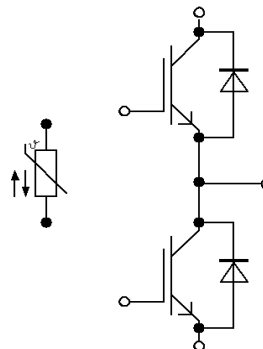


PrimePACK™2 Modul mit Trench/Feldstopp IGBT4 und Emitter Controlled Diode
PrimePACK™2 module with Trench/Fieldstop IGBT4 and Emitter Controlled diode



$V_{CES} = 1700V$
 $I_{C\ nom} = 650A / I_{CRM} = 1300A$

Typische Anwendungen

- Hochleistungsumrichter
- Motorantriebe
- Windgeneratoren

Typical Applications

- High power converters
- Motor drives
- Wind turbines

Elektrische Eigenschaften

- Hohe Kurzschlussrobustheit
- Hohe Stoßstromfestigkeit
- Hohe Stromdichte
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} mit positivem Temperaturkoeffizienten

Electrical Features

- High short-circuit capability
- High surge current capability
- High current density
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} with positive temperature coefficient

Mechanische Eigenschaften

- 4 kV AC 1min Isolationsfestigkeit
- Gehäuse mit CTI > 400
- Große Luft- und Kriechstrecken
- Integrierter NTC Temperatur Sensor
- RoHS konform
- Thermisches Interface Material bereits aufgetragen

Mechanical Features

- 4 kV AC 1min insulation
- Package with CTI > 400
- High creepage and clearance distances
- Integrated NTC temperature sensor
- RoHS compliant
- Pre-applied Thermal Interface Material

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

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IGBT, Wechselrichter / IGBT, Inverter
Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	1700	V
Kollektor-Dauergleichstrom Continuous DC collector current	$T_H = 65^{\circ}\text{C}, T_{vj\text{ max}} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$	650	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	I_{CRM}	1300	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	$I_C = 650\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 650\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 650\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	2,00 2,35 2,45	2,45 2,90 3,00	V V V
Gate-Schwellenspannung Gate threshold voltage	$I_C = 24,0\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,20	5,80	6,40 V
Gateladung Gate charge	$V_{GE} = -15\text{ V} \dots +15\text{ V}$		Q_G	7,00		μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	2,3		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}	54,0		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	$V_{CE} = 1700\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$		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	$I_C = 650\text{ A}, V_{CE} = 900\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,8\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{don}	0,55 0,60 0,60		μs μs μs
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 650\text{ A}, V_{CE} = 900\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,8\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,09 0,11 0,12		μs μs μs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 650\text{ A}, V_{CE} = 900\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 2,7\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{doff}	1,00 1,25 1,30		μs μs μs
Fallzeit, induktive Last Fall time, inductive load	$I_C = 650\text{ A}, V_{CE} = 900\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 2,7\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,29 0,49 0,57		μs μs μs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 650\text{ A}, V_{CE} = 900\text{ V}, L_S = 45\text{ nH}$ $V_{GE} = \pm 15\text{ V}, di/dt = 5000\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Gon} = 1,8\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	205 300 320		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 650\text{ A}, V_{CE} = 900\text{ V}, L_S = 45\text{ nH}$ $V_{GE} = \pm 15\text{ V}, du/dt = 3200\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Goff} = 2,7\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	140 205 230		mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 1000\text{ V}$ $V_{CEmax} = V_{CES} - L_{sCE} \cdot di/dt$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$		I_{SC}	2700		A
Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink	pro IGBT / per IGBT valid with IFX pre-applied thermal interface material		R_{thJH}		54,3	K/kW
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

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