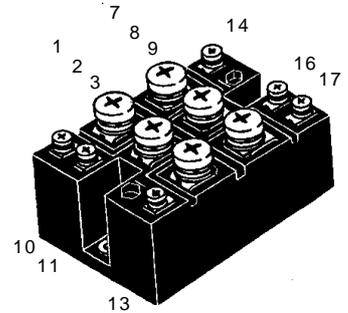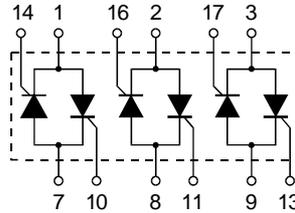# Three Phase AC Controller Modules

I_{RMS} = 50 A
V_{RRM} = 800-1600 V

Preliminary data

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
800	800	VWO 50-08io7
1200	1200	VWO 50-12io7
1400	1400	VWO 50-14io7
1600	1600	VWO 50-16io7

Symbol	Test Conditions		Maximum Ratings	
I_{RMS}	T_C = 85°C, 50 - 400 Hz (per phase)		50	A
I_{TRMS}	T_{VJ} = T_{VJM}		36	A
I_{TAVM}	T_C = 85°C; (180° sine)		23	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	460	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	500	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	1350	A²s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1320	A²s
	T_{VJ} = T_{VJM}	t = 10 ms (50 Hz), sine	1060	A²s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1050	A²s
$(di/dt)_{cr}$	T_{VJ} = T_{VJM} f =50 Hz, t_P =200 µs V_D = 2/3 V_{DRM}	repetitive, I_T = 150 A	100	A/µs
	I_G = 0.3 A di_G/dt = 0.3 A/µs	non repetitive, I_T = I_{TAVM}	500	A/µs
$(dv/dt)_{cr}$	T_{VJ} = T_{VJM}; R_{GK} = ∞; method 1 (linear voltage rise)	V_{DR} = 2/3 V_{DRM}	1000	V/µs
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	2500	V~
	I_{ISOL} ≤ 1 mA	t = 1 s	3000	V~
M_d	Mounting torque (M5)		5/44±15 %	Nm/lb.in.
	Terminal connection torque (M3; M5)		1.5/13±15 %	Nm/lb.in.
Weight	typ.		180	g

Features

• Thyristor controller for AC (circuit W3C acc. to IEC) for mains frequency
• Package with metal base plate
• Isolation voltage 3000 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
• High power density

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	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		≤ 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	≤ 1.0	V
		T_{VJ} = -40°C	≤ 1.6	V
I_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤ 100	mA
		T_{VJ} = -40°C	≤ 150	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 = 0.3 A; di_G/dt = 0.3 A/μs		≤ 200	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; R_{GK} = ∞		≤ 150	mA
t_{gd}	T_{VJ} = 25°C; $V_D = 1/2\ V_{DRM}$ I_G = 0.3 A; di_G/dt = 0.3 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; sine 180°el		1.20	K/W
	per module		0.20	K/W
R_{thJK}	per thyristor; sine 180°el		1.31	K/W
	per module		0.218	K/W
d_S	Creeping distance on surface		8.0	mm
d_A	Creepage distance in air		4.5	mm
a	Max. allowable acceleration		50	m/s²

Dimensions in mm (1 mm = 0.0394")