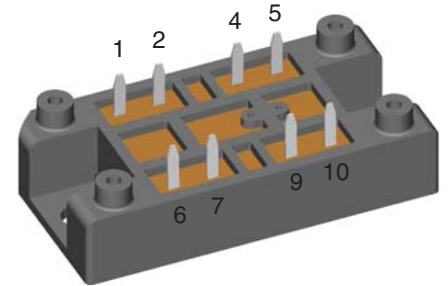
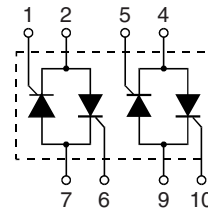


# AC Controller Modules

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

$V_{RSM}$ $V_{DSM}$ V V	$V_{RRM}$ $V_{DRM}$ V V	Type
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
$I_{TSM}$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	t = 10 ms (50 Hz), sine	520 A
		t = 8.3 ms (60 Hz), sine	560 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine	470 A
		t = 8.3 ms (60 Hz), sine	510 A
$I^2t$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	t = 10 ms (50 Hz), sine	1350 A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine	1320 A <sup>2</sup> s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ f = 50 Hz, $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	repetitive, $I_T = 45 \text{ A}$	100 A/ $\mu\text{s}$
		non repetitive, $I_T = I_{TAVM}$	500 A/ $\mu\text{s}$
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $R_{GK} = \infty$ ; method 1 (linear voltage rise)	$V_{DR} = \frac{2}{3} V_{DRM}$	1000 V/ $\mu\text{s}$
$P_{GM}$	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$	10 W
		$t_p = 300 \mu\text{s}$	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 $I_{ISOL} \leq 1 \text{ mA}$	t = 1 min	3000 V~
		t = 1 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 $\Omega$
$V_{GT}$	$V_D = 6 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$	$\leq$ 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 $\mu\text{s}$
$t_q$	$T_{VJ} = T_{VJM}; I_T = 20 \text{ A}, t_p = 200 \mu\text{s}; di/dt = -10 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}; dv/dt = 15 \text{ V}/\mu\text{s}; V_D = \frac{2}{3} V_{DRM}$	typ.	150 $\mu\text{s}$
$R_{thJC}$	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 <sup>2</sup>

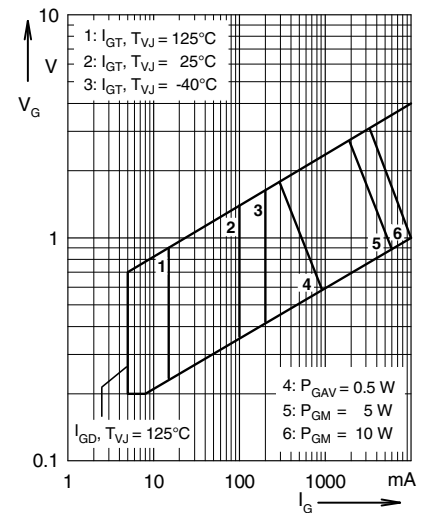


Fig. 1 Gate trigger characteristics

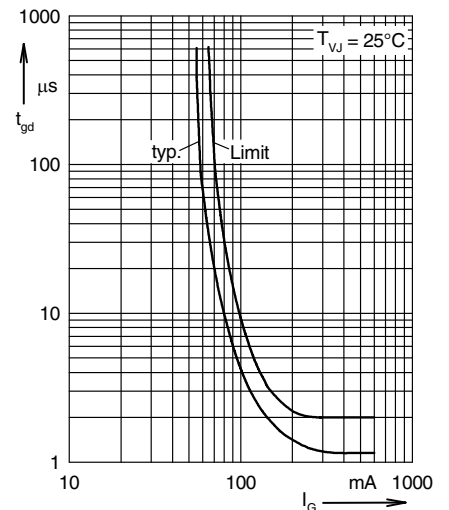


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")

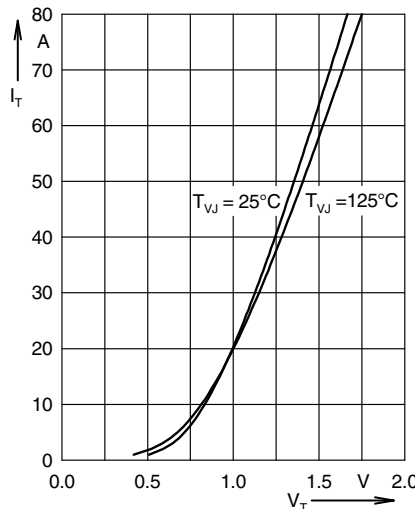
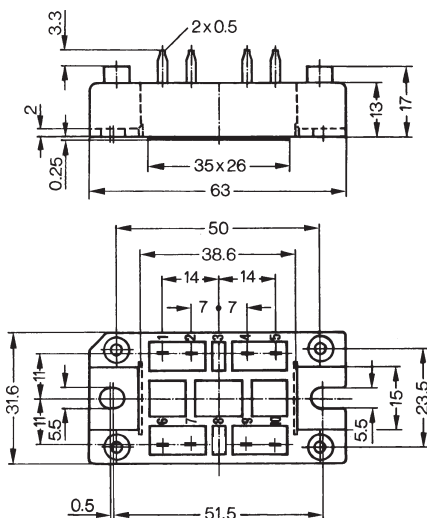


Fig. 3 Forward current vs. voltage drop per leg

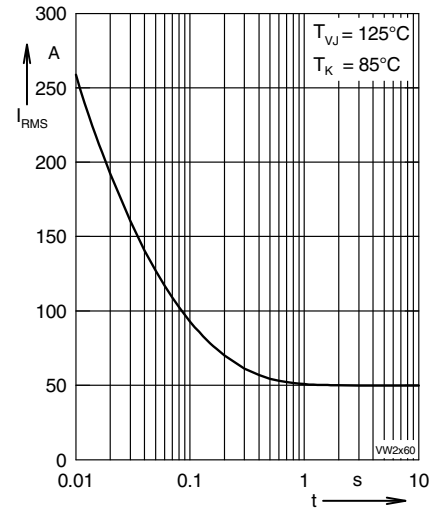


Fig. 4 Rated RMS current vs. time (360° conduction)

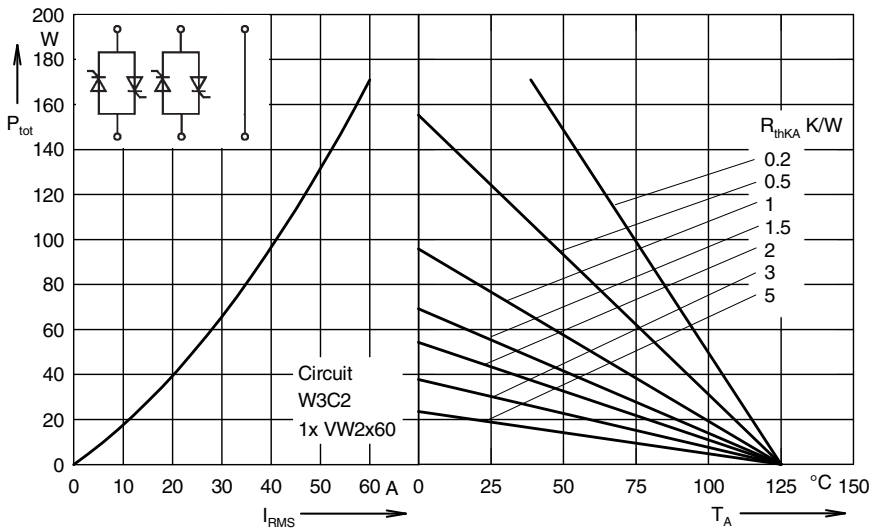


Fig. 5 Load current capability for two phase AC controller

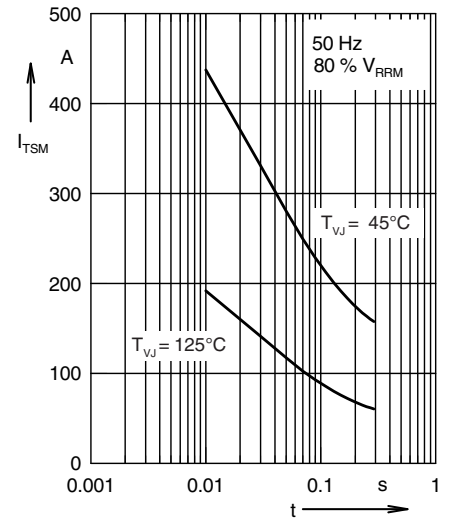


Fig. 6 Surge overload current

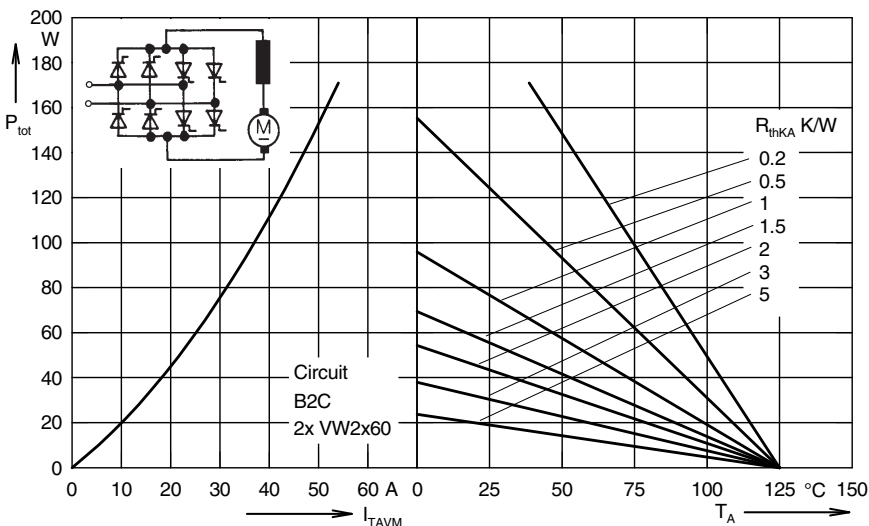


Fig. 7 Power dissipation vs. direct output current and ambient temperature cyclo converter, four quadrant operation

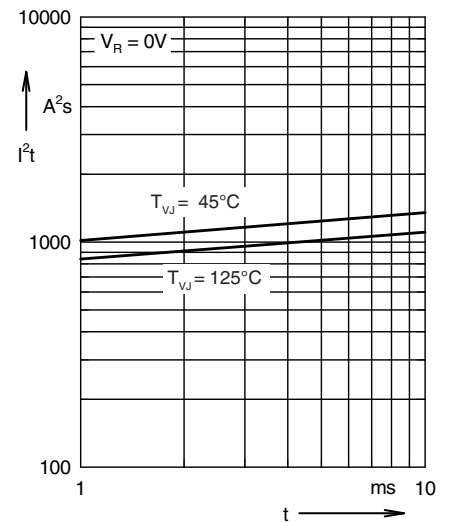


Fig. 8  $I^2t$  vs, time (per thyristor)

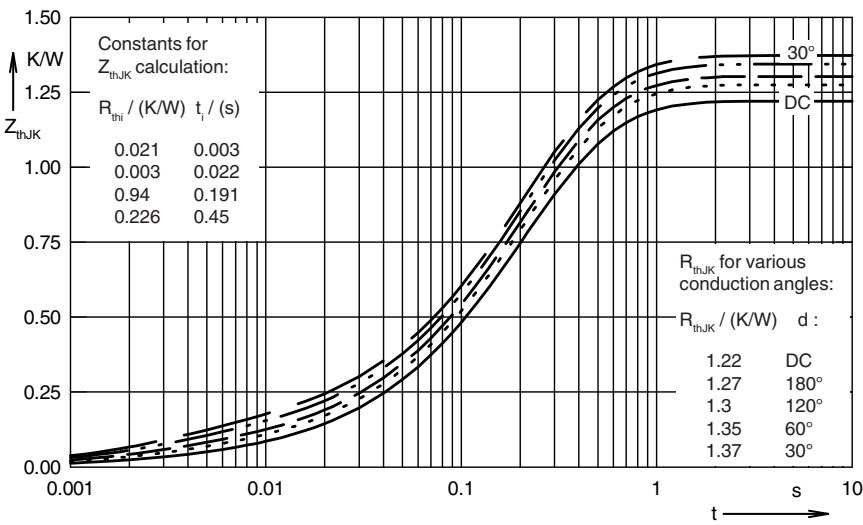


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor)

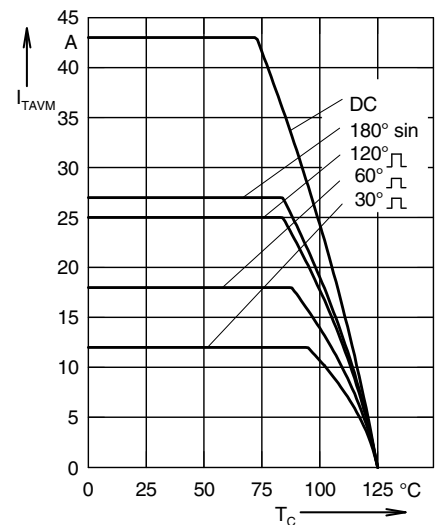


Fig. 10 Maximum forward current at case temperature