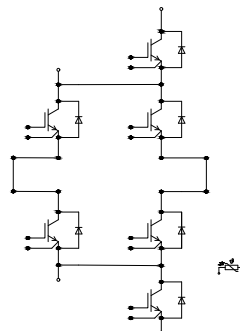
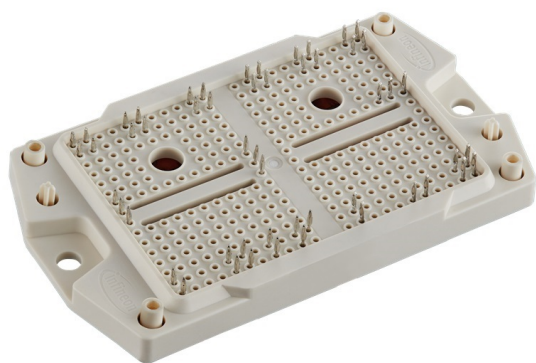


EasyPACK™ Modul mit TRENCHSTOP™ IGBT7 und Emitter Controlled 7 Diode und PressFIT / NTC
 EasyPACK™ module with TRENCHSTOP™ IGBT7 and Emitter Controlled 7 diode and PressFIT / NTC



$V_{CES} = 950V$
 $I_{C\ nom} = 400A / I_{CRM} = 800A$

Potentielle Anwendungen

- 3-Level-Applikationen
- Solar Anwendungen

Elektrische Eigenschaften

- Hohe Stromdichte
- Niedrige Schaltverluste
- Trenchstop™ IGBT7

Mechanische Eigenschaften

- Integrierter NTC Temperatur Sensor
- PressFIT Verbindungstechnik

Potential Applications

- 3-level-applications
- Solar applications

Electrical Features

- High current density
- Low switching losses
- Trenchstop™ IGBT7

Mechanical Features

- Integrated NTC temperature sensor
- PressFIT contact technology

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}	950	V
Implementierter Kollektor-Strom Implemented collector current		I_{CN}	400	A
Kollektor-Dauergleichstrom Continuous DC collector current	$T_H = 65^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	I_{CDC}	235	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_p = 1\text{ ms}$	I_{CRM}	800	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	$I_C = 150\text{ A}$ $V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,40 1,48 1,50	1,61 V V V
Gate-Schwellenspannung Gate threshold voltage	$I_C = 6,50\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GETH}	4,35	5,10 5,85
Gateladung Gate charge	$V_{GE} = -15 / 15\text{ V}, V_{CE} = 600\text{ V}$		Q_G	0,90	μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	0,75	Ω
Eingangskapazität Input capacitance	$f = 100\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		C_{ies}	25,2	nF
Rückwirkungskapazität Reverse transfer capacitance	$f = 100\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		C_{res}	0,078	nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	$V_{CE} = 950\text{ V}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	I_{CES}		0,07 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	$I_C = 150\text{ A}, V_{CE} = 500\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 3,9\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{don}	0,089 0,092 0,093	μs μs μs
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 150\text{ A}, V_{CE} = 500\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 3,9\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,022 0,026 0,027	μs μs μs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 150\text{ A}, V_{CE} = 500\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 3,9\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{doff}	0,27 0,34 0,36	μs μs μs
Fallzeit, induktive Last Fall time, inductive load	$I_C = 150\text{ A}, V_{CE} = 500\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 3,9\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,041 0,075 0,088	μs μs μs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 150\text{ A}, V_{CE} = 500\text{ V}, L_{\sigma} = 35\text{ nH}$ $di/dt = 5800\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 3,9\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	5,00 7,05 7,50	mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 150\text{ A}, V_{CE} = 500\text{ V}, L_{\sigma} = 35\text{ nH}$ $du/dt = 4000\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 3,9\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	4,30 7,16 8,00	mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 600\text{ V}$ $V_{CE\max} = V_{CES} - L_{SCE} \cdot di/dt$	$t_p \leq 0\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}	1200	A
Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink	pro IGBT / per IGBT		R_{thJH}	0,224	K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150 $^{\circ}\text{C}$