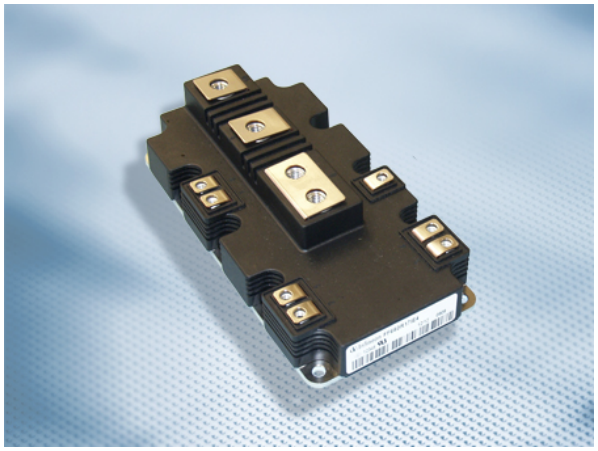
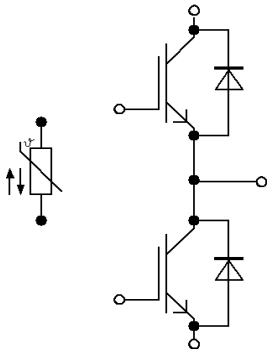
Technische Information / Technical Information

IGBT-Modul
IGBT-Module

FF900R12IP4P

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





V_{CES} = 1200V
$I_{C\ nom}$ = 900A / I_{CRM} = 1800A

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°C
- V_{CEsat} mit positivem Temperaturkoeffizienten

Electrical Features
- High short-circuit capability
- High surge current capability
- High current density
- $T_{vj\ op}$ = 150°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

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

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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 Continuous DC collector current	T_H = 60°C, $T_{vj\,max}$ = 175°C	$I_{C\,nom}$	900	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	1800	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 = 900 A, V_{GE} = 15 V I_C = 900 A, V_{GE} = 15 V I_C = 900 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\,sat}$	 	1,70 2,00 2,10	2,05 2,40 2,55	V V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 33,0 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	5,00	5,80	6,50	V
Gateladung Gate charge	V_{GE} = -15 V ... +15 V		Q_G		6,40		µC
Interner Gatewiderstand Internal gate resistor	T_{vj} = 25°C		R_{Gint}		1,2		Ω
Eingangskapazität Input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		54,0		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		2,80		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	V_{CE} = 1200 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			5,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25°C		I_{GES}			400	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	I_C = 900 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,on}$	 	0,20 0,22 0,22	 	µs µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 900 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r	 	0,14 0,15 0,15	 	µs µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 900 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,off}$	 	0,70 0,80 0,85	 	µs µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 900 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f	 	0,20 0,40 0,45	 	µs µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 900 A, V_{CE} = 600 V, L_S = 45 nH V_{GE} = ±15 V, di/dt = 4800 A/µs (T_{vj} = 150°C) R_{Gon} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}	 	71,0 100 105	 	mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 900 A, V_{CE} = 600 V, L_S = 45 nH V_{GE} = ±15 V, du/dt = 2800 V/µs (T_{vj} = 150°C) R_{Goff} = 1,6 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}	 	125 160 175	 	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}		3600		A
Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink	pro IGBT / per IGBT valid with IFX pre-applied thermal interface material		R_{thJH}			48,1	K/kW
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\,op}$	-40		150	°C

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