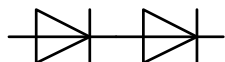


N



## Datenblatt / Data sheet


**Netz-Dioden-Modul**  
**Rectifier Diode Module**
**DD171N**
 Infineon Technologies Bipolar  
 GmbH & Co. KG
**DD171N****DD171N..K..-A****DD171N..K..-K****ND171N****Elektrische Eigenschaften / Electrical properties**

Höchstzulässige Werte / Maximum rated values

|                                                                      |                                                                                                |             |              |                    |                                      |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------|--------------|--------------------|--------------------------------------|
| Periodische Spitzensperrspannung<br>repetitive peak reverse voltages | $T_{vj} = -40^{\circ}\text{C} \dots T_{vj\max}$                                                | $V_{RRM}$   | 1200<br>1600 | 1400<br>1800       | V<br>V                               |
| Stoßspitzensperrspannung<br>non-repetitive peak reverse voltage      | $T_{vj} = +25^{\circ}\text{C} \dots T_{vj\max}$                                                | $V_{RSM}$   | 1300<br>1700 | 1500<br>1900       | V<br>V                               |
| Durchlaßstrom-Grenzeffektivwert<br>maximum RMS on-state current      |                                                                                                | $I_{FRMSM}$ |              | 270                | A                                    |
| Dauergrenzstrom<br>average on-state current                          | $T_C = 100^{\circ}\text{C}$                                                                    | $I_{FAVM}$  |              | 171                | A                                    |
| Stoßstrom-Grenzwert<br>surge current                                 | $T_{vj} = 25^{\circ}\text{C}, t_P = 10\text{ ms}$<br>$T_{vj} = T_{vj\max}, t_P = 10\text{ ms}$ | $I_{FSM}$   |              | 6.600<br>5.600     | A<br>A                               |
| Grenzlastintegral<br>$I^2t$ -value                                   | $T_{vj} = 25^{\circ}\text{C}, t_P = 10\text{ ms}$<br>$T_{vj} = T_{vj\max}, t_P = 10\text{ ms}$ | $I^2t$      |              | 218.000<br>157.000 | A <sup>2</sup> s<br>A <sup>2</sup> s |

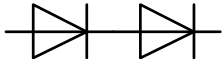
## Charakteristische Werte / Characteristic values

|                                                    |                                                                                        |            |      |            |          |
|----------------------------------------------------|----------------------------------------------------------------------------------------|------------|------|------------|----------|
| Durchlaßspannung<br>on-state voltage               | $T_{vj} = T_{vj\max}, I_F = 500\text{ A}$                                              | $V_F$      | max. | 1,26       | V        |
| Schleusenspannung<br>threshold voltage             | $T_{vj} = T_{vj\max}$                                                                  | $V_{(TO)}$ |      | 0,75       | V        |
| Ersatzwiderstand<br>slope resistance               | $T_{vj} = T_{vj\max}$                                                                  | $r_T$      |      | 0,8        | mΩ       |
| Sperrstrom<br>reverse current                      | $T_{vj} = T_{vj\max}, V_R = V_{RRM}$                                                   | $I_R$      | max. | 20         | mA       |
| Isolations-Prüfspannung<br>insulation test voltage | RMS, $f = 50\text{ Hz}, t = 1\text{ sec}$<br>RMS, $f = 50\text{ Hz}, t = 1\text{ min}$ | $V_{ISOL}$ |      | 3,0<br>2,5 | kV<br>kV |

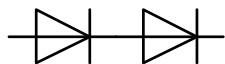
**Thermische Eigenschaften / Thermal properties**

|                                                                        |                                                                                                                                                                              |                   |      |             |                      |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------|-------------|----------------------|
| Innerer Wärmewiderstand<br>thermal resistance, junction to case        | pro Modul / per Module, $\Theta = 180^{\circ}\text{ sin}$<br>pro Zweig / per arm, $\Theta = 180^{\circ}\text{ sin}$<br>pro Modul / per Module, DC<br>pro Zweig / per arm, DC | $R_{thJC}$        | max. | 0,130       | $^{\circ}\text{C/W}$ |
|                                                                        |                                                                                                                                                                              |                   | max. | 0,260       | $^{\circ}\text{C/W}$ |
|                                                                        |                                                                                                                                                                              |                   | max. | 0,126       | $^{\circ}\text{C/W}$ |
|                                                                        |                                                                                                                                                                              |                   | max. | 0,252       | $^{\circ}\text{C/W}$ |
| Übergangs-Wärmewiderstand<br>thermal resistance, case to heatsink      | pro Modul / per Module<br>pro Zweig / per arm                                                                                                                                | $R_{thCH}$        | max. | 0,03        | $^{\circ}\text{C/W}$ |
|                                                                        |                                                                                                                                                                              |                   | max. | 0,06        | $^{\circ}\text{C/W}$ |
| Höchstzulässige Sperrschichttemperatur<br>maximum junction temperature |                                                                                                                                                                              | $T_{vj\max}$      |      | 150         | $^{\circ}\text{C}$   |
| Betriebstemperatur<br>operating temperature                            |                                                                                                                                                                              | $T_{c\text{ op}}$ |      | - 40...+150 | $^{\circ}\text{C}$   |
| Lagertemperatur<br>storage temperature                                 |                                                                                                                                                                              | $T_{stg}$         |      | - 40...+150 | $^{\circ}\text{C}$   |

|              |           |                      |            |
|--------------|-----------|----------------------|------------|
| prepared by: | M.Stelte  | date of publication: | 2011-03-01 |
| approved by: | M.Leifeld | revision:            | 3.0        |

**N****Datenblatt / Data sheet****Netz-Dioden-Modul  
Rectifier Diode Module****DD171N**Infineon Technologies Bipolar  
GmbH & Co. KG**Mechanische Eigenschaften / Mechanical properties**

|                                                                                   |               |    |                   |                  |
|-----------------------------------------------------------------------------------|---------------|----|-------------------|------------------|
| Gehäuse, siehe Anlage<br>case, see annex                                          |               |    | Seite 3<br>page 3 |                  |
| Si-Element mit Druckkontakt<br>Si-pellet with pressure contact                    |               |    |                   |                  |
| Innere Isolation<br>internal insulation                                           |               |    | AIN               |                  |
| Anzugsdrehmoment für mechanische Anschlüsse<br>mounting torque                    | Toleranz ±15% | M1 | 6                 | Nm               |
| Anzugsdrehmoment für elektrische Anschlüsse<br>terminal connection torque         | Toleranz ±10% | M2 | 6                 | Nm               |
| Gewicht<br>weight                                                                 |               | G  | typ. 310          | g                |
| Kriechstrecke<br>creepage distance                                                |               |    | 15                | mm               |
| Schwingfestigkeit<br>vibration resistance                                         | f = 50 Hz     |    | 50                | m/s <sup>2</sup> |
|  | file-No.      |    | E 83336           |                  |

**N**

# Datenblatt / Data sheet

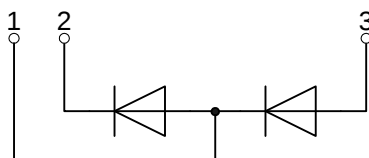
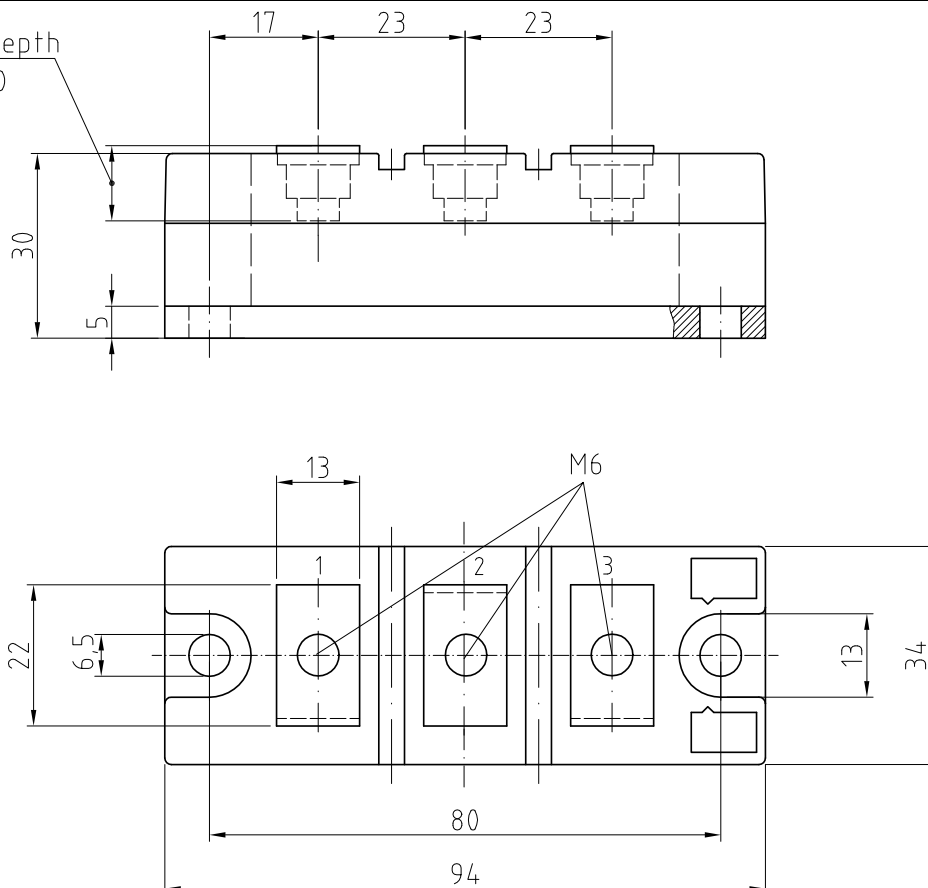


**Netz-Dioden-Modul**  
**Rectifier Diode Module**

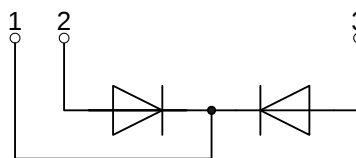
## DD171N

Infineon Technologies Bipolar  
GmbH & Co. KG

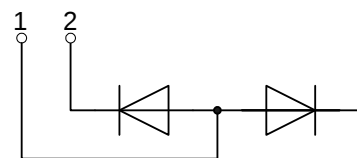
screwing depth  
max. 11,0



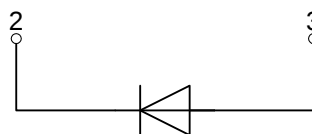
**DD**



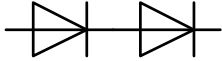
**DD-K**



**DD-A**



**ND**

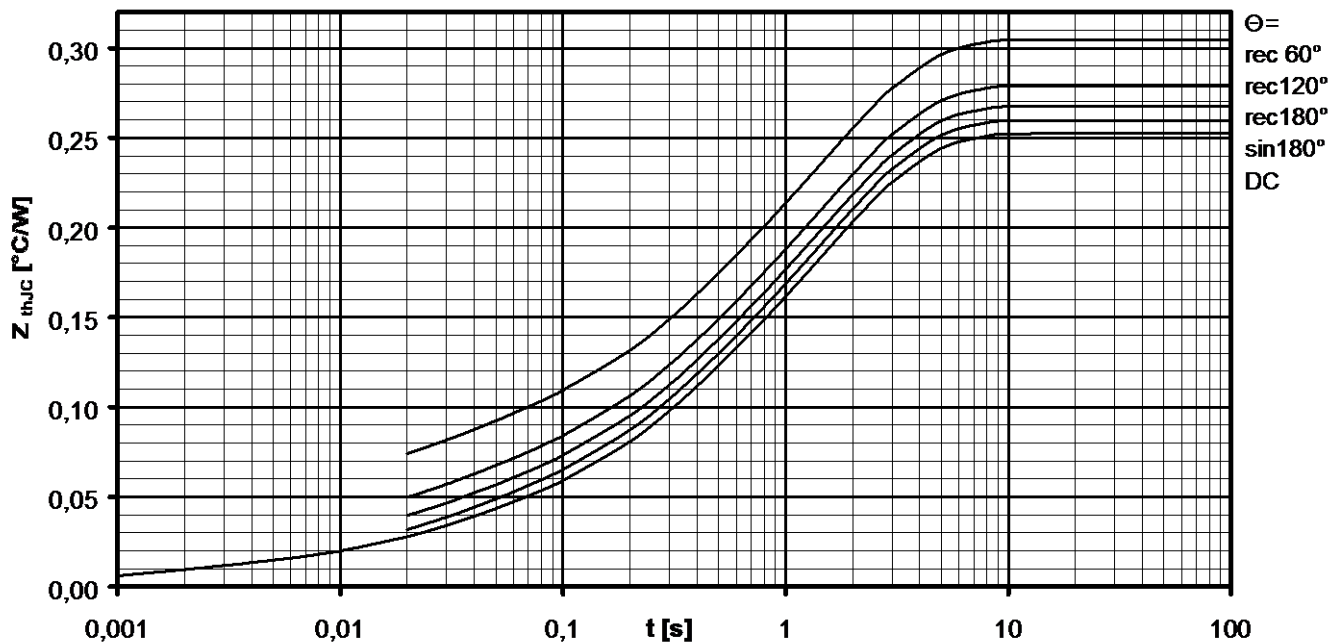


Analytische Elemente des transienten Wärmewiderstandes  $Z_{thJC}$  für DC  
Analytical elements of transient thermal impedance  $Z_{thJC}$  for DC

| Pos. n                  | 1      | 2      | 3      | 4     | 5 | 6 | 7 |
|-------------------------|--------|--------|--------|-------|---|---|---|
| $R_{thn} [^{\circ}C/W]$ | 0,0094 | 0,0224 | 0,0586 | 0,162 |   |   |   |
| $T_n [s]$               | 0,0014 | 0,0253 | 0,267  | 1,68  |   |   |   |

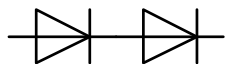
Analytische Funktion / Analytical function:

$$Z_{thJC} = \sum_{n=1}^{n_{max}} R_{thn} \left( 1 - e^{-\frac{t}{\tau_n}} \right)$$



Transienter innerer Wärmewiderstand je Zweig / Transient thermal impedance per arm  $Z_{thJC} = f(t)$

Parameter: Stromflußwinkel  $\Theta$  / Current conduction angle  $\Theta$



Natürliche Kühlung / Natural cooling  
 3 Module pro Kühler / 3 modules per heatsink  
 Kühler / Heatsink type: KM17 (60W)

**Analytische Elemente des transienten Wärmewiderstandes  $Z_{thCA}$**   
**Analytical elements of transient thermal impedance  $Z_{thCA}$**

| Pos. n                  | 1      | 2      | 3     | 4 | 5 | 6 | 7 |
|-------------------------|--------|--------|-------|---|---|---|---|
| $R_{thn} [^{\circ}C/W]$ | 0,0505 | 0,1235 | 1,616 |   |   |   |   |
| $T_n [s]$               | 2,97   | 21,4   | 1180  |   |   |   |   |

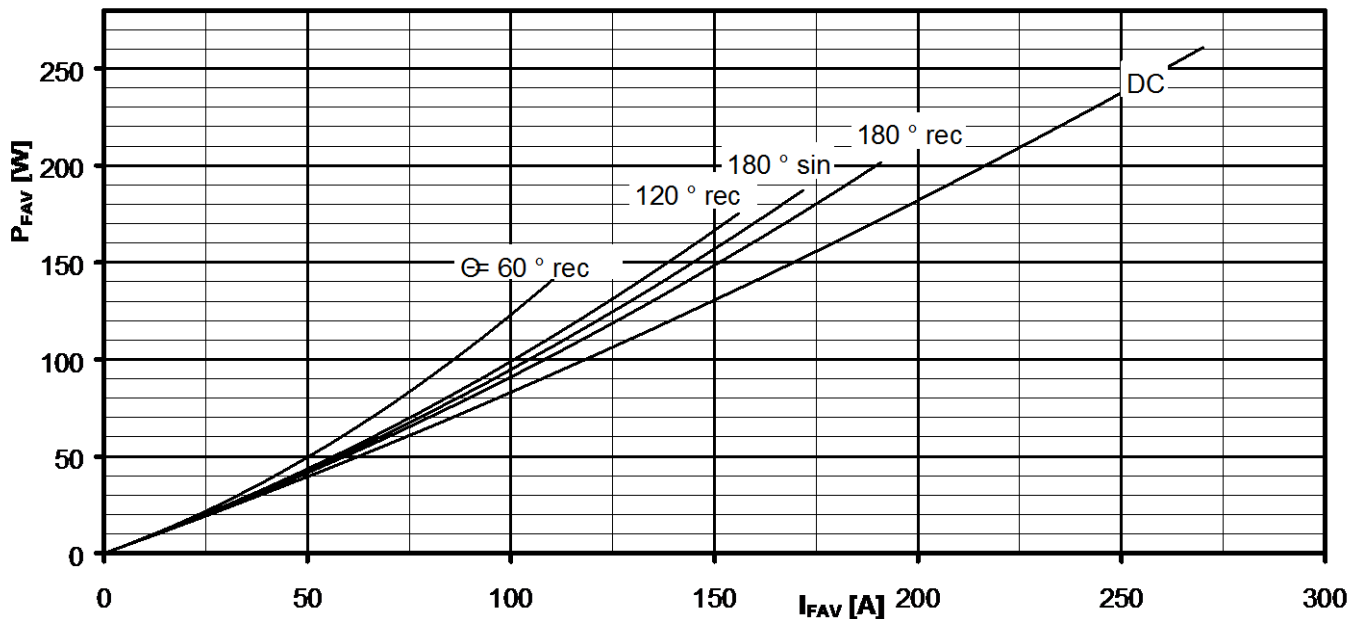
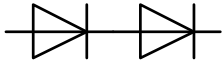
Verstärkte Kühlung / Forced cooling  
 3 Module pro Kühler / 3 modules per heatsink  
 Kühler / Heatsink type: KM17 (Papst 4650)

**Analytische Elemente des transienten Wärmewiderstandes  $Z_{thCA}$**   
**Analytical elements of transient thermal impedance  $Z_{thCA}$**

| Pos. n                  | 1     | 2     | 3     | 4 | 5 | 6 | 7 |
|-------------------------|-------|-------|-------|---|---|---|---|
| $R_{thn} [^{\circ}C/W]$ | 0,026 | 0,119 | 0,515 |   |   |   |   |
| $T_n [s]$               | 2,41  | 13,6  | 354   |   |   |   |   |

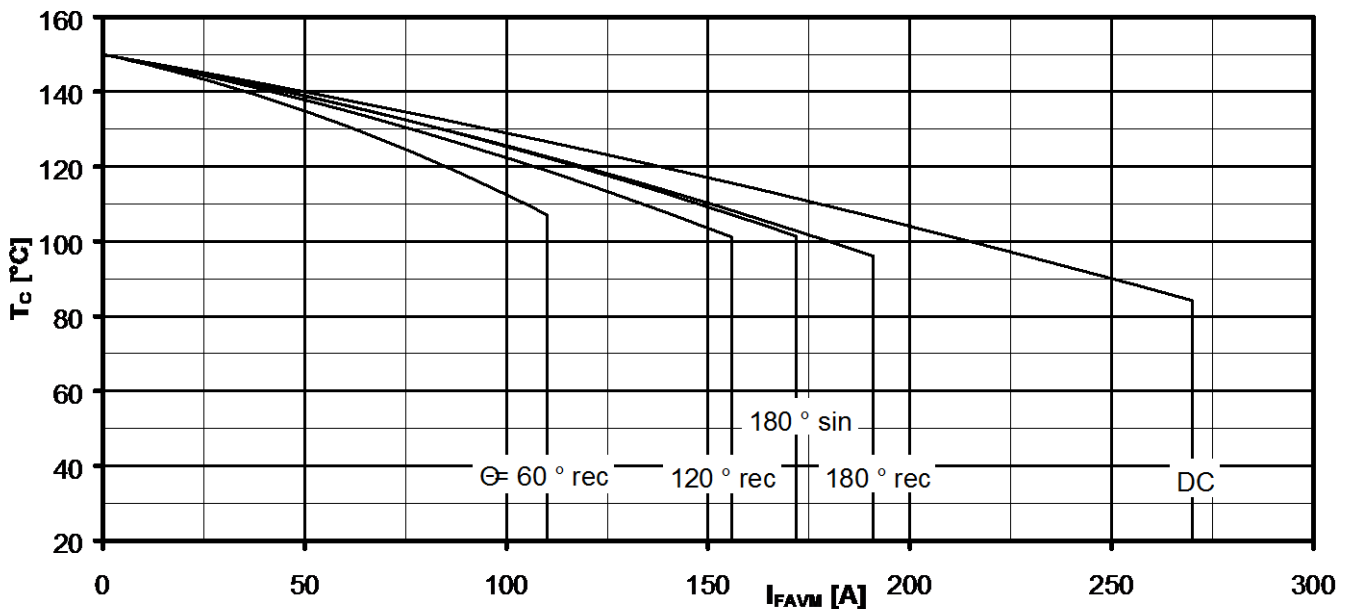
Analytische Funktion / Analytical function:

$$Z_{thCA} = \sum_{n=1}^{n_{max}} R_{thn} \left( 1 - e^{-\frac{t}{\tau_n}} \right)$$



Durchlassverlustleistung je Zweig / On-state power loss per arm  $P_{FAV} = f(I_{FAV})$

Parameter: Stromflußwinkel / Current conduction angle  $\Theta$

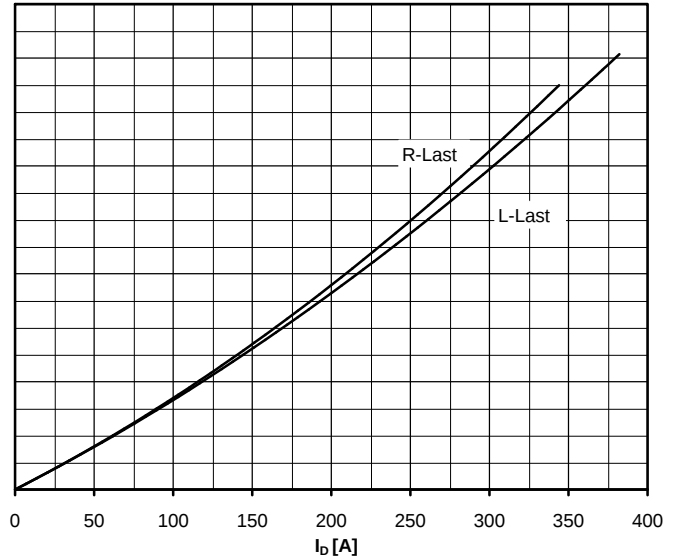
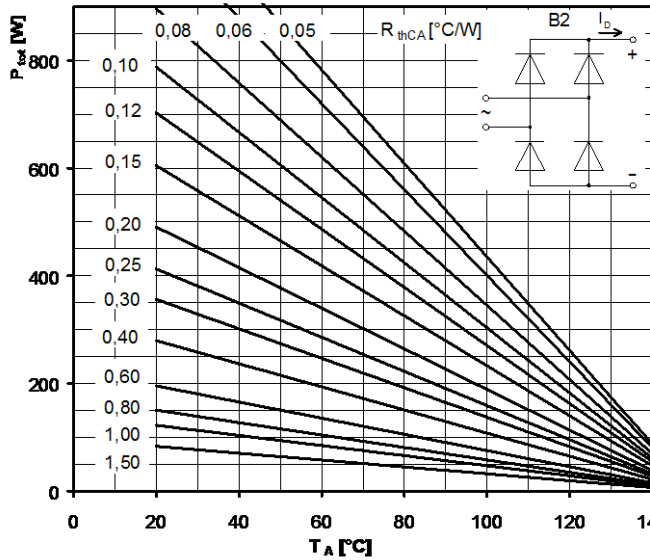
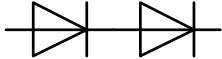


Höchstzulässige Gehäusetemperatur / Maximum allowable case temperature  $T_C = f(I_{FAVM})$

Strombelastung je Zweig / Current load per arm

Berechnungsgrundlage  $P_{TAV}$   
 Calculation base  $P_{TAV}$

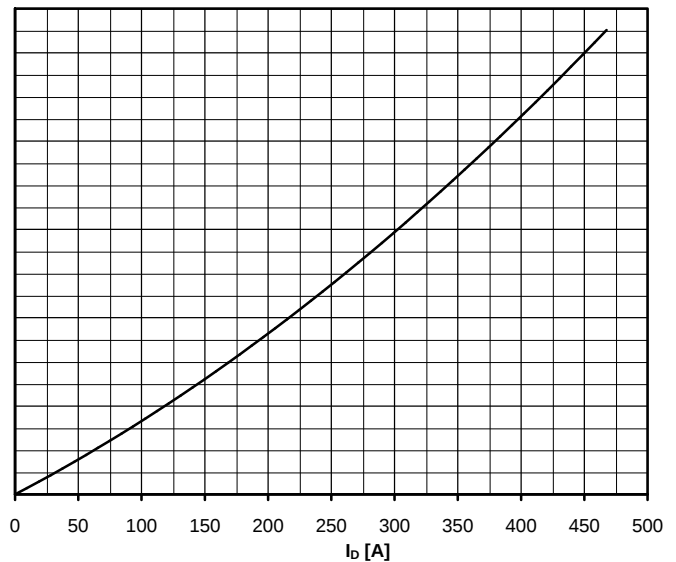
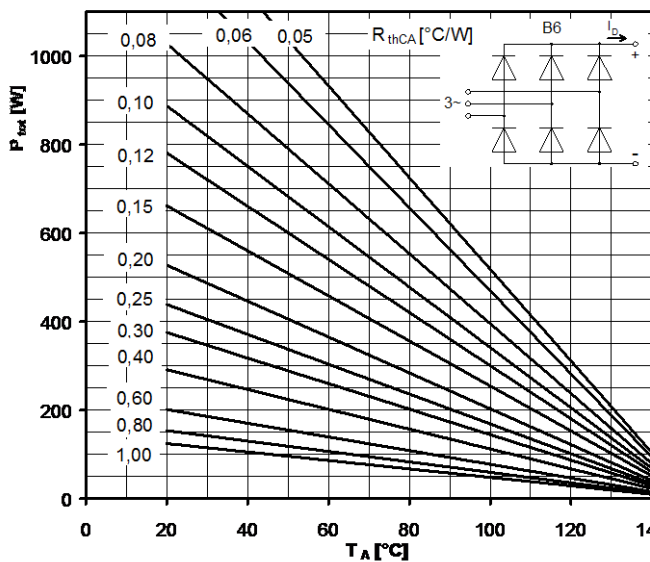
Parameter: Stromflußwinkel  $\Theta$  / Current conduction angle  $\Theta$


**Höchstzulässiger Ausgangsstrom / Maximum rated output current  $I_D$** 

B2- Zweipuls-Brückenschaltung / Two-pulse bridge circuit

 Gesamtverlustleistung der Schaltung / Total power dissipation at circuit  $P_{tot}$ 

Parameter:

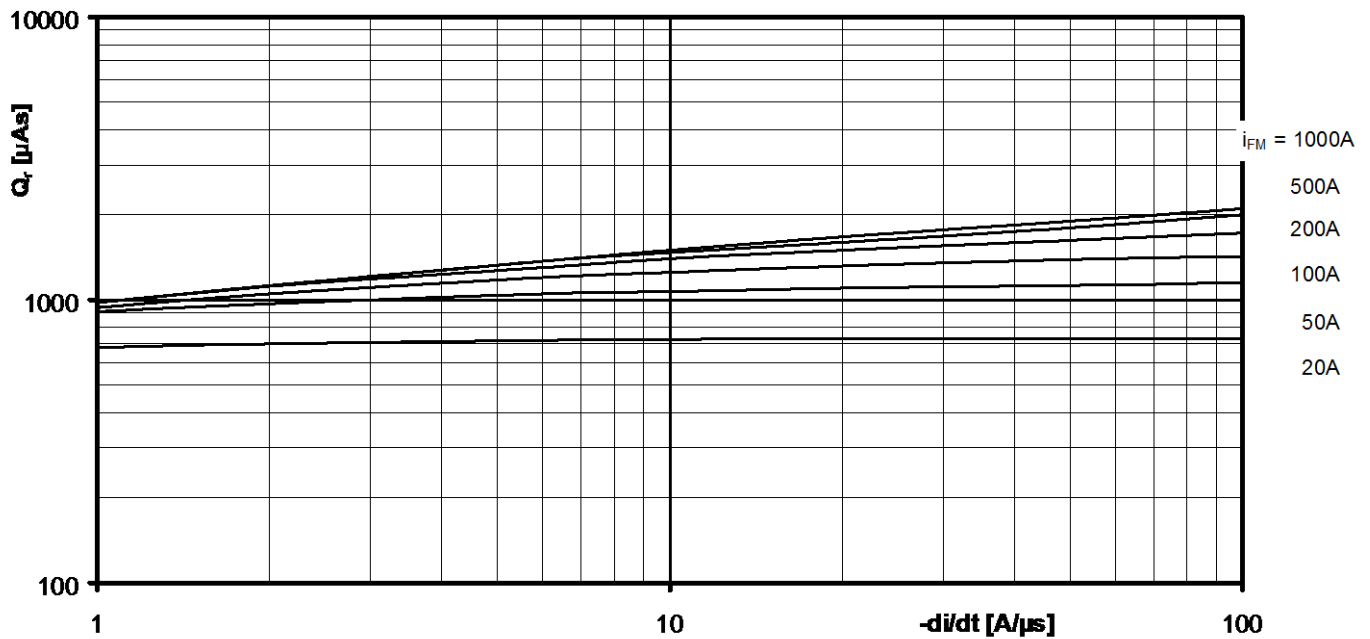
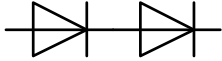
 Wärmewiderstand zwischen den Gehäusen und Umgebung / Thermal resistance cases to ambient  $R_{thCA}$ 

**Höchstzulässiger Ausgangsstrom / Maximum rated output current  $I_D$** 

B6- Sechspuls-Brückenschaltung / Six-pulse bridge circuit

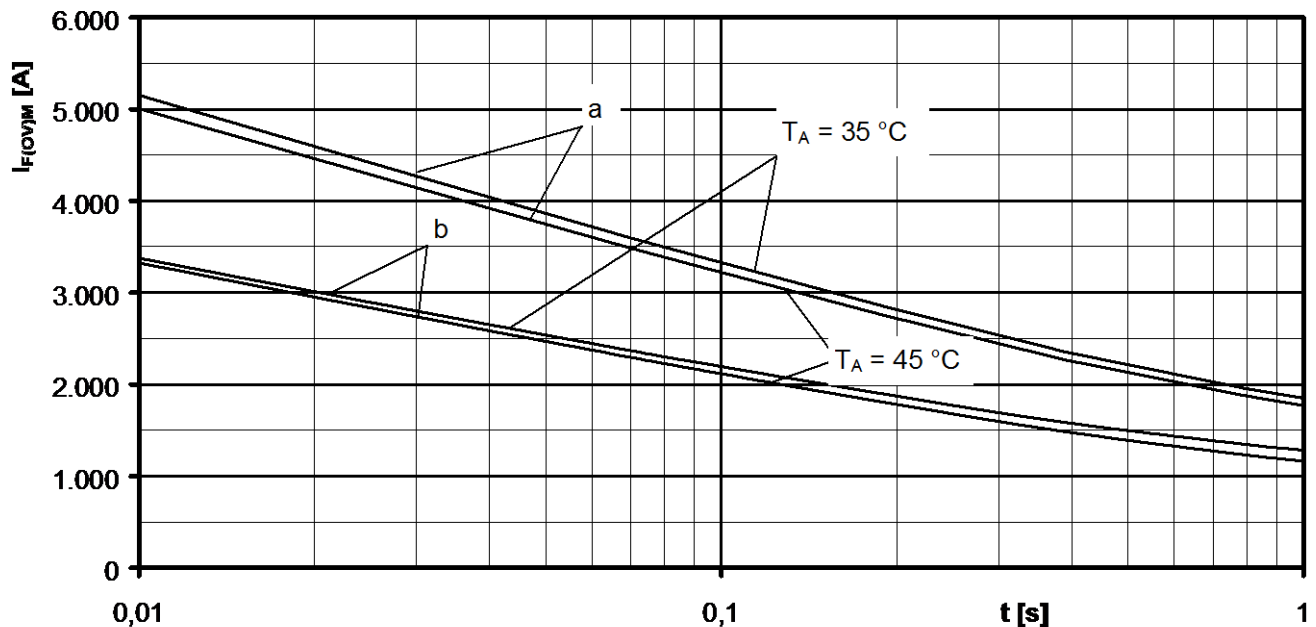
 Gesamtverlustleistung der Schaltung / Total power dissipation at circuit  $P_{tot}$ 

Parameter:

 Wärmewiderstand zwischen den Gehäusen und Umgebung / Thermal resistance cases to ambient  $R_{thCA}$


 Sperrverzögerungsladung / Recovered charge  $Q_r = f(-di/dt)$ 

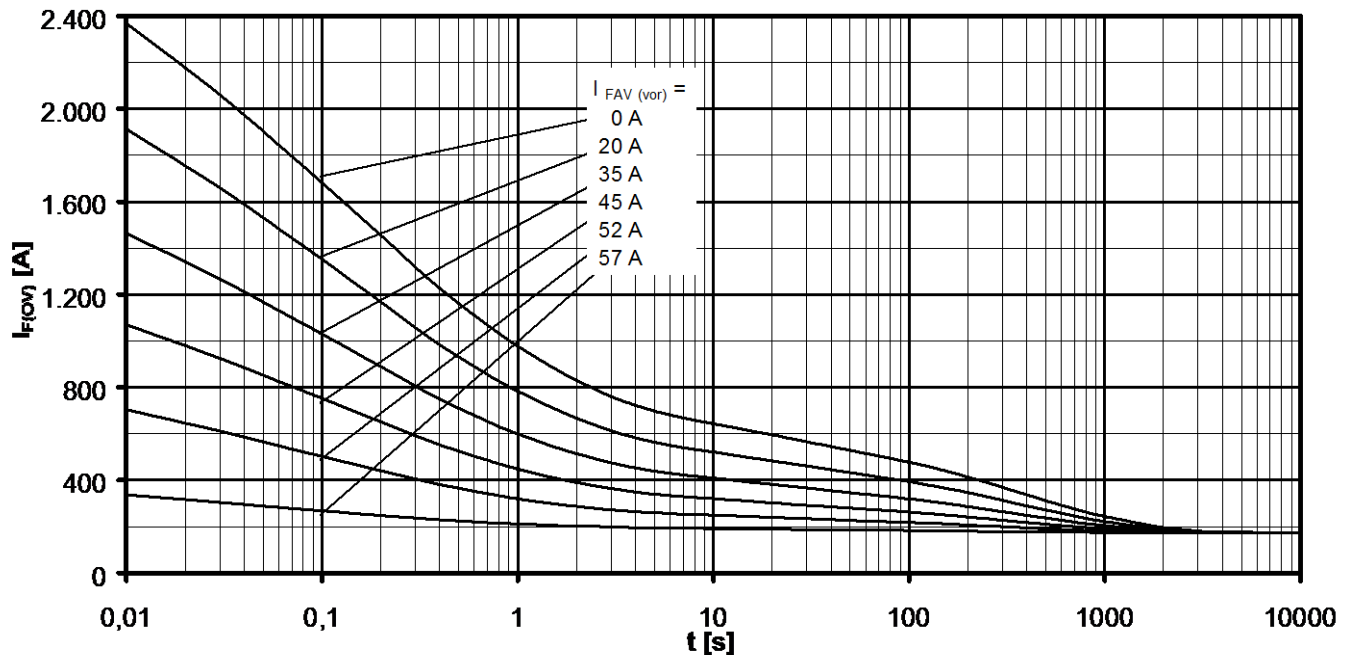
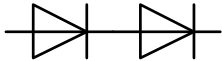
$$T_{vj} = T_{vjmax}, V_R \leq 0,5 V_{RRM}, V_{RM} = 0,8 V_{RRM}$$

 Parameter: Durchlaßstrom / On-state current  $i_{FM}$ 

 Grenzstrom je Zweig / Maximum overload on-state current per arm  $I_{F(OV)M} = f(t)$ ,  $V_{RM} = 0,8 V_{RRM}$ 

a: Leerlauf / No-load conditions

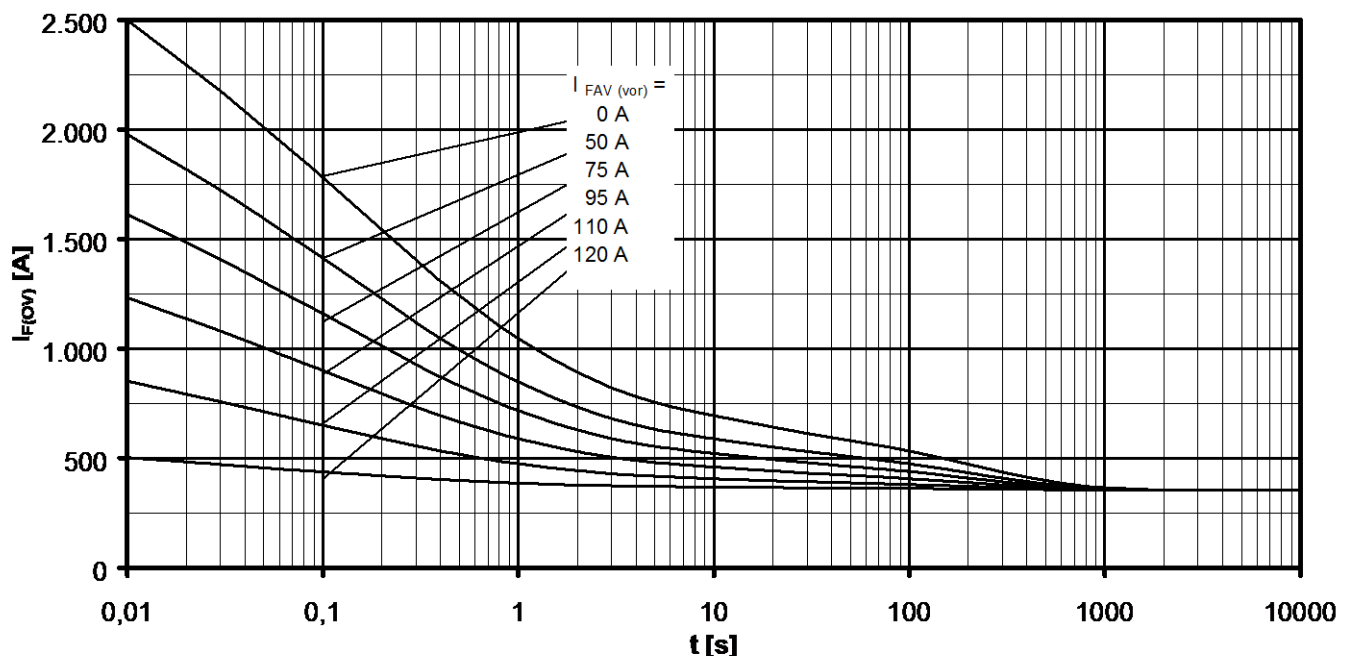
 b: Vorlaststrom je Zweig / Pre-load current per arm  $I_{FAV(vor)} = I_{FAVM}$ 
 $T_a = 35^\circ\text{C}$ , verstärkte Luftkühlung / Forced air cooling    Kühlkörper / Heatsink type: KM17 (Papst 4650)

 $T_a = 45^\circ\text{C}$ , natürliche Luftkühlung / Natural air cooling    Kühlkörper / Heatsink type: KM17 (60W)


 Überstrom je Zweig / Overload on-state current  $I_{F(ov)}$ 

B6- Sechspuls-Brückenschaltung, 120° Rechteck / Six-pulse bridge circuit, 120° rectangular

 Kühlkörper / Heatsink type KM17 (60W) Natürliche Kühlung bei / Natural cooling at  $T_A = 45^\circ\text{C}$ 

 Parameter: Vorlaststrom je Zweig / Pre-load current per arm  $I_{FAV(vor)}$ 

 Überstrom je Zweig / Overload on-state current  $I_{F(ov)}$ 

B6- Sechspuls-Brückenschaltung, 120° Rechteck / Six-pulse bridge circuit 120° rectangular

 Kühlkörper / Heatsink type KM17 (Papst 4650) Verstärkte Kühlung bei / Forced cooling at  $T_A = 35^\circ\text{C}$ 

 Parameter: Vorlaststrom je Zweig / Pre-load current per arm  $I_{FAV(vor)}$

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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moschip.ru\_9