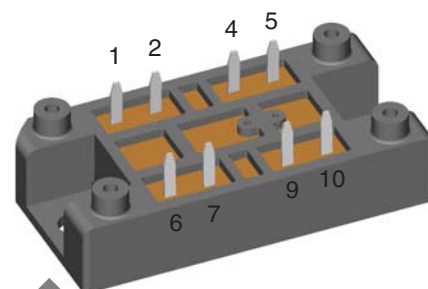
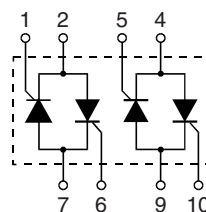


AC Controller Modules

$$I_{RMS} = 2 \times 45 \text{ A}$$

$$V_{RRM} = 1200-1600 \text{ V}$$

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1200	1200	VW2x45-12io1
1400	1400	VW2x45-14io1
1600	1600	VW2x45-16io1



Symbol	Conditions	Maximum Ratings	Features
I_{RMS}	$T_C = 85^\circ\text{C}$; (per phase)	45 A	- 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
I_{TRMS}	$T_{VJ} = T_{VJM}$	32 A	
I_{TAVM}	$T_C = 85^\circ\text{C}$; (180° sine ; per thyristor)	20 A	
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	t = 10 ms (50 Hz), sine 300 A t = 8.3 ms (60 Hz), sine 320 A	
I^2t	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine 270 A t = 8.3 ms (60 Hz), sine 290 A	Applications - Switching and control of three phase AC circuits - Softstart AC motor controller - Solid state switches - Light and temperature control
	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	t = 10 ms (50 Hz), sine 450 A ² s t = 8.3 ms (60 Hz), sine 430 A ² s	
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine 360 A ² s t = 8.3 ms (60 Hz), sine 350 A ² s	
	$T_{VJ} = T_{VJM}$ $f = 50 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	repetitive, $I_T = 45 \text{ A}$ 100 A/ μs 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	Advantages - Easy to mount with two screws - Space and weight savings - Improved temperature and power cycling
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	Recommended replacement: VW2x60-12/14/16 io1
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.

Symbol	Conditions	Characteristic Values
I_D, I_R	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	≤ 5 mA
V_T	$I_T = 45$ A; $T_{VJ} = 25^\circ\text{C}$	≤ 1.52 V
V_{T0}	For power-loss calculations only	0.85 V
r_T		15 m Ω
V_{GT}	$V_D = 6$ V $T_{VJ} = 25^\circ\text{C}$	≤ 1.5 V
	$T_{VJ} = -40^\circ\text{C}$	≤ 1.6 V
I_{GT}	$V_D = 6$ V $T_{VJ} = 25^\circ\text{C}$	≤ 100 mA
	$T_{VJ} = -40^\circ\text{C}$	≤ 200 mA
V_{GD}	$T_{VJ} = T_{VJM} V_D = \frac{2}{3} V_{DRM}$	≤ 0.2 V
I_{GD}		≤ 5 mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10$ μs $I_G = 0.45$ A; $di_G/dt = 0.45$ A/ μs	≤ 450 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$	≤ 200 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.45$ A; $di_G/dt = 0.45$ A/ μs	≤ 2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 20$ A, $t_p = 200$ μs ; $di/dt = -10$ A/ μs $V_R = 100$ V; $dv/dt = 15$ V/ μs ; $V_D = \frac{2}{3} V_{DRM}$	typ. 150 μs
R_{thJC}	per thyristor; DC	1.25 K/W
	per module	0.31 K/W
R_{thJK}	per thyristor; DC	1.55 K/W
	per module	0.39 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

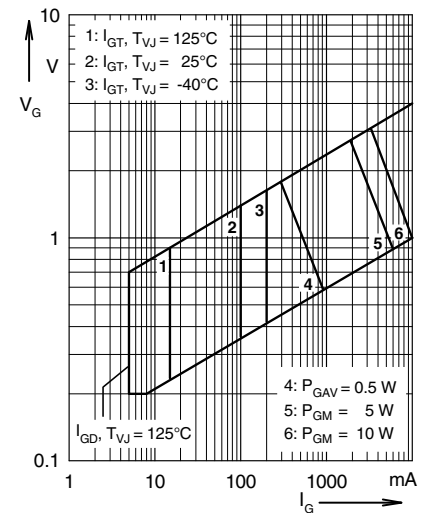


Fig. 1 Gate trigger characteristics

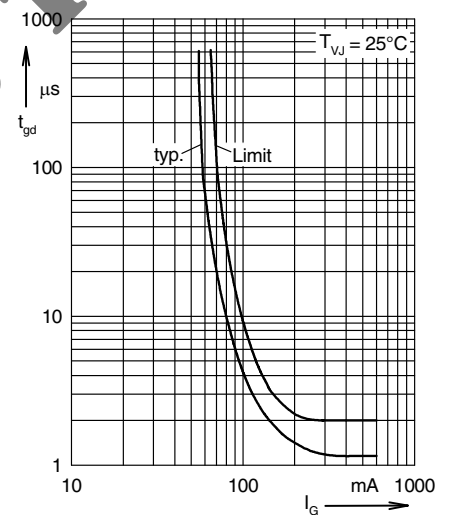


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")

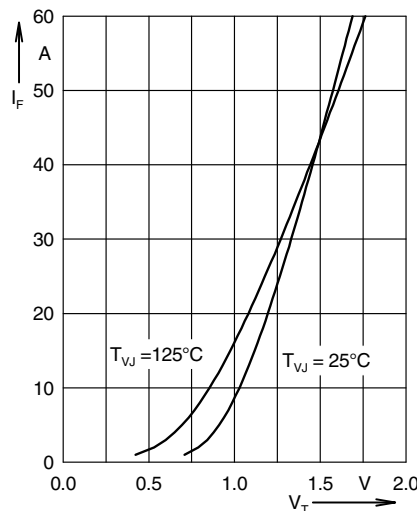
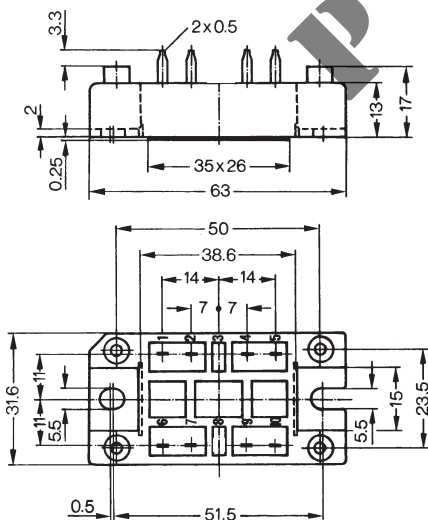


Fig. 3 Forward current vs. voltage drop per leg

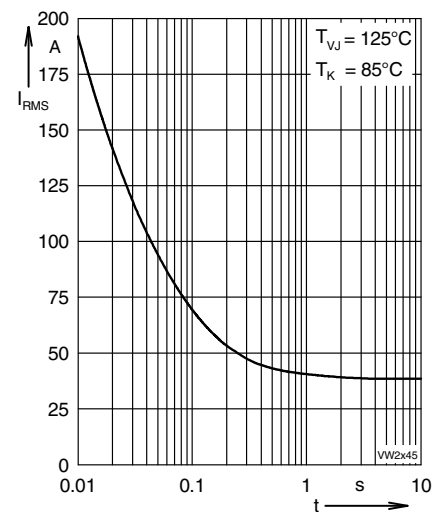


Fig. 4 Rated RMS current vs. time (360° conduction)

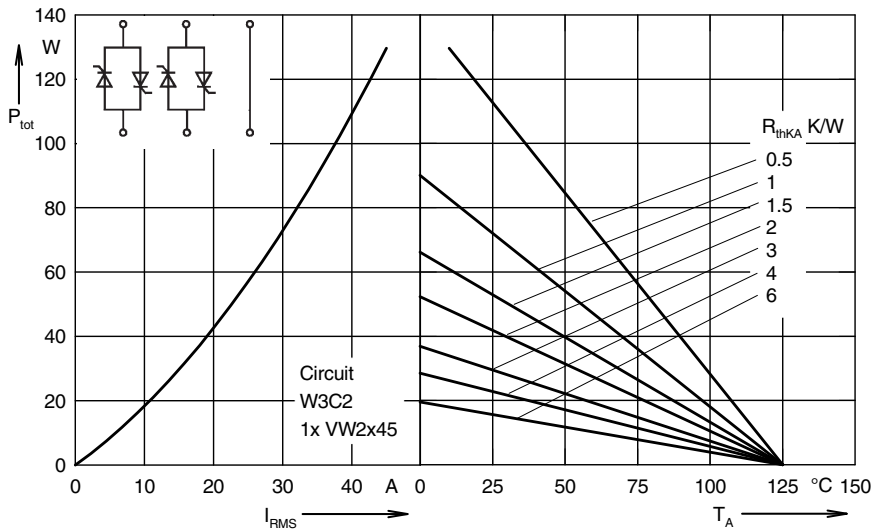


Fig. 5 Load current capability for two phase AC controller

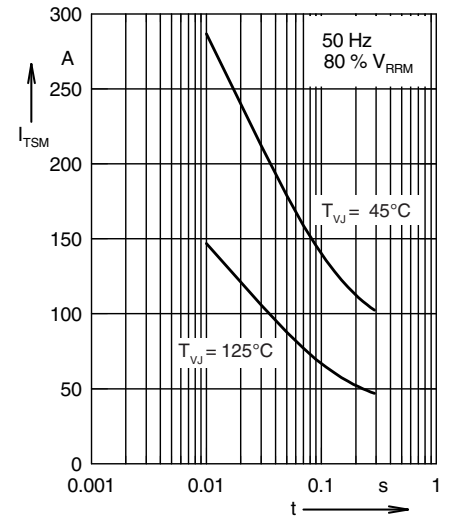


Fig. 6 Surge overload current

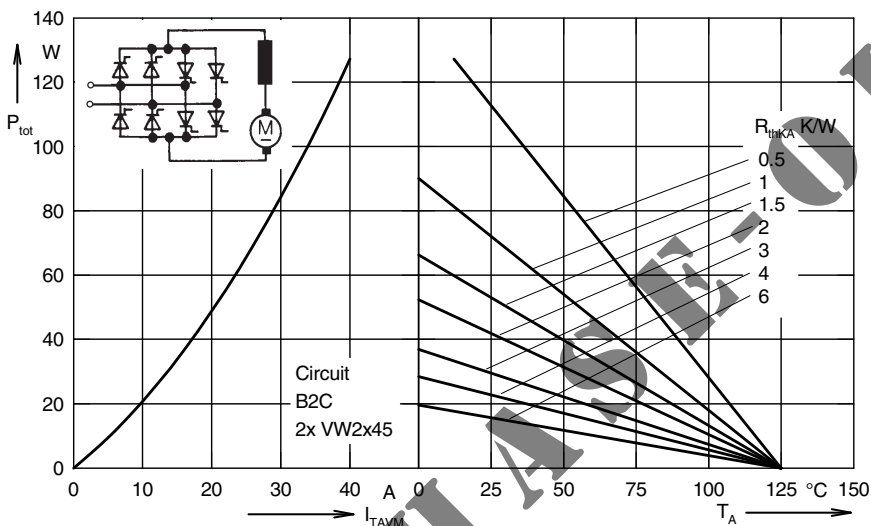


Fig. 7 Power dissipation vs. direct output current and ambient temperature
cyclo converter, four quadrant operation

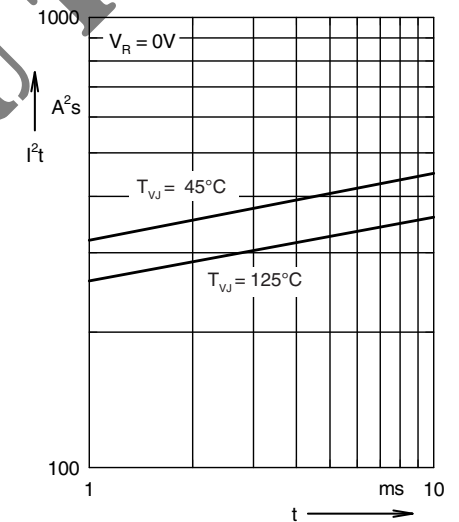


Fig. 8 I^2t vs. time (per thyristor)

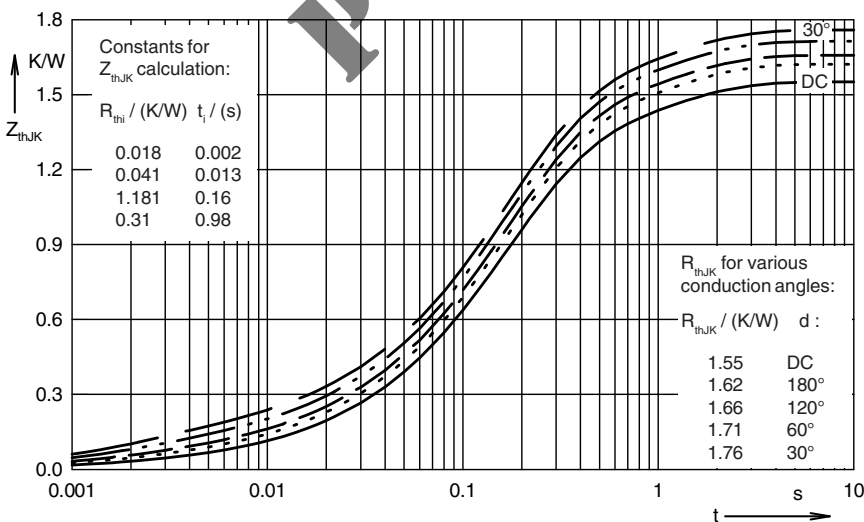


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor)

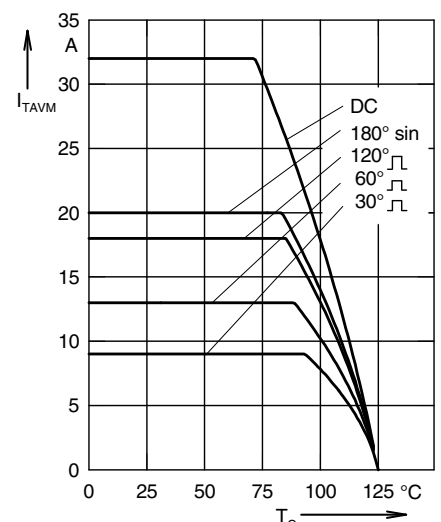


Fig. 10 Maximum forward current at case temperature