# Technische Information / Technical Information

Dioden-Module
Diode-Modules

# DD 400 S 65 K1

eupec

## Höchstzulässige Werte / Maximum rated values

| | | | | |
|---|---|---|---|---|
| Periodische Spitzensperrspannung<br>repetitive peak reverse voltage | $T_{vj}$=125°C<br>$T_{vj}$=25°C<br>$T_{vj}$=-40°C | $V_{CES}$ | 6500<br>6300<br>5800 | V |
| Dauergleichstrom<br>DC forward current | | $I_F$ | 400 | A |
| Periodischer Spitzenstrom<br>repetitive peak forw. current | $t_P$ = 1 ms | $I_{FRM}$ | 800 | A |
| Grenzlastintegral der Diode<br>$I^2t$ - value, Diode | $V_R$ = 0V, $t_p$ = 10ms, $T_{Vj}$ = 125°C | $I^2t$ | 87 | k $A^2s$ |
| Isolations-Prüfspannung<br>insulation test voltage | RMS, f = 50 Hz, t = 1 min. | $V_{ISOL}$ | 10,2 | kV |
| Teilentladungs Aussetzspannung<br>partial discharge extinction voltage | RMS, f = 50 Hz, $Q_{PD}$ typ. 10pC (acc. To IEC 1287) | $V_{ISOL}$ | 5,1 | kV |

## Charakteristische Werte / Characteristic values

| | | | min. | typ. | max. | |
|---|---|---|---|---|---|---|
| Durchlaßspannung<br>forward voltage | $I_F$ = 400A, $T_{vj}$ = 25°C | $V_F$ | 3,0 | 3,8 | 4,6 | V |
| | $I_F$ = 400A, $T_{vj}$ = 125°C | | | 3,9 | 4,7 | V |
| Sperrstrom<br>reverse current | $V_R$ = 6300V, $T_{vj}$ = 25°C | $I_R$ | - | 0,15 | - | mA |
| | $V_R$ = 6500V, $T_{vj}$ = 125°C | | - | 15 | - | mA |
| Rückstromspitze<br>peak reverse recovery current | $I_F$ = 400A, - $di_F/dt$ = 1400A/µs | | | | | |
| | $V_R$ = 3600V, $T_{vj}$ = 25°C | $I_{RM}$ | - | 540 | - | A |
| | $V_R$ = 3600V, $T_{vj}$ = 125°C | | - | 660 | - | A |
| Sperrverzögerungsladung<br>recovered charge | $I_F$ = 400A, - $di_F/dt$ = 1400A/µs | | | | | |
| | $V_R$ = 3600V, $T_{vj}$ = 25°C | $Q_r$ | - | 360 | - | µC |
| | $V_R$ = 3600V, $T_{vj}$ = 125°C | | - | 700 | - | µC |
| Abschaltenergie pro Puls<br>reverse recovery energy | $I_F$ = 400A, - $di_F/dt$ = 1400A/µs | | | | | |
| | $V_R$ = 3600V, $T_{vj}$ = 25°C | $E_{rec}$ | - | 440 | - | mJ |
| | $V_R$ = 3600V, $T_{vj}$ = 125°C | | - | 1050 | - | mJ |
| Modulinduktivität<br>stray inductance module | pro Zweig / per arm | $L_{sCE}$ | - | 25 | - | nH |
| Modulleitungswiderstand, Anschlüsse - Chip<br>module lead resistance, terminals - chip | pro Zweig / per arm | $R_{CC'+EE'}$ | - | 0,37 | - | mΩ |

| | |
|---|---|
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## Thermische Eigenschaften / Thermal properties

| | | | min. | typ. | max. | |
|---|---|---|---|---|---|---|
| Innerer Wärmewiderstand<br>thermal resistance, junction to case | Diode/Diode, DC | $R_{thJC}$ | - | - | 0,032 | K/W |
| Übergangs-Wärmewiderstand<br>thermal resistance, case to heatsink | pro Modul / per Module<br>$\lambda_{Paste} \leq 1$ W/m*K / $\lambda_{grease} \leq 1$ W/m*K | $R_{thCK}$ | - | 0,008 | - | K/W |
| Höchstzulässige Sperrschichttemperatur<br>maximum junction temperature | | $T_{vj, max}$ | - | - | 150 | °C |
| Betriebstemperatur Sperrschicht<br>junction operation temperature | Schaltvorgänge Diode(SOA)<br>switching operation Diode(SOA) | $T_{vj,op}$ | -40 | - | 125 | °C |
| Lagertemperatur<br>storage temperature | | $T_{stg}$ | -40 | - | 125 | °C |

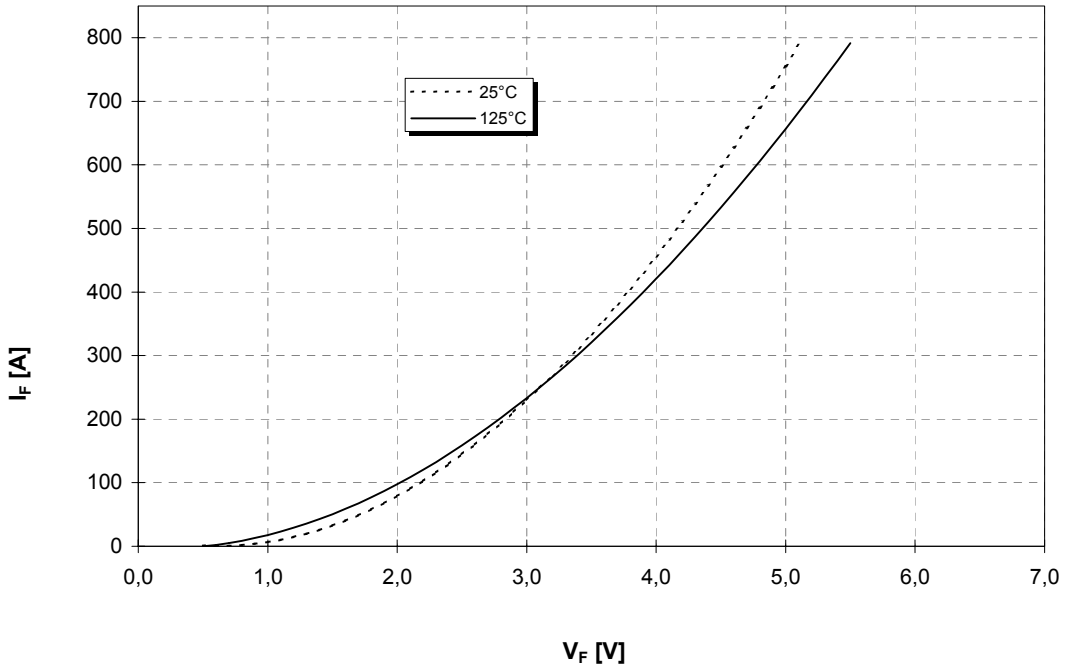
## Mechanische Eigenschaften / Mechanical properties

| | | | | | | |
|---|---|---|---|---|---|---|
| Gehäuse, siehe Anlage<br>case, see appendix | | | | | | |
| Innere Isolation<br>internal insulation | | | | AlN | | |
| Kriechstrecke<br>creepage distance | | | | 56 | | mm |
| Luftstrecke<br>clearance | | | | 26 | | mm |
| CTI<br>comperative tracking index | | | | >600 | | |
| Anzugsdrehmoment f. mech. Befestigung<br>mounting torque | Schraube /screw M6 | M | | | 5 | Nm |
| Anzugsdrehmoment f. elektr. Anschlüsse<br>terminal connection torque | Anschlüsse / terminals M8 | M | | | 8 - 10 | Nm |
| Gewicht<br>weight | | G | | 1000 | | g |

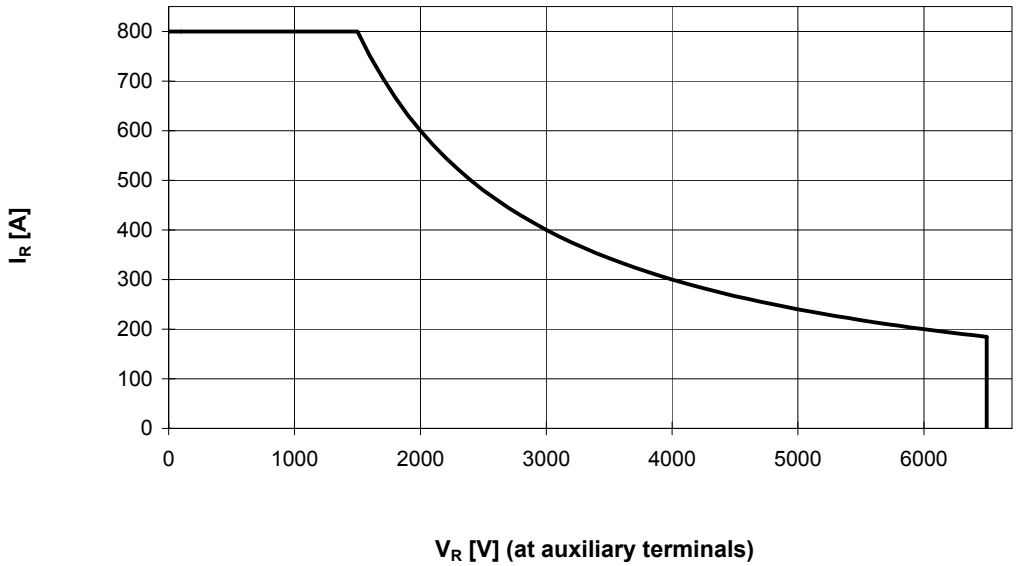
Mit dieser technischen Information werden Halbleiterbauelemente spezifiziert, jedoch keine Eigenschaften zugesichert. Sie gilt in Verbindung mit den zugehörigen Technischen Erläuterungen.

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

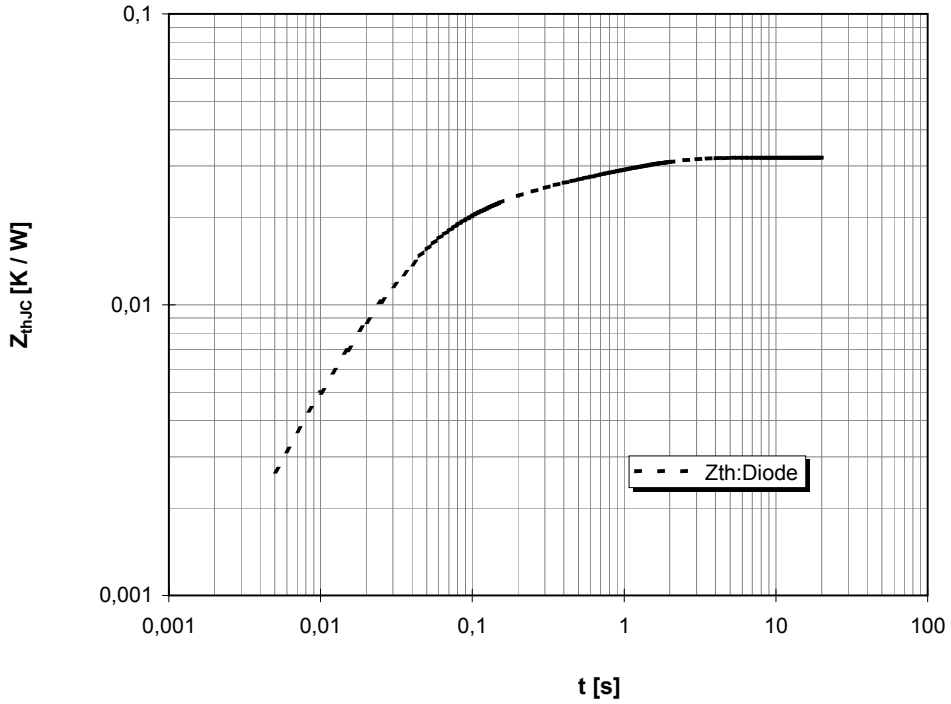
**Durchlaßkennlinie der Inversdiode (typisch)** $I_F = f(V_F)$
**Forward characteristic of inverse diode (typical)**




**Sicherer Arbeitsbereich Diode (SOA)**
**safe operation area Diode (SOA)** $P_{max}$ = 1200kW ; $T_{vj}$= 125°C

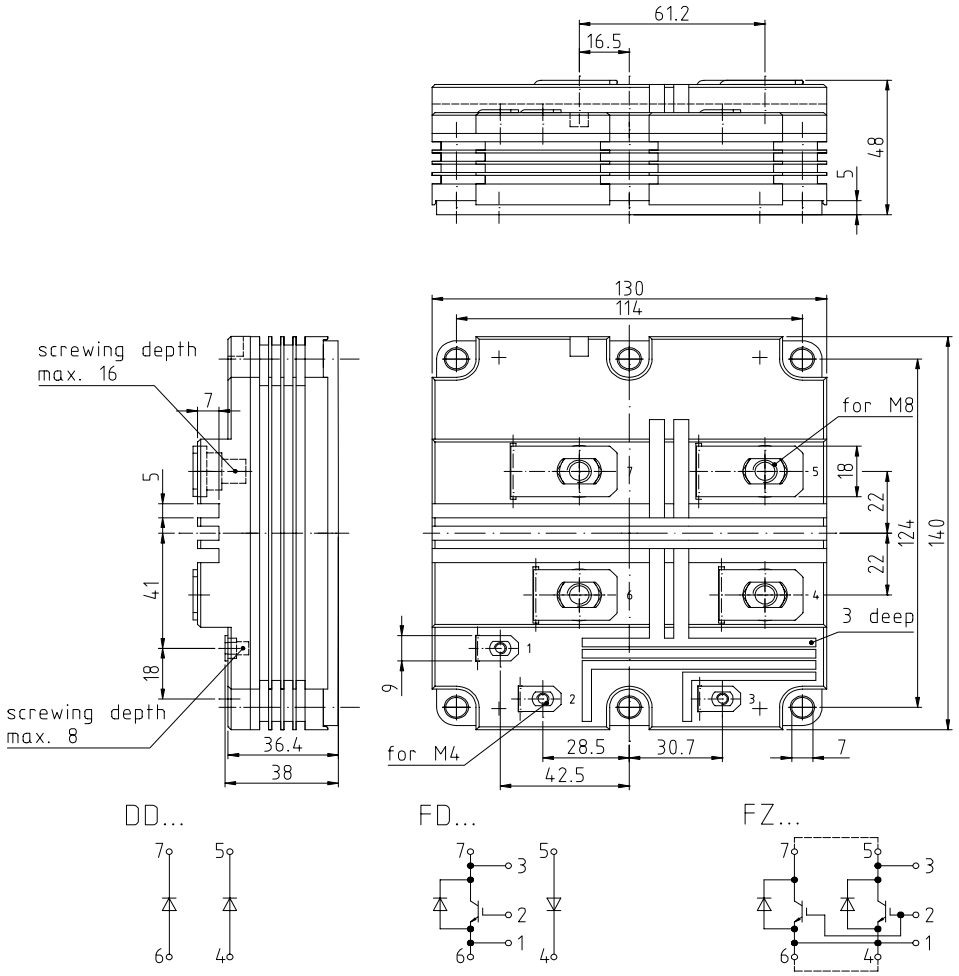


**Transienter Wärmewiderstand** $Z_{thJC} = f(t)$
**Transient thermal impedance**




| i | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| $r_i$ [K/kW] | : Diode | 14,40 | 8,00 | 1,92 | 7,68 |
| $\tau_i$ [s] | : Diode | 0,030 | 0,10 | 0,30 | 1,0 |

**Äußere Abmessungen /**
**extenal dimensions**




| | | |
|---|---|---|
| Anschlüsse / Terminals | 1 | -- |
| | 2 | -- |
| | 3 | -- |
| | 4,6 | Anode / anode |
| | 5,7 | Kathode / cathode |

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