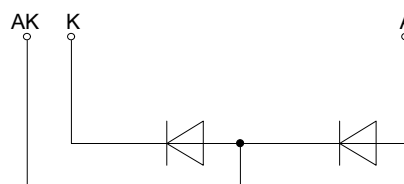
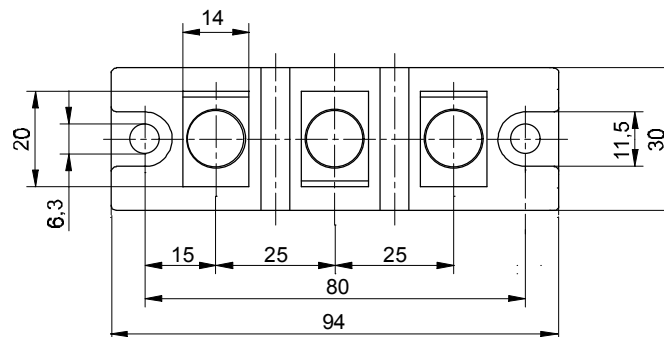
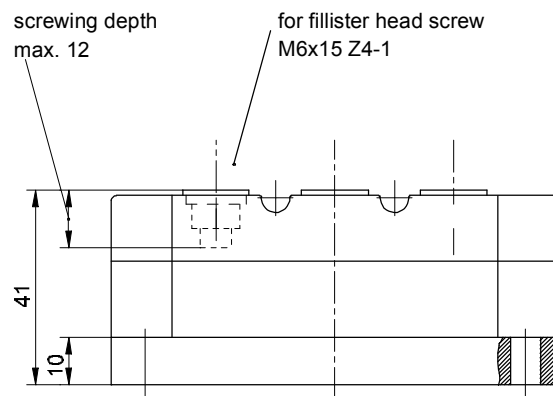




European Power-Semiconductor and Electronics Company GmbH + Co. KG

Marketing Information

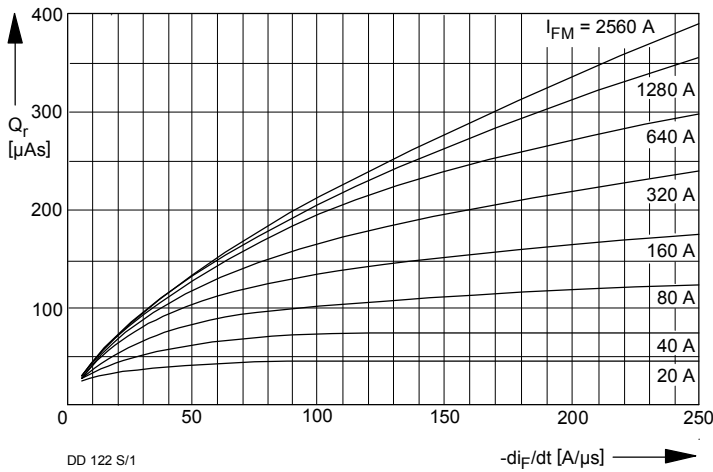
DD 122 S



| Elektrische Eigenschaften | Electrical properties | | | | |
|----------------------------------|--------------------------------------|--|---------------------|---|------------------------------|
| Höchstzulässige Werte | Maximum rated values | | | | |
| Periodische Spitzensperrspannung | repetitive peak reverse voltage | $t_{vj} = -40^{\circ}\text{C} \dots t_{vj \max}$ | V_{RRM} DD 122 S: | 400 600 800 1000 | V |
| Stoßspitzenspannung | non-repetitive peak reverse voltage | $t_{vj} = +25^{\circ}\text{C} \dots t_{vj \max}$ | $V_{RSM} = V_{RRM}$ | + 50 | V |
| Durchlaßstrom-Grenzeffektivwert | RMS forward current | | I_{FRMSM} | 200 | A |
| Dauergrenzstrom | average forward current | $t_c = 100^{\circ}\text{C}$ | I_{FAVM} | 121 | A |
| | | $t_c = 97^{\circ}\text{C}$ | | 127 | A |
| Stoßstrom-Grenzwert | surge current | $t_{vj} \leq 25^{\circ}\text{C}, t_p = 10 \text{ ms}$ | I_{FSM} | 2500 | A |
| | | $t_{vj} = t_{vj \max}, t_p = 10 \text{ ms}$ | | 2000 | A |
| Grenzlastintegral | $\int i^2 t$ -value | $t_{vj} \leq 25^{\circ}\text{C}, t_p = 10 \text{ ms}$ | $\int i^2 t$ | 31200 | A ² s |
| | | $t_{vj} = t_{vj \max}, t_p = 10 \text{ ms}$ | | 20000 | A ² s |
| Charakteristische Werte | Characteristic values | | | | |
| Durchlaßspannung | forward voltage | $t_{vj} = t_{vj \max}, i_F = 350 \text{ A}$ | V_F | max. 1,65 | V |
| Schleusenspannung | threshold voltage | | $V_{(TO)}$ | 0,95 | V |
| Ersatzwiderstand | slope resistance | | r_T | 1,7 | mΩ |
| Sperrstrom | reverse current | $t_{vj} = t_{vj \max}, V_R = V_{RRM}$ | i_R | max. 40 | mA |
| Nachlaufladung | lag charge | $t_{vj} = t_{vj \max}, i_{FM} = 100 \text{ A}, \text{DD 121 S:}$ $-di_F/dt = 100 \text{ A}/\mu\text{s}, \text{DD 122 S:}$ | Q_S | max. 45 | μAs |
| | | | | max. 25 | μAs |
| Isolations-Prüfspannung | insulation test voltage | RMS, f = 50 Hz, t = 1 min. | V_{ISOL} | 3 | kV |
| Thermische Eigenschaften | Thermal properties | | | | |
| Innerer Wärmewiderstand | thermal resistance, junction to case | $\Theta = 180^{\circ}\text{el. sin: pro Modul/per module}$ pro Zweig/per arm DC: pro Modul/per module pro Zweig/per arm | R_{thJC} | max. 0,14 max. 0,28 max. 0,135 max. 0,27 | °C/W °C/W °C/W °C/W |
| Übergangs-Wärmewiderstand | thermal resistance, case to heatsink | pro Modul/per module pro Zweig/per arm | R_{thCK} | max. 0,03 max. 0,06 | °C/W °C/W |
| Höchstzul.Sperrschichttemperatur | max. junction temperature | | $t_{vj \max}$ | 150 | °C |
| Betriebstemperatur | operating temperature | | $t_{c \text{ op}}$ | -40...+150 | °C |
| Lagertemperatur | storage temperature | | t_{stg} | -40...+150 | °C |
| Mechanische Eigenschaften | Mechanical properties | | | | |
| Si-Elemente mit Druckkontakt | Si-pellets with pressure contact | | | | AlN |
| Innere Isolation | internal insulation | | | | |
| Anzugsdrehmomente | tightening torques | | | | |
| mechanische Befestigung | mounting torque | Toleranz/tolerance +/- 15% | M1 | 6 | Nm |
| elektrische Anschlüsse | terminal connection torque | Toleranz/tolerance +5%/-10% | M2 | 6 | Nm |
| Gewicht | weight | | G | typ. 430 | g |
| Kriechstrecke | creepage distance | | | 14 | mm |
| Schwingfestigkeit | vibration resistance | f = 50 Hz | | 5 · 9,81 | m/s ² |
| Maßbild | outline | | | | 6 |

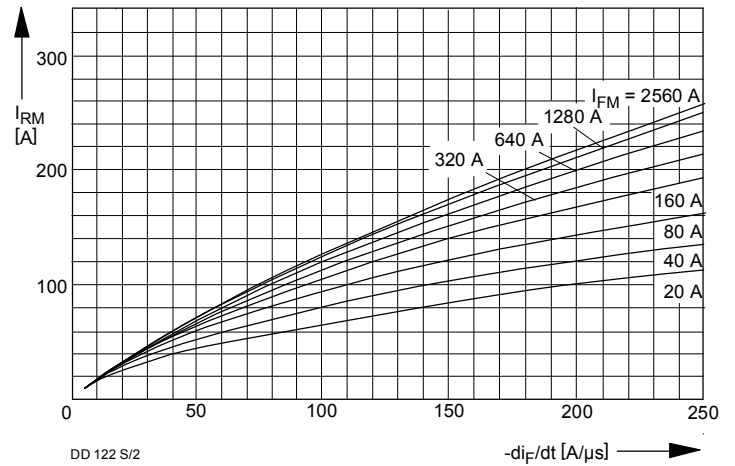
DD 122 S kann auch mit gemeinsamer Anode oder gemeinsamer Kathode geliefert werden.

DD 122 S can also be supplied with common anode or common cathode.



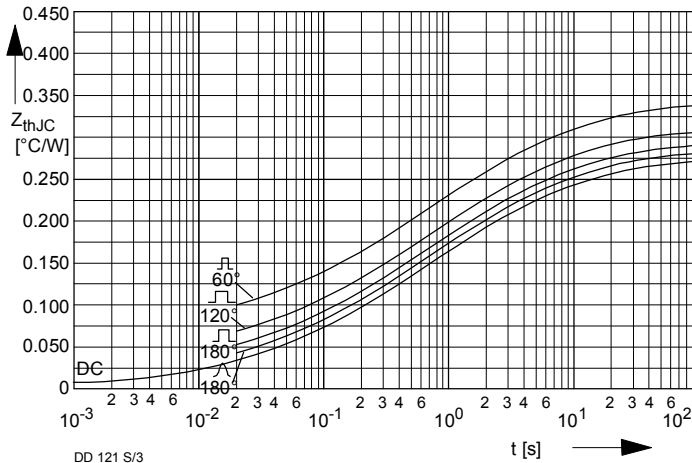
DD 122 S/1

Bild / Fig. 1
 Sperrverzögerungsladung $Q_r = f(-di/dt)$, $t_{vj} = t_{vj}(\text{max})$, $v_R \leq 0,5 V_{RRM}$,
 $v_{RM} = 0,8 V_{RRM}$ /
 Recovered charge $Q_r = f(-di/dt)$, $t_{vj} = t_{vj}(\text{max})$, $v_R \leq 0,5 V_{RRM}$,
 $v_{RM} = 0,8 V_{RRM}$
 Parameter: Durchlaßstrom / On-state current I_{FM}



DD 122 S/2

Bild / Fig. 2
 Rückstromspitze $I_{RM} = f(-di/dt)$, $t_{vj} = t_{vj}(\text{max})$, $v_R \leq 0,5 V_{RRM}$, $v_{RM} = 0,8 V_{RRM}$
 Peak reverse recovery current $I_{RM} = f(-di/dt)$, $t_{vj} = t_{vj}(\text{max})$, $v_R \leq 0,5 V_{RRM}$,
 $v_{RM} = 0,8 V_{RRM}$
 Parameter: Durchlaßstrom / On-state current I_{TM}



DD 121 S/3

Bild / Fig. 3
 Transienter innerer Wärmewiderstand Z_{thJC} für einen Zweig
 bei sinus- und trapezförmigem Stromverlauf
 Transient thermal impedance Z_{thJC} , junction to case per arm
 at sinusoidal and trapezoidal waveform.

Analytische Elemente des transienten Wärmewiderstandes Z_{thJC} pro Zweig für DC
 Analytical elements of transient thermal impedance Z_{thJC} per arm for DC

| Pos. n | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---------|--------|--------|--------|-------|---|---|
| R_{thn} [$^{\circ}\text{C}/\text{W}$] | 0,0102 | 0,0329 | 0,0805 | 0,0741 | 0,072 | | |
| τ_n [s] | 0,00112 | 0,0175 | 0,322 | 1,21 | 7,5 | | |

Analytische Funktion / Analytical function:

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