

Technische Information / Technical Information

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Diode Module with Chopper-IGBT DD B6U 84 N 12...16 RR



Elektrische Eigenschaften / Electrical properties

Vorläufige Daten Preliminary data

Höchstzulässige Werte / Maximum rated values

| Netz-Diode / Rectifier diode | | | | |
|---|--|-------------|--------------------|--|
| Periodische Spitzensperrspannung repetitive peak reverse voltage | $T_{vj} = -40^{\circ}\text{C} \dots T_{vj\text{max}}$ | V_{RRM} | 1200, 1400 1600 | V |
| Durchlaßstrom-Grenzeffektivwert (pro Element) RMS forward current (per chip) | | I_{FRMSM} | 60 | A |
| Ausgangsstrom output current | $T_C = 100^{\circ}\text{C}$ $T_C = 84^{\circ}\text{C}$ | I_d | 85 104 | A A |
| Stoßstrom-Grenzwert surge forward current | $T_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$ $T_{vj} = T_{vj\text{max}}, t_p = 10\text{ms}$ | I_{FSM} | 650 550 | A A |
| Grenzlastintegral I^2t -value | $T_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$ $T_{vj} = T_{vj\text{max}}, t_p = 10\text{ms}$ | I^2t | 2100 1500 | A^2s A^2s |
| IGBT | | | | |
| Kollektor-Emitter-Sperrspannung collector-emitter voltage | | V_{CES} | 1200 | V |
| Kollektor-Dauergleichstrom DC-collector current | | I_C | 50 | A |
| Periodischer Kollektor-Spitzenstrom repetitive peak collector current | $t_p = 1\text{ms}$ | I_{CRM} | 100 | A |
| Gesamt-Verlustleistung total power dissipation | $T_C = 25^{\circ}\text{C}$ | P_{tot} | 350 | W |
| Gate-Emitter Spitzenspannung gate-emitter peak voltage | | V_{GE} | ± 20 | V |
| Schnelle Diode / Fast diode | | | | |
| Dauergleichstrom DC forward current | | I_F | 25 | A |
| Periodischer Spitzenstrom repetitive peak forward current | $t_p = 1\text{ms}$ | I_{FRM} | 50 | A |
| Modul | | | | |
| Isolations-Prüfspannung insulation test voltage | RMS, $f = 50\text{Hz}, t = 1\text{min}$ | V_{ISOL} | 2,5 | kV |

Charakteristische Werte / Characteristic values

| Netz-Diode / Rectifier diode | | | min. | typ. | max. | |
|--|---|--------------------|------|------------|------|------------------|
| Durchlaßspannung forward voltage | $T_{vj} = T_{vj\text{max}}, I_F = 100\text{A}$ | V_F | | | 1,55 | V |
| Schleusenspannung threshold voltage | $T_{vj} = T_{vj\text{max}}$ | $V_{(TO)}$ | | | 0,75 | V |
| Ersatzwiderstand forward slope resistance | $T_{vj} = T_{vj\text{max}}$ | r_T | | | 5,5 | $\text{m}\Omega$ |
| Sperrstrom reverse current | $T_{vj} = T_{vj\text{max}}, V_R = V_{RRM}$ | i_R | | | 5 | mA |
| IGBT | | | | | | |
| Kollektor-Emitter Sättigungsspannung collector-emitter saturation voltage | $T_{vj} = 25^{\circ}\text{C}, I_C = 50\text{A}, V_{GE} = 20\text{V}$ $T_{vj} = 125^{\circ}\text{C}, I_C = 50\text{A}, V_{GE} = 20\text{V}$ | $V_{CE\text{sat}}$ | | 2,5 3,1 | 3,2 | V |
| Gate-Emitter-Schwellspannung gate-emitter threshold voltage | $T_{vj} = 25^{\circ}\text{C}, I_C = 2\text{mA}, V_{GE} = V_{CE}$ | $V_{GE(TO)}$ | 4,5 | 5,5 | 6,5 | V |

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Diode Module with Chopper-IGBT DD B6U 84 N 12...16 RR**

Vorläufige Daten Preliminary data

| IGBT | | | min. | typ. | max. | |
|--|---|-----------|------|------------|------|----------------------------------|
| Eingangskapazität input capacitance | $T_{vj} = 25^{\circ}\text{C}$, $f_0 = 1\text{MHz}$, $V_{CE} = 25\text{V}$, $V_{GE} = 0\text{V}$ | C_{ies} | | 3,3 | | nF |
| Kollektor-Emitter Reststrom collector-emitter cut-off current | $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 1200\text{V}$, $V_{GE} = 0\text{V}$ $T_{vj} = 125^{\circ}\text{C}$, $V_{CE} = 1200\text{V}$, $V_{GE} = 0\text{V}$ | i_{CES} | | 0,8 4,0 | 1 | mA |
| Gate-Emitter Reststrom gate leakage current | $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 0\text{V}$, $V_{GE} = 20\text{V}$ | i_{GES} | | | 500 | nA |
| Emitter-Gate Reststrom gate-leakage current | $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 0\text{V}$, $V_{EG} = 20\text{V}$ | i_{EGS} | | | 500 | nA |
| Schnelle Diode / Fast diode | | | | | | |
| Durchlaßspannung forward voltage | $T_{vj} = 25^{\circ}\text{C}$, $i_F = 25\text{A}$ $T_{vj} = 125^{\circ}\text{C}$, $i_F = 25\text{A}$ | V_F | | 2,3 1,8 | 2,9 | V |
| Sperrverzögerungsladung recovered charge | $i_{FM} = 25\text{A}$, $-di/dt = 800\text{A}/\mu\text{s}$, $V_R = 600\text{V}$ $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ | Q_r | | 2,3 6,0 | | μAs μAs |

Thermische Eigenschaften / Thermal properties

| | | | | |
|---|---|------------------|-------------------------------------|---|
| Innerer Wärmewiderstand thermal resistance, junction to case | Netz-Diode / Rectifier diode, $\theta = 120^{\circ}\text{rect}$ Transistor / Transistor, DC Schnelle Diode / Fast diode, DC | R_{thJC} | max. 1,45 max. 0,38 max. 1,00 | $^{\circ}\text{C}/\text{W}$ $^{\circ}\text{C}/\text{W}$ $^{\circ}\text{C}/\text{W}$ |
| Übergangs-Wärmewiderstand thermal resistance, case to heatsink | Netz-Diode / Rectifier diode Transistor / Transistor Schnelle Diode / Fast diode | R_{thCK} | max. 0,25 max. 0,24 max. 0,30 | $^{\circ}\text{C}/\text{W}$ $^{\circ}\text{C}/\text{W}$ $^{\circ}\text{C}/\text{W}$ |
| Höchstzulässige Sperrschichttemperatur max. junction temperature | | $T_{vj\max}$ | 150 | $^{\circ}\text{C}$ |
| Betriebstemperatur operating temperature | | $T_{c\text{op}}$ | - 40...+150 | $^{\circ}\text{C}$ |
| Lagertemperatur storage temperature | | T_{stg} | - 40...+150 | $^{\circ}\text{C}$ |

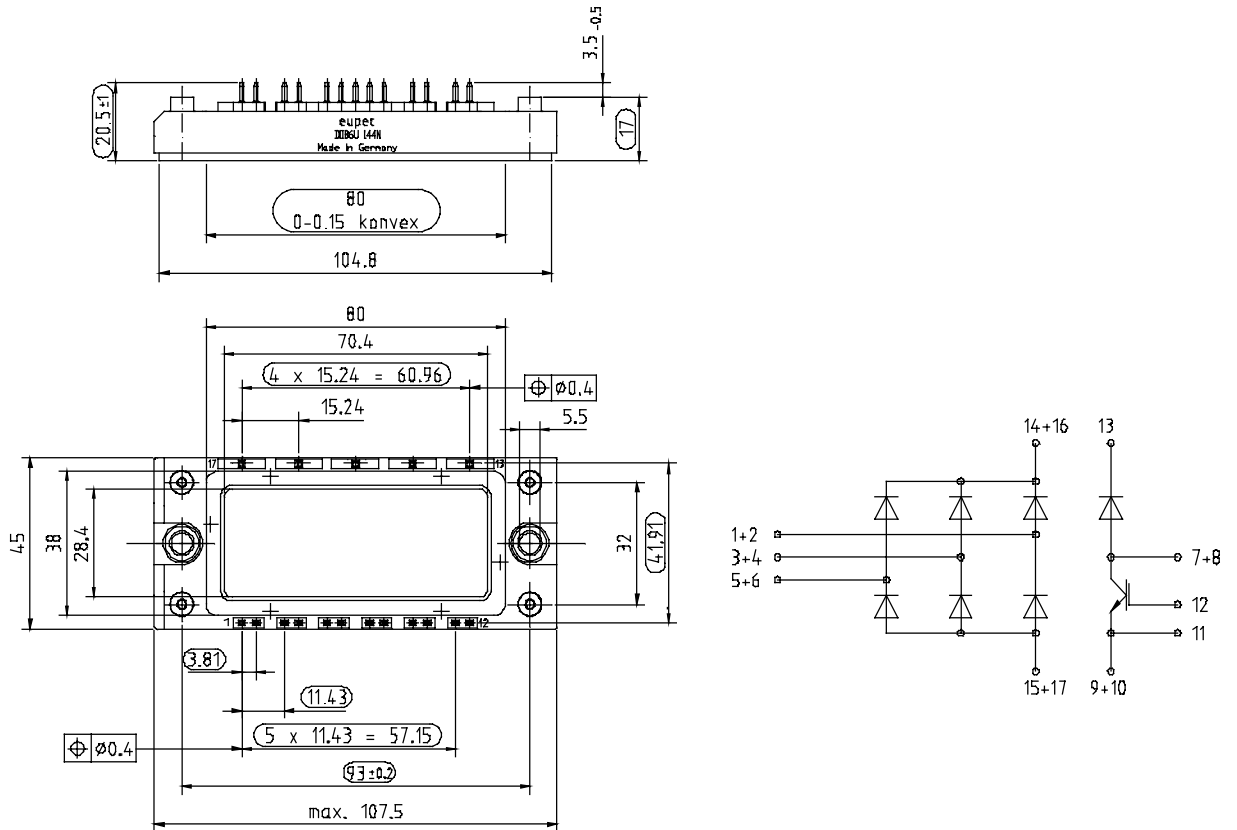
Mechanische Eigenschaften / Mechanical properties

| | | | | |
|---|---------------------------------|----|-------------------------|----|
| Gehäuse, siehe Anlage case, see appendix | | | Seite 3 page 3 | |
| Innere Isolation internal insulation | | | Al_2O_3 | |
| Anzugsdrehmoment für mechanische Befestigung mounting torque | Toleranz / tolerance $\pm 15\%$ | M1 | 4 | Nm |
| Gewicht weight | | G | typ. 185 | g |
| Kriechstrecke creepage distance | | | 12,5 | mm |

Kühlkörper / heatsinks :

Mit dieser technischen Information werden Halbleiterbauelemente spezifiziert, jedoch keine Eigenschaften zugesichert. Sie gilt in Verbindung mit den zugehörigen Technischen Erläuterungen. / This technical information specifies semiconductor devices but promises no characteristics. It is valid in combination with the belonging technical notes.

Dioden-Modul mit Chopper-IGBT
 Diode Module with Chopper-IGBT **DD B6U 84 N 12...16 RR**



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