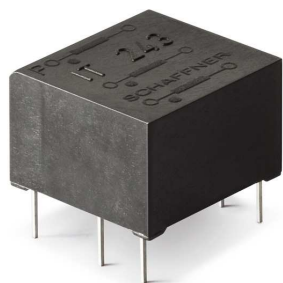


Pulse Transformer with Single Secondary Winding



- 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%

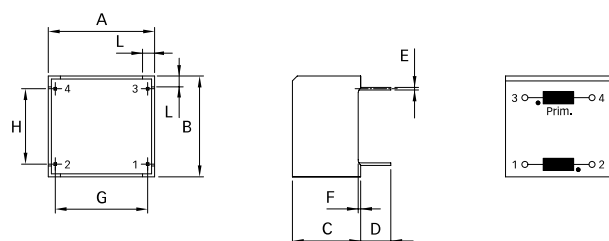
\*\* Not suitable for PCB-mounting.

Explanations:

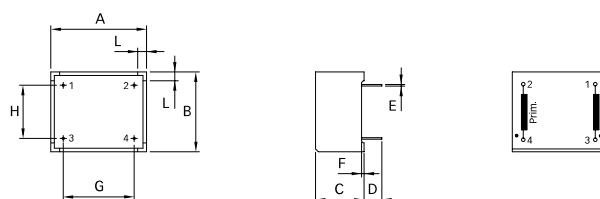
- t<sub>r</sub> rise time at given load resistor R and 70% of the output pulse height.
- L<sub>p</sub> primary inductance measured at 1 kHz (secondary coil open).
- L<sub>str</sub> stray inductance measured at the secondary side, short circuit at the primary side. If there are several secondary coils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

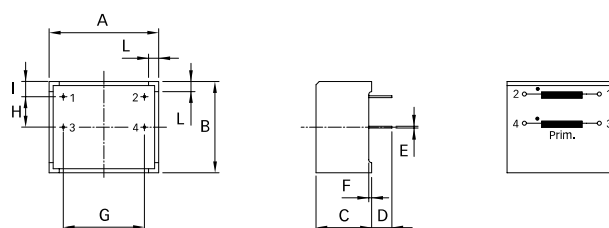
IT 245, IT 246, IT 248, IT 255, IT 258, IT 260



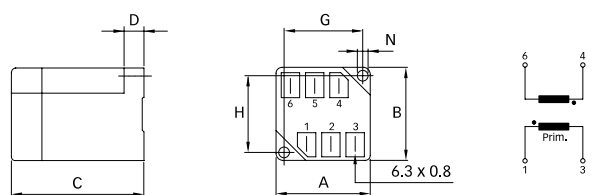
IT 239



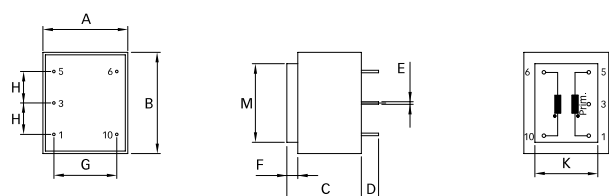
IT 155, IT 237



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

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on connectors.



## Headquarters, global innovation and development

### Switzerland

#### Schaffner Group

Nordstrasse 11  
4542 Luterbach  
T +41 32 681 66 26  
[info@schaffner.com](mailto:info@schaffner.com)  
[www.schaffner.com](http://www.schaffner.com)



## Sales and application centers

### China

#### Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road,  
Pudong district  
201201 Shanghai  
T +86 21 3813 9500  
[cschina@schaffner.com](mailto:cschina@schaffner.com)  
[www.schaffner.com.cn](http://www.schaffner.com.cn)

### Finland

#### Schaffner Oy

Sauvonrinne 19 H  
08500 Lohja  
T +358 50 468 7284  
[finlandsales@schaffner.com](mailto:finlandsales@schaffner.com)

### France

#### Schaffner EMC S.A.S.

16-20 Rue Louis Rameau  
95875 Bezons  
T +33 1 34 34 30 60  
F +33 1 39 47 02 28  
[francesales@schaffner.com](mailto:francesales@schaffner.com)

### Germany

#### Schaffner Deutschland GmbH

Schoemperlenstrasse 12B  
76185 Karlsruhe  
T +49 721 56910  
F +49 721 569110  
[germanysales@schaffner.com](mailto:germanysales@schaffner.com)

### India

#### Schaffner India Pvt. Ltd

REGUS WORLD TRADE CENTRE  
WTC, 22nd Floor Unit No 2238, Brigade  
Gateway Campus, 26/1, Dr. Rajkumar Road  
Malleshwaram (W)  
560055 Bangalore  
T +91 80 67935355  
[indiasales@schaffner.com](mailto:indiasales@schaffner.com)

### Italy

#### Schaffner EMC S.r.l.

Via Ticino, 30  
20900 Monza (MB)  
T +39 039 21 41 070  
[italysales@schaffner.com](mailto:italysales@schaffner.com)

### Japan

#### Schaffner EMC K.K.

1-32-12, Kamiuma, Setagaya-ku  
7F Mitsui-seimei Sangenjaya Bldg.  
154-0011 Tokyo  
T +81 3 5712 3650  
F +81 3 5712 3651  
[japansales@schaffner.com](mailto:japansales@schaffner.com)  
[www.schaffner.jp](http://www.schaffner.jp)

### Singapore

#### Schaffner EMC Pte Ltd.

#05-09, Kg Ubi Ind. Estate  
408705 Singapore  
T +65 6377 3283  
F +65 6377 3281  
[singaporesales@schaffner.com](mailto:singaporesales@schaffner.com)

### Spain

#### Schaffner EMC España

Calle Caléndula 93, Miniparc III, Edificio E  
El Soto de Moraleja, Alcobendas  
28109 Madrid  
T +34 917 912 900  
F +34 917 912 901  
[spainsales@schaffner.com](mailto:spainsales@schaffner.com)

### Sweden

#### Schaffner EMC AB

Tegeluddsvägen 76, 2tr  
115 28 Stockholm  
T +46 8 5050 2425  
[swedensales@schaffner.com](mailto:swedensales@schaffner.com)  
[www.schaffner.com](http://www.schaffner.com)

### Switzerland

#### Schaffner EMV AG

Nordstrasse 11  
4542 Luterbach  
T +41 32 681 66 26  
[switzerlandsales@schaffner.com](mailto:switzerlandsales@schaffner.com)

### Taiwan R.O.C.

#### Schaffner EMV Ltd.

20 Floor-2, No 97, Section 1, XinTai 5th Road  
22175 XiZhi District New Taipei City 22175  
T +886 2 2697 5500  
F +886 2 2697 5533  
[taiwansales@schaffner.com](mailto:taiwansales@schaffner.com)  
[www.schaffner.com.tw](http://www.schaffner.com.tw)

### Thailand

#### Schaffner EMC Co. Ltd.

Northern Region Industrial Estate  
67 Moo 4 Tambon Ban Klang  
Amphur Muangng P.O. Box 14  
51000 Lamphun  
T +66 53 58 11 04  
F +66 53 58 10 19  
[thailandsales@schaffner.com](mailto:thailandsales@schaffner.com)

### United Kingdom

#### Schaffner Ltd.

5 Ashville Way, Molly Millars Lane  
Wokingham  
RG41 2PL Berkshire  
T +44 118 9770070  
F +44 118 9792969  
[uksales@schaffner.com](mailto:uksales@schaffner.com)

### USA

#### Schaffner EMC Inc.

52 Mayfield Avenue  
08837 Edison, New Jersey  
T +1 800 367 5566  
T +1 732 225 9533  
F +1 732 225 4789  
[usasales@schaffner.com](mailto:usasales@schaffner.com)  
[www.schaffnerusa.com](http://www.schaffnerusa.com)

#### Schaffner North America

6722 Thirlane Road  
24019 Roanoke, Virginia  
T +1 276 228 7943  
F +1 276 228 7953

#### Schaffner North America

823 Fairview Road  
24382 Wytheville, Virginia  
T +1 276 228 7943  
F +1 276 228 7258

To find your local partner within Schaffner's global network: [www.schaffner.com](http://www.schaffner.com)

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