

## Three Phase AC Controller Modules

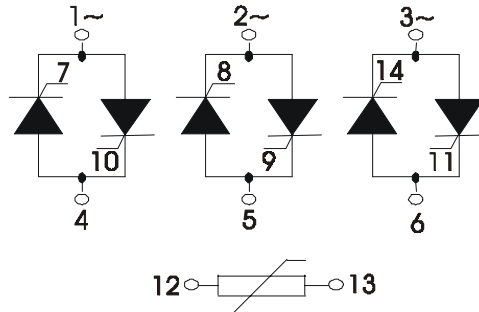
### PSUT 115

$I_{RMS}$   
 $V_{RRM}$

= 3 x 115A  
= 800-1600 V

Preliminary Data Sheet

$V_{RSM}$ $V_{DSM}$	$V_{RRM}$ $V_{DRM}$	Type
900	800	PSUT 115/08
1300	1200	PSUT 115/12
1500	1400	PSUT 115/14
1700	1600	PSUT 115/16



Symbol	Test Conditions	Maximum Ratings	
$I_{RMS}$	$T_C = 85^\circ C$	115 A	
	$T_C = 75^\circ C$	141 A	
$I_{TAVM}$	$T_{VJ} = T_{VJM}$	100 A	
$I_{TSM}$	$T_{VJ} = 25^\circ C$	$t = 10\text{ ms}$ (50 Hz), sine	1000 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	1100 A
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$ (50 Hz), sine	870 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	950 A
$\int i^2 dt$	$T_{VJ} = 25^\circ C$	$t = 10\text{ ms}$ (50 Hz), sine	5000 $A^2 s$
		$t = 8.3\text{ ms}$ (60 Hz), sine	5020 $A^2 s$
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$ (50 Hz), sine	3780 $A^2 s$
		$t = 8.3\text{ ms}$ (60 Hz), sine	3740 $A^2 s$
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 50\text{ Hz}$ $I_G = 0.6\text{ A}$ $di_G/dt = 0.6\text{ A}/\mu s$	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
$V_T$	$I_T = 150A, T_{VJ} = T_{VJM}$	$\leq$	1.81	V
$V_{TO}$	For power-loss calculations only ( $T_{VJ} = T_{VJM}$ )		0.95	V
$r_T$			4.3	m $\Omega$
$V_{GT}$	$V_D = 6V, T_{VJ} = 25^\circ C$	$\leq$	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	$\mu s$
$t_q$	$T_{VJ} = T_{VJM}, I_T = 50A, t_p = 200\mu s, V_R = 100V$ $-di/dt = 10A/\mu s, dv/dt = 20V/\mu s, V_D = 2/3 V_{DRM}$		190	$\mu s$
$R_{thJC}$	per thyristor; sine 180°el		0.5	K/W
	per module; sine 180° el		0.083	K/W
$R_{thJK}$	per thyristor		0.7	K/W
	per module		0.12	K/W
$d_s$	Creeping distance on surface		12.5	mm
$a$	Max. allowable acceleration		50	m/s <sup>2</sup>

**Temperture sensor**

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

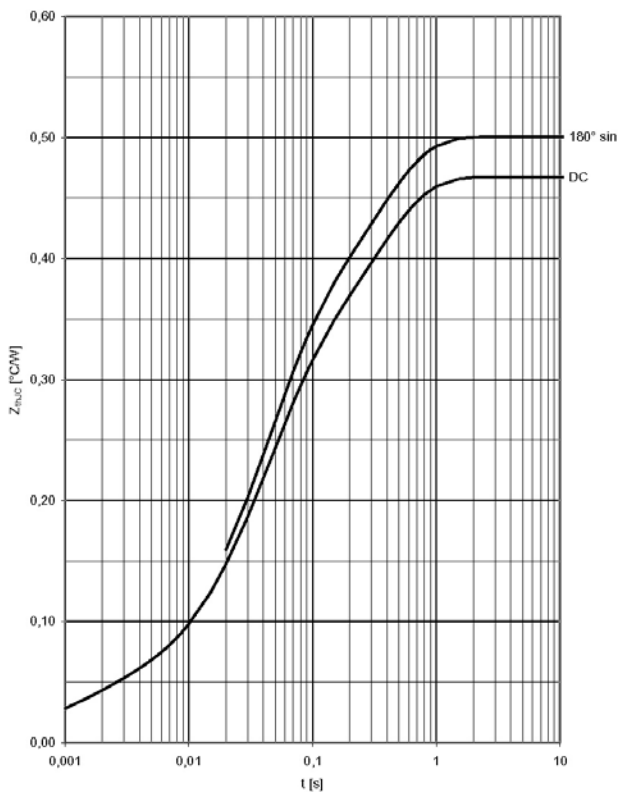


Fig. Transient thermal impedance per arm vs. time

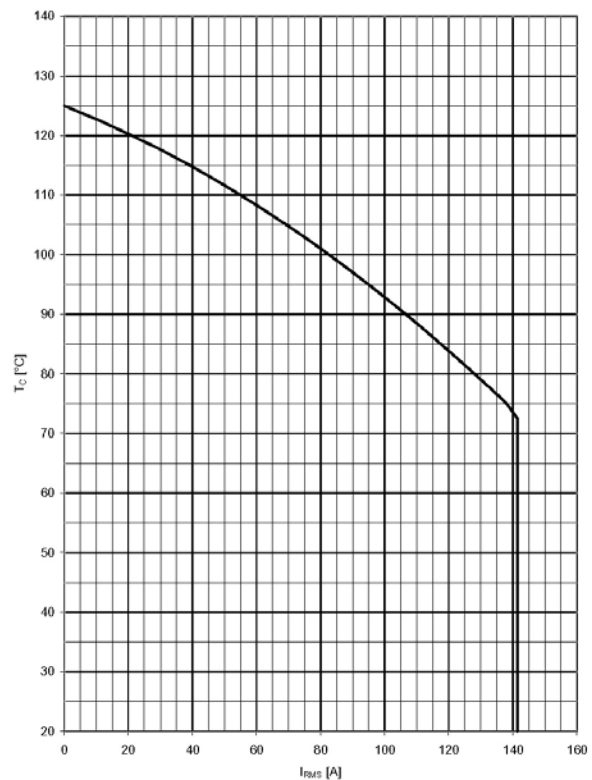


Fig. 2 Maximum allowable case temperature vs. RMS current

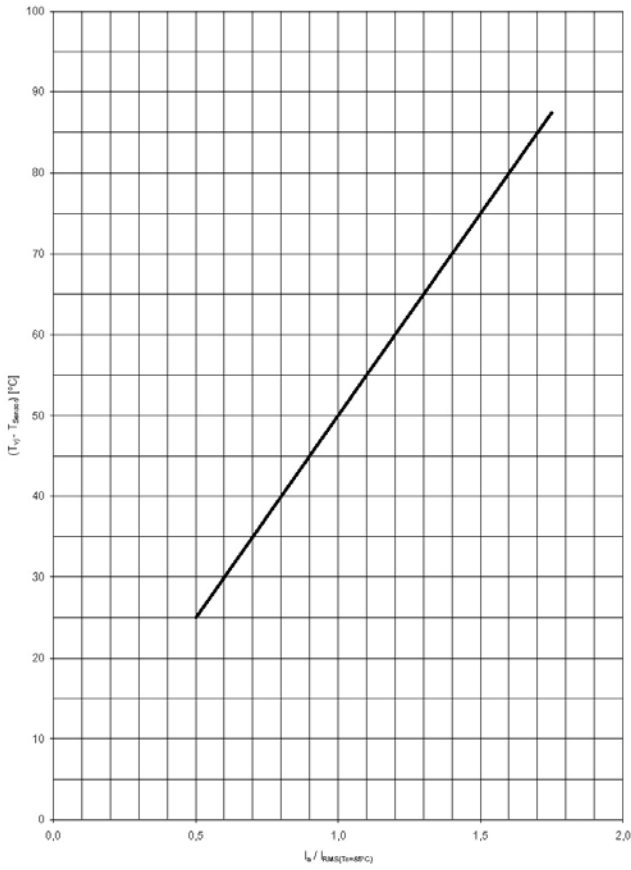


Fig. 3 Difference between the value of junction temperature and sensor temperature vs. starting current per RMS current

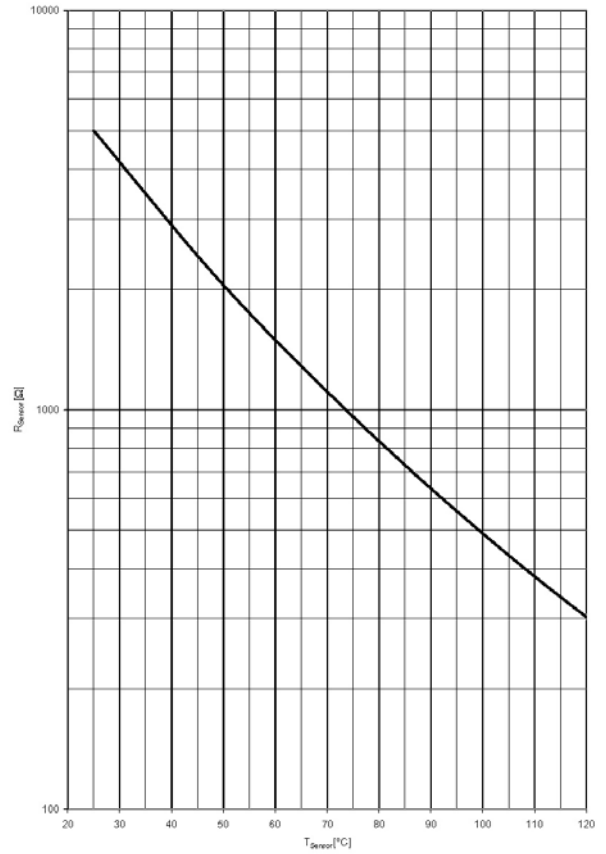


Fig. 4 Sensor resistance vs. sensor temperature

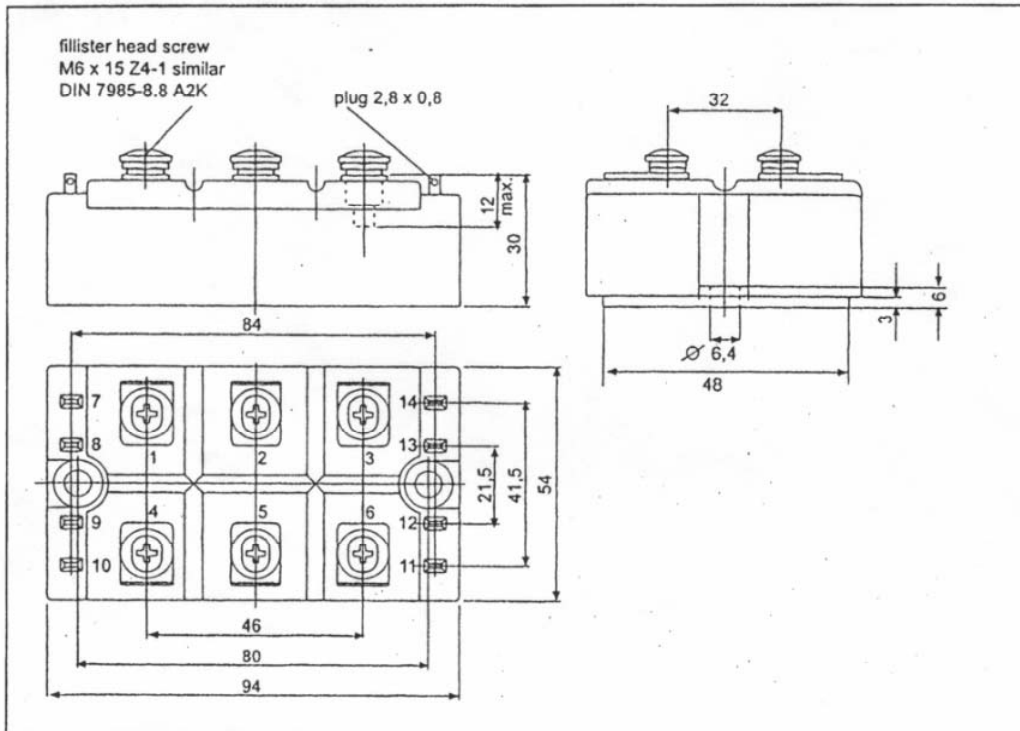


Fig. 5 Package style and outline