Technische Information / Technical Information

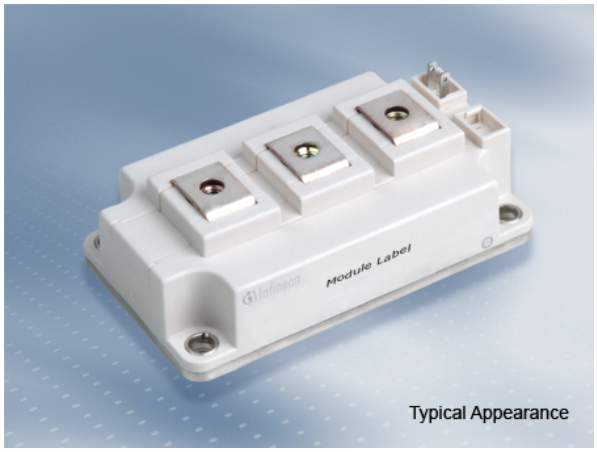
IGBT-Modul
IGBT-Module

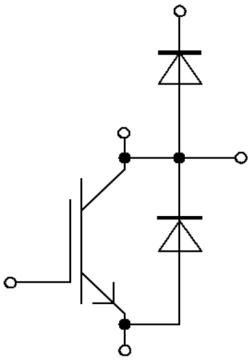
FD200R12KE3P

62mm C-Serien Modul mit Trench/Feldstopp IGBT3 und Emitter Controlled HE Diode und bereits aufgetragenem Thermal Interface Material

62mm C-Series module with Trench/Fieldstop IGBT3 and Emitter Controlled HE diode and pre-applied Thermal Interface Material

Vorläufige Daten / Preliminary Data





V_{CES} = 1200V
$I_{C\ nom}$ = 200A / I_{CRM} = 400A

Typische Anwendungen
- Chopper-Anwendungen
- DC/DC Wandler
- Motorantriebe

Typical Applications
- Chopper applications
- DC/DC converter
- Motor drives

Elektrische Eigenschaften
- Hohe Kurzschlussrobustheit
- Hohe dynamische Robustheit
- Sehr große Robustheit
- Trench IGBT 3
- V_{CEsat} mit positivem Temperaturkoeffizienten

Electrical Features
- High short-circuit capability
- High dynamic robustness
- Unbeatable robustness
- Trench IGBT 3
- V_{CEsat} with positive temperature coefficient

Mechanische Eigenschaften
- 2,5 kV AC 1min Isolationsfestigkeit
- Gehäuse mit CTI > 400
- Große Luft- und Kriechstrecken
- Isolierte Bodenplatte
- RoHS konform
- Standardgehäuse
- Thermisches Interface Material bereits aufgetragen

Mechanical Features
- 2.5 kV AC 1min insulation
- Package with CTI > 400
- High creepage and clearance distances
- Isolated base plate
- RoHS compliant
- Standard housing
- Pre-applied Thermal Interface Material

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

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Vorläufige Daten
Preliminary Data

IGBT, Brems-Chopper / IGBT, Brake-Chopper

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_H = 65°C, $T_{vj\,max}$ = 150°C	$I_{C\,nom}$	200		A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	400		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 = 200 A, V_{GE} = 15 V I_C = 200 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C	$V_{CE\,sat}$		1,70 2,00	2,15	V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 8,00 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	5,00	5,80	6,50	V
Gateladung Gate charge	V_{GE} = -15 V ... +15 V		Q_G		1,90		µC
Interner Gatewiderstand Internal gate resistor	T_{vj} = 25°C		R_{Gint}		3,8		Ω
Eingangskapazität Input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		14,0		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,50		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	V_{CE} = 1200 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			5,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25°C		I_{GES}			400	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	I_C = 200 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 3,6 Ω	T_{vj} = 25°C T_{vj} = 125°C	$t_{d\,on}$		0,25 0,30		µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 200 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 3,6 Ω	T_{vj} = 25°C T_{vj} = 125°C	t_r		0,09 0,10		µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 200 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 3,6 Ω	T_{vj} = 25°C T_{vj} = 125°C	$t_{d\,off}$		0,55 0,65		µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 200 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 3,6 Ω	T_{vj} = 25°C T_{vj} = 125°C	t_f		0,13 0,18		µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 200 A, V_{CE} = 600 V, L_S = 80 nH V_{GE} = ±15 V, di/dt = 3000 A/µs R_{Gon} = 3,6 Ω	T_{vj} = 25°C T_{vj} = 125°C	E_{on}		10,0 15,0		mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 200 A, V_{CE} = 600 V, L_S = 80 nH V_{GE} = ±15 V, du/dt = 4000 V/µs R_{Goff} = 3,6 Ω	T_{vj} = 25°C T_{vj} = 125°C	E_{off}		24,0 35,0		mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq$ 15 V, V_{CC} = 900 V $V_{CEmax} = V_{CES} - L_{sCE} \cdot di/dt$	$t_P \leq$ 10 µs, T_{vj} = 125°C	I_{SC}		800		A
Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink	pro IGBT / per IGBT valid with IFX pre-applied thermal interface material		R_{thJH}			0,153	K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\,op}$	-40		125	°C

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