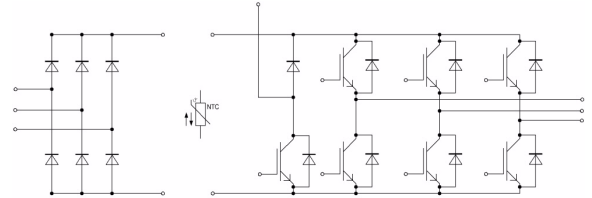
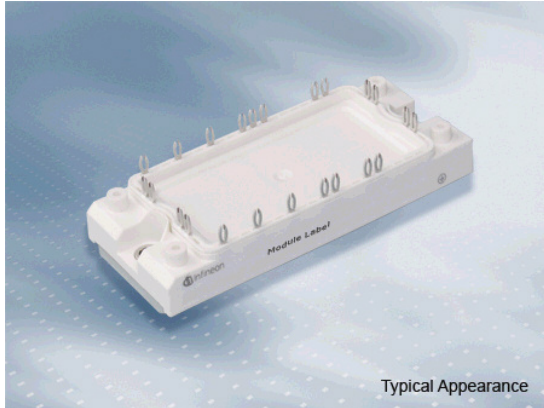


EconoPIM™2 Modul mit schnellem Trench/Feldstopp IGBT4 und Emitter Controlled 4 Diode und PressFIT / NTC

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

Electrical Features

- Low Switching Losses
- $T_{vj\ op} = 150^{\circ}C$
- 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



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	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	1200	V
Kollektor-Dauergleichstrom DC-collector current	$T_C = 100^{\circ}\text{C}, T_{vj} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$	35	A
Periodischer Kollektor Spitzenstrom repetitive peak collector current	$t_p = 1\text{ ms}$	I_{CRM}	70	A
Gesamt-Verlustleistung total power dissipation	$T_C = 25^{\circ}\text{C}, T_{vj} = 175^{\circ}\text{C}$	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	$I_C = 35\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 35\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 35\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,85 2,15 2,25	2,15	V V V	
Gate-Schwellenspannung gate threshold voltage	$I_C = 1,20\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,2	5,8	6,4	V
Gateladung gate charge	$V_{GE} = -15\text{ V} \dots +15\text{ V}$		Q_G	0,27			μC
Interner Gatewiderstand internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	0,0			Ω
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}	2,00			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}	0,07			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}			1,0	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}			100	nA
Einschaltverzögerungszeit (ind. Last) turn-on delay time (inductive load)	$I_C = 35\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 13\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ on}}$	0,16 0,17 0,17			μs μs μs
Anstiegszeit (induktive Last) rise time (inductive load)	$I_C = 35\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 13\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,03 0,04 0,04			μs μs μs
Abschaltverzögerungszeit (ind. Last) turn-off delay time (inductive load)	$I_C = 35\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 13\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ off}}$	0,33 0,43 0,45			μs μs μs
Fallzeit (induktive Last) fall time (inductive load)	$I_C = 35\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 13\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,08 0,15 0,17			μs μs μs
Einschaltverlustenergie pro Puls turn-on energy loss per pulse	$I_C = 35\text{ A}, V_{CE} = 600\text{ V}, L_S = 20\text{ nH}$ $V_{GE} = \pm 15\text{ V}, di/dt = 1100\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $R_{Gon} = 13\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	3,90 4,60 5,05			mJ mJ mJ
Abschaltverlustenergie pro Puls turn-off energy loss per pulse	$I_C = 35\text{ A}, V_{CE} = 600\text{ V}, L_S = 20\text{ nH}$ $V_{GE} = \pm 15\text{ V}, du/dt = 3600\text{ V}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $R_{Goff} = 13\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	2,10 3,10 3,40			mJ mJ 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}	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 $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,335			K/W

prepared by: AS	date of publication: 2010-04-29
approved by: RS	revision: 3.0