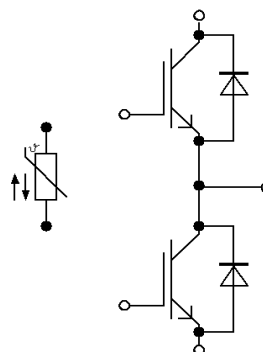
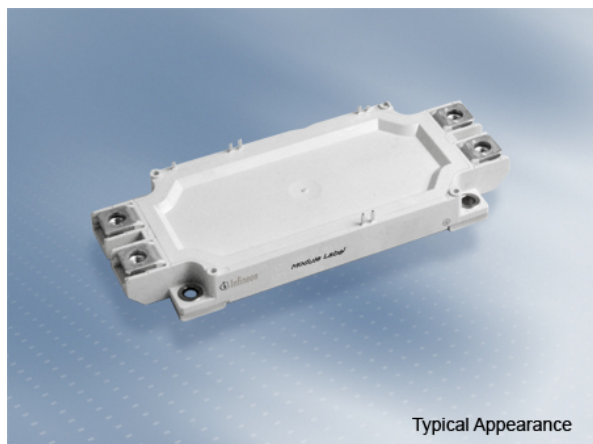


EconoDUAL™3 Modul mit Trench/Feldstopp IGBT4 und Emitter Controlled HE Diode und NTC / bereits aufgetragenem Thermal Interface Material

EconoDUAL™3 module with Trench/Fieldstop IGBT4 and Emitter Controlled HE diode and NTC / pre-applied Thermal Interface Material



$V_{CES} = 1200V$   
 $I_{C\ nom} = 225A / I_{CRM} = 450A$

### Typische Anwendungen

- Motorantriebe
- Servoumrichter
- USV-Systeme
- Windgeneratoren

### Elektrische Eigenschaften

- Niedriges  $V_{CEsat}$
- $T_{vj\ op} = 150^{\circ}C$

### Mechanische Eigenschaften

- Standardgehäuse
- Thermisches Interface Material bereits aufgetragen

### Typical Applications

- Motor drives
- Servo drives
- UPS systems
- Wind turbines

### Electrical Features

- Low  $V_{CEsat}$
- $T_{vj\ op} = 150^{\circ}C$

### Mechanical Features

- Standard housing
- Pre-applied Thermal Interface Material

## Module Label Code

Barcode Code 128



DMX - Code



### Content of the Code

Content of the Code	Digit
Module Serial Number	1 - 5
Module Material Number	6 - 11
Production Order Number	12 - 19
Datecode (Production Year)	20 - 21
Datecode (Production Week)	22 - 23

## IGBT, Wechselrichter / IGBT, Inverter

### Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	$V_{CES}$	1200	V
Kollektor-Dauergleichstrom Continuous DC collector current	$T_H = 70^{\circ}\text{C}, T_{vj\text{ max}} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$	225	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	$I_{CRM}$	450	A
Gate-Emitter-Spitzenspannung Gate-emitter peak voltage		$V_{GES}$	+/-20	V

### Charakteristische Werte / Characteristic Values

			min.	typ.	max.		
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage	$I_C = 225\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,85	2,15	V	
	$I_C = 225\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 125^{\circ}\text{C}$		2,10		V	
	$I_C = 225\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 150^{\circ}\text{C}$		2,15		V	
Gate-Schwellenspannung Gate threshold voltage	$I_C = 7,80\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		$V_{GEth}$	5,20	5,80	6,40	V
Gateladung Gate charge	$V_{GE} = -15\text{ V} \dots +15\text{ V}$		$Q_G$	1,55			$\mu\text{C}$
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		$R_{Gint}$	3,3			$\Omega$
Eingangskapazität Input capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{ies}$	13,0			nF
Rückwirkungskapazität Reverse transfer capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{res}$	0,705			nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	$V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{CES}$			3,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{GES}$			400	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	$I_C = 225\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,6\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	$t_{don}$	0,16		$\mu\text{s}$	
		$T_{vj} = 125^{\circ}\text{C}$		0,17		$\mu\text{s}$	
		$T_{vj} = 150^{\circ}\text{C}$		0,18		$\mu\text{s}$	
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 225\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,6\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	$t_r$	0,04		$\mu\text{s}$	
		$T_{vj} = 125^{\circ}\text{C}$		0,04		$\mu\text{s}$	
		$T_{vj} = 150^{\circ}\text{C}$		0,04		$\mu\text{s}$	
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 225\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,6\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	$t_{doff}$	0,38		$\mu\text{s}$	
		$T_{vj} = 125^{\circ}\text{C}$		0,47		$\mu\text{s}$	
		$T_{vj} = 150^{\circ}\text{C}$		0,50		$\mu\text{s}$	
Fallzeit, induktive Last Fall time, inductive load	$I_C = 225\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,6\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	$t_f$	0,07		$\mu\text{s}$	
		$T_{vj} = 125^{\circ}\text{C}$		0,09		$\mu\text{s}$	
		$T_{vj} = 150^{\circ}\text{C}$		0,10		$\mu\text{s}$	
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 225\text{ A}, V_{CE} = 600\text{ V}, L_S = 80\text{ nH}$ $V_{GE} = \pm 15\text{ V}, di/dt = 5750\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Gon} = 1,6\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	$E_{on}$	6,80		mJ	
		$T_{vj} = 125^{\circ}\text{C}$		12,5		mJ	
		$T_{vj} = 150^{\circ}\text{C}$		15,0		mJ	
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 225\text{ A}, V_{CE} = 600\text{ V}, L_S = 80\text{ nH}$ $V_{GE} = \pm 15\text{ V}, du/dt = 3400\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Goff} = 1,6\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	$E_{off}$	17,0		mJ	
		$T_{vj} = 125^{\circ}\text{C}$		26,5		mJ	
		$T_{vj} = 150^{\circ}\text{C}$		29,5		mJ	
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$		$I_{SC}$	900		A	
Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink	pro IGBT / per IGBT valid with IFX pre-applied thermal interface material		$R_{thJH}$		0,175	K/W	
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$	