |
| <b>B</b> | 16.7*  | 16.7*  | 16.7*  | 16.7*  | 16.7*  | 16.7*  | 22.5   | 22.5   | 22.5   | 50     | 32.2   | ±0.2  |
| <b>C</b> | 11.3*  | 11.3*  | 11.3*  | 11.3*  | 11.3*  | 11.3*  | 13.7   | 13.7   | 13.7   | 60     | 23.7   | ±0.2  |
| <b>D</b> | 5      | 5      | 5      | 5      | 5      | 5      | 5      | 5      | 5      | 10*    | 5.5    | +1/-0 |
| <b>E</b> | 0.42   | 0.42   | 0.42   | 0.42   | 0.42   | 0.42   | 0.45   | 0.45   | 0.45   |        | Ø0.8   |       |
| <b>F</b> | 0.4    | 0.4    | 0.4    | 0.4    | 0.4    | 0.4    | 0.7    | 0.7    | 0.7    |        | 3.5    |       |
| <b>G</b> | 15.3   | 15.3   | 15.3   | 15.3   | 15.3   | 15.3   | 20     | 20     | 20     | 42     | 20     | ±0.2  |
| <b>H</b> | 12.5   | 12.5   | 12.5   | 12.5   | 12.5   | 12.5   | 15     | 7.5    | 7.5    | 42     | 10     | ±0.2  |
| <b>I</b> |        |        |        |        |        |        |        | 3.5    | 3.5    |        |        | ±0.2  |
| <b>L</b> | 2      | 2      | 2      | 2      | 2      | 2      | 2.5    | 2.5    | 2.5    |        |        |       |
| <b>M</b> |        |        |        |        |        |        |        |        |        |        | 25     | ±0.2  |
| <b>N</b> |        |        |        |        |        |        |        |        |        | Ø4.2   |        |       |

\* Tolerance is ±0.1

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

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