

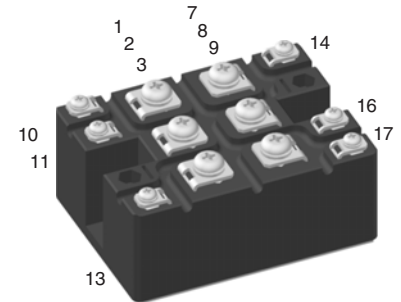
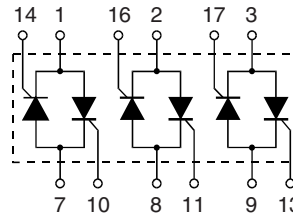
Three Phase AC Controller Modules

$$I_{RMS} = 80/95 \text{ A}$$

$$V_{RRM} = 1200/1400 \text{ V}$$

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}	$T_C = 85^\circ\text{C}$, 50 - 400 Hz (per phase)	82	96	A
I_{TRMS}	$T_{VJ} = T_{VJM}$	59	69	A
I_{TAVM}	$T_C = 85^\circ\text{C}$; (180° sine)	37	44	A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	1000	1150	A
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz), sine	1100	1230	A
	$T_{VJ} = T_{VJM}$; $t = 10 \text{ ms}$ (50 Hz), sine	900	1000	A
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz), sine	1000	1100	A
I^2t	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	5000	6600	A ² s
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz), sine	5080	6280	A ² s
	$T_{VJ} = T_{VJM}$; $t = 10 \text{ ms}$ (50 Hz), sine	4050	5000	A ² s
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz), sine	4200	5080	A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; repetitive, $I_T = 150 \text{ A}$ $f = 50 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$		100	A/ μs
	$I_G = 0.3 \text{ A}$; non repetitive, $I_T = I_{TAVM}$ $di_G/dt = 0.3 \text{ A}/\mu\text{s}$		500	A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise)		1000	V/ μs
P_{GM}	$T_{VJ} = T_{VJM}$; $t_p = 30 \mu\text{s}$		10	W
	$I_T = I_{TAVM}$; $t_p = 300 \mu\text{s}$		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; $t = 1 \text{ min}$		2500	V~
	$I_{ISOL} \leq 1 \text{ mA}$; $t = 1 \text{ s}$		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

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.

Symbol	Conditions		Characteristic Values	
			VWO 80	VWO 95
I_D, I_R	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	$\leq$	5	5 mA
V_T	$I_T = 150 \text{ A}; T_{VJ} = 25^\circ\text{C}$	$\leq$	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}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	$\leq$	1.0	1.0 V
	$T_{VJ} = -40^\circ\text{C}$	$\leq$	1.6	1.6 V
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	$\leq$	100	100 mA
	$T_{VJ} = -40^\circ\text{C}$	$\leq$	150	150 mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	$\leq$	0.2	0.2 V
I_{GD}		$\leq$	5	5 mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}$ $I_G = 0.3 \text{ A}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	$\leq$	200	200 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	$\leq$	150	150 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3 \text{ A}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	$\leq$	2	2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 20 \text{ A}; t_p = 200 \mu\text{s};$ $di/dt = -10 \text{ A}/\mu\text{s}$ typ. $V_R = 100 \text{ V}; dv/dt = 15 \text{ V}/\mu\text{s}; V_D = 2/3 V_{DRM}$		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

