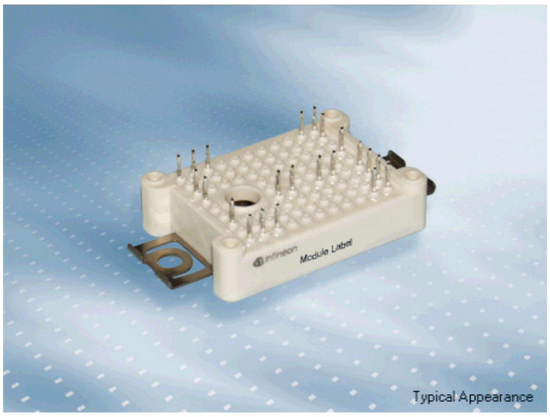
Technische Information / technical information

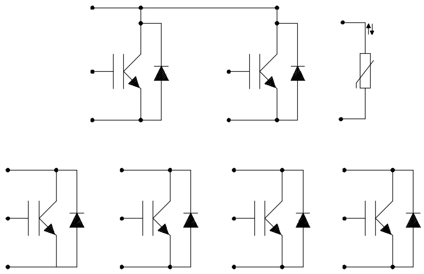
IGBT-Module
IGBT-modules

FZ30R07W1E3_B31A

EasyPACK Modul mit Trench/Feldstopp IGBT3 und Emitter Controlled 3 Diode und PressFIT / NTC
EasyPACK module with Trench/Fieldstop IGBT3 and Emitter Controlled 3 diode and PressFIT / NTC



Typical Appearance



V_{CES} = 650V
$I_{C\ nom}$ = 30A / I_{CRM} = 60A

Typische Anwendungen
- PTC-Heizer

Typical Applications
- PTC-Heater

Elektrische Eigenschaften
- Erhöhte Sperrspannungsfestigkeit auf 650V
- Niedriges V_{CEsat}
- Trench IGBT 3
- V_{CEsat} mit positivem Temperaturkoeffizienten

Electrical Features
- Increased blocking voltage capability to 650V
- Low V_{CEsat}
- Trench IGBT 3
- V_{CEsat} with positive Temperature Coefficient

Mechanische Eigenschaften
- Integrierter NTC Temperatur Sensor
- Kompaktes Design
- PressFIT Verbindungstechnik
- RoHS konform
- Robuste Montage durch integrierte Befestigungsklammern
- Substrat für kleinen thermischen Widerstand

Mechanical Features
- Integrated NTC temperature sensor
- Compact design
- PressFIT Contact Technology
- RoHS compliant
- Rugged mounting due to integrated mounting clamps
- Substrate for Low Thermal Resistance

Module Label Code

Barcode Code 128

Sample
00000123456000000000000

DMX - Code

Sample

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
Kollektor-Dauergleichstrom Continuous DC collector current	T_C = 100°C, T_{vj} = 175°C T_C = 25°C, T_{vj} = 175°C	$I_{C\ nom}$ I_C	30 45	A A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	60	A
Gesamt-Verlustleistung Total power dissipation	T_C = 25°C, T_{vj} = 175°C	P_{tot}	150	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 = 30 A, V_{GE} = 15 V I_C = 30 A, V_{GE} = 15 V I_C = 30 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\ sat}$		1,55 1,70 1,80	2,00	V V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 0,43 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		0,30		µC
Interner Gatewiderstand Internal gate resistor	T_{vj} = 25°C		R_{Gint}		0,0		Ω
Eingangskapazität Input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		1,65		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,051		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	V_{CE} = 650 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			0,05	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 = 30 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Gon} = 15 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ on}$		n.a. n.a.		µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 30 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Gon} = 15 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		n.a. n.a.		µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 30 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Goff} = 15 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ off}$		n.a. n.a.		µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 30 A, V_{CE} = 300 V V_{GE} = ±15 V R_{Goff} = 15 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		n.a. n.a.		µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 30 A, V_{CE} = 300 V, L_S = 50 nH V_{GE} = ±15 V, di/dt = 2200 A/µs (T_{vj}=150°C) R_{Gon} = 15 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		n.a.		mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 30 A, V_{CE} = 300 V, L_S = 50 nH V_{GE} = ±15 V, du/dt = 4200 V/µs (T_{vj}=150°C) R_{Goff} = 15 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		n.a.		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}		210 150		A A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,90	1,00	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)		R_{thCH}		0,85		K/W

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