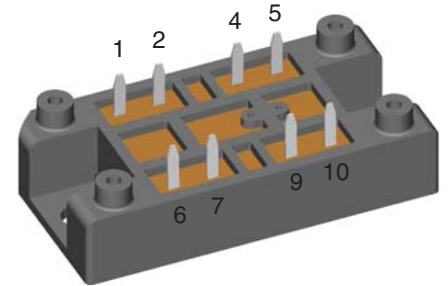
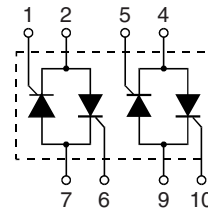


AC Controller Modules

$I_{RMS} = 2 \times 60 \text{ A}$
 $V_{RRM} = 1200-1600 \text{ V}$

| V_{RSM} | V_{RRM} | Type |
|-----------|-----------|--------------|
| V_{DSM} | V_{DRM} | |
| V V | V V | |
| 1200 | 1200 | VW2x60-12io1 |
| 1400 | 1400 | VW2x60-14io1 |
| 1600 | 1600 | VW2x60-16io1 |



| Symbol | Conditions | Maximum Ratings | |
|----------------|--|------------------------------------|-----------------------|
| I_{RMS} | $T_C = 85^\circ\text{C}$; 50 - 400 Hz (per phase) | 60 | A |
| I_{TRMS} | $T_{VJ} = T_{VJM}$ | 43 | A |
| I_{TAVM} | $T_C = 85^\circ\text{C}$; (180° sine) | 27 | A |
| I_{TSM} | $T_{VJ} = 45^\circ\text{C}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 520 A |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 560 A |
| | $T_{VJ} = T_{VJM}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 470 A |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 510 A |
| I^2t | $T_{VJ} = 45^\circ\text{C}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 1350 A ² s |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1320 A ² s |
| | $T_{VJ} = T_{VJM}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 1100 A ² s |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1090 A ² s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ $f = 50 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ | repetitive, $I_T = 45 \text{ A}$ | 100 A/ μs |
| | $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | non repetitive, $I_T = I_{TAVM}$ | 500 A/ μs |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ $R_{GK} = \infty$; method 1 (linear voltage rise) | $V_{DR} = \frac{2}{3} V_{DRM}$ | 1000 V/ μs |
| P_{GM} | $T_{VJ} = T_{VJM}$ | $t_p = 30 \mu\text{s}$ | 10 W |
| | $I_T = I_{TAVM}$ | $t_p = 300 \mu\text{s}$ | 5 W |
| P_{GAVM} | | | 0.5 W |
| V_{RGM} | | | 10 V |
| T_{VJ} | | | -40...+125 °C |
| T_{VJM} | | | 125 °C |
| T_{stg} | | | -40...+125 °C |
| V_{ISOL} | 50/60 Hz, RMS | $t = 1 \text{ min}$ | 3000 V~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ | $t = 1 \text{ s}$ | 3600 V~ |
| M_d | Mounting torque (M5) | | 2-2.5/18-22 Nm/lb.in. |
| Weight | typ. | | 35 g |

Data according to IEC 60747 refer to a single thyristor/diode unless otherwise stated.

Features

- Thyristor controller for AC (circuit W2C acc. to IEC) for mains frequency
- Soldering connections for PCB mounting
- Isolation voltage 3600 V~
- Planar passivated chips
- UL applied

Applications

- Switching and control of three phase AC circuits
- Softstart AC motor controller
- Solid state switches
- Light and temperature control

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling

| Symbol | Conditions | Characteristic Values | |
|------------|--|------------------------------|---------------------|
| I_D, I_R | $T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$ | \leq | 5 mA |
| V_T | $I_T = 80 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | \leq | 1.65 V |
| V_{T0} | For power-loss calculations only | | 0.85 V |
| r_T | | | 11 m Ω |
| V_{GT} | $V_D = 6 \text{ V}$ | $T_{VJ} = 25^\circ\text{C}$ | \leq 1.5 V |
| | | $T_{VJ} = -40^\circ\text{C}$ | \leq 1.6 V |
| I_{GT} | $V_D = 6 \text{ V}$ | $T_{VJ} = 25^\circ\text{C}$ | \leq 100 mA |
| | | $T_{VJ} = -40^\circ\text{C}$ | \leq 200 mA |
| V_{GD} | $T_{VJ} = T_{VJM}$ | $V_D = \frac{2}{3} V_{DRM}$ | \leq 0.2 V |
| I_{GD} | | | \leq 5 mA |
| I_L | $T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | \leq | 450 mA |
| I_H | $T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$ | \leq | 200 mA |
| t_{gd} | $T_{VJ} = 25^\circ\text{C}; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | \leq | 2 μs |
| t_q | $T_{VJ} = T_{VJM}; I_T = 20 \text{ A}, t_p = 200 \mu\text{s}; di/dt = -10 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}; dv/dt = 15 \text{ V}/\mu\text{s}; V_D = \frac{2}{3} V_{DRM}$ | typ. | 150 μs |
| R_{thJC} | per thyristor; DC | | 0.92 K/W |
| | per module | | 0.23 K/W |
| R_{thJK} | per thyristor; DC | | 1.22 K/W |
| | per module | | 0.31 K/W |
| d_s | Creeping distance on surface | | 12.7 mm |
| d_A | Creepage distance in air | | 9.4 mm |
| a | Max. allowable acceleration | | 50 m/s ² |

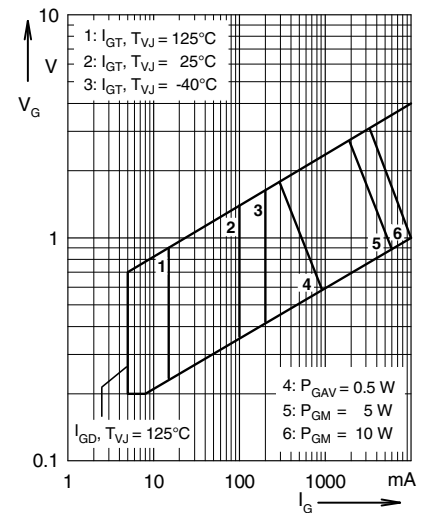


Fig. 1 Gate trigger characteristics

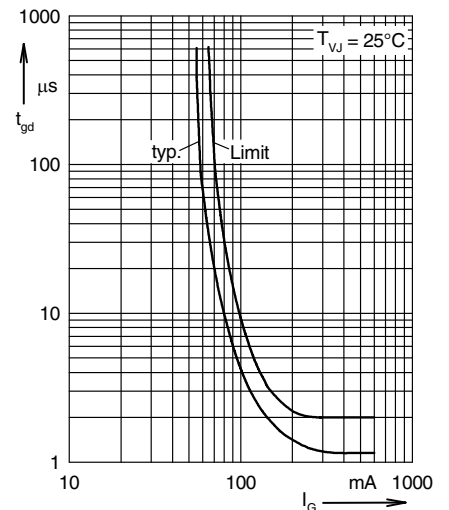


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")

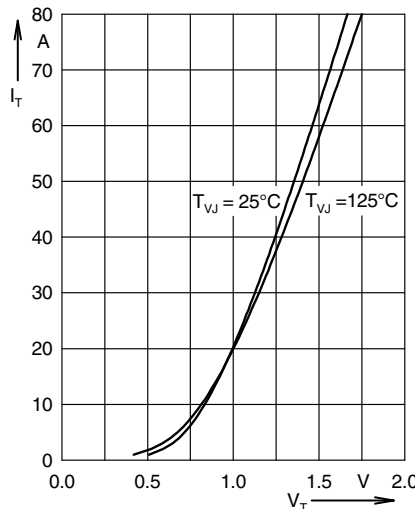
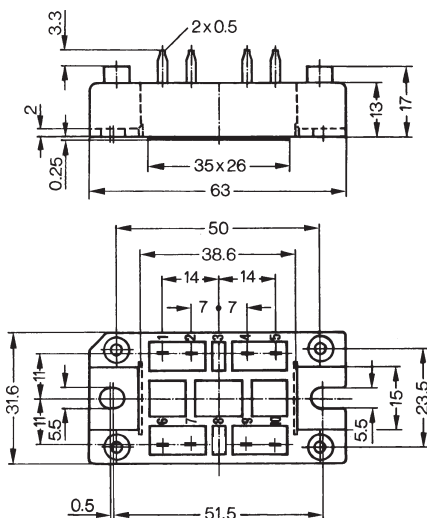


Fig. 3 Forward current vs. voltage drop per leg

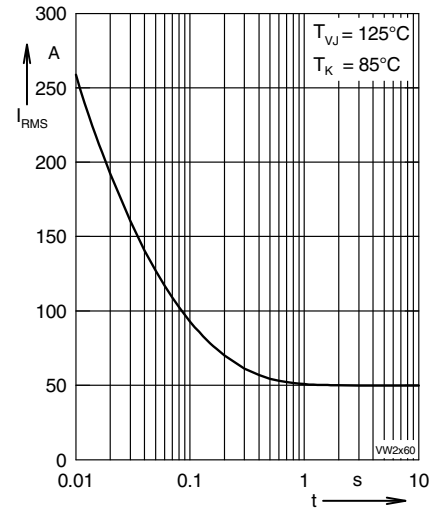


Fig. 4 Rated RMS current vs. time (360° conduction)

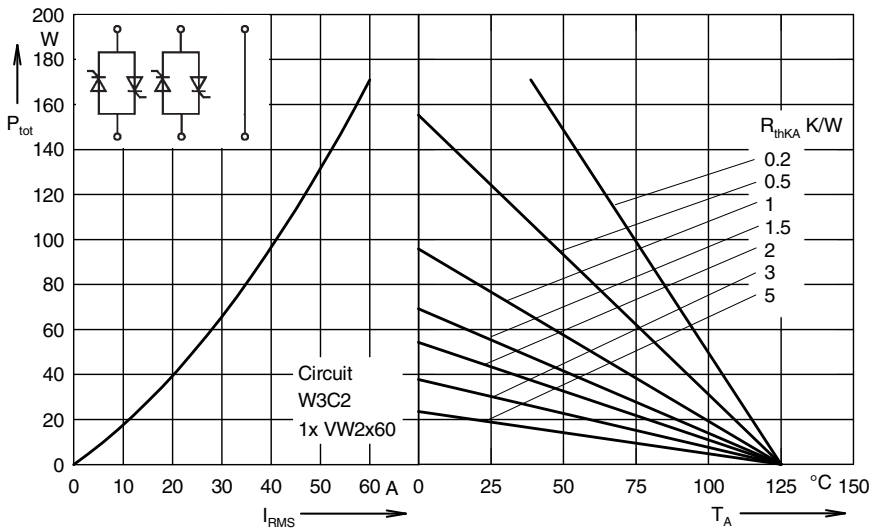


Fig. 5 Load current capability for two phase AC controller

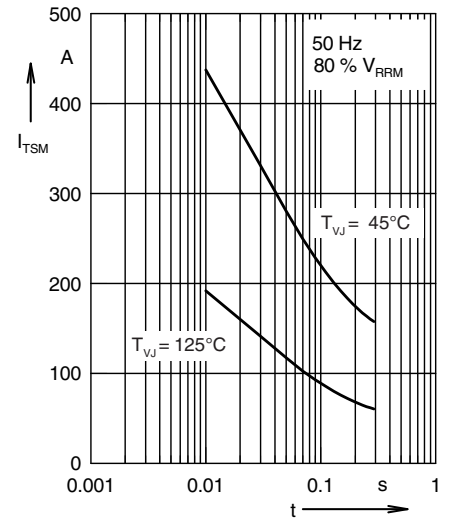


Fig. 6 Surge overload current

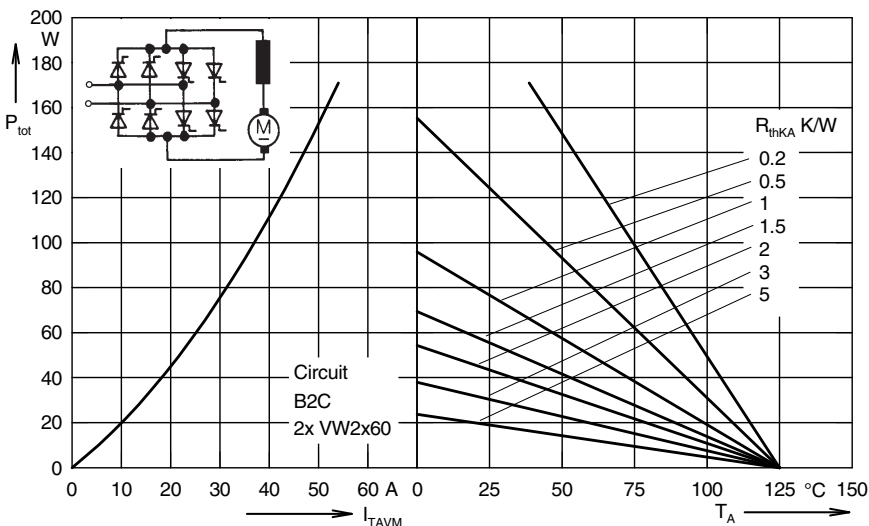


Fig. 7 Power dissipation vs. direct output current and ambient temperature cyclo converter, four quadrant operation

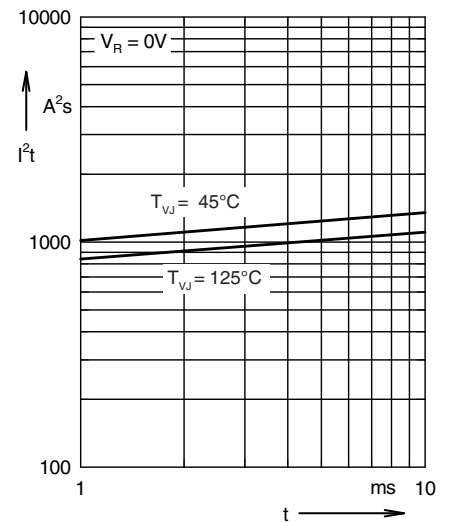


Fig. 8 I^2t vs, time (per thyristor)

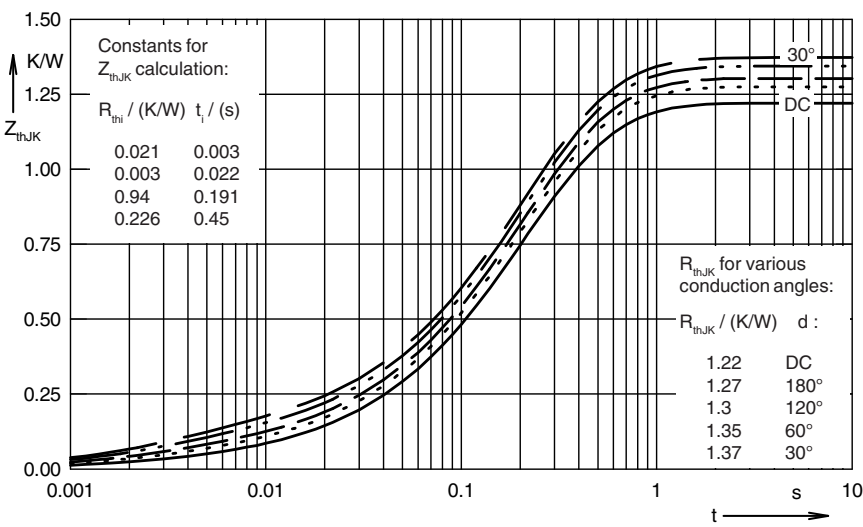


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor)

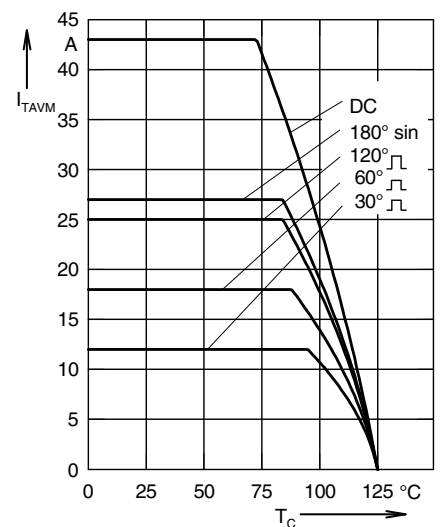


Fig. 10 Maximum forward current at case temperature