# eupec

# Marketing Information
# DD 121 S

screwing depth
max. 12

for fillister head screw
M6x15 Z4-1



AK    K                                    A
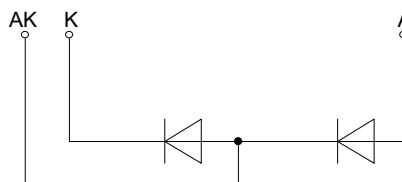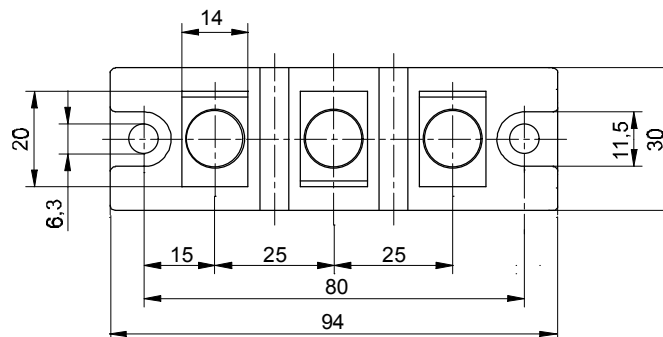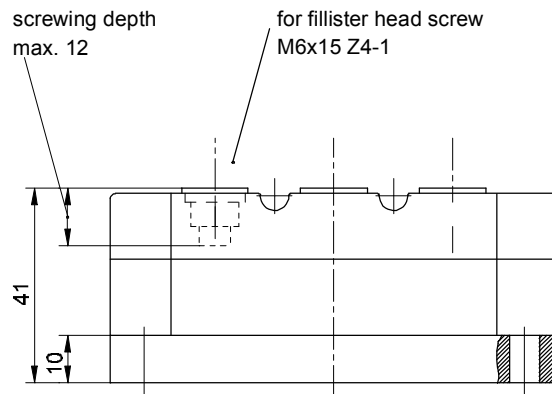
| Elektrische Eigenschaften | Electrical properties | | | | |
|---|---|---|---|---|---|
| Höchstzulässige Werte | Maximum rated values | | | | |
| Periodische Spitzensperrspannung | repetitive peak reverse voltage | $t_{vj}$ = -40°C...$t_{vj\ max}$ | $V_{RRM}$ DD 121 S: | 1000 1200 1400 | V |
| Stoßspitzenspannung | non-repetitive peak reverse voltage | $t_{vj}$ = +25°C...$t_{vj\ max}$ | $V_{RSM}$ = $V_{RRM}$ | + 50 | V |
| Durchlaßstrom-Grenzeffektivwert | RMS forward current | | $I_{FRMSM}$ | 200 | A |
| Dauergrenzstrom | average forward current | $t_c$ = 100°C | $I_{FAVM}$ | 121 | A |
| | | $t_c$ = 97°C | | 127 | A |
| Stoßstrom-Grenzwert | surge current | $t_{vj}$ ≤ 25°C, $t_p$ = 10 ms | $I_{FSM}$ | 2500 | A |
| | | $t_{vj}$ = $t_{vj\ max}$, $t_p$ = 10 ms | | 2000 | A |
| Grenzlastintegral | ∫I² t-value | $t_{vj}$ ≤ 25°C, $t_p$ = 10 ms | ∫$I^2$ t | 31200 | $A^2$s |
| | | $t_{vj}$ = $t_{vj\ max}$, $t_p$ = 10 ms | | 20000 | $A^2$s |

| Charakteristische Werte | Characteristic values | | | | |
|---|---|---|---|---|---|
| Durchlaßspannung | forward voltage | $t_{vj}$ = $t_{vj\ max}$, $i_F$ = 350 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 A, DD 121 S: | $Q_S$ | max. 45 | µAs |
| | | -$di_F$/dt = 100 A/µs, DD 122 S: | | 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 | Θ =180°el. sin: pro Modul/per module | $R_{thJC}$ | max. 0,14 | °C/W |
| | to case | pro Zweig/per arm | | max. 0,28 | °C/W |
| | | DC: pro Modul/per module | | max. 0,135 | °C/W |
| | | pro Zweig/per arm | | max. 0,27 | °C/W |
| Übergangs-Wärmewiderstand | thermal resistance, case to heatsink | pro Modul/per module | $R_{thCK}$ | max. 0,03 | °C/W |
| | | pro Zweig/per arm | | max. 0,06 | °C/W |
| Höchstzul.Sperrschichttemperatur | max. junction temperature | | $t_{vj\ max}$ | 150 | °C |
| Betriebstemperatur | operating temperature | | $t_{c\ op}$ | -40...+150 | °C |
| Lagertemperatur | storage temperature | | $t_{stg}$ | -40...+150 | °C |

| Mechanische Eigenschaften | Mechanical properties | | | | |
|---|---|---|---|---|---|
| Si-Elemente mit Druckkontakt | Si-pellets with pressure contact | | | | |
| Innere Isolation | internal insulation | | | AIN | |
| 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/s² |
| Maßbild | outline | | | | 6 |

DD 121 S kanneauch mit gemeinsamer Anode oder gemeinsamer Kathode geliefert werden.

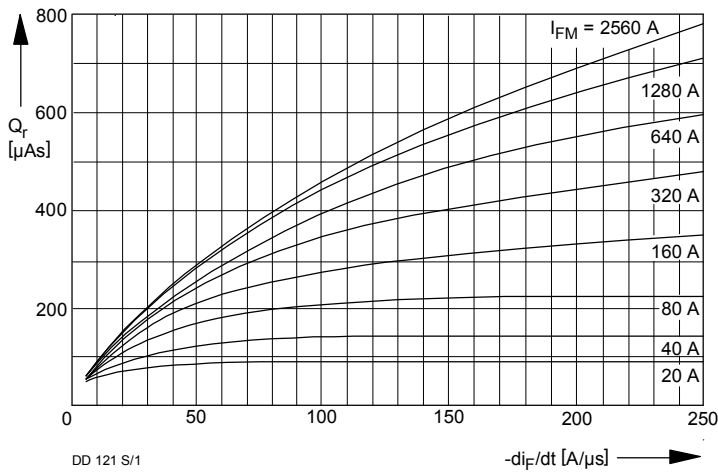DD 121 S can also be supplied with common anode or common cathode.

DD 121 S/1

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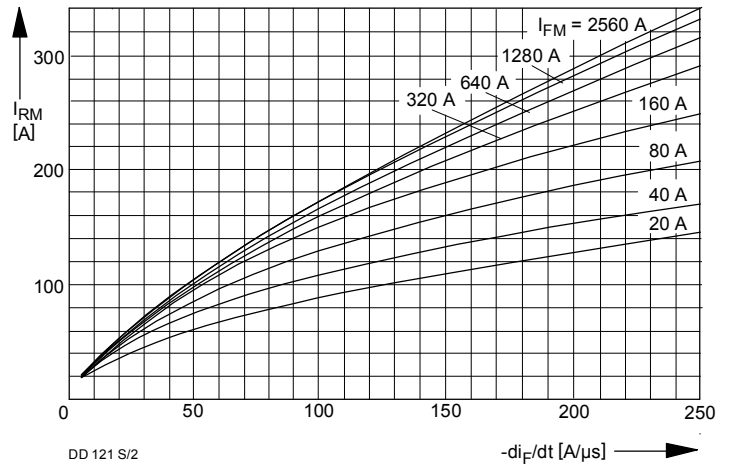Parameter: Durchlaßstrom / On-state current $I_{FM}$



DD 121 S/2

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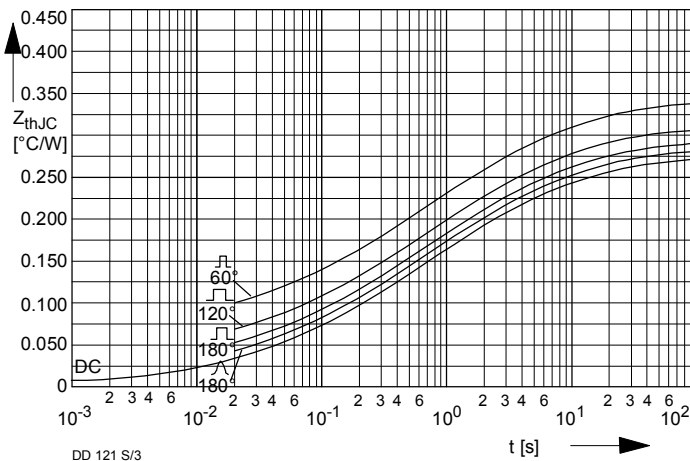


DD 121 S/3

**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 sinussoidal 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 |
|---|---|---|---|---|---|---|---|
| $R_{thn}$[°C/W] | 0,0102 | 0,0329 | 0,0805 | 0,0741 | 0,072 | | |
| $\tau_n$ [s] | 0,00112 | 0,0175 | 0,322 | 1,21 | 7,5 | | |

Analytische Funktion / Analytical function:

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

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