EconoPACK™2 Modul mit Trench/Feldstopp IGBT4 und Emitter Controlled 4 Diode und NTC
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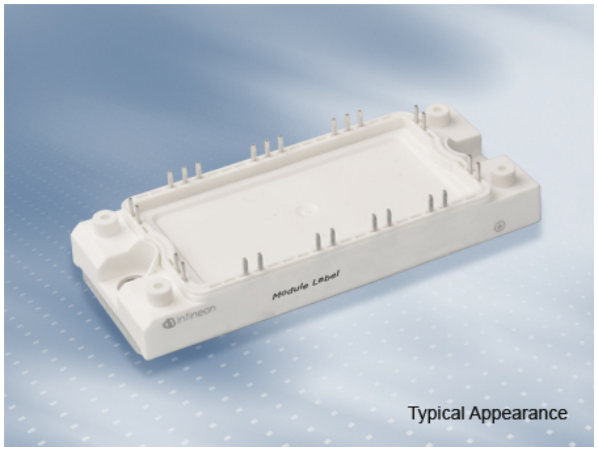
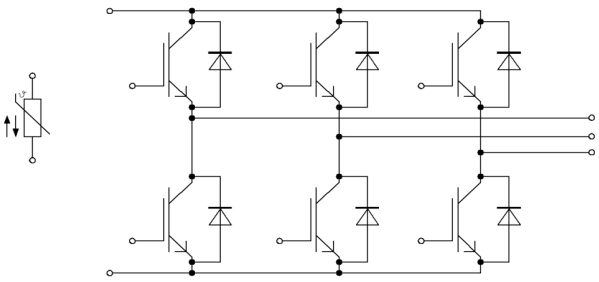
Vorläufige Daten / Preliminary Data





V_{CES} = 1200V
$I_{C\ nom}$ = 100A / I_{CRM} = 200A

Potentielle Anwendungen
- Hilfsumrichter
- Motorantriebe
- Servoumrichter

Potential Applications
- Auxiliary inverters
- Motor drives
- Servo drives

Elektrische Eigenschaften
- Niedriges V_{CEsat}
- $T_{vj\ op}$ = 150°C
- Trench IGBT 4
- V_{CEsat} mit positivem Temperaturkoeffizienten

Electrical Features
- Low V_{CEsat}
- $T_{vj\ op}$ = 150°C
- Trench IGBT 4
- V_{CEsat} with positive temperature coefficient

Mechanische Eigenschaften
- Al_2O_3 Substrat mit kleinem thermischen Widerstand
- Hohe Last- und thermische Wechselfestigkeit
- Integrierter NTC Temperatur Sensor
- Kupferbodenplatte

Mechanical Features
- Al_2O_3 substrate with low thermal resistance
- High power and thermal cycling capability
- Integrated NTC temperature sensor
- Copper base plate

Module Label Code

Barcode Code 128

Sample
00000123456000000000000

DMX - 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

Vorläufige Daten
Preliminary Data

IGBT,Wechselrichter / IGBT,Inverter

Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	T_{vj} = 25°C	V_{CES}	1200	V
Kollektor-Dauergleichstrom Continuous DC collector current	T_C = 95°C, $T_{vj\,max}$ = 175°C	$I_{C\,nom}$	100	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	200	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 = 100 A, V_{GE} = 15 V I_C = 100 A, V_{GE} = 15 V I_C = 100 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\,sat}$		1,75 2,05 2,10	2,10	V V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 3,80 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	5,05	5,80	6,45	V
Gateladung Gate charge	V_{GE} = -15 / 15 V		Q_G		0,80		µC
Interner Gatewiderstand Internal gate resistor	T_{vj} = 25°C		R_{Gint}		7,5		Ω
Eingangskapazität Input capacitance	f = 1000 kHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		6,30		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1000 kHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,27		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	V_{CE} = 1200 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			1,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25°C		I_{GES}			100	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	I_C = 100 A, V_{CE} = 600 V V_{GE} = -15 / 15 V R_{Gon} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,on}$		0,13 0,15 0,15		µs µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 100 A, V_{CE} = 600 V V_{GE} = -15 / 15 V R_{Gon} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		0,02 0,03 0,035		µs µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 100 A, V_{CE} = 600 V V_{GE} = -15 / 15 V R_{Goff} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,off}$		0,30 0,38 0,40		µs µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 100 A, V_{CE} = 600 V V_{GE} = -15 / 15 V R_{Goff} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		0,045 0,08 0,09		µs µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 100 A, V_{CE} = 600 V, Lσ = 25 nH di/dt = 2600 A/µs (T_{vj} = 150°C) V_{GE} = -15 / 15 V, R_{Gon} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		7,20 9,50 10,5		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 100 A, V_{CE} = 600 V, Lσ = 25 nH du/dt = 3600 V/µs (T_{vj} = 150°C) V_{GE} = -15 / 15 V, R_{Goff} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		5,40 8,20 9,00		mJ mJ mJ
Kurzschlußverhalten SC data	V_{GE} ≤ 15 V, V_{CC} = 800 V V_{CEmax} = V_{CES} -L_{sCE} ·di/dt	t_P ≤ 10 µs, T_{vj} = 150°C	I_{SC}		360		A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}			0,302	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)		R_{thCH}		0,135		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\,op}$	-40		150	°C