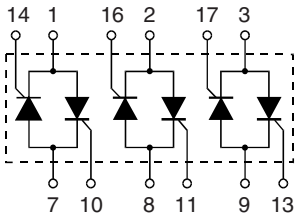
IXYS

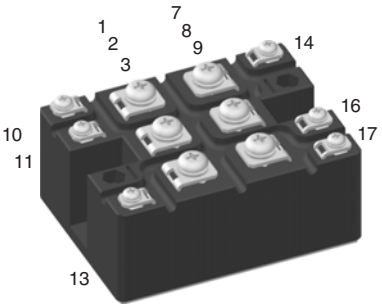
Three Phase AC Controller Modules

I_{RMS} = 80/95 A
V_{RRM} = 1200/1400 V

Preliminary data

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type	
1200	1200	VWO 80-12io7	VWO 95-12io7
1400	1400	VWO 80-14io7	VWO 95-14io7





Symbol	Conditions		Maximum Ratings VWO 80	VWO 95	
I_{RMS}	T_C = 85°C, 50 - 400 Hz (per phase)		82	96	A
I_{TRMS}	$T_{VJ} = T_{VJM}$		59	69	A
I_{TAVM}	T_C = 85°C; (180° sine)		37	44	A
I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	1000	1150	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1100	1230	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	900	1000	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1000	1100	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	5000	6600	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	5080	6280	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	4050	5000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	4200	5080	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, I_T = 150 A		100	A/µs
	f =50 Hz, t_P =200 µs				
	$V_D = {}^2/_3 V_{DRM}$				
	I_G = 0.3 A	non repetitive, $I_T = I_{TAVM}$		500	A/µs
	di_G/dt = 0.3 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		2500	V~
	$I_{ISOL} \leq$ 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.			250	g

Data according to IEC 60747 refer to a single thyristor/diode unless otherwise stated.

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

Symbol	Conditions			Characteristic Values VWO 80	VWO 95	
I_D, I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		≤	5	5	mA
V_T	I_T = 150 A; T_{VJ} = 25°C		≤	1.65	1.57	V
V_{T0}	For power-loss calculations only			0.85	0.85	V
r_T				5.2	4.8	mΩ
V_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤	1.0	1.0	V
		T_{VJ} = -40°C	≤	1.6	1.6	V
I_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤	100	100	mA
		T_{VJ} = -40°C	≤	150	150	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	V_D = 2/3 V_{DRM}	≤	0.2	0.2	V
I_{GD}			≤	5	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	200	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; R_{GK} = ∞		≤	150	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	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	150	µs
R_{thJC}	per thyristor; sine 180°el			0.81	0.66	K/W
	per module			0.135	0.11	K/W
R_{thJK}	per thyristor; sine 180°el			1.0	0.93	K/W
	per module			0.167	0.155	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/s^2

Dimensions in mm (1 mm = 0.0394")