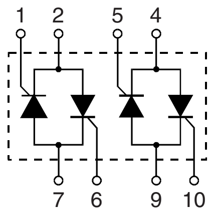
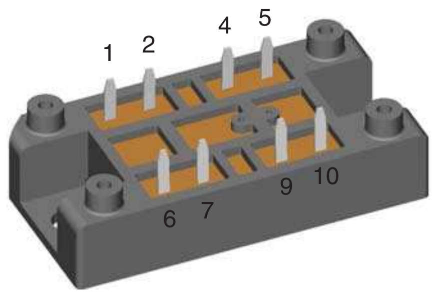
AC Controller Modules

I_{RMS} = 2x 60 A
V_{RRM} = 1200-1600 V

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





Symbol	Conditions		Maximum Ratings	
I_{RMS}	T_C = 85°C; 50 - 400 Hz (per phase)		60	A
I_{TRMS}	$T_{VJ} = T_{VJM}$		43	A
I_{TAVM}	T_C = 85°C; (180° sine)		27	A
I_{TSM}	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	520	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	560	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	470	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	510	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	1350	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1320	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	1100	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1090	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, I_T = 45 A	100	A/µs
	f =50 Hz, t_P =200 µs			
	$V_D = {}^2/_3\ V_{DRM}$			
	I_G = 0.45 A	non repetitive, $I_T = I_{TAVM}$	500	A/µs
	di_G/dt = 0.45 A/µs			
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$	$V_{DR} = {}^2/_3\ V_{DRM}$	1000	V/µs
	$R_{GK} = \infty$; method 1 (linear voltage rise)			
P_{GM}	$T_{VJ} = T_{VJM}$	t_p = 30 µs	10	W
	$I_T = I_{TAVM}$	t_p = 300 µs	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

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

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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 = 80 A; T_{VJ} = 25°C		≤	1.65	V
V_{T0}	For power-loss calculations only			0.85	V
r_T				11	mΩ
V_{GT}	V_D = 6 V	T_{VJ} = 25°C	≤	1.5	V
		T_{VJ} = -40°C	≤	1.6	V
I_{GT}	V_D = 6 V	T_{VJ} = 25°C	≤	100	mA
		T_{VJ} = -40°C	≤	200	mA
V_{GD}	$T_{VJ} = T_{VJM}$	$V_D = {}^2/_3\ V_{DRM}$	≤	0.2	V
I_{GD}			≤	5	mA
I_L	T_{VJ} = 25°C; t_P = 10 µs I_G = 0.45 A; di_G/dt = 0.45 A/µs		≤	450	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; $R_{GK} = \infty$		≤	200	mA
t_{gd}	T_{VJ} = 25°C; $V_D = ½V_{DRM}$ 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; $V_D = {}^2/_3\ V_{DRM}$		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

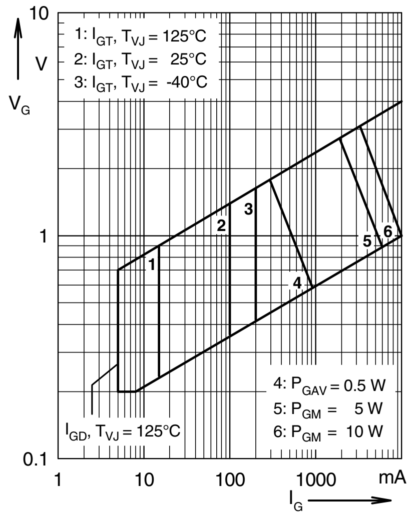


Fig. 1 Gate trigger characteristics

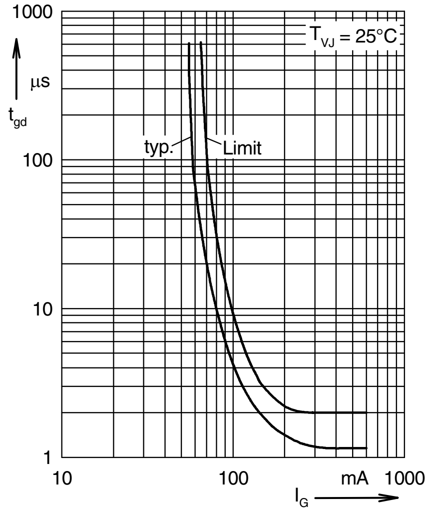
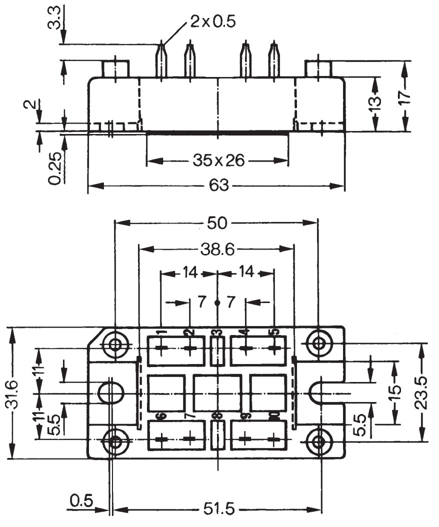


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")



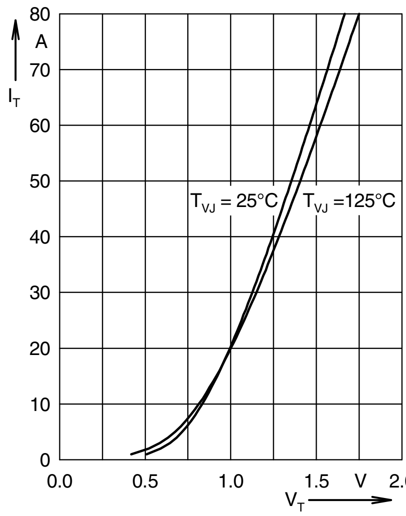


Fig. 3 Forward current vs. voltage drop per leg

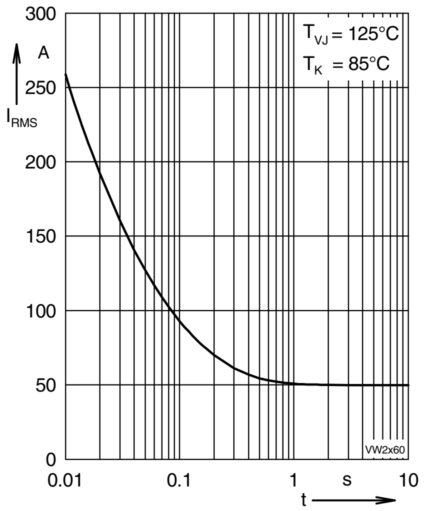


Fig. 4 Rated RMS current vs. time (360° conduction)

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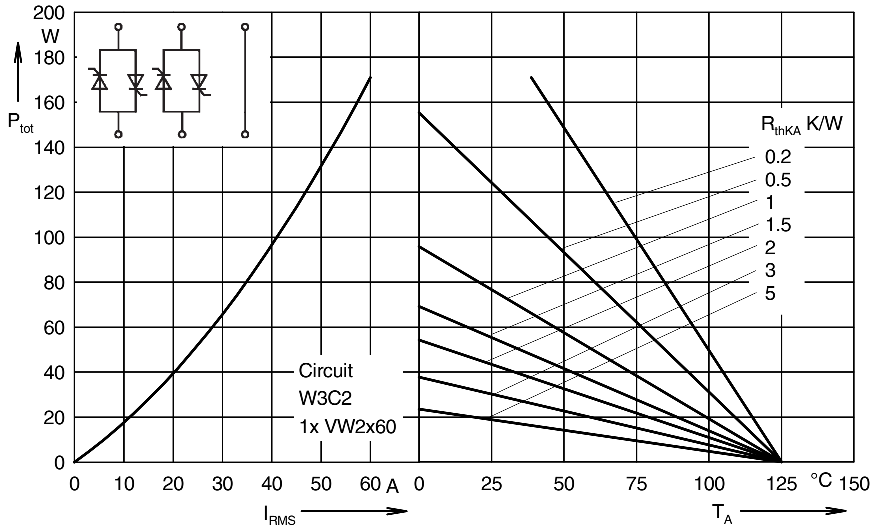

Fig. 5 Load current capability for two phase AC controller

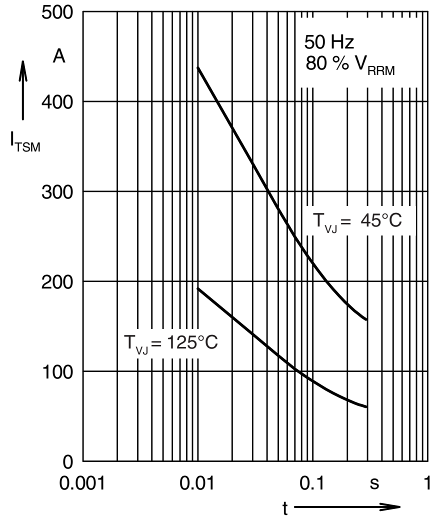

Fig. 6 Surge overload current

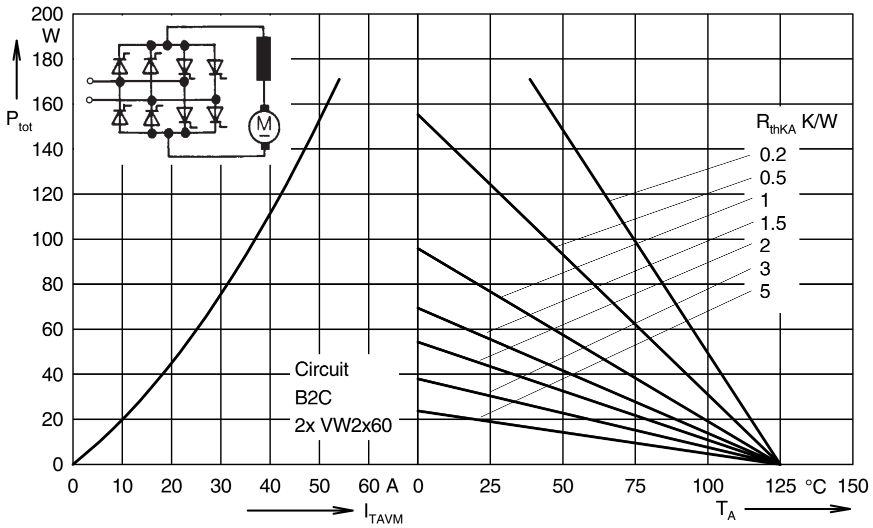

Fig. 7 Power dissipation vs. direct output current and ambient temperature cyclo converter, four quadrant operation

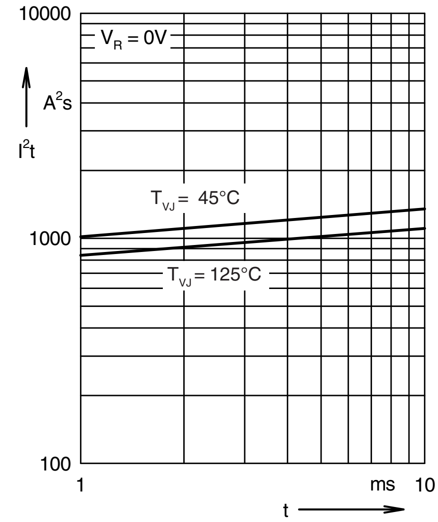

Fig. 8 I²t vs, time (per thyristor)

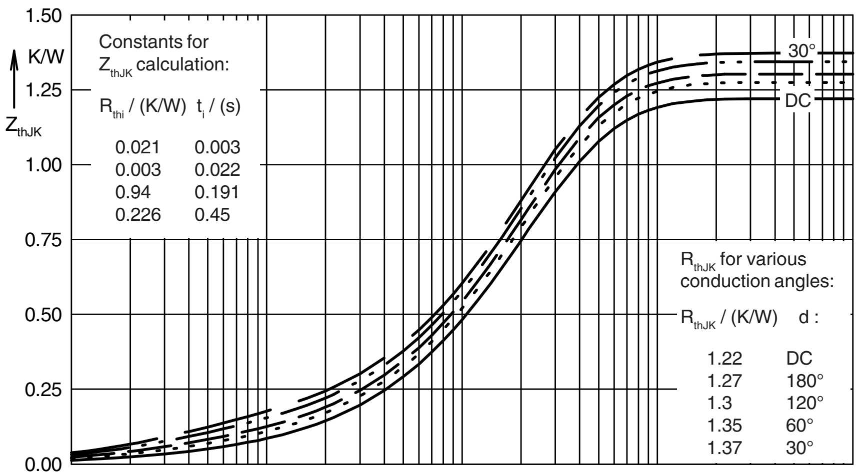

Fig. 9 Transient thermal impedance junction to heatsink (per thyristor)

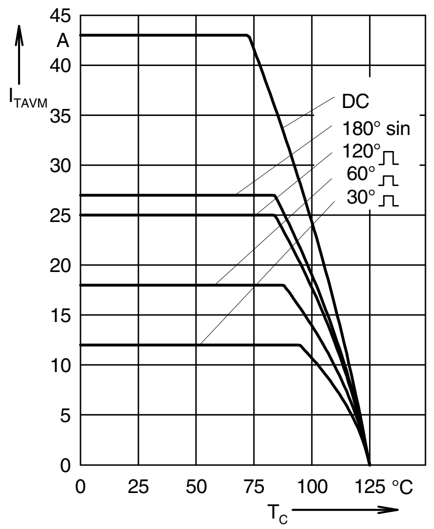

Fig. 10 Maximum forward current at case temperature

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