

### Elektrische Eigenschaften / Electrical properties

#### Höchstzulässige Werte / Maximum rated values

|   |   |             |  |
|---|---|-------------|--|
| Periodische Spitzensperrspannung<br>repetitive peak reverse voltage | $t_{vj} = -40^{\circ}\text{C} \dots t_{vj\text{ max}}$<br>$f = 50\text{Hz}$                         | $V_{RRM}$   | 5800 V<br>6000 V<br>6500 V   |
| Durchlaßstrom-Grenzeffektivwert<br>RMS forward current              |   | $I_{FRMSM}$ | 1660 A   |
| Dauergrenzstrom<br>mean forward current                             | $t_C = 100^{\circ}\text{C}, f = 50\text{Hz}$<br>$t_C = 60^{\circ}\text{C}, f = 50\text{Hz}$         | $I_{FAVM}$  | 780 A<br>1050 A  |
| Stoßstrom-Grenzwert<br>surge forward current                        | $t_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$<br>$t_{vj} = t_{vj\text{ max}}, t_p = 10\text{ms}$ | $I_{FSM}$   | 10,5 kA<br>8,5 kA  |
| Grenzlastintegral<br>$I^2t$ -value                                  | $t_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$<br>$t_{vj} = t_{vj\text{ max}}, t_p = 10\text{ms}$ | $I^2t$      | $500 \cdot 10^3 \text{ A}^2\text{s}$<br>$360 \cdot 10^3 \text{ A}^2\text{s}$ |

#### Charakteristische Werte / Characteristic values

|  |  |                  |   |
|--|--|------------------|---|
| Durchlaßspannung<br>forward voltage  | $t_{vj} = t_{vj\text{ max}}, I_F = 1200\text{A}$   | $V_F$            | max. 1,9 V                                      |
| Schleusenspannung<br>threshold voltage   | $t_{vj} = t_{vj\text{ max}}$   | $V_{(TO)}$       | 0,83 V  |
| Ersatzwiderstand<br>forward slope resistance   | $t_{vj} = t_{vj\text{ max}}$   | $r_T$            | 0,89 mΩ   |
| Durchlaßrechenkennlinie<br>On-state characteristics for calculation<br>$V_F = A + B \cdot i_F + C \cdot \ln(i_F + 1) + D \cdot \sqrt{i_F}$ | $t_{vj} = t_{vj\text{ max}}$   | A<br>B<br>C<br>D | max.<br>0,559<br>0,000460<br>-0,00542<br>0,0237 |
| Sperrstrom<br>reverse current  | $t_{vj} = t_{vj\text{ max}}, V_R = V_{RRM}$  | $i_R$            | 50 mA   |
| Sperrverzögerungsladung<br>recovered charge  | $t_{vj} = t_{vj\text{ max}}$<br>$I_{TM} = 1000\text{A}, di/dt = 10\text{A}/\mu\text{s}$<br>$V_R = 1000\text{V}, C = 0,25\mu\text{F}, R = 80\ \Omega$ | $Q_r$            | 5,5 mAs   |
| Rückstromspitze<br>peak reverse recovery current   | $t_{vj} = t_{vj\text{ max}}$<br>$I_{TM} = 1000\text{A}, di/dt = 10\text{A}/\mu\text{s}$<br>$V_R = 1000\text{V}, C = 0,25\mu\text{F}, R = 80\ \Omega$ | $I_{RM}$         | 200 A   |

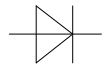
# Technische Information / Technical Information

**eupec**

Netz Gleichrichterdiode  
Rectifier Diode

**D 711 N 58 ... 65 T**

**N**



**Vorläufige Daten  
Preliminary Data**

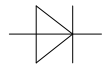
## Thermische Eigenschaften / Thermal properties

|   |  |                    |                                     |                      |
|---|--|--------------------|-------------------------------------|----------------------|
| Innerer Wärmewiderstand<br>thermal resistance, junction to case     | beidseitig / two-sided, DC<br>Anode / anode, DC<br>Kathode / cathode, DC           | $R_{thJC}$         | max 0,028<br>max 0,051<br>max 0,062 | °C/W<br>°C/W<br>°C/W |
| Übergangs-Wärmewiderstand<br>thermal resistance, case to heatsink   | Kühlfläche / cooling surface<br>beidseitig / two-sided<br>einseitig / single sided | $R_{thCK}$         | max 0,006<br>max 0,012              | °C/W<br>°C/W         |
| Höchstzulässige Sperrschichttemperatur<br>max. junction temperature |  | $t_{vj \max}$      | 160                                 | °C                   |
| Betriebstemperatur<br>operating temperature                         |  | $t_{c \text{ op}}$ | -40...+160                          | °C                   |
| Lagertemperatur<br>storage temperature                              |  | $t_{stg}$          | -40...+160                          | °C                   |

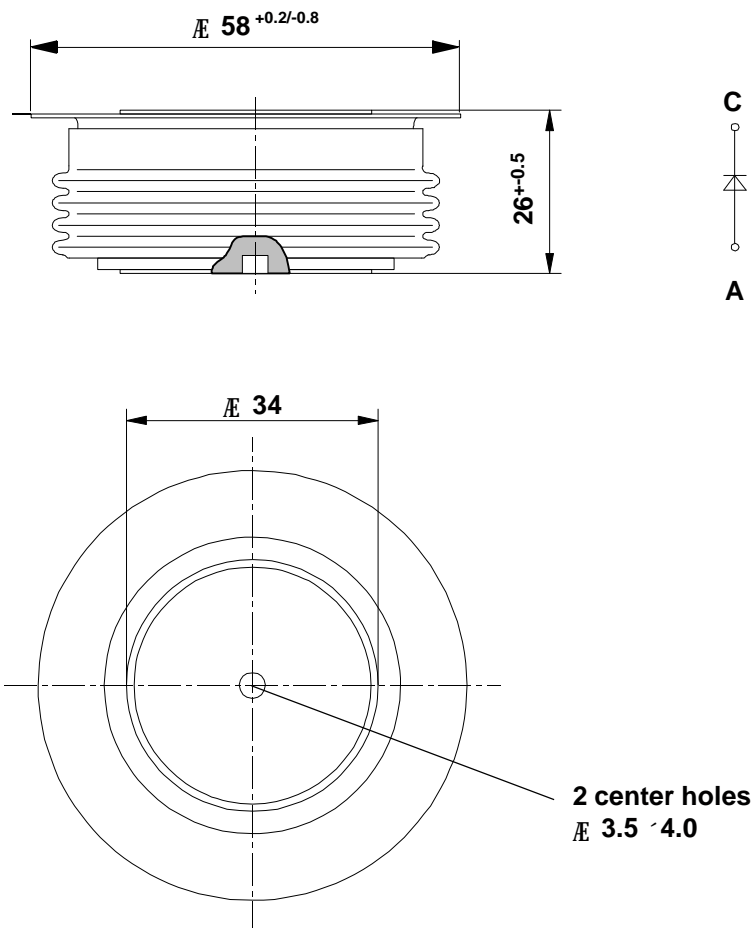
## Mechanische Eigenschaften / Mechanical properties

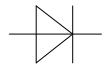
|  |           |   |         |                  |
|--|-----------|---|---------|------------------|
| Gehäuse, siehe Anlage<br>case, see appendix                        |           |   | Seite 3 |                  |
| Si - Element mit Druckkontakt<br>Si - pellet with pressure contact |           |   | 38DN65  |                  |
| Anpreßkraft<br>clamping force                                      |           | F | 10...16 | kN               |
| Gewicht<br>weight  |           | G | typ 250 | g                |
| Kriechstrecke<br>creepage distance                                 |           |   | 30      | mm               |
| Luftstrecke<br>air distance  |           |   | 20      | mm               |
| Feuchtklasse<br>humidity classification                            | DIN 40040 |   | C       |                  |
| Schwingfestigkeit<br>vibration resistance                          | f = 50Hz  |   | 50      | m/s <sup>2</sup> |

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.



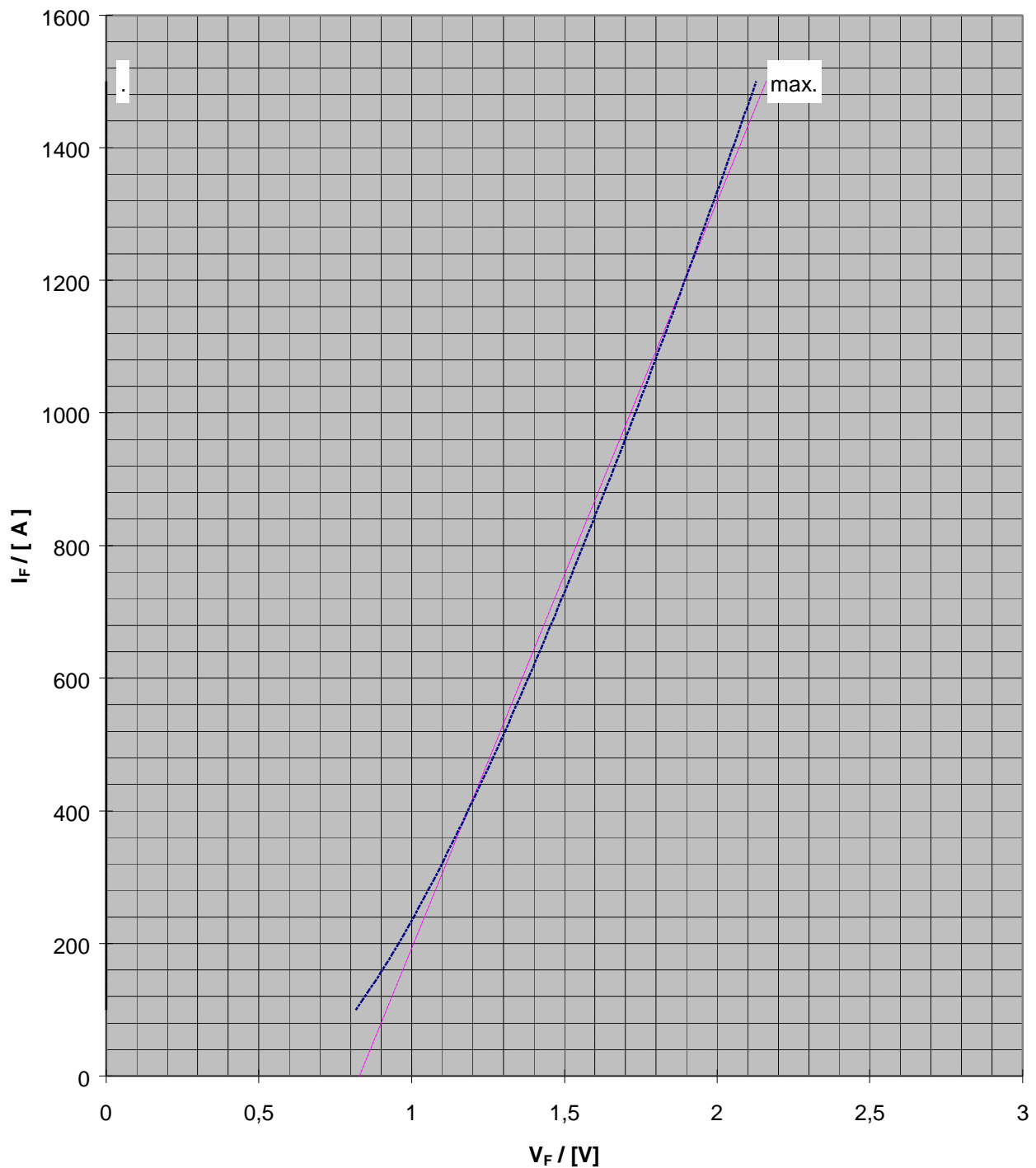
Maßbild / Outline

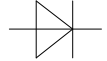




**On-State Characteristics (  $v_F$  )**  
typical and upper limit of scatter range

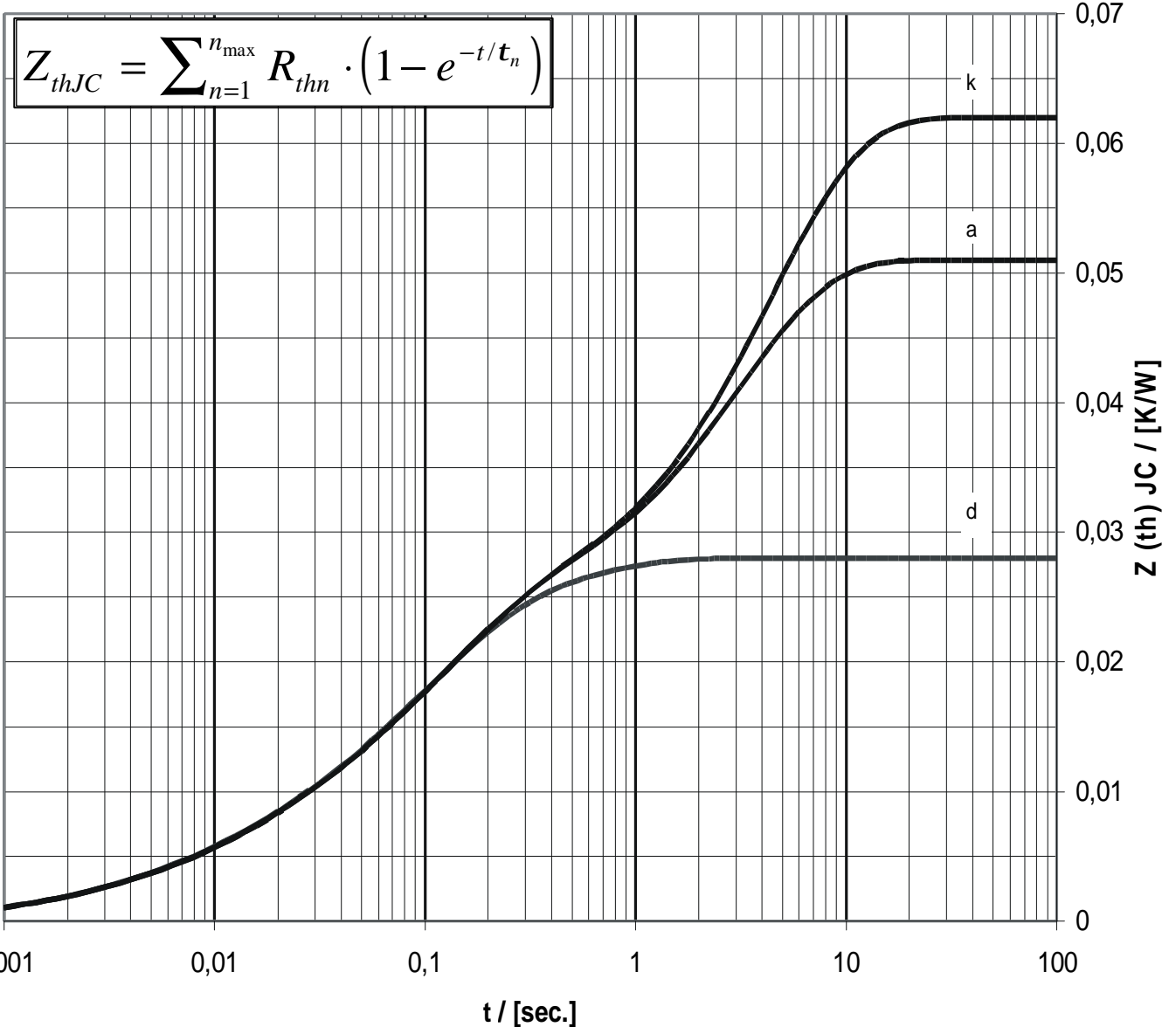
$\frac{3}{4}$   $t_{vj} = 160^\circ \text{C}$





**Transienter innerer Wärmewiderstand**  
**Transient thermal impedance  $Z_{(th) JC} = f(t)$**

|   | doppelseitige<br>Kühlung |        | anodenseitige<br>Kühlung |        | kathodenseitige<br>Kühlung |        |
|---|--------------------------|--------|--------------------------|--------|----------------------------|--------|
|   | r [K/W]                  | [s]    | r [K/W]                  | [s]    | r [K/W]                    | [s]    |
| 1 | 0,0044                   | 0,5    | 0,0268                   | 3,14   | 0,0378                     | 4,4    |
| 2 | 0,014                    | 0,122  | 0,0146                   | 0,134  | 0,0146                     | 0,134  |
| 3 | 0,0049                   | 0,0406 | 0,0049                   | 0,0406 | 0,0049                     | 0,0406 |
| 4 | 0,0035                   | 0,0094 | 0,0035                   | 0,0094 | 0,0035                     | 0,0094 |
| 5 | 0,0012                   | 0,0019 | 0,0012                   | 0,0019 | 0,0012                     | 0,0019 |
|   | 0,028                    | -      | 0,051                    | -      | 0,062                      | -      |

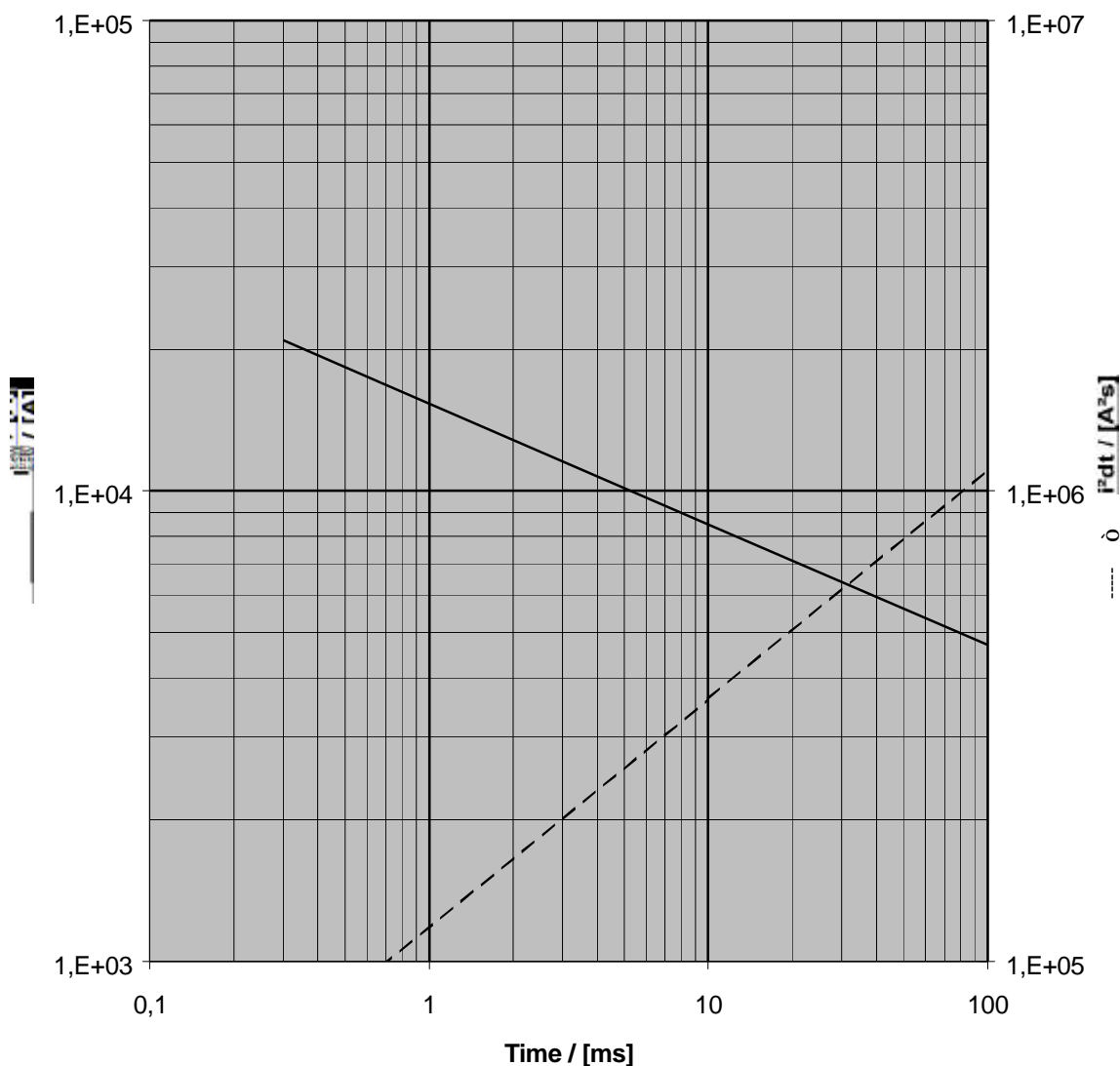


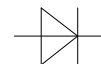


Vorläufige Daten  
Preliminary Data

**Surge Current Characteristics  $I_{FSM} = f(t_p)$**   
 $I^2t$  value       $i^2 dt = f(t_p)$

Sine half-wave,  $t_{vj} = 160^\circ C$ ,  $V_R = 0$

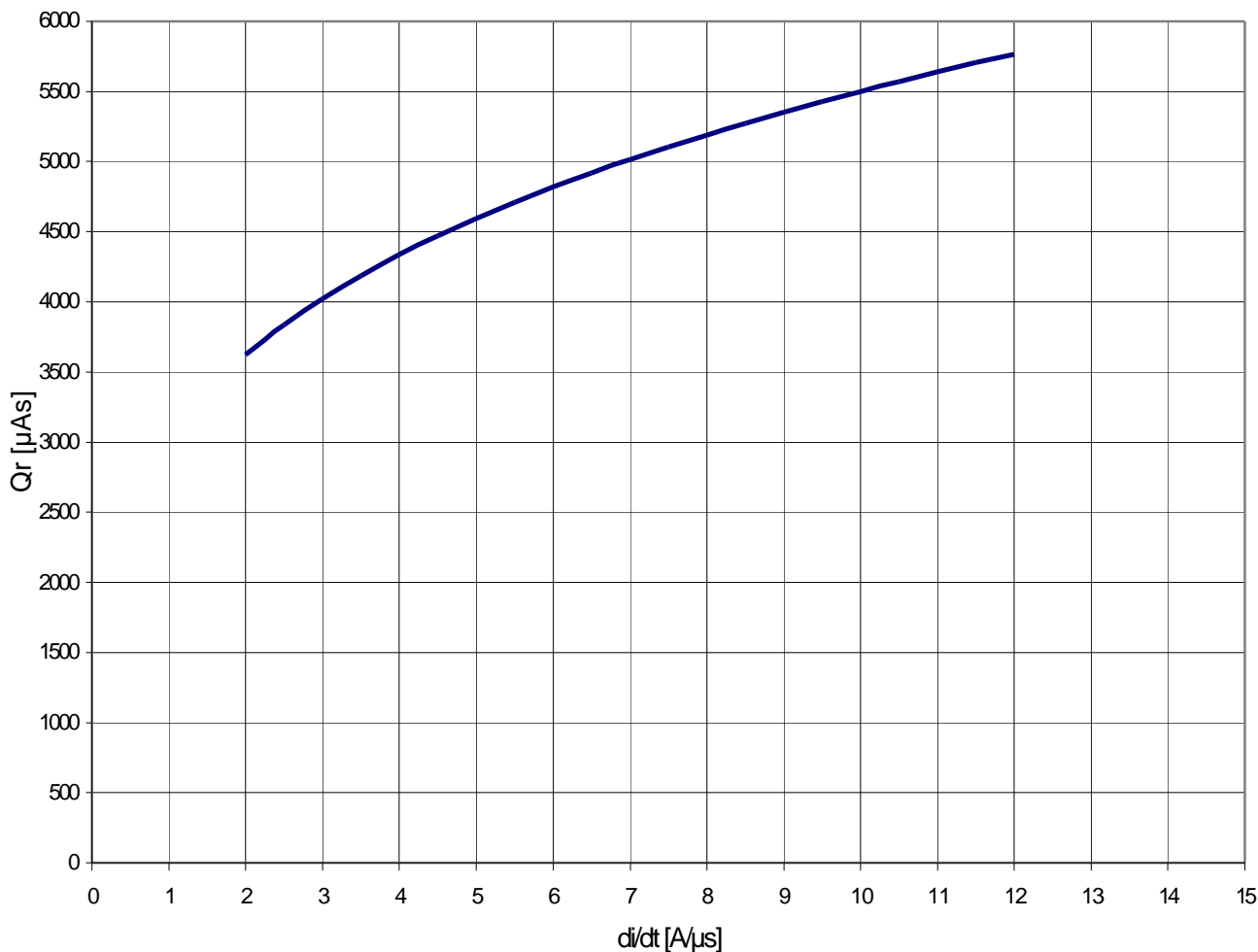


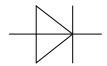


Sperrverzögerungsladung / recoverd charge

$$Q_{rr} = f (di/dt)$$

$t_{vj} = 160^{\circ}C, I_{TM} = 1000A, v_R = 1000 V, C = 0,25 \mu F, R = 80 \Omega$





Rückstromspitze / reverse recovery current

$$I_{RM} = f (di/dt)$$

$t_{vj} = 160^{\circ}C, I_{TM} = 1000A, v_R = 1000 V, C = 0,25 \mu F, R = 80 \Omega$

