

# Technische Information / Technical Information

IGBT-Module  
IGBT-Modules

## BYM 300 B 170 DN2

**eupec**



**vorläufige Daten**  
**preliminary data**

### Höchstzulässige Werte / Maximum rated values

#### Elektrische Eigenschaften / Electrical properties

|                                                              |                                                                          |            |      |                        |
|--------------------------------------------------------------|--------------------------------------------------------------------------|------------|------|------------------------|
| Sperrspannung der Diode<br>Diode reverse voltage             | $T_{vj} = 25^{\circ}\text{C}$                                            | $V_{CES}$  | 1700 | V                      |
| Dauergleichstrom<br>DC forward current                       | $T_C = 80^{\circ}\text{C}$                                               | $I_F$      | 300  | A                      |
| Periodischer Spitzenstrom<br>repetitive peak forward current | $t_p = 1\text{ ms}$                                                      | $I_{FRM}$  | 600  | A                      |
| Grenzlasterintegral der Diode<br>$I^2t$ - value, Diode       | $V_R = 0\text{V}$ , $t_p = 10\text{ms}$ , $T_{vj} = 125^{\circ}\text{C}$ | $I^2t$     | 23,5 | $\text{k A}^2\text{s}$ |
| Isolations-Prüfspannung<br>insulation test voltage           | RMS, $f = 50\text{ Hz}$ , $t = 1\text{ min.}$                            | $V_{ISOL}$ | 4,0  | kV                     |

### Charakteristische Werte / Characteristic values

#### Diode / Diode

|                                                     |                                                                               |           | min. | typ. | max. |                |
|-----------------------------------------------------|-------------------------------------------------------------------------------|-----------|------|------|------|----------------|
| Durchlaßspannung<br>forward voltage                 | $I_F = 300\text{A}$ , $V_{GE} = 0\text{V}$ , $T_{vj} = 25^{\circ}\text{C}$    | $V_F$     | -    | 2,2  | 2,6  | V              |
|                                                     | $I_F = 300\text{A}$ , $V_{GE} = 0\text{V}$ , $T_{vj} = 125^{\circ}\text{C}$   |           | -    | 2    | -    | V              |
| Rückstromspitze<br>peak reverse recovery current    | $I_F = 300\text{A}$ , $-di_F/dt = 4500\text{A}/\mu\text{s}$                   | $I_{RM}$  | -    | -    | -    | -              |
|                                                     | $V_R = 900\text{V}$ , $V_{GE} = -15\text{V}$ , $T_{vj} = 25^{\circ}\text{C}$  |           | -    | 220  | -    | A              |
|                                                     | $V_R = 900\text{V}$ , $V_{GE} = -15\text{V}$ , $T_{vj} = 125^{\circ}\text{C}$ |           | -    | 330  | -    | A              |
| Sperrverzögerungsladung<br>recovered charge         | $I_F = 300\text{A}$ , $-di_F/dt = 4500\text{A}/\mu\text{s}$                   | $Q_r$     | -    | -    | -    | -              |
|                                                     | $V_R = 900\text{V}$ , $V_{GE} = -15\text{V}$ , $T_{vj} = 25^{\circ}\text{C}$  |           | -    | 34   | -    | $\mu\text{As}$ |
|                                                     | $V_R = 900\text{V}$ , $V_{GE} = -15\text{V}$ , $T_{vj} = 125^{\circ}\text{C}$ |           | -    | 75   | -    | $\mu\text{As}$ |
| Abschaltenergie pro Puls<br>reverse recovery energy | $I_F = 300\text{A}$ , $-di_F/dt = 4500\text{A}/\mu\text{s}$                   | $E_{rec}$ | -    | -    | -    | -              |
|                                                     | $V_R = 900\text{V}$ , $V_{GE} = -15\text{V}$ , $T_{vj} = 25^{\circ}\text{C}$  |           | -    | 16   | -    | mWs            |
|                                                     | $V_R = 900\text{V}$ , $V_{GE} = -15\text{V}$ , $T_{vj} = 125^{\circ}\text{C}$ |           | -    | 31   | -    | mWs            |

|                                |                                 |
|--------------------------------|---------------------------------|
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| approved by: Christoph Lübke   | revision: 2.2                   |

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### vorläufige Daten preliminary data

#### Thermische Eigenschaften / Thermal properties

|                                                                        |                                                                                                                      |                      | min. | typ.  | max.  |     |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------|------|-------|-------|-----|
| Innerer Wärmewiderstand<br>thermal resistance, junction to case        | Diode/Diode, DC                                                                                                      | $R_{thJC}$           | -    | -     | 0,120 | K/W |
| Übergangs-Wärmewiderstand<br>thermal resistance, case to heatsink      | pro Modul / per module<br>$\lambda_{Paste} = 1 \text{ W/m}^2\text{K}$ / $\lambda_{grease} = 1 \text{ W/m}^2\text{K}$ | $R_{thCK}$           | -    | 0,012 | -     | K/W |
| Höchstzulässige Sperrschichttemperatur<br>maximum junction temperature |                                                                                                                      | $T_{vj \text{ max}}$ | -    | -     | 150   | °C  |
| Betriebstemperatur<br>operation temperature                            |                                                                                                                      | $T_{vjop}$           | -40  | -     | 125   | °C  |
| Lagertemperatur<br>storage temperature                                 |                                                                                                                      | $T_{stg}$            | -40  | -     | 125   | °C  |

#### Mechanische Eigenschaften / Mechanical properties

|                                                                      |                           |   |   |           |      |
|----------------------------------------------------------------------|---------------------------|---|---|-----------|------|
| Gehäuse, siehe Anlage<br>case, see appendix                          |                           |   |   |           |      |
| Innere Isolation<br>internal insulation                              |                           |   |   | $Al_2O_3$ |      |
| Kriechstrecke<br>creepage distance                                   |                           |   |   | 20        | mm   |
| Luftstrecke<br>clearance                                             |                           |   |   | 11        | mm   |
| CTI<br>comperative tracking index                                    |                           |   |   | 425       |      |
| Anzugsdrehmoment f. mech. Befestigung<br>mounting torque             | Schraube / screw M6       | M | 3 | -         | 6 Nm |
| Anzugsdrehmoment f. elektr. Anschlüsse<br>terminal connection torque | Anschlüsse / terminals M6 | M | 2 | -         | 5 Nm |
| Gewicht<br>weight                                                    |                           | G |   | 340       | g    |

Mit dieser technischen Information werden Halbleiterbauelemente spezifiziert, jedoch keine Eigenschaften zugesichert.  
Sie gilt in Verbindung mit den zugehörigen Technischen Erläuterungen.

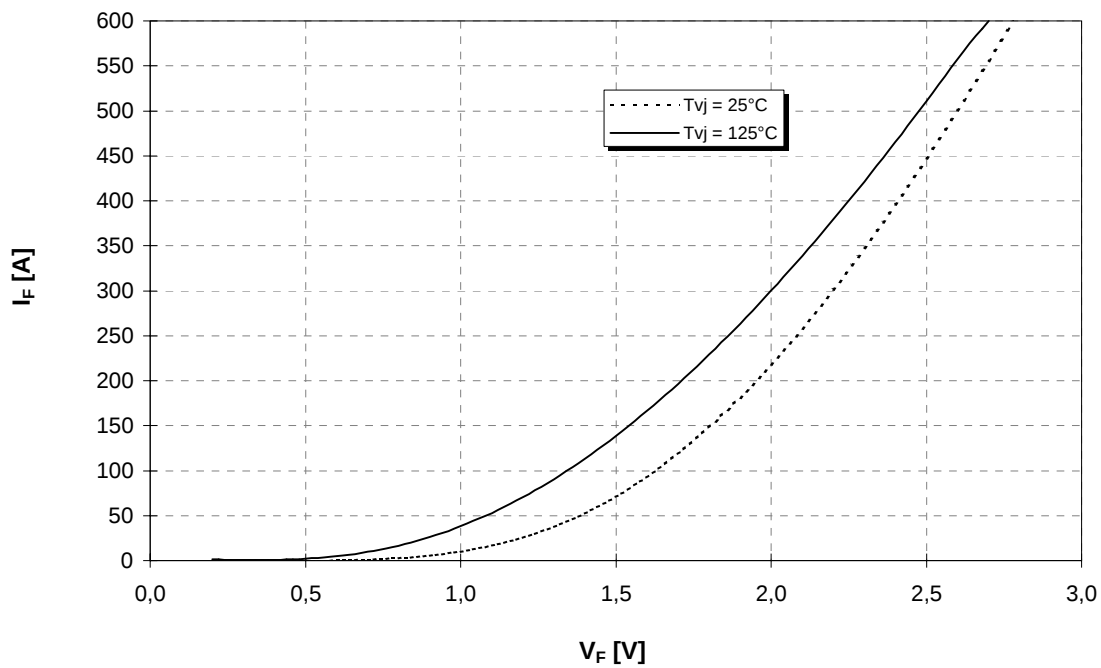
This technical information specifies semiconductor devices but promises no characteristics. It is  
valid in combination with the belonging technical notes.

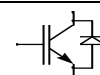


vorläufige Daten  
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Durchlaßkennlinie der Inversdiode (typisch)  
Forward characteristic of inverse diode (typical)

$$I_F = f(V_F)$$





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