Three Phase AC Controller Modules

I_{RMS} = 3x 143 A
V_{RRM} = 1200-1600 V

Preliminary data

V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type
V	V	
1200	1200	VWO 140-12io1
1400	1400	VWO 140-14io1
1600	1600	VWO 140-16io1

C1 E1   K1 M1   S1 V1

C10 E10   K10 M10   S10 V10
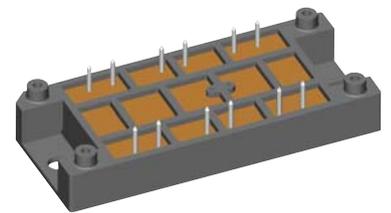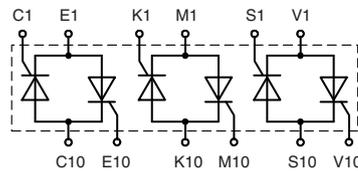
pin configuration see outlines

Symbol	Conditions		Maximum Ratings	
I_{RMS}	T_C = 85°C; 50 - 400 Hz (per phase)		101	A
I_{RMS}	T_C = 85°C; 50 - 400 Hz (per phase) for 10 sec.		143	A
I_{TAVM}	T_C = 85°C; (180° sine)		46	A
I_{TSM}	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	1150	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1240	A
	T_{VJ} = 125°C	t = 10 ms (50 Hz), sine	1040	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1120	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	6610	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	6460	A^2s
	T_{VJ} = 125°C	t = 10 ms (50 Hz), sine	5410	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	5270	A^2s
$(di/dt)_{cr}$	T_{VJ}=125°C repetitive, I_T = 45 A		150	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}=125°C; V_{DR} = $^2/_3$ V_{DRM}		1000	V/µs
	R_{GK} = ∞; method 1 (linear voltage rise)			
P_{GM}	T_{VJ} = 125°C	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}	for 10 sec.		150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	I_{ISOL} ≤ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2-2.5	Nm.
			18-22	lb.in.
Weight	typ.		80	g

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

Features

- Thyristor controller for AC (circuit W3C acc. to IEC) for mains frequency
- Package with DCB base plate
- 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
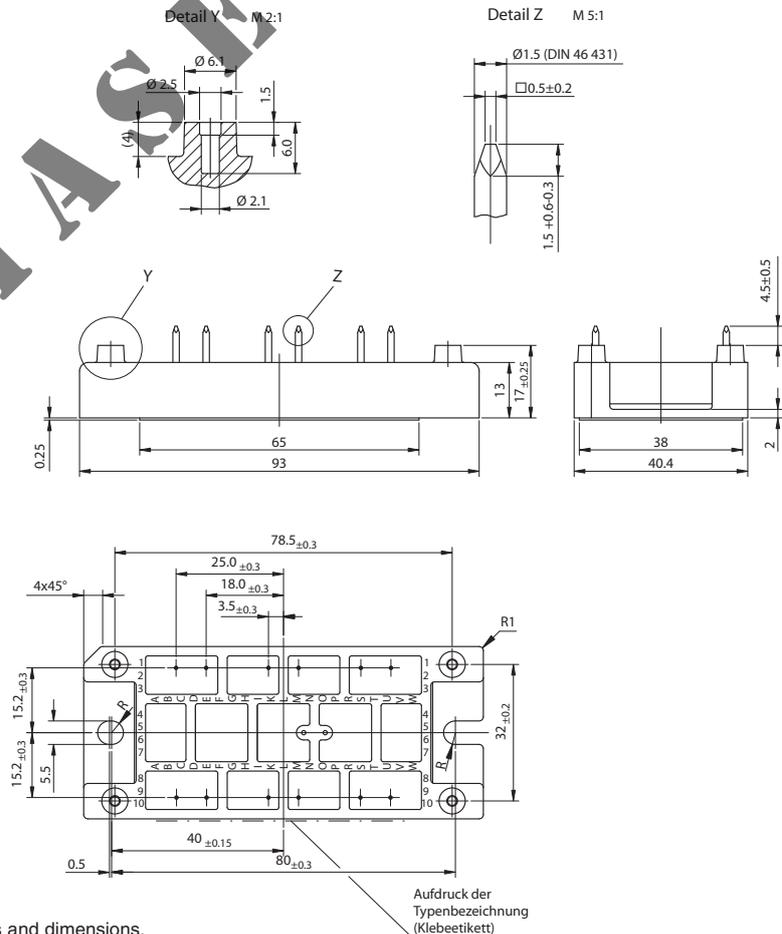
Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling
- High power density

Recommended replacement:
3x MMO90-12/14/16 io6
3x CLA110MB1200NA

IXYS reserves the right to change limits, test conditions and dimensions.

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Symbol	Conditions		Characteristic Values	
I_D, I_R	$T_{VJ} = 125°C$; $V_R = V_{RRM}$; $V_D = V_{DRM}$	$\leq$	5	mA
V_T	$I_T = 140$ A; $T_{VJ} = 25°C$	$\leq$	1.5	V
V_{T0}	For power-loss calculations only		0.85	V
r_T			5.2	mΩ
V_{GT}	$V_D = 6$ V; $\quad$ $T_{VJ} = 25°C$	$\leq$	1.5	V
	$\quad$ $T_{VJ} = -40°C$	$\leq$	1.6	V
I_{GT}	$V_D = 6$ V; $\quad$ $T_{VJ} = 25°C$	$\leq$	100	mA
	$\quad$ $T_{VJ} = -40°C$	$\leq$	200	mA
V_{GD}	$T_{VJ} = 125°C$; $\quad$ $V_D = {}^2/_3$ V_{DRM}	$\leq$	0.2	V
I_{GD}		$\leq$	5	mA
I_L	$T_{VJ} = 25°C$; $t_P = 10$ µs $I_G = 0.45$ A; $di_G/dt = 0.45$ A/µs	$\leq$	450	mA
I_H	$T_{VJ} = 25°C$; $V_D = 6$ V; $R_{GK} = \infty$	$\leq$	200	mA
t_{gd}	$T_{VJ} = 25°C$; $V_D = ½$ V_{DRM} $I_G = 0.45$ A; $di_G/dt = 0.45$ A/µs	$\leq$	2	µs
t_q	$T_{VJ} = 125°C$; $I_T = 20$ A, $t_P = 200$ µs; $di/dt = -10$ A/µs $\quad$ typ. $V_R = 100$ V; $dv/dt = 15$ V/µs; $V_D = {}^2/_3$ V_{DRM}		150	µs
R_{thJC}	per thyristor; sine 180°el		0.6	K/W
	per module		0.1	K/W
R_{thJK}	per thyristor; sine 180°el		0.7	K/W
	per module		0.117	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/s²

Dimensions in mm (1 mm = 0.0394")

Detail Y $\quad$ M 2:1

Detail Z $\quad$ M 5:1

Ø 6.1
Ø 2.5
(4)
1.5
6.0
Ø 2.1

Ø1.5 (DIN 46 431)
□0.5±0.2
1.5 +0.6-0.3

Y $\quad$ Z

4.5±0.5

13
17 ±0.25

0.25
65
93

38
40.4

2

78.5 ±0.3
25.0 ±0.3
18.0 ±0.3
3.5 ±0.3
4x45°

15.2 ±0.3
15.2 ±0.3
5.5

R1

32 ±0.2

40 ±0.15
80 ±0.3
0.5

Aufdruck der
Typenbezeichnung
(Klebeetikett)

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