Technische Information / Technical Information

IGBT-Modul
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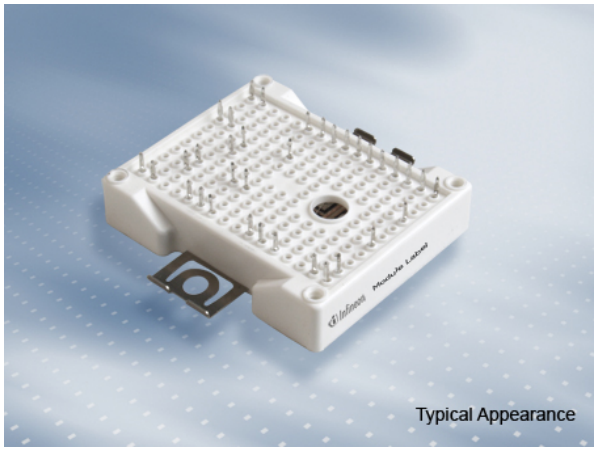
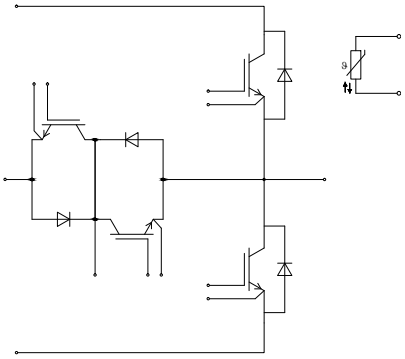
F3L200R12W2H3_B11

EasyPACK Modul mit aktiver "Neutral Point Clamp 2" Topologie und PressFIT / NTC
EasyPACK module with active "Neutral Point Clamp 2" topology and PressFIT / NTC





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

Typische Anwendungen
- 3-Level-Applikationen
- Motorantriebe
- Solar Anwendungen
- USV-Systeme

Typical Applications
- 3-level-applications
- Motor drives
- Solar applications
- UPS systems

Elektrische Eigenschaften
- High Speed IGBT H3
- Niedrige Schaltverluste
- $T_{vj\ op}$ = 150°C

Electrical Features
- High speed IGBT H3
- Low switching losses
- $T_{vj\ op}$ = 150°C

Mechanische Eigenschaften
- 3 kV AC 1min Isolationsfestigkeit
- PressFIT Verbindungstechnik
- RoHS konform

Mechanical Features
- 3 kV AC 1min insulation
- PressFIT contact technology
- RoHS compliant

Module Label Code

Barcode Code 128

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

prepared by: CM	date of publication: 2016-04-04	
approved by: AKDA	revision: V3.1	UL approved (E83335)

IGBT, T1 / T4 / IGBT, T1 / T4

Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	T_{vj} = 25°C	V_{CES}	1200	V
Implementierter Kollektor-Strom Implemented collector current		I_{CN}	200	A
Kollektor-Dauergleichstrom Continuous DC collector current	T_C = 100°C, $T_{vj\,max}$ = 175°C	$I_{C\,nom}$	100	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	400	A
Gesamt-Verlustleistung Total power dissipation	T_C = 25°C, $T_{vj\,max}$ = 175°C	P_{tot}	600	W
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	$V_{CE\,sat}$		1,55 1,70 1,75	1,75	V V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 7,60 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	5,05	5,80	6,45	V
Gateladung Gate charge	V_{GE} = -15 V ... +15 V		Q_G		1,60		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}		11,5		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,70		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} = 400 V V_{GE} = ±15 V R_{Gon} = 1,1 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,on}$		0,14 0,155 0,16		µs µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Gon} = 1,1 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		0,025 0,03 0,03		µs µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Goff} = 1,1 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,off}$		0,32 0,40 0,42		µs µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Goff} = 1,1 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		0,03 0,055 0,06		µs µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 100 A, V_{CE} = 400 V, L_S = 25 nH V_{GE} = ±15 V, di/dt = 3700 A/µs (T_{vj} = 150°C) R_{Gon} = 1,1 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		1,20 2,00 2,25		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 100 A, V_{CE} = 400 V, L_S = 25 nH V_{GE} = ±15 V, du/dt = 2700 V/µs (T_{vj} = 150°C) R_{Goff} = 1,1 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		3,50 5,30 5,90		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}		800		A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,200	0,250	K/W