

Three Phase AC Controller Modules

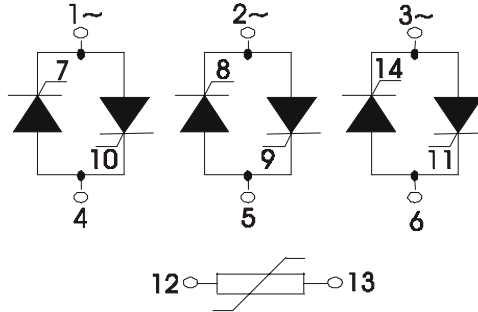
PSUT 145

I_{RMS}
 V_{RRM}

= 3 x 145A
= 800-1600 V

Preliminary Data Sheet

V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type
900	800	PSUT 145/08
1300	1200	PSUT 145/12
1500	1400	PSUT 145/14
1700	1600	PSUT 145/16



Symbol	Test Conditions	Maximum Ratings	
I_{RMS}	$T_C = 85^\circ C$	145 A	
	$T_C = 75^\circ C$	170 A	
I_{TAVM}	$T_{VJ} = T_{VJM}$	120 A	
I_{TSM}	$T_{VJ} = 25^\circ C$	$t = 10\text{ ms}$ (50 Hz), sine	1250 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	1370 A
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$ (50 Hz), sine	1050 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	1150 A
$\int i^2 dt$	$T_{VJ} = 25^\circ C$	$t = 10\text{ ms}$ (50 Hz), sine	7800 $A^2 s$
		$t = 8.3\text{ ms}$ (60 Hz), sine	9380 $A^2 s$
	$V_R = 0$	$t = 10\text{ ms}$ (50 Hz), sine	4575 $A^2 s$
		$t = 8.3\text{ ms}$ (60 Hz), sine	5480 $A^2 s$
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 50\text{ Hz}$ $I_G = 0.6\text{ A}$ $di_G/dt = 0.6\text{ A}/\mu s$	120 $A/\mu s$	
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $V_{DR} = 0.67 V_{DRM}$ $R_{GK} = \infty$, method 1 (linear voltage rise)	1000 $V/\mu s$	
P_{GM}	$T_{VJ} = T_{VJM}$ $t_p = 30\mu s$	10 W	
	$I_T = I_{TAVM}$ $t_p = 300\mu s$	5 W	
P_{GAVM}		0.5 W	
V_{RGM}		10 V	
T_{VJ}		-40 ... + 125 $^\circ C$	
T_{VJM}		125 $^\circ C$	
T_{stg}		-40 ... + 130 $^\circ C$	
V_{ISOL}	50/60 HZ, RMS $t = 1\text{ min}$	3000 V ~	
	$I_{ISOL} \leq 1\text{ mA}$ $t = 1\text{ s}$	3600 V ~	
M_d	Mounting torque M6	6 Nm	
	Terminal connection torque M6	6 Nm	
Weight	typ.	290 g	

Features

- Thyristor controller for AC (circuit W3C acc. to IEC) for mains frequency
- Isolation voltage 3000 V~
- Planar glasspassivated chips
- Package with metal base plate
- UL registered E 148688

Applications

- Switching and control of three phase AC circuits
- Light and temperature control
- Softstart AC motor controller
- Solid state switches

Advantages

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

Symbol	Test Conditions	Characteristic Value		
I_D, I_R	$T_{VJ} = T_{VJM}, V_R = V_{RRM}, V_D = V_{DRM}$	\leq	10	mA
V_T	$I_T = 200A, T_{VJ} = T_{VJM}$	\leq	1.87	V
V_{TO}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)		0.95	V
r_T			3.2	m Ω
V_{GT}	$V_D = 6V, T_{VJ} = 25^\circ C$	\leq	2.5	V
I_{GT}	$V_D = 6V, T_{VJ} = 25^\circ C$	\leq	150	mA
V_{GD}	$T_{VJ} = T_{VJM}, V_D = 0,5 V_{DRM}$	\leq	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}, V_D = 6 V$	\leq	5	mA
I_L	$T_{VJ} = 25^\circ C, t_p = 10\mu s$ $I_G = 0.6A, di_G/dt = 0.6A/\mu s$	\leq	600	mA
I_H	$T_{VJ} = 25^\circ C, V_D = 6V, R_A = 5\Omega$	\leq	200	mA
t_{gd}	$T_{VJ} = 25^\circ C,$ $I_G = 0.6A, di_G/dt = 0.6A/\mu s$	\leq	1.2	μs
t_q	$T_{VJ} = T_{VJM}, I_T = 50A, t_p = 200\mu s, V_R = 100V$ $-di/dt = 10A/\mu s, dv/dt = 20V/\mu s, V_D = 2/3 V_{DRM}$		190	μs
R_{thJC}	per thyristor; sine 180°el per module; sine 180° el		0.42 0.07	K/W K/W
R_{thJK}	per thyristor per module		0.62 0.11	K/W K/W
d_s	Creeping distance on surface		12.5	mm
a	Max. allowable acceleration		50	m/s ²

Temperture sensor

R_{25}	Rated resistance, $T_c = 25^\circ C$	5	k Ω
		$R_{100} = 493\Omega$	
P_{25}	Power dissipation, $T_c = 25^\circ C$	max. 20	mW

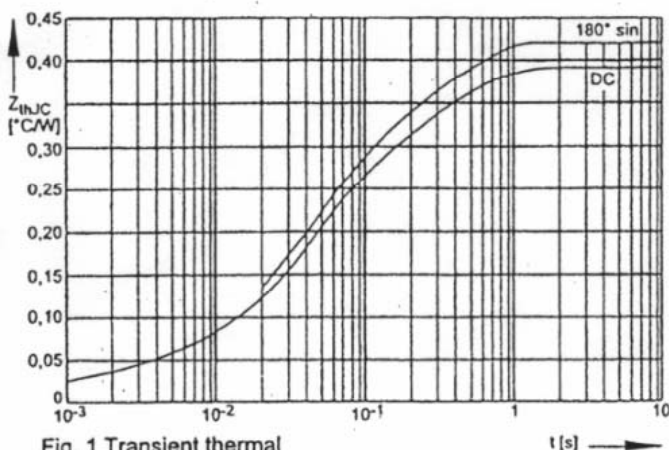


Fig. 1 Transient thermal impedance per arm vs. time

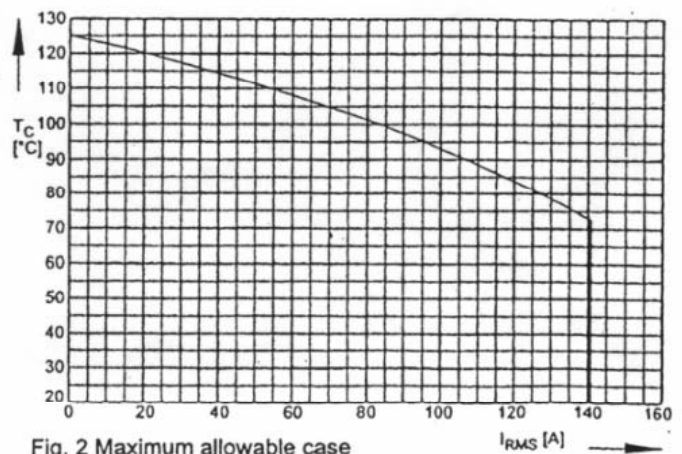


Fig. 2 Maximum allowable case temperature vs. RMS current

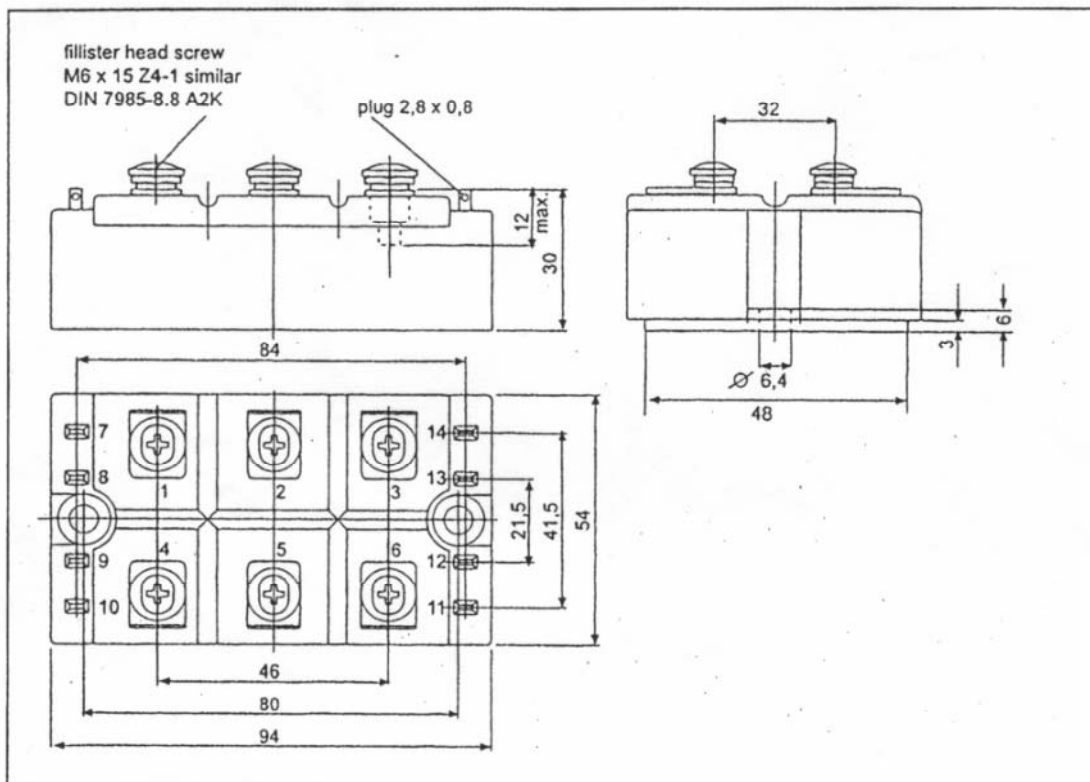


Fig. 5 Package style and outline