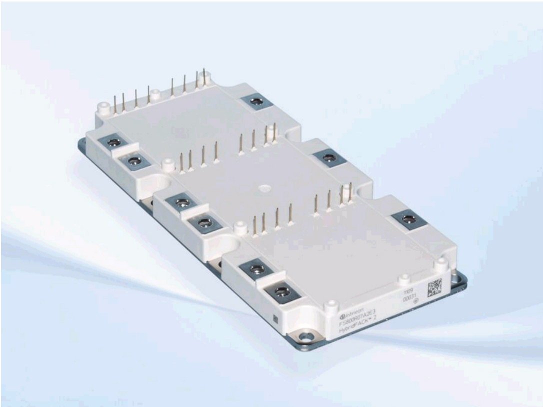
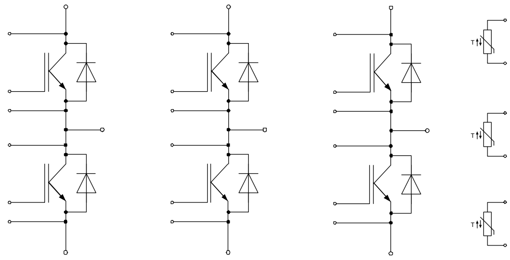
FS600R07A2E3

HybridPACK™2 Modul mit Trench/Feldstopp IGBT3 und Emitter Controlled 3 Diode und NTC
HybridPACK™2 module with Trench/Fieldstop IGBT3 and Emitter Controlled 3 diode and NTC





V_{CES} = 650V
$I_{C\ nom}$ = 600A / I_{CRM} = 1200A

Typische Anwendungen
- Anwendungen im Automobil
- Hybrid-Elektrofahrzeuge (H)EV
- Hybrid-Nutzfahrzeuge
- Motorantriebe

Typical Applications
- Automotive Applications
- Hybrid Electrical Vehicles (H)EV
- Commercial Agriculture Vehicles
- Motor Drives

Elektrische Eigenschaften
- Erhöhte Sperrspannungsfestigkeit auf 650V
- Hohe Stromdichte
- Niederinduktives Design
- Niedrige Schaltverluste
- Trench IGBT 3
- $T_{vj\ op}$ = 150°C
- V_{CEsat} mit positivem Temperaturkoeffizienten

Electrical Features
- Increased blocking voltage capability to 650V
- High Current Density
- Low inductive design
- Low Switching Losses
- Trench IGBT 3
- $T_{vj\ op}$ = 150°C
- V_{CEsat} with positive Temperature Coefficient

Mechanische Eigenschaften
- 2,5 kV AC 1min Isolationsfestigkeit
- Direkt gekühlte Bodenplatte
- Hohe Leistungsdichte
- Integrierter NTC Temperatur Sensor
- Isolierte Bodenplatte
- Kupferbodenplatte
- RoHS konform

Mechanical Features
- 2.5 kV AC 1min Insulation
- Direct Cooled Base Plate
- High Power Density
- Integrated NTC temperature sensor
- Isolated Base Plate
- Copper Base Plate
- RoHS compliant

Module Label Code

Barcode Code 128

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}	650	V
Implementierter Kollektor-Strom Implemented collector current		I_{CN}	600	A
Kollektor-Dauergleichstrom Continuous DC collector current	T_F = 75°C, T_{vj} = 175°C T_F = 25°C, T_{vj} = 175°C	$I_{C\ nom}$ I_C	400 530	A A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	1200	A
Gesamt-Verlustleistung Total power dissipation	T_F = 25°C, T_{vj} = 175°C	P_{tot}	1250	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 = 400 A, V_{GE} = 15 V I_C = 400 A, V_{GE} = 15 V I_C = 400 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\ sat}$		1,30 1,35 1,40	1,60	V V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 9,60 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	4,9	5,8	6,5	V
Gateladung Gate charge	V_{GE} = -15 V ... +15 V		Q_G		6,50		µC
Interner Gatewiderstand Internal gate resistor	T_{vj} = 25°C		R_{Gint}		0,5		Ω
Eingangskapazität Input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		39,0		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		1,15		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	V_{CE} = 650 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 = 400 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Gon} = 2,2 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ on}$		0,09 0,10 0,10		µs µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 400 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Gon} = 2,2 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		0,08 0,09 0,09		µs µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 400 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Goff} = 1,0 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ off}$		0,44 0,47 0,48		µs µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 400 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Goff} = 1,0 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		0,03 0,05 0,06		µs µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 400 A, V_{CE} = 300 V, L_S = 20 nH V_{GE} = ±15 V, di/dt = 4600 A/µs (T_{vj}=150°C) R_{Gon} = 2,2 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		9,00 11,0 11,5		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 400 A, V_{CE} = 300 V, L_S = 20 nH V_{GE} = ±15 V, du/dt = 2900 V/µs (T_{vj}=150°C) R_{Goff} = 1,0 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		14,0 17,5 18,5		mJ mJ mJ
Kurzschlußverhalten SC data	V_{GE} ≤ 15 V, V_{CC} = 360 V V_{CEmax} = V_{CES} -L_{sCE} ·di/dt	t_P ≤ 8 µs, T_{vj} = 25°C t_P ≤ 6 µs, T_{vj} = 150°C	I_{SC}		4200 3000		A A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT cooling fluid = 50% water/50% ethylenglycol; ΔV/Δt = 10,0 dm³/min		R_{thJF}			0,12	K/W

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