GATE DRIVE TRANSFORMERS FOR IGBT
ACC. TO IEC 61800

MAIN FEATURES
• Low coupling capacitance
• High insulation strength (reinforced insulation)
• Very high corona extinction voltage
• Compact designs in THT and SMT casings

DESCRIPTION
In modern variable-frequency drives (VFD) IGBT are used in the inverter stage for frequency conversion. The corresponding Gate Driver Circuit needs to supply the necessary power for switching. In medium to high power applications DC/DC converters are usually used for this purpose.

Gate Drive Transformers for IGBT are the key element in these converters maintaining the safe galvanic separation between the intermediate circuit and the low voltage control side.

By using toroidal cores made from nanocrystalline VITROPERM® it is possible to transmit the required switching power in extremely compact casings saving valuable PCB space. Advanced insulation and winding concepts ensure highest corona extinction voltages as well as low coupling capacitances.

A large portfolio for typical working voltages between 500 V and 1200 V is available. The transformers feature different transmission ratios and voltage-time areas for demanding applications.

DESIGNED FOR INDUSTRIAL DRIVES
• Elevators and Escalators
• Pumps and fans
• Process automation

ADVANCED MATERIALS – THE KEY TO PROGRESS
## Magnetic and Electric Properties

<table>
<thead>
<tr>
<th>Part number</th>
<th>n</th>
<th>f (kHz)</th>
<th>ʃUt/Vs</th>
<th>P (W)</th>
<th>L₁ (mH)</th>
<th>Lₛ (µH)</th>
<th>Cₛ (pF)</th>
<th>Uᵢₘ₉₉ V₉₉</th>
<th>Uₜₐ₇₉₉ kV₉₉</th>
<th>Uₚ₉₉ kV₉₉</th>
<th>Design</th>
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<tr>
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<td>1:1.2:1.2</td>
<td>100</td>
<td>80</td>
<td>3</td>
<td>1.4</td>
<td>0.3</td>
<td>12</td>
<td>848</td>
<td>1.25</td>
<td>1.8</td>
<td>SMT</td>
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<td>8</td>
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<td>2.4</td>
<td>2.5</td>
<td>500</td>
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<td>THT</td>
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<td>THT</td>
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</table>

### Key
- **n**: turns ratio (bold: primary winding)
- **f**: working frequency
- **ʃUt/Vs**: voltage-time area at primary winding in unipolar operation
- **P**: transmittable power
- **L₁**: primary inductance (typical value)
- **Lₛ**: leakage inductance of primary winding with secondary windings shorted (typical value)
- **Cₛ**: coupling capacitance between primary and secondary windings (typical value)

### Notes
The latest addition to this range consists of above listed gate drive transformers that are built according to IEC 61800* for “Adjustable speed electrical power drive systems”. They all feature reinforced insulation. The specified corona extinction voltages are being tested at 100%.

* Please contact VAC for more detailed information on the conformity to UL 61800.

All components can be operated at temperatures up to 105 °C.

The data sheets can be downloaded from VAC’s homepage.

Design modifications are possible upon request.

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