Three Phase AC Controller Modules

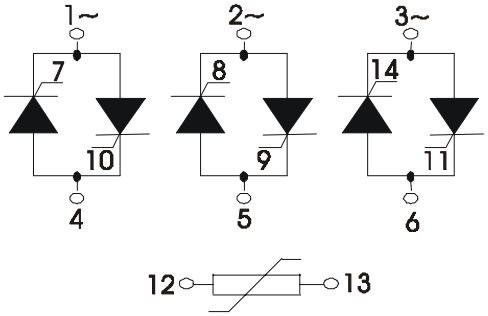
PSUT 145

I_{RMS} = 3 x 145A

V_{RRM} = 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 °C			145	A
	T_C = 75 °C			170	A
I_{TAVM}	$T_{VJ}=T_{VJM}$			120	A
I_{TSM}	T_{VJ} = 25°C	t = 10 ms	(50 Hz), sine	1250	A
		t = 8.3 ms	(60 Hz), sine	1370	A
	$T_{VJ} = T_{VJM}$	t = 10 ms	(50 Hz), sine	1050	A
		t = 8.3 ms	(60 Hz), sine	1150	A
$\int i^2 dt$	T_{VJ} = 25°C	t = 10 ms	(50 Hz), sine	7800	A^2 s
	V_R = 0	t = 8.3 ms	(60 Hz), sine	9380	A^2 s
	$T_{VJ} = T_{VJM}$	t = 10 ms	(50 Hz), sine	4575	A^2 s
	V_R = 0	t = 8.3 ms	(60 Hz), sine	5480	A^2 s
$(di/dt)_{cr}$	$T_{VJ} = T_{JVM}$			120	A/µs
	f = 50Hz I_G = 0.6 A di_G/dt = 0.6 A/µs				
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$	V_{DR} = 0.67 V_{DRM}		1000	V/µs
	R_{GK} = ∞, method 1 (linear voltage rise)				
P_{GM}	$T_{VJ} = T_{VJM}$	t_P = 30µs		10	W
	$I_T = I_{TAVM}$	t_P = 300µs		5	W
P_{GAVM}				0.5	W
V_{RGM}				10	V
T_{VJ}				-40 ... + 125	°C
T_{VJM}				125	°C
T_{stg}				-40 ... + 130	°C
V_{ISOL}	50/60 HZ, RMS	t = 1 min		3000	V ~
	$I_{ISOL} \leq$ 1 mA	t = 1 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

POWERSEM GmbH, Walpersdorfer Str. 53
91126 D- Schwabach
Phone: 09122 - 9764-0 Fax.: 09122 - 9764-20

Symbol	Test Conditions		Characteristic Value		
I_D, I_R	$T_{VJ} = T_{VJM}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$		≤	10	mA
V_T	I_T = 200A, $T_{VJ} = T_{VJM}$		≤	1.87	V
V_{TO}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)			0.95	V
r_T				3.2	mΩ
V_{GT}	V_D = 6V	T_{VJ} = 25°C	≤	2.5	V
I_{GT}	V_D = 6V	T_{VJ} = 25°C	≤	150	mA
V_{GD}	$T_{VJ} = T_{VJM}$	V_D = 0,5 V_{DRM}	≤	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}$	V_D = 6 V	≤	5	mA
I_L	T_{VJ} = 25°C, t_P = 10µs I_G = 0.6A, di_G/dt = 0.6A/µs		≤	600	mA
I_H	T_{VJ} = 25°C, V_D = 6V, R_A = 5Ω		≤	200	mA
t_{gd}	T_{VJ} = 25°C, I_G = 0.6A, di_G/dt = 0.6A/µs		≤	1.2	µs
t_q	$T_{VJ} = T_{VJM}$, I_T = 50A, t_P = 200µs, V_R = 100V -di/dt = 10A/µs, dv/dt = 20V/µs, V_D = 2/3 V_{DRM}			190	µs
R_{thJC}	per thyristor; sine 180°el			0.42	K/W
	per module; sine 180° el			0.07	K/W
R_{thJK}	per thyristor			0.62	K/W
	per module			0.11	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,	Tc = 25 °C	5 R_{100}= 493Ω		kΩ
P_{25}	Power dissipation,	Tc = 25 °C	max.	20	mW

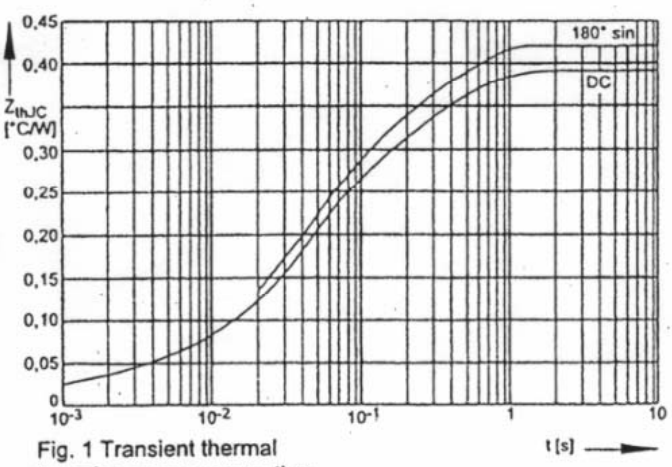


Fig. 1 Transient thermal impedance per arm vs. time

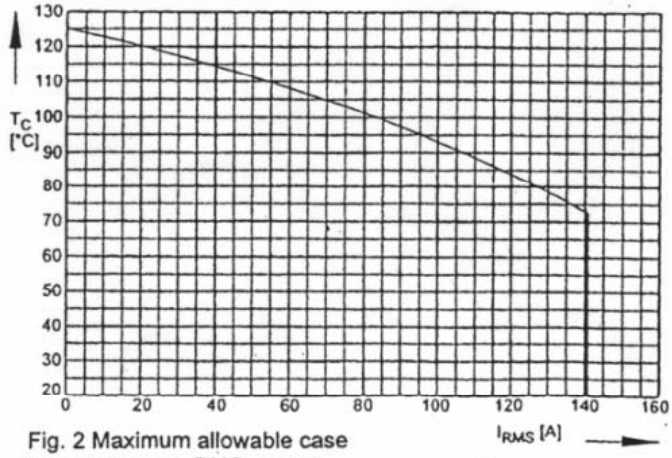


Fig. 2 Maximum allowable case temperature vs. RMS current

POWERSEM GmbH, Walpersdorfer Str. 53
91126 D- Schwabach
Phone: 09122 - 9764-0 Fax.: 09122 - 9764-20

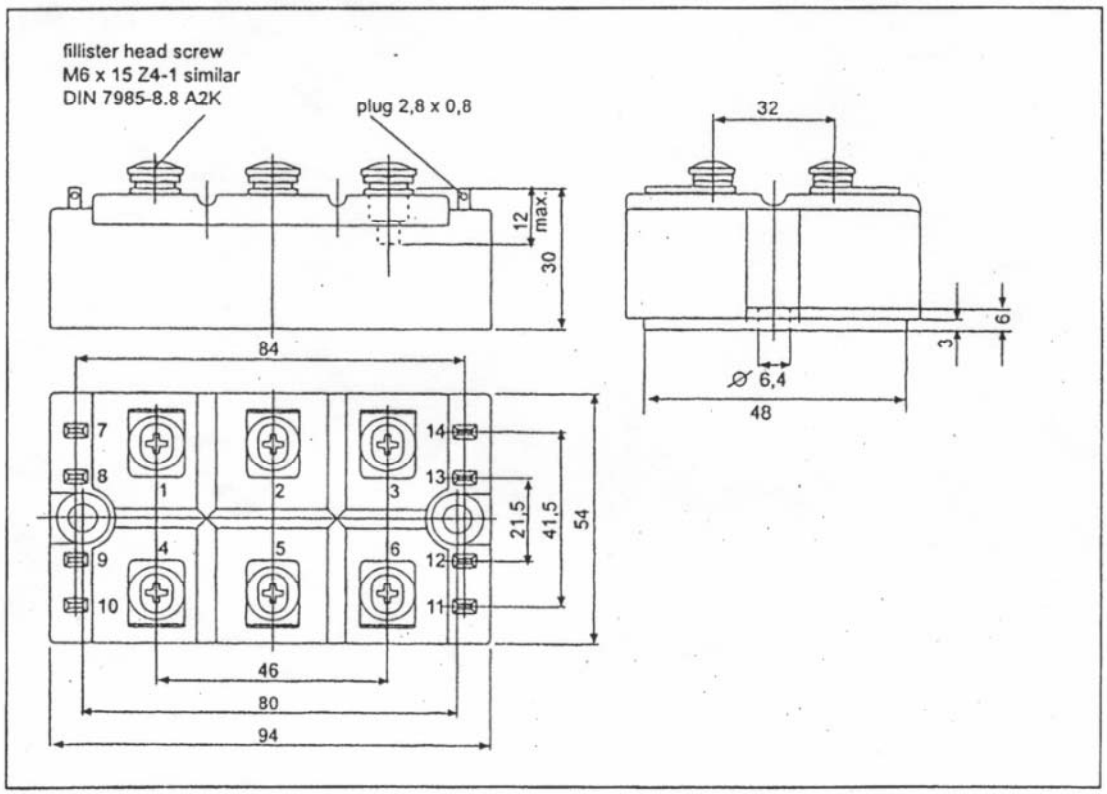


Fig. 5 Package style and outline

POWERSEM GmbH, Walpersdorfer Str. 53
91126 D- Schwabach
Phone: 09122 - 9764-0 Fax.: 09122 - 9764-20