

GATE DRIVE TRANSFORMERS FOR IGBT

OPTIMIZED FOR INFINEON'S
ECONODUAL™ 3 SERIES

INDUSTRIAL APPLICATIONS

MAIN FEATURES

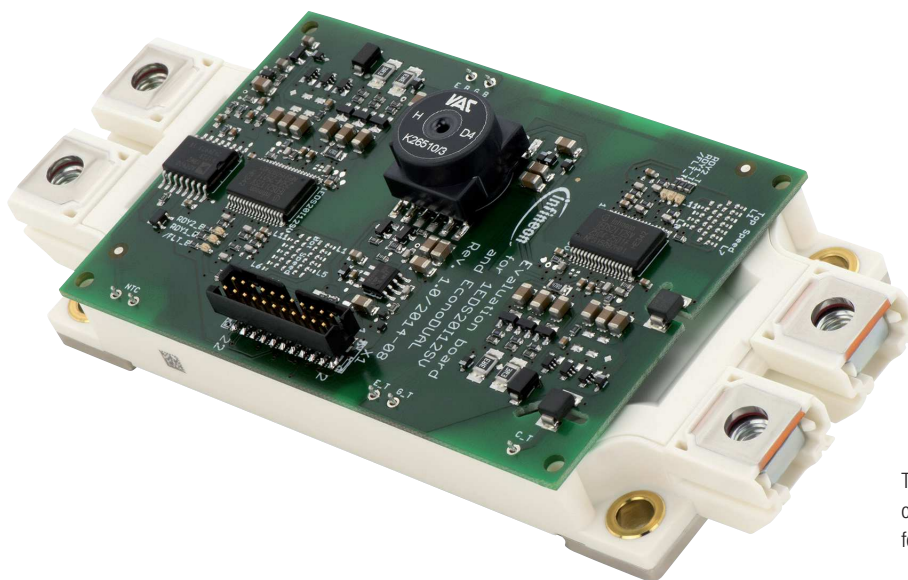
- Developed for 1200V IGBT applications
- Low coupling capacitance
- High insulation strength (reinforced insulation)
- Very high corona extinction voltage

DESCRIPTION

Gate Drive Transformers for IGBT are the key element in the driver topology supplying the necessary power for switching and 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 this power in an extremely compact casing. Advanced insulation and winding concepts ensure highest corona extinction voltages as well as low coupling capacitances.



The new gate drive transformer T60403-F5046-X100 on Infineon's evaluation board EVAL-1EDS20112SV for the EconoDUAL™ 3 IGBT series

ADVANCED MAGNETIC SOLUTIONS

VAC[®]
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MAGNETICAL AND ELECTRICAL PROPERTIES

Part number	n	f	$\int Udt$	P	L_1	L_s	C_k	$U_{is,rms}$	$U_{TA,rms}$	$U_{p,rms}$	Design
T60403-F...		kHz	μVs	W	mH	μH	pF	V	kV	kV	
5046-X100	1:1.2:1.2	100	80	3	1.4	0.3	12	848	1.25	1.8	SMT

KEY

n = turns ratio (**bold**: primary winding)

f = working frequency

$\int Udt$ = voltage-time area at primary winding in unipolar operation

P = transmittable power

L_1 = primary inductance (typical value)

L_s = leakage inductance of primary winding with secondary windings shorted (typical value)

C_k = coupling capacitance between primary and secondary windings (typical value)

$U_{is,rms}$ = insulation voltage, effective value between primary and secondary windings (identical to 'working voltage')

$U_{TA,rms}$ = corona extinction voltage, effective value at 50 Hz

$U_{p,rms}$ = test voltage, effective value at 50 Hz between primary and secondary windings

SMT = Surface-Mounting Technology

NOTES

The above listed gate drive transformer was developed in close cooperation with Infineon and is optimized for industrial drive applications using 1200V power modules with current classes up to 900A. The SMT design allows for time-efficient pick-and-place assembly.

The new evaluation board EVAL-1EDS20I12SV for Infineon's EconoDUAL™ 3 modules is equipped with this gate drive transformer. The corresponding application note can be downloaded from Infineon's homepage.

The transformer is built according to IEC 61800-5-1 for "Adjustable speed electrical power drive systems" and features reinforced insulation.

The data sheet can be downloaded from VAC's homepage.

Part number T60403-F5046-X100 is the successor of part number T60403-D4615-X054.

POSSIBLE APPLICATIONS

- Industrial drives
(e.g. for elevators, escalators, process automation...)
- Uninterruptable Power Supplies (UPS)
- Smart grid inverters

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