

Vorläufig  
Preliminary**Elektrische Eigenschaften / Electrical properties****Höchstzulässige Werte / Maximum rated values****Diode Gleichrichter/ Diode Rectifier**

|                                                                                     |                                                                                                         |              |            |                                              |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------|------------|----------------------------------------------|
| Periodische Rückw. Spitzensperrspannung<br>repetitive peak reverse voltage          | $T_{vj} = 25^{\circ}\text{C}$                                                                           | $V_{RRM}$    | 800        | V                                            |
| Durchlaßstrom Grenzeffektivwert pro Chip<br>RMS forward current per chip            | $T_C = 80^{\circ}\text{C}$                                                                              | $I_{FRMSM}$  | 29         | A                                            |
| Gleichrichter Ausgang Grenzeffektivstrom<br>maximum RMS current at Rectifier output | $T_C = 80^{\circ}\text{C}$                                                                              | $I_{RMSmax}$ | 36         | A                                            |
| Stoßstrom Grenzwert<br>surge forward current                                        | $t_p = 10\text{ ms}, T_{vj} = 25^{\circ}\text{C}$<br>$t_p = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$ | $I_{FSM}$    | 262<br>215 | A<br>A                                       |
| Grenzlastintegral<br>$I^2t$ - value                                                 | $t_p = 10\text{ ms}, T_{vj} = 25^{\circ}\text{C}$<br>$t_p = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$ | $I^2t$       | 344<br>231 | $\text{A}^2\text{s}$<br>$\text{A}^2\text{s}$ |

**Transistor Wechselrichter/ Transistor Inverter**

|                                                                          |                                                          |                       |          |        |
|--------------------------------------------------------------------------|----------------------------------------------------------|-----------------------|----------|--------|
| Kollektor-Emitter-Sperrspannung<br>collector-emitter voltage             | $T_{vj} = 25^{\circ}\text{C}$                            | $V_{CES}$             | 600      | V      |
| Kollektor-Dauergleichstrom<br>DC-collector current                       | $T_C = 65^{\circ}\text{C}$<br>$T_C = 25^{\circ}\text{C}$ | $I_{C,nom.}$<br>$I_C$ | 20<br>25 | A<br>A |
| Periodischer Kollektor Spitzenstrom<br>repetitive peak collector current | $t_p = 1\text{ ms}, T_c = 65^{\circ}\text{C}$            | $I_{CRM}$             | 40       | A      |
| Gesamt-Verlustleistung<br>total power dissipation                        | $T_C = 25^{\circ}\text{C}$                               | $P_{tot}$             | 78       | W      |
| Gate-Emitter-Spitzenspannung<br>gate-emitter peak voltage                |                                                          | $V_{GES}$             | +/- 20V  | V      |

**Diode Wechselrichter/ Diode Inverter**

|                                                            |                                                                    |           |    |                      |
|------------------------------------------------------------|--------------------------------------------------------------------|-----------|----|----------------------|
| Dauergleichstrom<br>DC forward current                     |                                                                    | $I_F$     | 20 | A                    |
| Periodischer Spitzenstrom<br>repetitive peak forw. current | $t_p = 1\text{ ms}$                                                | $I_{FRM}$ | 40 | A                    |
| Grenzlastintegral<br>$I^2t$ - value                        | $V_R = 0\text{V}, t_p = 10\text{ms}, T_{vj} = 125^{\circ}\text{C}$ | $I^2t$    | 62 | $\text{A}^2\text{s}$ |

**Transistor Brems-Chopper/ Transistor Brake-Chopper**

|                                                                          |                                                          |                       |          |        |
|--------------------------------------------------------------------------|----------------------------------------------------------|-----------------------|----------|--------|
| Kollektor-Emitter-Sperrspannung<br>collector-emitter voltage             | $T_{vj} = 25^{\circ}\text{C}$                            | $V_{CES}$             | 600      | V      |
| Kollektor-Dauergleichstrom<br>DC-collector current                       | $T_C = 65^{\circ}\text{C}$<br>$T_C = 25^{\circ}\text{C}$ | $I_{C,nom.}$<br>$I_C$ | 20<br>25 | A<br>A |
| Periodischer Kollektor Spitzenstrom<br>repetitive peak collector current | $t_p = 1\text{ ms}, T_c = 65^{\circ}\text{C}$            | $I_{CRM}$             | 40       | A      |
| Gesamt-Verlustleistung<br>total power dissipation                        | $T_C = 25^{\circ}\text{C}$                               | $P_{tot}$             | 78       | W      |
| Gate-Emitter-Spitzenspannung<br>gate-emitter peak voltage                |                                                          | $V_{GES}$             | +/- 20V  | V      |

**Diode Brems-Chopper/ Diode Brake-Chopper**

|                                                            |                     |           |    |   |
|------------------------------------------------------------|---------------------|-----------|----|---|
| Dauergleichstrom<br>DC forward current                     |                     | $I_F$     | 20 | A |
| Periodischer Spitzenstrom<br>repetitive peak forw. current | $t_p = 1\text{ ms}$ | $I_{FRM}$ | 40 | A |

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# Technische Information / Technical Information

IGBT-Module  
IGBT-Modules

## FP20R06KL4

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### Modul Isolation/ Module Isolation

|                                                    |                                                          |            |     |    |
|----------------------------------------------------|----------------------------------------------------------|------------|-----|----|
| Isolations-Prüfspannung<br>insulation test voltage | RMS, f = 50 Hz, t = 1 min.<br>NTC connected to Baseplate | $V_{ISOL}$ | 2,5 | kV |
|----------------------------------------------------|----------------------------------------------------------|------------|-----|----|

## Elektrische Eigenschaften / Electrical properties

### Charakteristische Werte / Characteristic values

| Diode Gleichrichter/ Diode Rectifier                                         |                                                                                                                                                                                                                                      | min.                |     | typ.        |           | max.     |  |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----|-------------|-----------|----------|--|
| Durchlaßspannung<br>forward voltage                                          | $T_{vj} = 150^{\circ}\text{C}, \quad I_F = 20\text{ A}$                                                                                                                                                                              | $V_F$               | -   | 0,95        | -         | V        |  |
| Schleusenspannung<br>threshold voltage                                       | $T_{vj} = 150^{\circ}\text{C}$                                                                                                                                                                                                       | $V_{(TO)}$          | -   | 0,71        | -         | V        |  |
| Ersatzwiderstand<br>slope resistance                                         | $T_{vj} = 150^{\circ}\text{C}$                                                                                                                                                                                                       | $r_T$               | -   | 12          | -         | mΩ       |  |
| Sperrstrom<br>reverse current                                                | $T_{vj} = 150^{\circ}\text{C}, \quad V_R = 800\text{ V}$                                                                                                                                                                             | $I_R$               | -   | 5           | -         | mA       |  |
| Modul Leitungswiderstand, Anschlüsse-Chip<br>lead resistance, terminals-chip | $T_C = 25^{\circ}\text{C}$                                                                                                                                                                                                           | $R_{AA^{*}+CC^{*}}$ | -   | 11          | -         | mΩ       |  |
| Transistor Wechselrichter/ Transistor Inverter                               |                                                                                                                                                                                                                                      | min.                |     | typ.        |           | max.     |  |
| Kollektor-Emitter Sättigungsspannung<br>collector-emitter saturation voltage | $V_{GE} = 15\text{V}, \quad T_{vj} = 25^{\circ}\text{C}, \quad I_C = 20\text{ A}$<br>$V_{GE} = 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad I_C = 20\text{ A}$                                                              | $V_{CE\text{ sat}}$ | -   | 1,95<br>2,2 | 2,55<br>- | V<br>V   |  |
| Gate-Schwellenspannung<br>gate threshold voltage                             | $V_{CE} = V_{GE}, \quad T_{vj} = 25^{\circ}\text{C}, \quad I_C = 0,5\text{mA}$                                                                                                                                                       | $V_{GE(TO)}$        | 4,5 | 5,5         | 6,5       | V        |  |
| Eingangskapazität<br>input capacitance                                       | $f = 1\text{MHz}, \quad T_{vj} = 25^{\circ}\text{C}$<br>$V_{CE} = 25\text{ V}, \quad V_{GE} = 0\text{ V}$                                                                                                                            | $C_{ies}$           | -   | 1,1         | -         | nF       |  |
| Kollektor-Emitter Reststrom<br>collector-emitter cut-off current             | $V_{GE} = 0\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad V_{CE} = 600\text{V}$                                                                                                                                                 | $I_{CES}$           | -   | 5,0         | -         | mA       |  |
| Gate-Emitter Reststrom<br>gate-emitter leakage current                       | $V_{CE} = 0\text{V}, \quad V_{GE} = 20\text{V}, \quad T_{vj} = 25^{\circ}\text{C}$                                                                                                                                                   | $I_{GES}$           | -   | -           | 400       | nA       |  |
| Einschaltverzögerungszeit (ind. Last)<br>turn on delay time (inductive load) | $I_C = I_{Nenn}, \quad V_{CC} = 300\text{ V}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 25^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$ | $t_{d,on}$          | -   | 22<br>31    | -         | ns<br>ns |  |
| Anstiegszeit (induktive Last)<br>rise time (inductive load)                  | $I_C = I_{Nenn}, \quad V_{CC} = 300\text{ V}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 25^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$ | $t_r$               | -   | 23<br>37    | -         | ns<br>ns |  |
| Abschaltverzögerungszeit (ind. Last)<br>turn off delay time (inductive load) | $I_C = I_{Nenn}, \quad V_{CC} = 300\text{ V}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 25^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$ | $t_{d,off}$         | -   | 143<br>154  | -         | ns<br>ns |  |
| Fallzeit (induktive Last)<br>fall time (inductive load)                      | $I_C = I_{Nenn}, \quad V_{CC} = 300\text{ V}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 25^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$ | $t_f$               | -   | 22<br>38    | -         | ns<br>ns |  |
| Einschaltverlustenergie pro Puls<br>turn-on energy loss per pulse            | $I_C = I_{Nenn}, \quad V_{CC} = 300\text{ V}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$<br>$L_S = 80\text{ nH}$                                                                    | $E_{on}$            | -   | 0,7         | -         | mWs      |  |
| Abschaltverlustenergie pro Puls<br>turn-off energy loss per pulse            | $I_C = I_{Nenn}, \quad V_{CC} = 300\text{ V}$<br>$V_{GE} = \pm 15\text{V}, \quad T_{vj} = 125^{\circ}\text{C}, \quad R_G = 47\text{ Ohm}$<br>$L_S = 80\text{ nH}$                                                                    | $E_{off}$           | -   | 0,6         | -         | mWs      |  |
| Kurzschlußverhalten<br>SC Data                                               | $t_P \leq 10\mu\text{s}, \quad V_{GE} \leq 15\text{V}, \quad R_G = 47\text{ Ohm}$<br>$T_{vj} \leq 125^{\circ}\text{C}, \quad V_{CC} = 360\text{ V}$                                                                                  | $I_{SC}$            | -   | 90          | -         | A        |  |

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### Elektrische Eigenschaften / Electrical properties

#### Charakteristische Werte / Characteristic values

|                                                                              |                                                                                                                                                   |                 | min. | typ. | max. |     |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|------|------|-----|
| Modulinduktivität<br>stray inductance module                                 |                                                                                                                                                   | $L_{\sigma CE}$ | -    | -    | 40   | nH  |
| Modul Leitungswiderstand, Anschlüsse-Chip<br>lead resistance, terminals-chip | $T_C = 25^\circ C$                                                                                                                                | $R_{CC'+EE'}$   | -    | 13   | -    | mΩ  |
| <b>Diode Wechselrichter/ Diode Inverter</b>                                  |                                                                                                                                                   |                 |      |      |      |     |
|                                                                              |                                                                                                                                                   |                 | min. | typ. | max. |     |
| Durchlaßspannung<br>forward voltage                                          | $V_{GE} = 0V, T_{vj} = 25^\circ C, I_F = 20 A$<br>$V_{GE} = 0V, T_{vj} = 125^\circ C, I_F = 20 A$                                                 | $V_F$           | -    | 1,7  | 2,15 | V   |
|                                                                              |                                                                                                                                                   |                 | -    | 1,7  | -    | V   |
| Rückstromspitze<br>peak reverse recovery current                             | $I_F = I_{Nenn}, -di_F/dt = 1000 A/us$<br>$V_{GE} = -10V, T_{vj} = 25^\circ C, V_R = 300 V$<br>$V_{GE} = -10V, T_{vj} = 125^\circ C, V_R = 300 V$ | $I_{RM}$        | -    | 20   | -    | A   |
|                                                                              |                                                                                                                                                   |                 | -    | 23   | -    | A   |
| Sperrverzögerungsladung<br>recovered charge                                  | $I_F = I_{Nenn}, -di_F/dt = 1000 A/us$<br>$V_{GE} = -10V, T_{vj} = 25^\circ C, V_R = 300 V$<br>$V_{GE} = -10V, T_{vj} = 125^\circ C, V_R = 300 V$ | $Q_r$           | -    | 1    | -    | μAs |
|                                                                              |                                                                                                                                                   |                 | -    | 1,7  | -    | μAs |
| Abschaltenergie pro Puls<br>reverse recovery energy                          | $I_F = I_{Nenn}, -di_F/dt = 1000 A/us$<br>$V_{GE} = -10V, T_{vj} = 25^\circ C, V_R = 300 V$<br>$V_{GE} = -10V, T_{vj} = 125^\circ C, V_R = 300 V$ | $E_{rec}$       | -    | 0,2  | -    | mWs |
|                                                                              |                                                                                                                                                   |                 | -    | 0,35 | -    | mWs |
| <b>Transistor Brems-Chopper/ Transistor Brake-Chopper</b>                    |                                                                                                                                                   |                 |      |      |      |     |
|                                                                              |                                                                                                                                                   |                 | min. | typ. | max. |     |
| Kollektor-Emitter Sättigungsspannung<br>collector-emitter saturation voltage | $V_{GE} = 15V, T_{vj} = 25^\circ C, I_C = 20,0 A$<br>$V_{GE} = 15V, T_{vj} = 125^\circ C, I_C = 20,0 A$                                           | $V_{CE sat}$    | -    | 1,95 | 2,55 | V   |
|                                                                              |                                                                                                                                                   |                 | -    | 2,2  | -    | V   |
| Gate-Schwellenspannung<br>gate threshold voltage                             | $V_{CE} = V_{GE}, T_{vj} = 25^\circ C, I_C = 0,5mA$                                                                                               | $V_{GE(TO)}$    | 4,5  | 5,5  | 6,5  | V   |
| Eingangskapazität<br>input capacitance                                       | $f = 1MHz, T_{vj} = 25^\circ C$<br>$V_{CE} = 25 V, V_{GE} = 0 V$                                                                                  | $C_{ies}$       | -    | 1,1  | -    | nF  |
| Kollektor-Emitter Reststrom<br>collector-emitter cut-off current             | $V_{GE} = 0V, T_{vj} = 125^\circ C, V_{CE} = 600V$                                                                                                |                 | -    | 5,0  | -    | mA  |
| Gate-Emitter Reststrom<br>gate-emitter leakage current                       | $V_{CE} = 0V, V_{GE} = 20V, T_{vj} = 25^\circ C$                                                                                                  | $I_{GES}$       | -    | -    | 400  | nA  |
|                                                                              |                                                                                                                                                   |                 |      |      |      |     |
| <b>Diode Brems-Chopper/ Diode Brake-Chopper</b>                              |                                                                                                                                                   |                 |      |      |      |     |
|                                                                              |                                                                                                                                                   |                 | min. | typ. | max. |     |
| Durchlaßspannung<br>forward voltage                                          | $T_{vj} = 25^\circ C, I_F = 20A$<br>$T_{vj} = 125^\circ C, I_F = 20A$                                                                             | $V_F$           | -    | 2,45 | 2,9  | V   |
|                                                                              |                                                                                                                                                   |                 | -    | 2,55 | -    | V   |
|                                                                              |                                                                                                                                                   |                 |      |      |      |     |
| <b>NTC-Widerstand/ NTC-Thermistor</b>                                        |                                                                                                                                                   |                 |      |      |      |     |
|                                                                              |                                                                                                                                                   |                 | min. | typ. | max. |     |
| Nennwiderstand<br>rated resistance                                           | $T_C = 25^\circ C$                                                                                                                                | $R_{25}$        | -    | 5    | -    | kΩ  |
| Abweichung von $R_{100}$<br>deviation of $R_{100}$                           | $T_C = 100^\circ C, R_{100} = 493 \Omega$                                                                                                         | $\Delta R/R$    | -5   |      | 5    | %   |
| Verlustleistung<br>power dissipation                                         | $T_C = 25^\circ C$                                                                                                                                | $P_{25}$        |      |      | 20   | mW  |
| B-Wert<br>B-value                                                            | $R_2 = R_1 \exp [B(1/T_2 - 1/T_1)]$                                                                                                               | $B_{25/50}$     |      | 3375 |      | K   |

# Technische Information / Technical Information

IGBT-Module  
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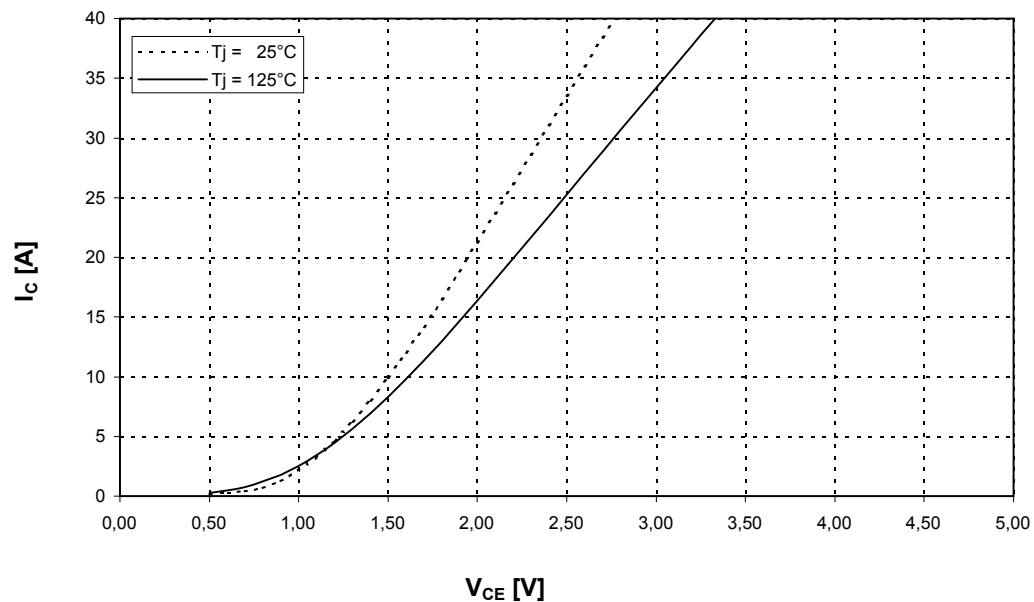
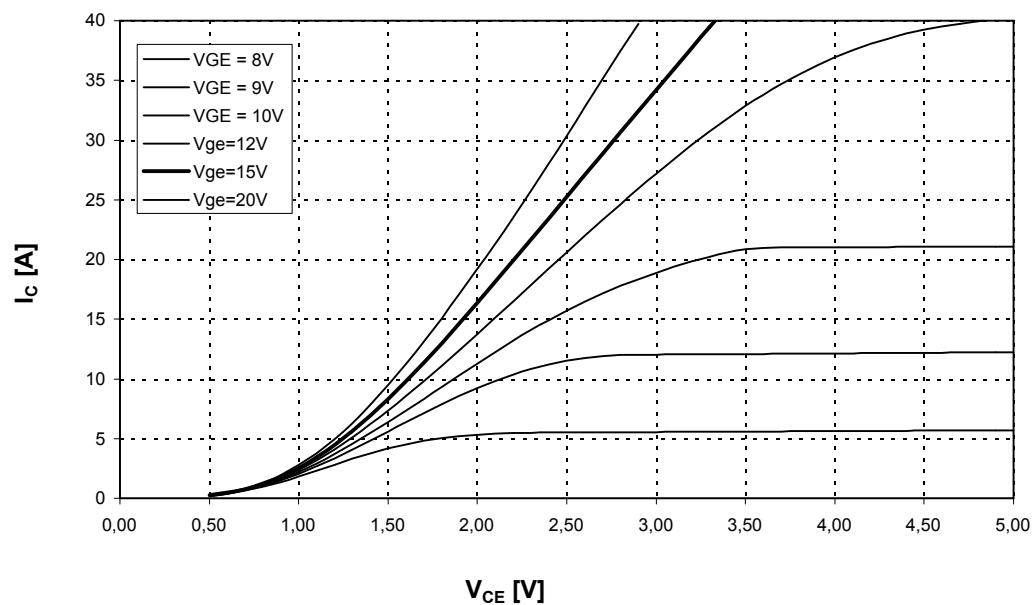
**Vorläufig**  
**Preliminary**

### Thermische Eigenschaften / Thermal properties

|                                                                        |                                                                                 |                   | min. | typ. | max. |     |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------|------|------|------|-----|
| Innerer Wärmewiderstand<br>thermal resistance, junction to heatsink    | Gleichr. Diode/ Rectif. Diode $\lambda_{\text{paste}}=1\text{W/m}^2\text{K}$    | $R_{\text{thJH}}$ | -    | 2,1  | -    | K/W |
|                                                                        | Trans. Wechsr./ Trans. Inverter $\lambda_{\text{grease}}=1\text{W/m}^2\text{K}$ |                   | -    | 1,8  | -    | K/W |
|                                                                        | Diode Wechsr./ Diode Inverter                                                   |                   | -    | 3,7  | -    | K/W |
|                                                                        | Trans. Bremse/ Trans. Brake                                                     |                   | -    | 1,8  | -    | K/W |
|                                                                        | Diode Bremse/ Diode Brake                                                       |                   | -    | 4,3  | -    | K/W |
| Innerer Wärmewiderstand<br>thermal resistance, junction to case        | Gleichr. Diode/ Rectif. Diode                                                   | $R_{\text{thJC}}$ | -    | -    | 2    | K/W |
|                                                                        | Trans. Wechsr./ Trans. Inverter                                                 |                   | -    | -    | 1,6  | K/W |
|                                                                        | Diode Wechsr./ Diode Inverter                                                   |                   | -    | -    | 2,7  | K/W |
|                                                                        | Trans. Bremse/ Trans. Brake                                                     |                   | -    | -    | 1,6  | K/W |
|                                                                        | Diode Bremse/ Diode Brake                                                       |                   | -    | -    | 3,1  | K/W |
| Übergangs-Wärmewiderstand<br>thermal resistance, case to heatsink      | Gleichr. Diode/ Rectif. Diode $\lambda_{\text{paste}}=1\text{W/m}^2\text{K}$    | $R_{\text{thCH}}$ | -    | 0,3  | -    | K/W |
|                                                                        | Trans. Wechsr./ Trans. Inverter $\lambda_{\text{grease}}=1\text{W/m}^2\text{K}$ |                   | -    | 0,4  | -    | K/W |
|                                                                        | Diode Wechsr./ Diode Inverter                                                   |                   | -    | 1,3  | -    | K/W |
|                                                                        | Trans. Bremse/ Trans. Brake                                                     |                   | -    | 0,4  | -    | K/W |
|                                                                        | Diode Bremse/ Diode Brake                                                       |                   | -    | 1,5  | -    | K/W |
| Höchstzulässige Sperrschichttemperatur<br>maximum junction temperature |                                                                                 | $T_{\text{vj}}$   | -    | -    | 150  | °C  |
| Betriebstemperatur<br>operation temperature                            |                                                                                 | $T_{\text{op}}$   | -40  | -    | 125  | °C  |
| Lagertemperatur<br>storage temperature                                 |                                                                                 | $T_{\text{stg}}$  | -40  | -    | 125  | °C  |

### Mechanische Eigenschaften / Mechanical properties

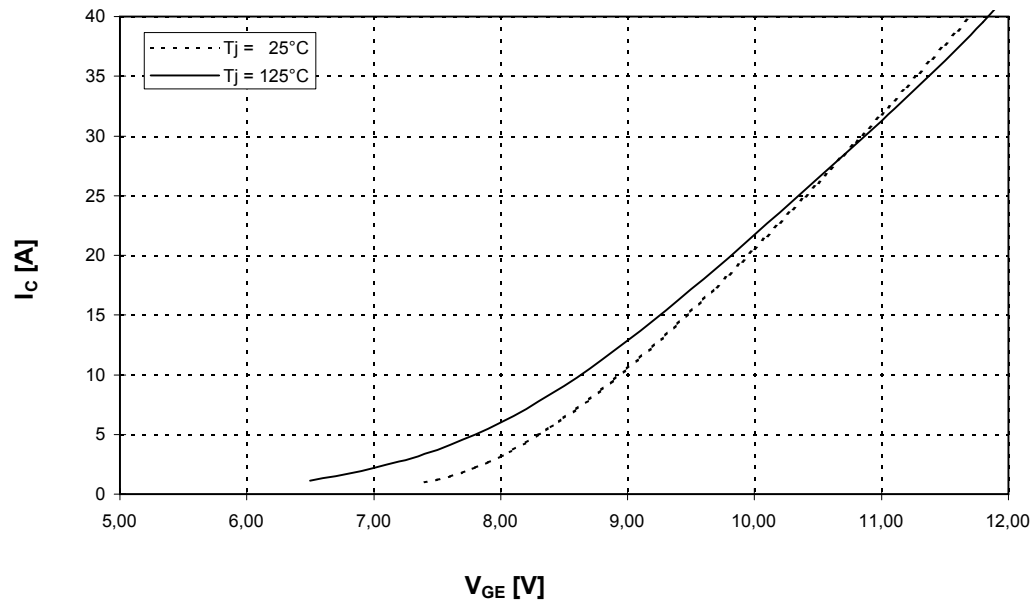
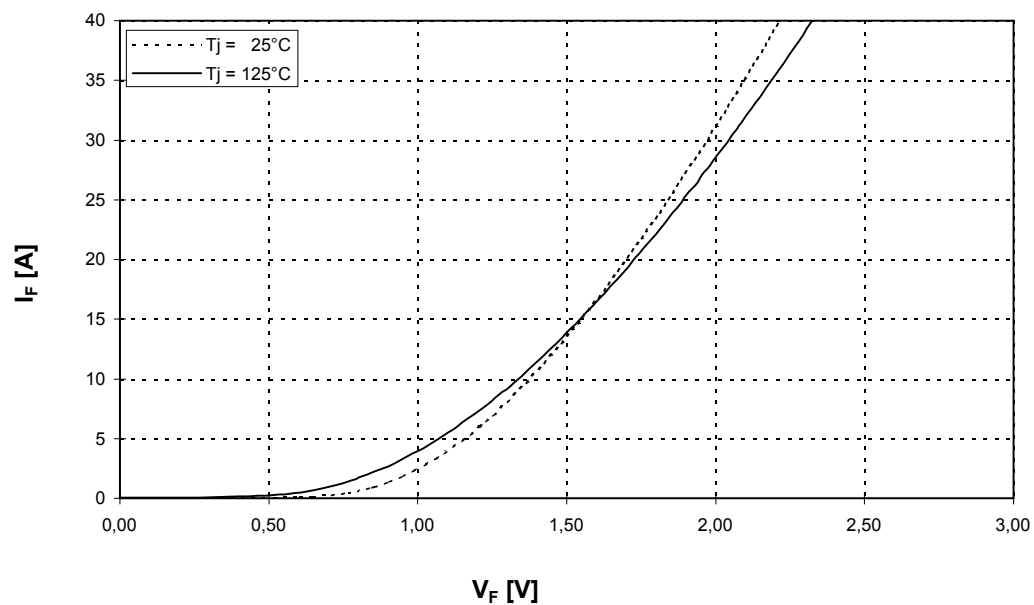
|                                                    |                                    |   |                         |    |
|----------------------------------------------------|------------------------------------|---|-------------------------|----|
| Innere Isolation<br>internal insulation            |                                    |   | $\text{Al}_2\text{O}_3$ |    |
| CTI<br>comperative tracking index                  |                                    |   | 225                     |    |
| Anpreßkraft f. mech. Befestigung<br>mounting force |                                    | F | 40...80                 | N  |
| Gewicht<br>weight                                  |                                    | G | 36                      | g  |
| Kontakt - Kühlkörper<br>terminal to heatsink       | Kriechstrecke<br>creeping distance |   | 13,5                    | mm |
|                                                    | Luftstrecke<br>clearance           |   | 12                      | mm |
| Terminal - Terminal<br>terminal to terminal        | Kriechstrecke<br>creeping distance |   | 7,5                     | mm |
|                                                    | Luftstrecke<br>clearance           |   | 7,5                     | mm |

Vorläufig  
PreliminaryAusgangskennlinienfeld Wechselr. (typisch)  
Output characteristic Inverter (typical) $I_C = f(V_{CE})$   
 $V_{GE} = 15\text{ V}$ Ausgangskennlinienfeld Wechselr. (typisch)  
Output characteristic Inverter (typical) $I_C = f(V_{CE})$   
 $T_{vj} = 125^\circ\text{C}$ 

Vorläufig  
PreliminaryÜbertragungscharakteristik Wechselr. (typisch)  
Transfer characteristic Inverter (typical)

$$I_C = f(V_{GE})$$

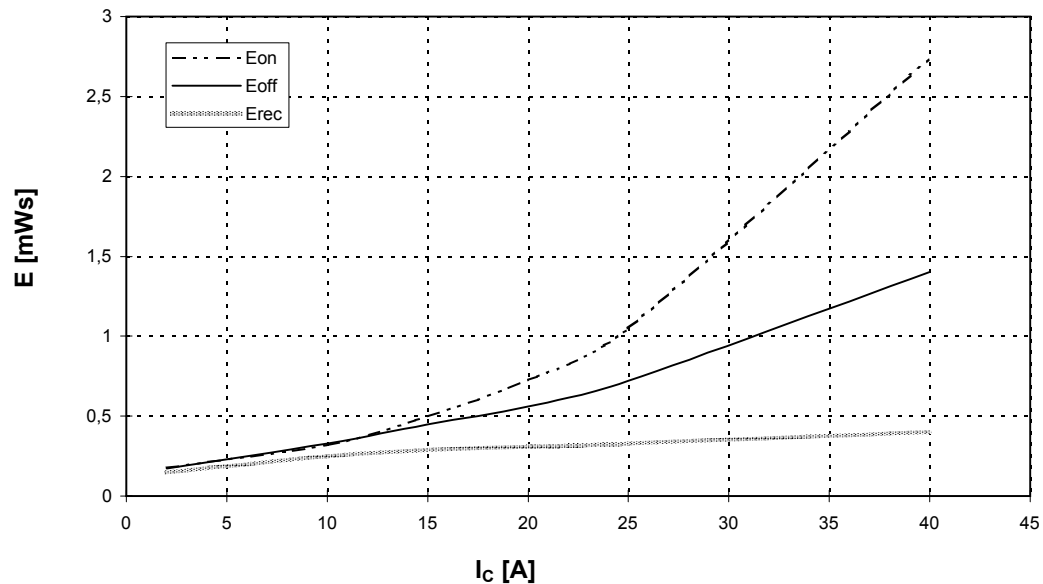
$$V_{CE} = 20 \text{ V}$$

Durchlaßkennlinie der Freilaufdiode Wechselr. (typisch)  $I_F = f(V_F)$   
Forward characteristic of FWD Inverter (typical)

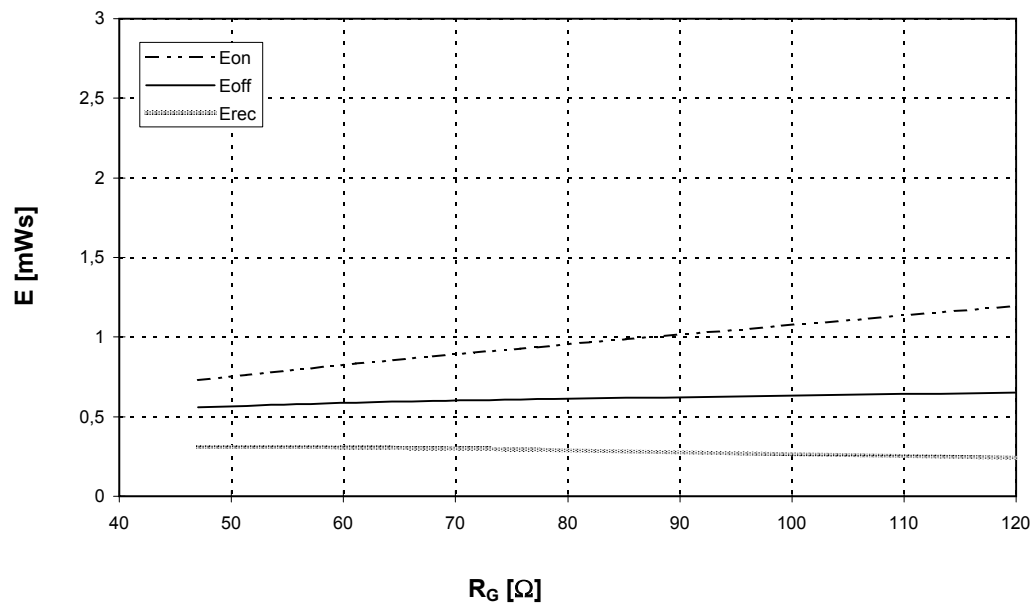


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Schaltverluste Wechselr. (typisch)  $E_{on} = f(I_C)$ ,  $E_{off} = f(I_C)$ ,  $E_{rec} = f(I_C)$   $V_{CC} = 300\text{ V}$   
 Switching losses Inverter (typical)  $T_J = 125^\circ\text{C}$ ,  $V_{GE} = \pm 15\text{ V}$ ,  $R_{Gon} = R_{Goff} = 47\text{ Ohm}$

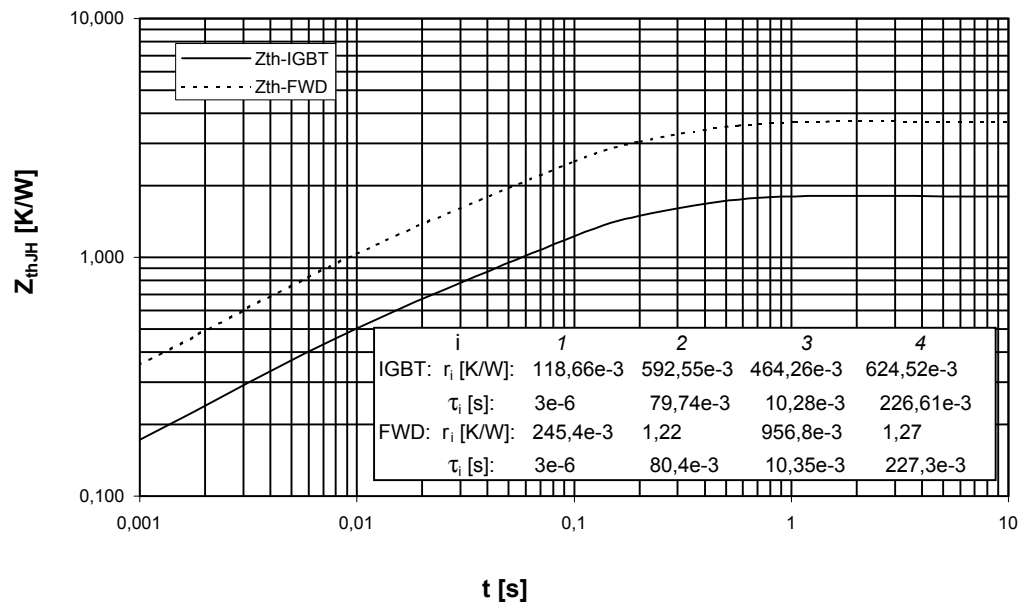


Schaltverluste Wechselr. (typisch)  $E_{on} = f(R_G)$ ,  $E_{off} = f(R_G)$ ,  $E_{rec} = f(R_G)$   
 Switching losses Inverter (typical)  $T_J = 125^\circ\text{C}$ ,  $V_{GE} = \pm 15\text{ V}$ ,  $I_C = I_{nenn}$ ,  $V_{CC} = 300\text{ V}$



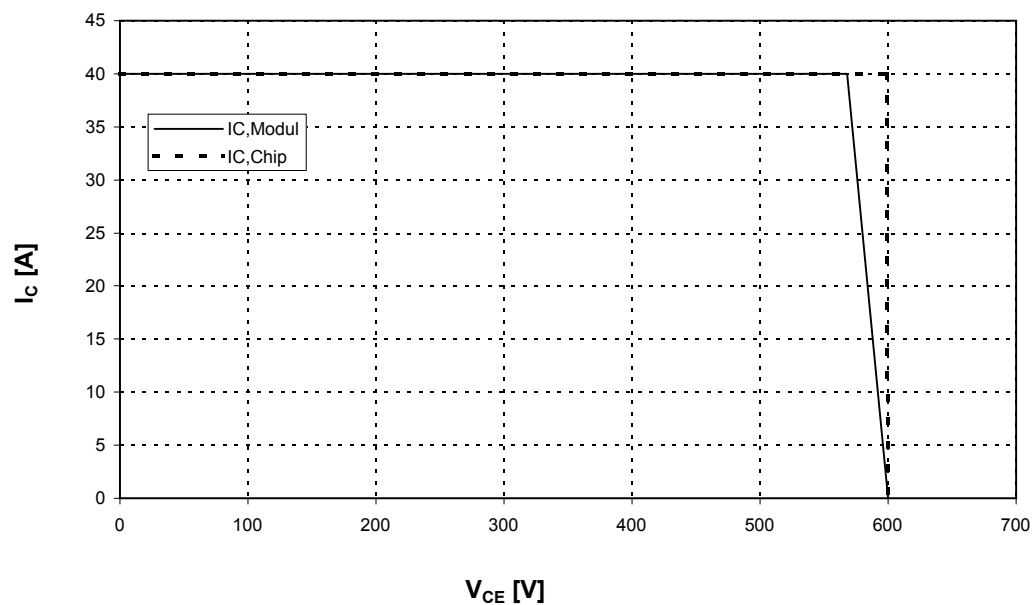
Vorläufig  
PreliminaryTransienter Wärmewiderstand Wechslr.  
Transient thermal impedance Inverter

$$Z_{thJH} = f(t)$$



Sicherer Arbeitsbereich Wechslr. (RBSOA)

$$I_c = f(V_{CE})$$

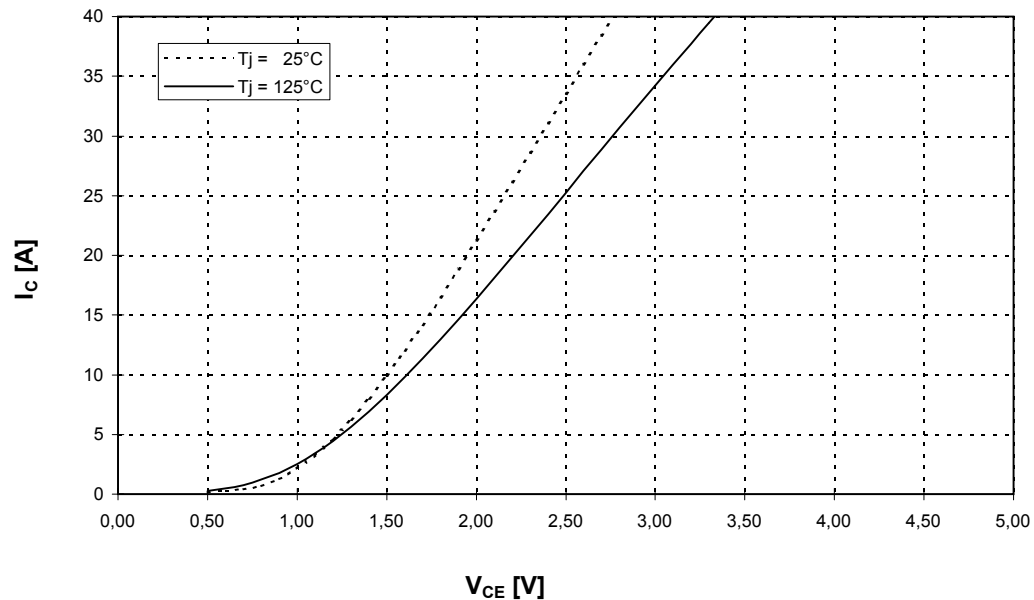
Reverse bias safe operating area Inverter (RBSOA)  $T_{vj} = 125^\circ\text{C}$ ,  $V_{GE} = \pm 15\text{V}$ ,  $R_G = 47\text{ Ohm}$ 

Vorläufig  
Preliminary

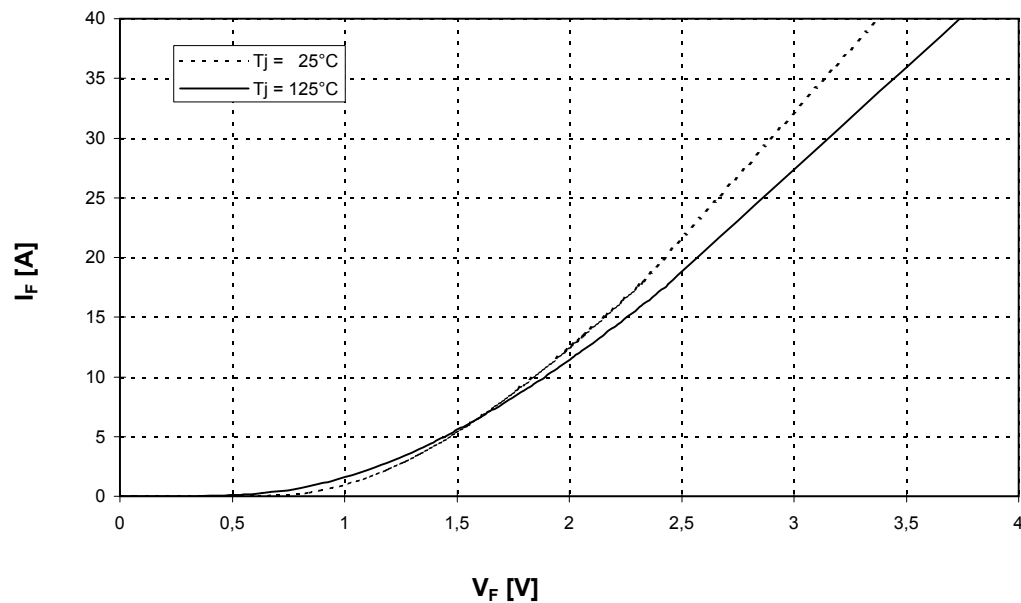
Ausgangskennlinienfeld Brems-Chopper-IGBT (typisch)

 $I_C = f(V_{CE})$ 

Output characteristic brake-chopper-IGBT (typical)

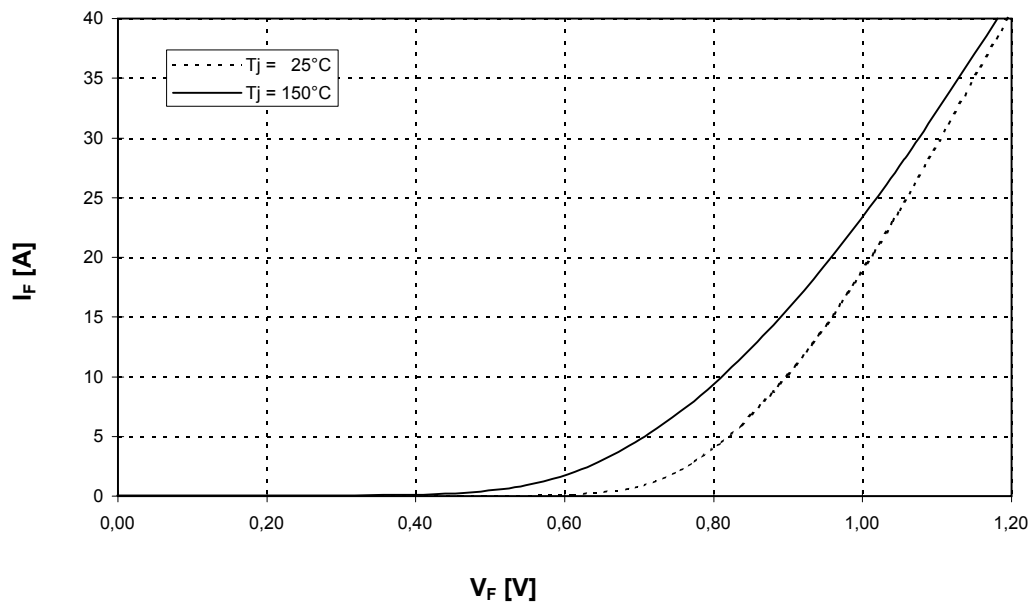
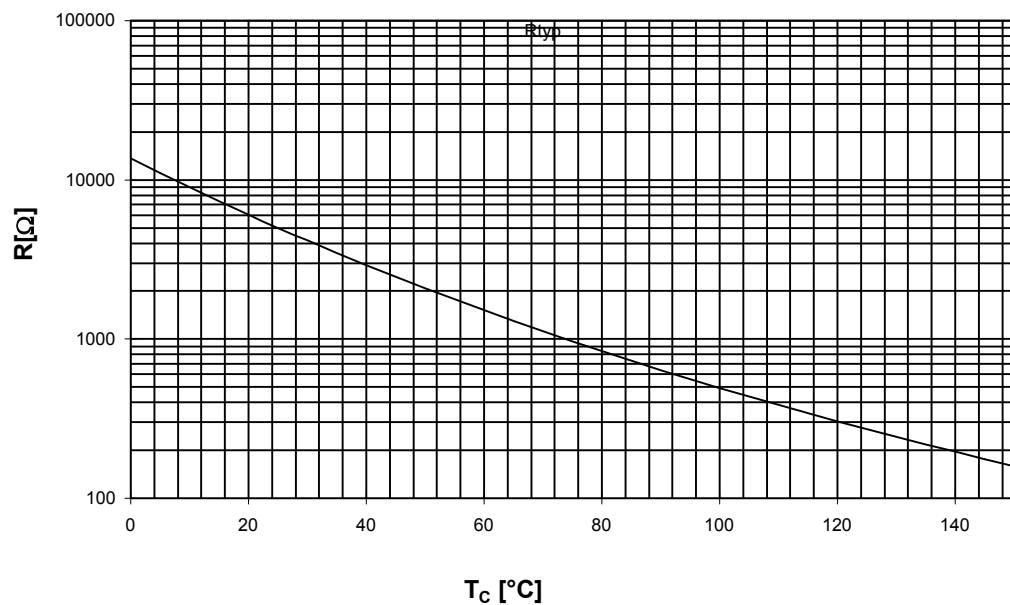
 $V_{GE} = 15\text{ V}$ Durchlaßkennlinie der Brems-Chopper-Diode (typisch)  $I_F = f(V_F)$ 

Forward characteristic of brake-chopper-FWD (typical)



Vorläufig  
PreliminaryDurchlaßkennlinie der Gleichrichterdiode (typisch)  
Forward characteristic of Rectifier Diode (typical)

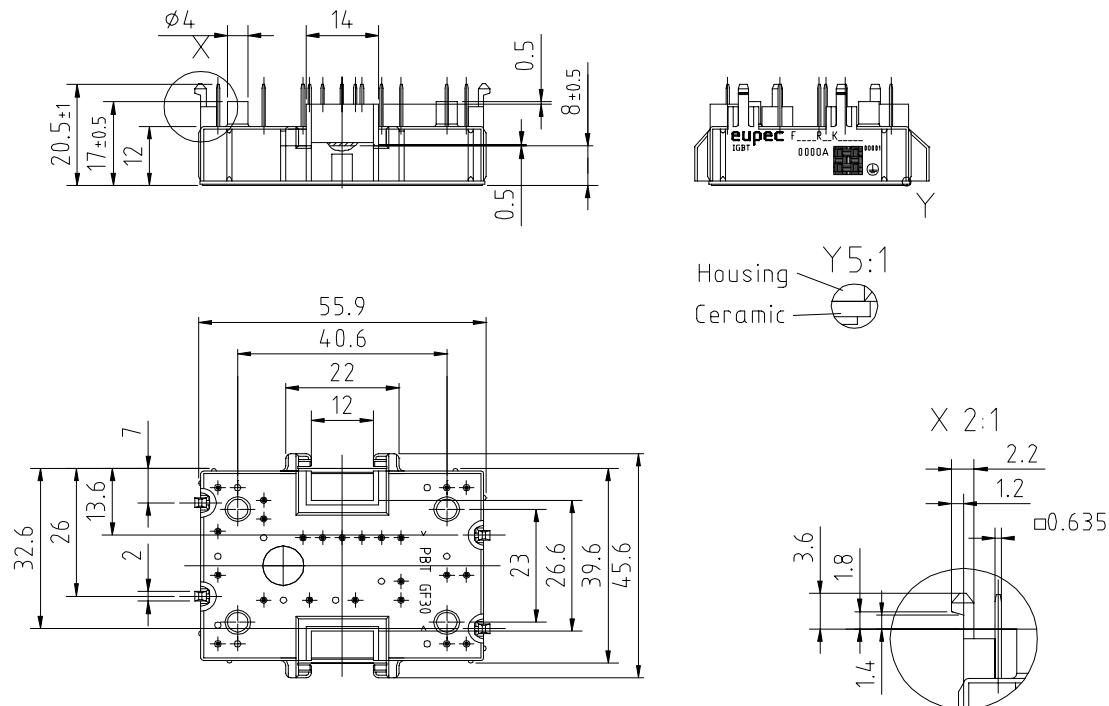
$$I_F = f(V_F)$$

NTC- Temperaturkennlinie (typisch)  $R = f(T)$   
NTC- temperature characteristic (typical)





## Gehäuseabmessungen Forts. / Package outlines contd.



Mit dieser technischen Information werden Halbleiterbauelemente spezifiziert, jedoch keine Eigenschaften zugesichert. Diese 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.