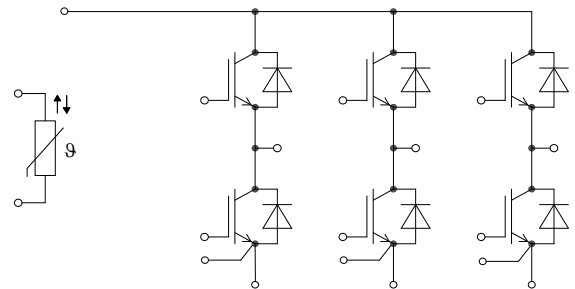
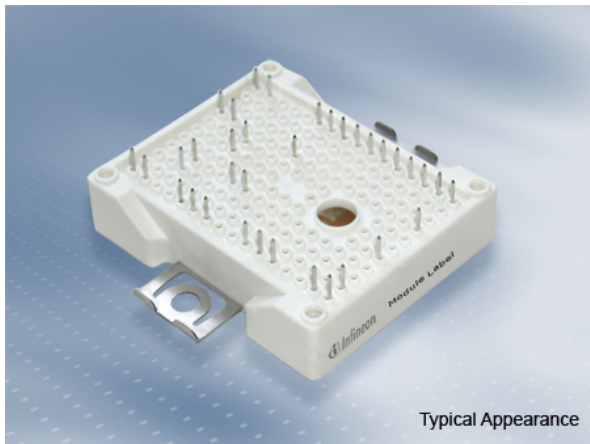


EasyPACK™ Modul mit TRENCHSTOP™ IGBT7 und Emitter Controlled 7 Diode und NTC
 EasyPACK™ module with TRENCHSTOP™ IGBT7 and Emitter Controlled 7 diode and NTC

Vorläufige Daten / Preliminary Data



$V_{CES} = 1200V$
 $I_{C\ nom} = 75A / I_{CRM} = 150A$

Potentielle Anwendungen

- Hilfsumrichter
- Klimaanlage
- Motorantriebe
- Servoumrichter
- USV-Systeme

Potential Applications

- Auxiliary inverters
- Air conditioning
- Motor drives
- Servo drives
- UPS systems

Elektrische Eigenschaften

- Niedriges V_{CEsat}
- Trenchstop™ IGBT7
- Überlastbetrieb bis zu 175°C

Electrical Features

- LOW V_{CEsat}
- Trenchstop™ IGBT7
- Overload operation up to 175°C

Mechanische Eigenschaften

- 2,5 kV AC 1min Isolationsfestigkeit
- Al₂O₃ Substrat mit kleinem thermischen Widerstand
- Hohe Leistungsdichte
- Kompaktes Design
- Lötverbindungstechnik

Mechanical Features

- 2.5 kV AC 1min insulation
- Al₂O₃ substrate with low thermal resistance
- High power density
- Compact design
- Solder 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, Wechselrichter / IGBT, Inverter
Höchstzulässige Werte / Maximum Rated Values

| | | | | |
|--|--|-----------|-------|---|
| Kollektor-Emitter-Sperrspannung Collector-emitter voltage | $T_{vj} = 25^{\circ}\text{C}$ | V_{CES} | 1200 | V |
| Implementierter Kollektor-Strom Implemented collector current | | I_{CN} | 75 | A |
| Kollektor-Dauergleichstrom Continuous DC collector current | $T_H = 65^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$ | I_{CDC} | 65 | A |
| Periodischer Kollektor-Spitzenstrom Repetitive peak collector current | $t_P = 1\text{ ms}$ | I_{CRM} | 150 | 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 | $I_C = 75\text{ A}$ $V_{GE} = 15\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | $V_{CE\text{ sat}}$ | 1,55 1,69 1,77 | t.b.d. V V V |
| Gate-Schwellenspannung Gate threshold voltage | $I_C = 1,70\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$ | | V_{GETH} | 5,15 5,80 6,45 | V |
| Gateladung Gate charge | $V_{GE} = -15 / 15\text{ V}, V_{CE} = 600\text{ V}$ | | Q_G | 1,25 | μC |
| Interner Gatewiderstand Internal gate resistor | $T_{vj} = 25^{\circ}\text{C}$ | | R_{Gint} | 2,0 | 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} | 15,1 | 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} | 0,053 | 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} | | 0,013 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 | $I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 2,2\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | t_{don} | 0,13 0,15 0,158 | μs μs μs |
| Anstiegszeit, induktive Last Rise time, inductive load | $I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 2,2\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | t_r | 0,03 0,038 0,04 | μs μs μs |
| Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load | $I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 2,2\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | t_{doff} | 0,27 0,35 0,39 | μs μs μs |
| Fallzeit, induktive Last Fall time, inductive load | $I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 2,2\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | t_f | 0,12 0,21 0,27 | μs μs μs |
| Einschaltverlustenergie pro Puls Turn-on energy loss per pulse | $I_C = 75\text{ A}, V_{CE} = 600\text{ V}, L_{\sigma} = 35\text{ nH}$ $di/dt = 1700\text{ A}/\mu\text{s} (T_{vj} = 175^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 2,2\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | E_{on} | 4,92 7,49 8,99 | mJ mJ mJ |
| Abschaltverlustenergie pro Puls Turn-off energy loss per pulse | $I_C = 75\text{ A}, V_{CE} = 600\text{ V}, L_{\sigma} = 35\text{ nH}$ $du/dt = 3000\text{ V}/\mu\text{s} (T_{vj} = 175^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 2,2\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 175^{\circ}\text{C}$ | E_{off} | 5,47 8,27 9,67 | mJ mJ mJ |
| Kurzschlußverhalten SC data | $V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$ | $t_P \leq 8\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$ $t_P \leq 7\ \mu\text{s}, T_{vj} = 175^{\circ}\text{C}$ | I_{SC} | 260 240 | A A |
| Wärmewiderstand, Chip bis Kühlkörper Thermal resistance, junction to heatsink | pro IGBT / per IGBT | | R_{thJH} | 0,803 | K/W |
| Temperatur im Schaltbetrieb Temperature under switching conditions | | | $T_{vj\text{ op}}$ | -40 175 | $^{\circ}\text{C}$ |