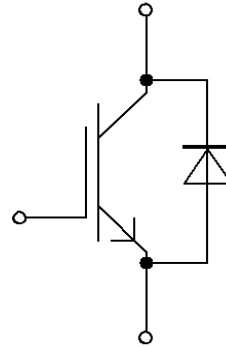


62mm C-Series Modul mit Trench/Feldstopp IGBT4 und Emitter Controlled 4 Diode
 62mm C-Series module with Trench/Fieldstop IGBT4 and Emitter Controlled 4 diode



$V_{CES} = 1200V$
 $I_{C\ nom} = 600A / I_{CRM} = 1200A$

Typische Anwendungen

- Hochleistungsumrichter
- Motorantriebe
- USV-Systeme
- Windgeneratoren

Typical Applications

- High power converters
- Motor drives
- UPS systems
- Wind turbines

Elektrische Eigenschaften

- Erweiterte Sperrschichttemperatur $T_{vj\ op}$
- Niedriges V_{CESat}
- Sehr große Robustheit
- V_{CESat} mit positivem Temperaturkoeffizienten

Electrical Features

- Extended operating temperature $T_{vj\ op}$
- Low V_{CESat}
- Unbeatable robustness
- V_{CESat} with positive temperature coefficient

Mechanische Eigenschaften

- 4 kV AC 1min Isolationsfestigkeit
- Gehäuse mit CTI > 400
- Große Luft- und Kriechstrecken
- Isolierte Bodenplatte
- Standardgehäuse

Mechanical Features

- 4 kV AC 1min insulation
- Package with CTI > 400
- High creepage and clearance distances
- Isolated base plate
- Standard housing

Module Label Code

Barcode Code 128



DMX - Code



Content of the 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

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 Continuous DC collector current	$T_C = 100^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	$I_{C\text{nom}}$	600	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	I_{CRM}	1200	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	$I_C = 600\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	$V_{CE\text{sat}}$	1,70	2,05	V	
	$I_C = 600\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 125^{\circ}\text{C}$		2,00		V	
	$I_C = 600\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 150^{\circ}\text{C}$		2,10		V	
Gate-Schwellenspannung Gate threshold voltage	$I_C = 23,0\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,20	5,80	6,40	V
Gateladung Gate charge	$V_{GE} = -15\text{ V} \dots +15\text{ V}$		Q_G	5,60			μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	1,3			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}	42,0			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}	1,70			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}			5,0	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}			400	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	$I_C = 600\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,2\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	t_{don}	0,24		μs	
		$T_{vj} = 125^{\circ}\text{C}$		0,25		μs	
		$T_{vj} = 150^{\circ}\text{C}$		0,26		μs	
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 600\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,2\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	t_r	0,09		μs	
		$T_{vj} = 125^{\circ}\text{C}$		0,10		μs	
		$T_{vj} = 150^{\circ}\text{C}$		0,11		μs	
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 600\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,2\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	t_{doff}	0,61		μs	
		$T_{vj} = 125^{\circ}\text{C}$		0,64		μs	
		$T_{vj} = 150^{\circ}\text{C}$		0,66		μs	
Fallzeit, induktive Last Fall time, inductive load	$I_C = 600\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,2\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	t_f	0,14		μs	
		$T_{vj} = 125^{\circ}\text{C}$		0,17		μs	
		$T_{vj} = 150^{\circ}\text{C}$		0,18		μs	
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 600\text{ A}, V_{CE} = 600\text{ V}, L_S = 60\text{ nH}$ $V_{GE} = \pm 15\text{ V}, di/dt = 5500\text{ A}/\mu\text{s}$ ($T_{vj} = 150^{\circ}\text{C}$) $R_{Gon} = 1,2\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	E_{on}	35,0		mJ	
		$T_{vj} = 125^{\circ}\text{C}$		50,0		mJ	
		$T_{vj} = 150^{\circ}\text{C}$		55,0		mJ	
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 600\text{ A}, V_{CE} = 600\text{ V}, L_S = 60\text{ nH}$ $V_{GE} = \pm 15\text{ V}, du/dt = 3000\text{ V}/\mu\text{s}$ ($T_{vj} = 150^{\circ}\text{C}$) $R_{Goff} = 1,2\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$	E_{off}	75,0		mJ	
		$T_{vj} = 125^{\circ}\text{C}$		100		mJ	
		$T_{vj} = 150^{\circ}\text{C}$		105		mJ	
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CE\text{max}} = V_{CES} - L_{SCE} \cdot di/dt$	$t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}	2400		A	
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,0480	K/W	
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT $\lambda_{\text{Paste}} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{\text{grease}} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,0250		K/W	
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{op}}$	-40	150	$^{\circ}\text{C}$	