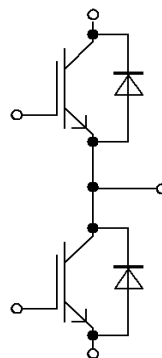
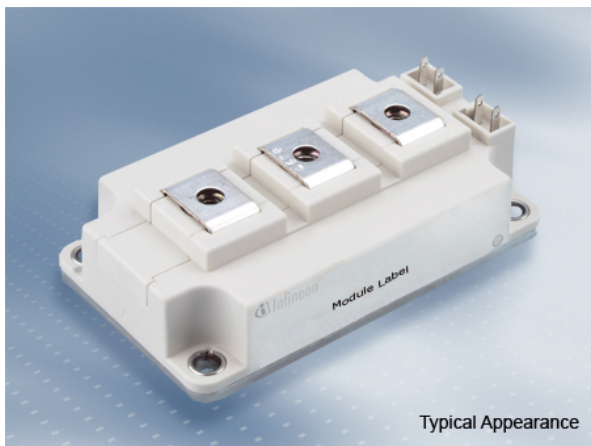


62mm C-Serien Modul mit Trench/Feldstopp IGBT4 und Emitter Controlled HE Diode und bereits aufgetragenem Thermal Interface Material

62mm C-Series module with Trench/Fieldstop IGBT4 and Emitter Controlled HE diode and pre-applied Thermal Interface Material

**Vorläufige Daten / Preliminary Data**



$V_{CES} = 1200V$   
 $I_{C\ nom} = 450A / I_{CRM} = 900A$

**Typische Anwendungen**

- Hochleistungsumrichter
- Motorantriebe
- USV-Systeme
- Windgeneratoren

**Typical Applications**

- High power converters
- Motor drives
- UPS systems
- Wind turbines

**Elektrische Eigenschaften**

- Niedrige Schaltverluste
- Sehr große Robustheit
- $V_{CESat}$  mit positivem Temperaturkoeffizienten

**Electrical Features**

- Low switching losses
- Unbeatable robustness
- $V_{CESat}$  with positive temperature coefficient

**Mechanische Eigenschaften**

- Gehäuse mit CTI > 400
- Große Luft- und Kriechstrecken
- Hohe Leistungsdichte
- Isolierte Bodenplatte
- Standardgehäuse
- Thermisches Interface Material bereits aufgetragen

**Mechanical Features**

- Package with CTI > 400
- High creepage and clearance distances
- High power density
- Isolated base plate
- Standard housing
- Pre-applied Thermal Interface Material

**Module Label Code**

Barcode Code 128



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 |

|                  |                                 |                      |
|------------------|---------------------------------|----------------------|
| prepared by: AKB | date of publication: 2016-04-04 |                      |
| approved by: MK  | revision: V2.0                  | UL approved (E83335) |

**Vorläufige Daten  
Preliminary Data**

**IGBT, Wechselrichter / IGBT, Inverter  
Höchstzulässige Werte / Maximum Rated Values**

|  |   |                    |       |   |
|--|---|--------------------|-------|---|
| Kollektor-Emitter-Sperrspannung<br>Collector-emitter voltage             | $T_{vj} = 25^{\circ}\text{C}$                                       | $V_{CES}$          | 1200  | V |
| Kollektor-Dauergleichstrom<br>Continuous DC collector current            | $T_H = 70^{\circ}\text{C}, T_{vj\text{ max}} = 175^{\circ}\text{C}$ | $I_{C\text{ nom}}$ | 450   | A |
| Periodischer Kollektor-Spitzenstrom<br>Repetitive peak collector current | $t_P = 1\text{ ms}$   | $I_{CRM}$          | 900   | A |
| Gate-Emitter-Spitzenspannung<br>Gate-emitter peak voltage                |   | $V_{GES}$          | +/-20 | V |

**Charakteristische Werte / Characteristic Values**

|  |   |   | min.                | typ.                   | max. |             |   |
|--|---|---|---------------------|------------------------|------|-------------|---|
| Kollektor-Emitter-Sättigungsspannung<br>Collector-emitter saturation voltage     | $I_C = 450\text{ A}, V_{GE} = 15\text{ V}$<br>$I_C = 450\text{ A}, V_{GE} = 15\text{ V}$<br>$I_C = 450\text{ A}, V_{GE} = 15\text{ V}$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $V_{CE\text{ sat}}$ | 1,75<br>2,00<br>2,05   | 2,15 | V<br>V<br>V |   |
| Gate-Schwellenspannung<br>Gate threshold voltage                                 | $I_C = 17,0\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$  |   | $V_{GEth}$          | 5,20                   | 5,80 | 6,40        | V   |
| Gateladung<br>Gate charge  | $V_{GE} = -15\text{ V} \dots +15\text{ V}$  |   | $Q_G$               | 3,70                   |      |             | $\mu\text{C}$                                   |
| Interner Gatewiderstand<br>Internal gate resistor                                | $T_{vj} = 25^{\circ}\text{C}$   |   | $R_{Gint}$          | 1,9                    |      |             | $\Omega$  |
| Eingangskapazität<br>Input capacitance   | $f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$  |   | $C_{ies}$           | 28,0                   |      |             | nF  |
| Rückwirkungskapazität<br>Reverse transfer capacitance                            | $f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$  |   | $C_{res}$           | 1,10                   |      |             | nF  |
| Kollektor-Emitter-Reststrom<br>Collector-emitter cut-off current                 | $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$  |   | $I_{CES}$           |                        |      | 5,0         | mA  |
| Gate-Emitter-Reststrom<br>Gate-emitter leakage current                           | $V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$  |   | $I_{GES}$           |                        |      | 400         | nA  |
| Einschaltverzögerungszeit, induktive Last<br>Turn-on delay time, inductive load  | $I_C = 450\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{Gon} = 1,0\ \Omega$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $t_{don}$           | 0,20<br>0,25<br>0,27   |      |             | $\mu\text{s}$<br>$\mu\text{s}$<br>$\mu\text{s}$ |
| Anstiegszeit, induktive Last<br>Rise time, inductive load                        | $I_C = 450\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{Gon} = 1,0\ \Omega$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $t_r$               | 0,045<br>0,05<br>0,055 |      |             | $\mu\text{s}$<br>$\mu\text{s}$<br>$\mu\text{s}$ |
| Abschaltverzögerungszeit, induktive Last<br>Turn-off delay time, inductive load  | $I_C = 450\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{Goff} = 1,0\ \Omega$   | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $t_{doff}$          | 0,50<br>0,60<br>0,62   |      |             | $\mu\text{s}$<br>$\mu\text{s}$<br>$\mu\text{s}$ |
| Fallzeit, induktive Last<br>Fall time, inductive load                            | $I_C = 450\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{Goff} = 1,0\ \Omega$   | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $t_f$               | 0,10<br>0,16<br>0,18   |      |             | $\mu\text{s}$<br>$\mu\text{s}$<br>$\mu\text{s}$ |
| Einschaltverlustenergie pro Puls<br>Turn-on energy loss per pulse                | $I_C = 450\text{ A}, V_{CE} = 600\text{ V}, L_S = 30\text{ nH}$<br>$V_{GE} = \pm 15\text{ V}, di/dt = 9000\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$<br>$R_{Gon} = 1,0\ \Omega$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $E_{on}$            | 19,0<br>30,0<br>36,0   |      |             | mJ<br>mJ<br>mJ                                  |
| Abschaltverlustenergie pro Puls<br>Turn-off energy loss per pulse                | $I_C = 450\text{ A}, V_{CE} = 600\text{ V}, L_S = 30\text{ nH}$<br>$V_{GE} = \pm 15\text{ V}, du/dt = 4000\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$<br>$R_{Goff} = 1,0\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $E_{off}$           | 33,0<br>50,0<br>56,0   |      |             | mJ<br>mJ<br>mJ                                  |
| Kurzschlußverhalten<br>SC data   | $V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$<br>$V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$                                    |   | $I_{SC}$            | 1800                   |      |             | A   |
| Wärmewiderstand, Chip bis Kühlkörper<br>Thermal resistance, junction to heatsink | pro IGBT / per IGBT<br>valid with IFX pre-applied thermal interface material  |   | $R_{thJH}$          |                        |      | 0,0859      | K/W   |
| Temperatur im Schaltbetrieb<br>Temperature under switching conditions            |   |   | $T_{vj\text{ op}}$  | -40                    |      | 150         | $^{\circ}\text{C}$                              |

|                  |                                 |
|------------------|---------------------------------|
| prepared by: AKB | date of publication: 2016-04-04 |
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