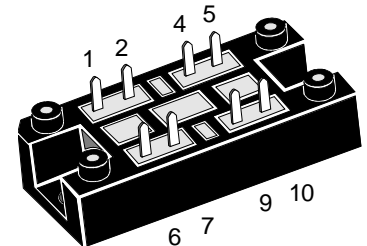
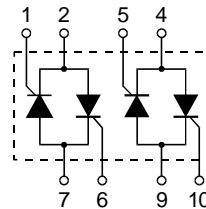


# AC Controller Modules

**$I_{RMS} = 2x\ 45\ A$**   
 **$V_{RRM} = 800-1600\ V$**

$V_{RSM}$ $V_{DSM}$ $V$	$V_{RRM}$ $V_{DRM}$ $V$	Type
800	800	VW2x45-08io1
1200	1200	VW2x45-12io1
1400	1400	VW2x45-14io1
1600	1600	VW2x45-16io1



Symbol	Test Conditions	Maximum Ratings	Features	
$I_{RMS}$	$T_C = 85^\circ C$ , (per phase)	45 A	<b>Features</b> <ul style="list-style-type: none"> <li>• Thyristor controller for AC (circuit W2C acc. to IEC) for mains frequency</li> <li>• Soldering connections for PCB mounting</li> <li>• Isolation voltage 3600 V~</li> <li>• Planar passivated chips</li> <li>• UL applied</li> </ul>	
$I_{TRMS}$	$T_{VJ} = T_{VJM}$	32 A		
$I_{TAVM}$	$T_C = 85^\circ C$ ; (180° sine ; per thyristor)	20 A		
$I_{TSM}$	$T_{VJ} = 45^\circ C$ ; $V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine		300 A 320 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine		270 A 290 A
$I^2t$	$T_{VJ} = 45^\circ C$ $V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine		450 A <sup>2</sup> s 430 A <sup>2</sup> s
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine		360 A <sup>2</sup> s 350 A <sup>2</sup> s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ f = 50 Hz, $t_p = 200\ \mu s$ $V_D = 2/3 V_{DRM}$ $I_G = 0.45\ A$ $di_G/dt = 0.45\ A/\mu s$	repetitive, $I_T = 45\ A$		100 A/ $\mu s$
		non repetitive, $I_T = I_{TAVM}$		500 A/ $\mu s$
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ ; $R_{GK} = \infty$ ; method 1 (linear voltage rise)	$V_{DR} = 2/3 V_{DRM}$		1000 V/ $\mu s$
$P_{GM}$	$T_{VJ} = T_{VJM}$	$t_p = 30\ \mu s$	10 W	
	$I_T = I_{TAVM}$	$t_p = 300\ \mu s$	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 min	3000 V~	
	$I_{ISOL} \leq 1\ mA$	t = 1 s	3600 V~	
$M_d$	Mounting torque (M5)		2-2.5/18-22 Nm/lb.in.	
Weight	typ.		35 g	

## 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

Data according to IEC 60747 refer to a single thyristor/diode unless otherwise stated. IXYS reserves the right to change limits, test conditions and dimensions

Symbol	Test Conditions	Characteristic Values
$I_D, I_R$	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	$\leq 5$ mA
$V_T$	$I_T = 45$ A; $T_{VJ} = 25^\circ\text{C}$	$\leq 1.52$ V
$V_{T0}$	For power-loss calculations only	0.85 V
$r_T$		15 m $\Omega$
$V_{GT}$	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$	$\leq 1.5$ V
	$T_{VJ} = -40^\circ\text{C}$	$\leq 1.6$ V
$I_{GT}$	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$	$\leq 100$ mA
	$T_{VJ} = -40^\circ\text{C}$	$\leq 200$ mA
$V_{GD}$	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	$\leq 0.2$ V
$I_{GD}$		$\leq 5$ mA
$I_L$	$T_{VJ} = 25^\circ\text{C}; t_p = 10$ $\mu\text{s}$ $I_G = 0.45$ A; $di_G/dt = 0.45$ A/ $\mu\text{s}$	$\leq 450$ mA
$I_H$	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$	$\leq 200$ mA
$t_{gd}$	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.45$ A; $di_G/dt = 0.45$ A/ $\mu\text{s}$	$\leq 2$ $\mu\text{s}$
$t_q$	$T_{VJ} = T_{VJM}; I_T = 20$ A, $t_p = 200$ $\mu\text{s}$ ; $di/dt = -10$ A/ $\mu\text{s}$ $V_R = 100$ V; $dv/dt = 15$ V/ $\mu\text{s}$ ; $V_D = 2/3 V_{DRM}$	typ. 150 $\mu\text{s}$
$R_{thJC}$	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 <sup>2</sup>

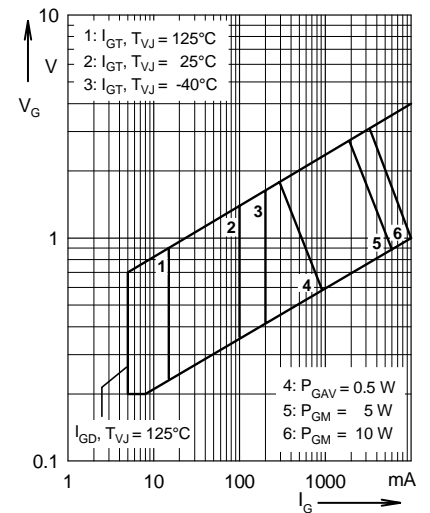


Fig. 1 Gate trigger characteristics

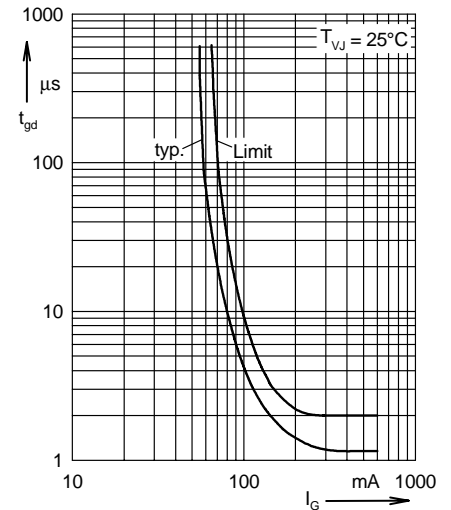


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")

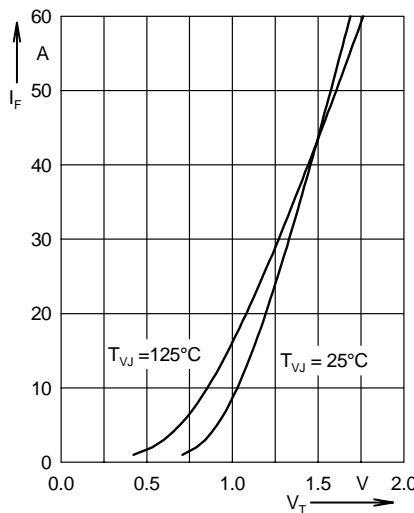
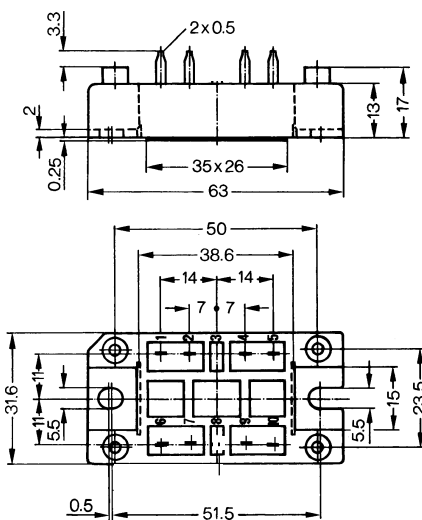


Fig. 3 Forward current versus voltage drop per leg

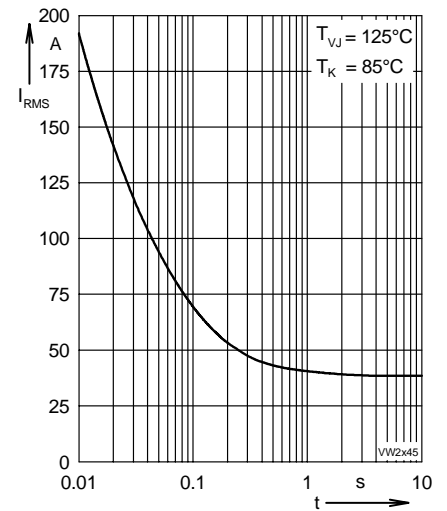


Fig. 4 Rated RMS current versus time (360° conduction)

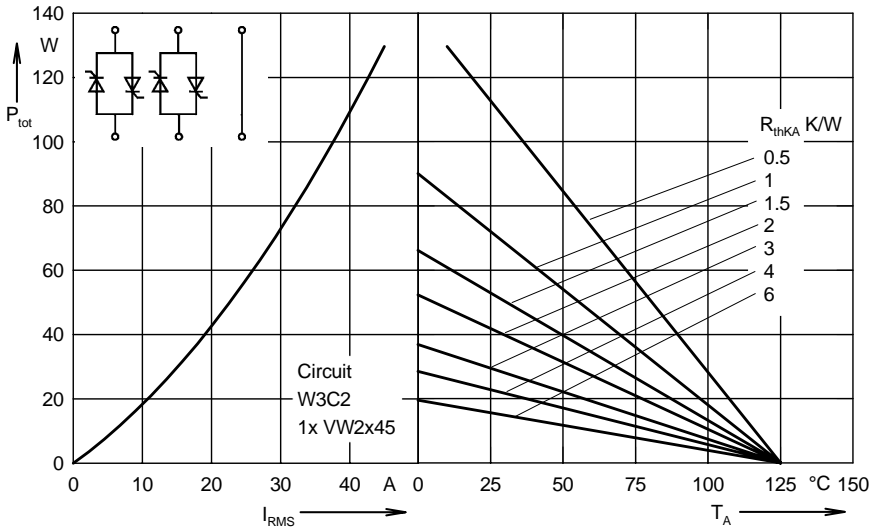


Fig. 5 Load current capability for two phase AC controller

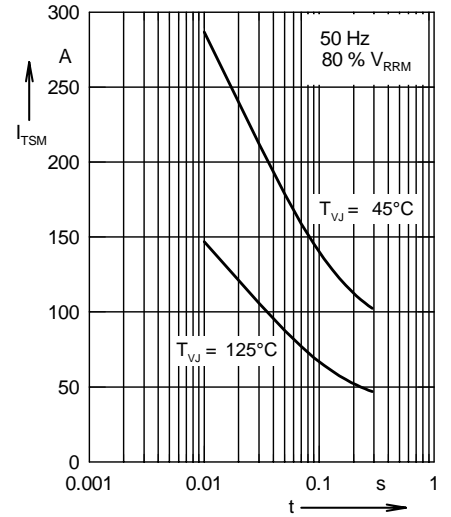


Fig. 6 Surge overload current

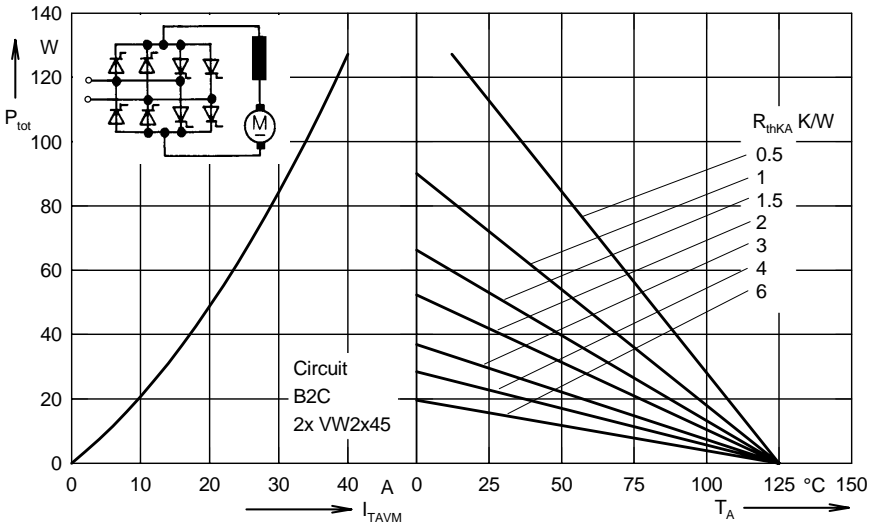


Fig. 7 Power dissipation versus direct output current and ambient temperature  
cyclo converter, four quadrant operation

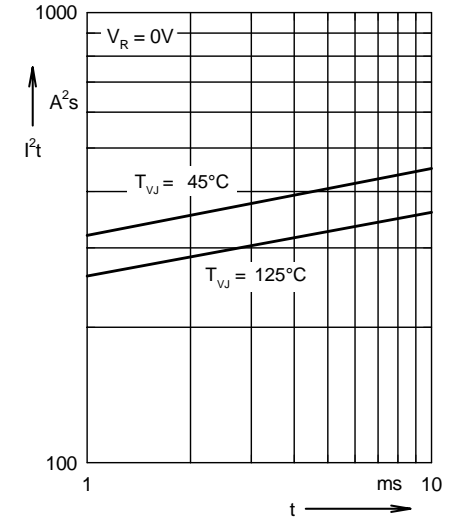


Fig. 8 I<sup>2</sup>t versus time (per thyristor)

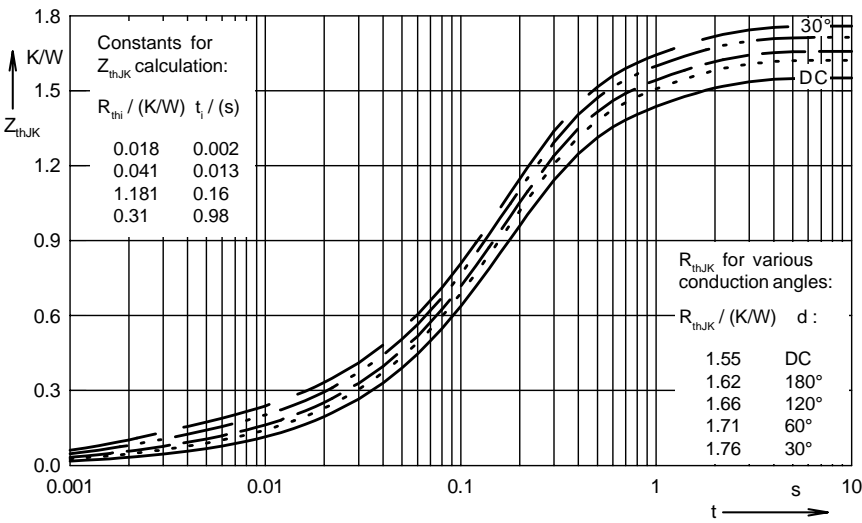


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor)

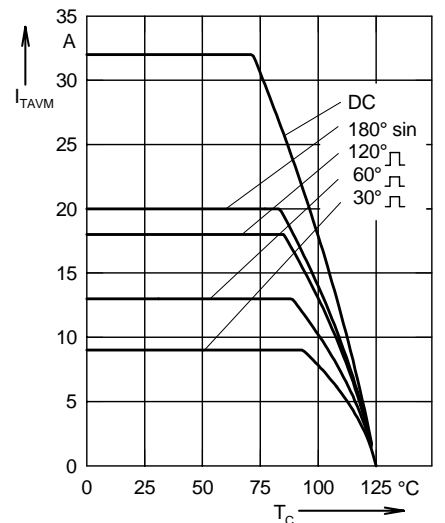


Fig. 10 Maximum forward current at case temperature