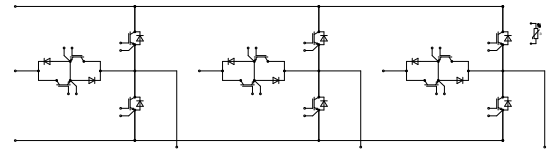
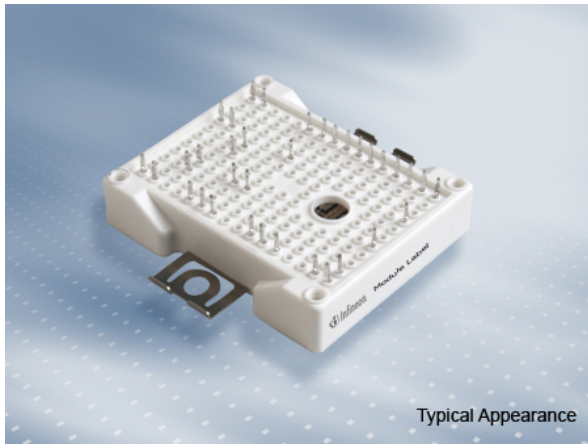


EasyPACK™ Modul mit schnellem Trench/Feldstopp IGBT4 und Emitter Controlled 4 Diode und PressFIT / NTC

EasyPACK™ module with fast Trench/Fieldstop IGBT4 and Emitter Controlled 4 diode and PressFIT / NTC

## Vorläufige Daten / Preliminary Data



$V_{CES} = 1200V$

$I_{C\ nom} = 25A / I_{CRM} = 50A$

### Potentielle Anwendungen

- 3-Level-Applikationen
- Solar Anwendungen

### Elektrische Eigenschaften

- High Speed IGBT H3
- Niederinduktives Design
- Niedrige Schaltverluste

### Mechanische Eigenschaften

- $Al_2O_3$  Substrat mit kleinem thermischen Widerstand
- Kompaktes Design
- PressFIT Verbindungstechnik
- Robuste Montage durch integrierte Befestigungsklammern

### Potential Applications

- 3-level-applications
- Solar applications

### Electrical Features

- High speed IGBT H3
- Low inductive design
- Low switching losses

### Mechanical Features

- $Al_2O_3$  substrate with low thermal resistance
- Compact design
- PressFIT contact technology
- Rugged mounting due to integrated mounting clamps

## 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, T1 / T4 / IGBT, T1 / T4

### 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	$T_H = 60^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	$I_{CDC}$	25	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	$I_{CRM}$	50	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	$I_C = 25\text{ A}$ $V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	2,05 2,50 2,60	2,40	V V V	
Gate-Schwellenspannung Gate threshold voltage	$I_C = 0,85\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		$V_{GEth}$	5,25	5,80	6,35	V
Gateladung Gate charge	$V_{GE} = -15 / 15\text{ V}$		$Q_G$	0,13			$\mu\text{C}$
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		$R_{Gint}$	0,0			$\Omega$
Eingangskapazität Input capacitance	$f = 1000\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{ies}$	1,43			nF
Rückwirkungskapazität Reverse transfer capacitance	$f = 1000\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{res}$	0,075			nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	$V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	$I_{CES}$			1,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{GES}$			100	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	$I_C = 25\text{ A}, V_{CE} = 350\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{don}$	0,055 0,055 0,055			$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 25\text{ A}, V_{CE} = 350\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_r$	0,04 0,04 0,04			$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 25\text{ A}, V_{CE} = 350\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{doff}$	0,185 0,23 0,24			$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
Fallzeit, induktive Last Fall time, inductive load	$I_C = 25\text{ A}, V_{CE} = 350\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_f$	0,025 0,05 0,055			$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 25\text{ A}, V_{CE} = 350\text{ V}, L\sigma = 30\text{ nH}$ $di/dt = 1050\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{on}$	0,67 1,00 1,05			mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 25\text{ A}, V_{CE} = 350\text{ V}, L\sigma = 30\text{ nH}$ $du/dt = 3000\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{off}$	0,60 0,95 1,00			mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$	$t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	$I_{SC}$	80			A
Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink	pro IGBT / per IGBT		$R_{thJH}$	1,45			K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150		$^{\circ}\text{C}$