

| Symbol | Conditions | Characteristic Values |
|------------|--|---|
| I_R, I_D | $V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$ | ≤ 5 mA ≤ 0.3 mA |
| V_T, V_F | $I_T, I_F = 45$ A; $T_{VJ} = 25^\circ\text{C}$ | ≤ 1.45 V |
| V_{T0} | For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$) | 0.85 V |
| r_T | | 13 m Ω |
| V_{GT} | $V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ | ≤ 1.0 V ≤ 1.2 V |
| I_{GT} | $V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$ | ≤ 65 mA ≤ 80 mA ≤ 50 mA |
| V_{GD} | $T_{VJ} = T_{VJM};$ $V_D = 2/3 V_{DRM}$ | ≤ 0.2 V |
| I_{GD} | $T_{VJ} = T_{VJM};$ $V_D = 2/3 V_{DRM}$ | ≤ 5 mA |
| I_L | $I_G = 0.3$ A; $t_G = 30$ μs ; $di_G/dt = 0.3$ A/ μs ; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$ | ≤ 150 mA ≤ 200 mA ≤ 100 mA |
| I_H | $T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$ | ≤ 100 mA |
| t_{gd} | $T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3$ A; $di_G/dt = 0.3$ A/ μs | ≤ 2 μs |
| t_q | $T_{VJ} = 125^\circ\text{C}; I_T = 15$ A, $t_p = 300$ μs , $V_R = 100$ V | typ. 150 μs |
| Q_f | $di/dt = -10$ A/ μs , $dv/dt = 20$ V/ μs , $V_D = 2/3 V_{DRM}$ | 75 μC |
| R_{thJC} | per thyristor (diode); DC current | 1.2 K/W |
| | per module | 0.3 K/W |
| R_{thJH} | per thyristor (diode); DC current | 1.55 K/W |
| | per module | 0.39 K/W |

Field Diodes

| Symbol | Conditions | Maximum Ratings |
|------------|--|--|
| I_{FAV} | $T_H = 85^\circ\text{C}$, per Diode | 4 A |
| I_{FAVM} | per diode | 4 A |
| I_{FRMS} | per diode | 6 A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C};$ $V_R = 0$ V $t = 10$ ms (50 Hz), sine $t = 8.3$ ms (60 Hz), sine | 100 A 110 A |
| | $T_{VJ} = T_{VJM}$ $V_R = 0$ V $t = 10$ ms (50 Hz), sine $t = 8.3$ ms (60 Hz), sine | 85 A 94 A |
| I^2t | $T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ V $t = 10$ ms (50 Hz), sine $t = 8.3$ ms (60 Hz), sine | 50 A ² s 50 A ² s |
| | $T_{VJ} = T_{VJM}$ $V_R = 0$ V $t = 10$ ms (50 Hz), sine $t = 8.3$ ms (60 Hz), sine | 36 A ² s 37 A ² s |
| I_R | $V_R = V_{RRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$ | 1 mA 0.15 mA |
| V_F | $I_F = 21$ A; $T_{VJ} = 25^\circ\text{C}$ | 1.83 V |
| V_{T0} | For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$) | 0.9 V |
| r_T | | 50 m Ω |
| R_{thJC} | per diode; DC current | 4.4 K/W |
| R_{thJH} | per diode; DC current | 5.2 K/W |

Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.
* for resistive load

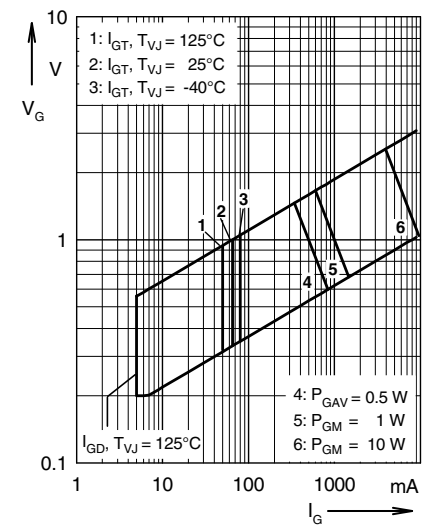


Fig. 1 Gate trigger range

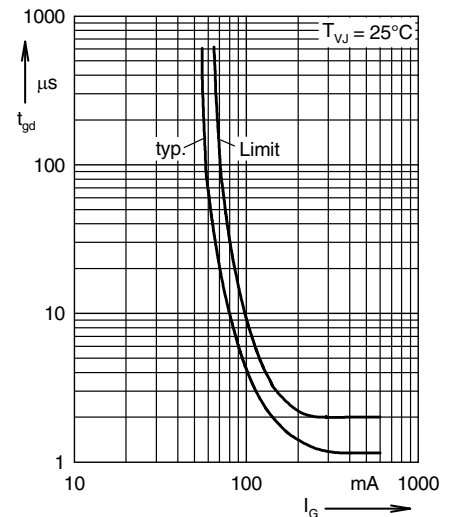


Fig. 2 Gate controlled delay time t_{gd}

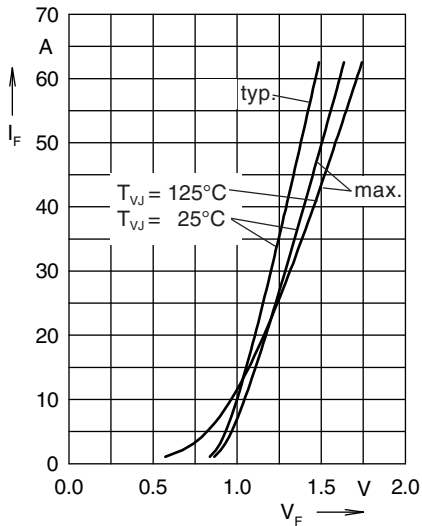


Fig. 3 Forward current vs. voltage drop per diode

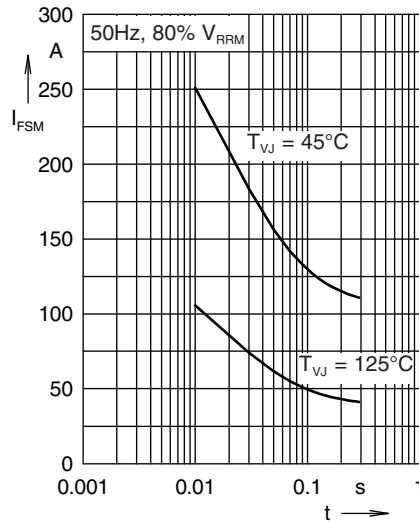


Fig. 4 Surge overload current

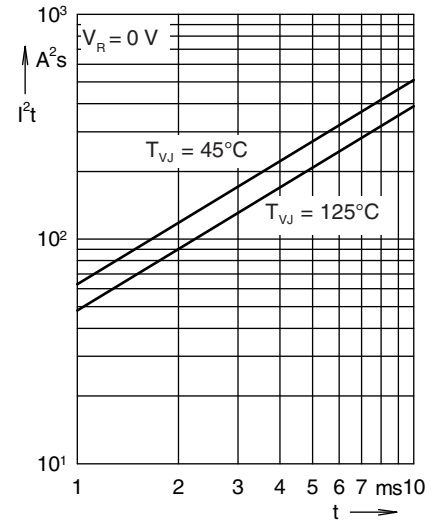


Fig. 5 I^2t versus time per diode

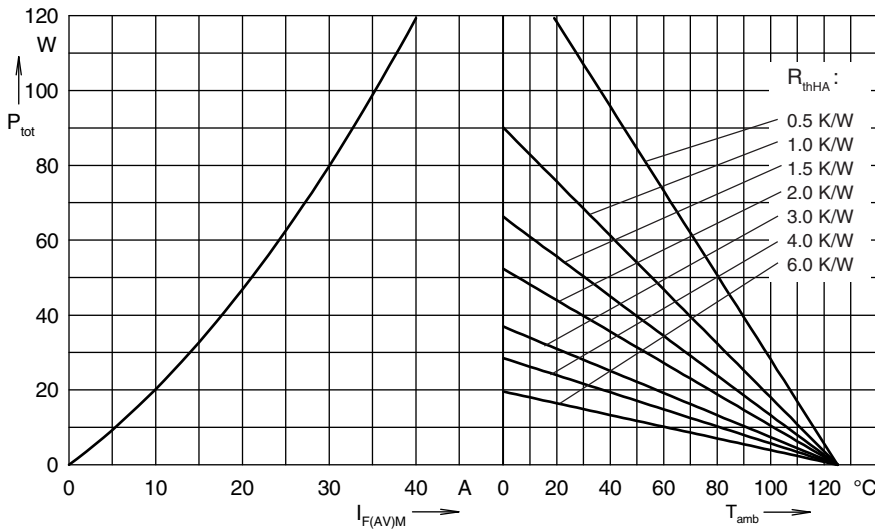


Fig. 6 Power dissipation vs. direct output current and ambient temperature

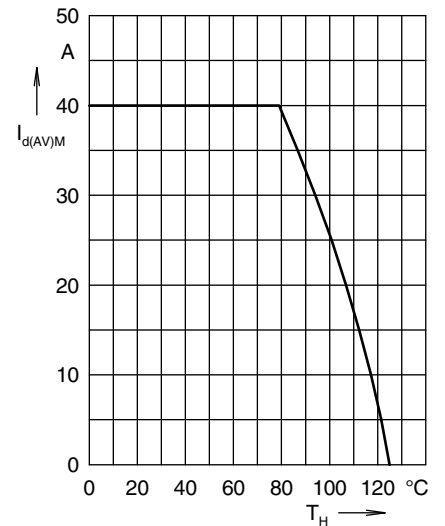


Fig. 7 Max. forward current vs. heatsink temperature

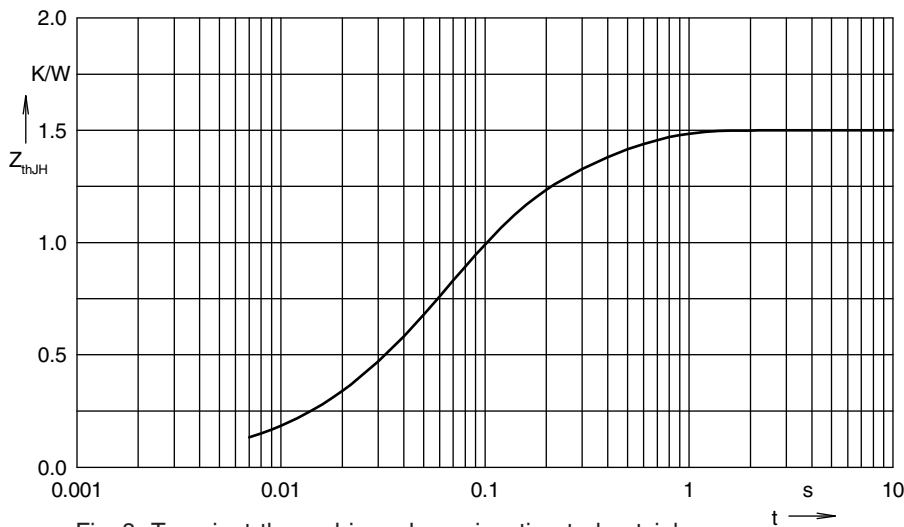


Fig. 8 Transient thermal impedance junction to heatsink

Constants for Z_{thJH} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.005 | 0.008 |
| 2 | 0.2 | 0.05 |
| 3 | 0.875 | 0.06 |
| 4 | 0.47 | 0.25 |