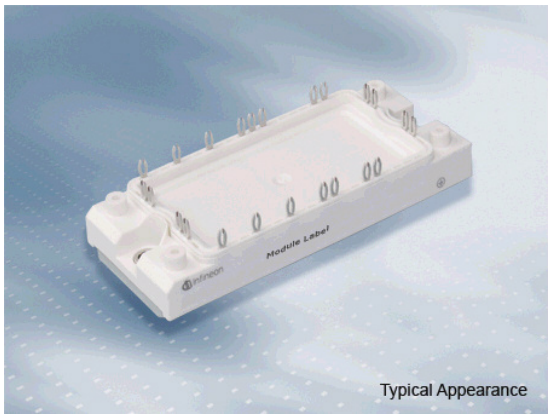
Technische Information / technical information

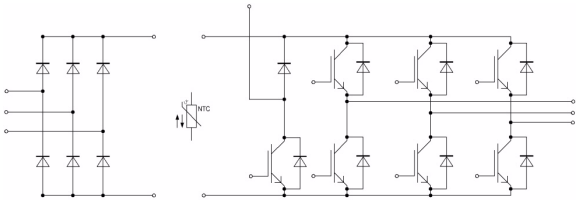
IGBT-Module
IGBT-modules

FP35R12KT4_B11

EconoPIM™2 Modul mit schnellem Trench/Feldstopp IGBT4 und Emitter Controlled 4 Diode und PressFIT / NTC

EconoPIM™2 module with fast Trench/Fieldstop IGBT4 and Emitter Controlled 4 diode and PressFIT / NTC





V_{CES} = 1200V
$I_{C\ nom}$ = 35A / I_{CRM} = 70A

Typische Anwendungen

- Hilfsumrichter
- Motorantriebe
- Servoumrichter

Typical Applications

- Auxiliary Inverters
- Motor Drives
- Servo Drives

Elektrische Eigenschaften

- Niedrige Schaltverluste
- $T_{vj\ op}$ = 150°C
- V_{CEsat} mit positivem Temperaturkoeffizienten
- Niedriges V_{CEsat}

Electrical Features

- Low Switching Losses
- $T_{vj\ op}$ = 150°C
- V_{CEsat} with positive Temperature Coefficient
- Low V_{CEsat}

Mechanische Eigenschaften

- Hohe Last- und thermische Wechselfestigkeit
- Integrierter NTC Temperatur Sensor
- Kupferbodenplatte
- PressFIT Verbindungstechnik
- Standardgehäuse

Mechanical Features

- High Power and Thermal Cycling Capability
- Integrated NTC temperature sensor
- Copper Base Plate
- PressFIT Contact Technology
- Standard Housing

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

prepared by: AS	date of publication: 2010-04-29	material no: 29310
approved by: RS	revision: 3.0	UL approved (E83335)

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 DC-collector current	T_C = 100°C, T_{vj} = 175°C	$I_{C\ nom}$	35	A
Periodischer Kollektor Spitzenstrom repetitive peak collector current	t_P = 1 ms	I_{CRM}	70	A
Gesamt-Verlustleistung total power dissipation	T_C = 25°C, T_{vj} = 175°C	P_{tot}	210	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 = 35 A, V_{GE} = 15 V I_C = 35 A, V_{GE} = 15 V I_C = 35 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\ sat}$	1,85 2,15 2,25	2,15	V V V
Gate-Schwellenspannung gate threshold voltage	I_C = 1,20 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	5,2	5,8	6,4	V
Gateladung gate charge	V_{GE} = -15 V ... +15 V		Q_G		0,27		µC
Interner Gatewiderstand internal gate resistor	T_{vj} = 25°C		R_{Gint}		0,0		Ω
Eingangskapazität input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		2,00		nF
Rückwirkungskapazität reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,07		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 (ind. Last) turn-on delay time (inductive load)	I_C = 35 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 13 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ on}$		0,16 0,17 0,17		µs µs µs
Anstiegszeit (induktive Last) rise time (inductive load)	I_C = 35 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 13 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		0,03 0,04 0,04		µs µs µs
Abschaltverzögerungszeit (ind. Last) turn-off delay time (inductive load)	I_C = 35 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 13 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ off}$		0,33 0,43 0,45		µs µs µs
Fallzeit (induktive Last) fall time (inductive load)	I_C = 35 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 13 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		0,08 0,15 0,17		µs µs µs
Einschaltverlustenergie pro Puls turn-on energy loss per pulse	I_C = 35 A, V_{CE} = 600 V, L_S = 20 nH V_{GE} = ±15 V, di/dt = 1100 A/µs (T_{vj}=150°C) R_{Gon} = 13 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		3,90 4,60 5,05		mJ mJ mJ
Abschaltverlustenergie pro Puls turn-off energy loss per pulse	I_C = 35 A, V_{CE} = 600 V, L_S = 20 nH V_{GE} = ±15 V, du/dt = 3600 V/µs (T_{vj}=150°C) R_{Goff} = 13 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		2,10 3,10 3,40		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}		130		A
Innerer Wärmewiderstand thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}			0,72	K/W
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro IGBT / per IGBT λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)		R_{thCH}		0,335		K/W