POWERSEM

Subassembly

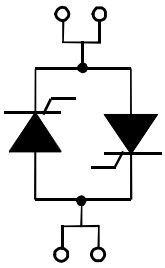
Single Phase AC Controller Subassemblies

PSW1C142

I_{RMS} = 130 A
V_{RRM} = 800-1800 V

Preliminary Data Sheet

V_{RSM} V_{DSM} (V)	V_{RRM} V_{DRM} (V)	Type
900	800	PSW1C 142/08
1300	1200	PSW1C 142/12
1500	1400	PSW1C 142/14
1700	1600	PSW1C 142/16
1900	1800	PSW1C 142/18



Symbol	Test Conditions		Maximum Ratings	
I_{RMS}	T_C = 85 °C; 50-400 Hz (per single controller)		130	A
I_{TRMS}			90	A
I_{TAVM}	T_C = 85 °C;	180° sine, per thyristor	58	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	1230	A
	T_{VJ} = 125 °C	t = 10 ms (50 Hz), sine	1000	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1070	A
$\int i^2 dt$	T_{VJ} = 45 °C	t = 10 ms (50 Hz), sine	6600	A²s
	V_R = 0	t = 8.3 ms (60 Hz), sine	6280	A²s
	T_{VJ} = 125 °C	t = 10 ms (50 Hz), sine	5000	A²s
	V_R = 0	t = 8.3 ms (60 Hz), sine	4750	A²s
$(di/dt)_{cr}$	T_{VJ} = 125 °C	repetitive, I_T = 60 A	150	A/µs
	f=50Hz, t_P=200µs			
	V_D=2/3V_{DRM}			
	I_G=0.45 A	non repetitive, I_T = I_{TAVM}	500	A/µs
	di_G/dt=0.45A/µs			
$(dv/dt)_{cr}$	T_{VJ} = 125 °C	V_D=2/3V_{DRM}	1000	V/µs
	R_{GK}= ∞, method 1 (linear voltage rise)			
P_{GM}	T_{VJ} = 125 °C	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... + 150	°C
T_{VJM}			150	°C
T_{stg}			-40... + 125	°C
Weight	typ.		8	g

Features

- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

Applications

- Solid state relays

Advantages

- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

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

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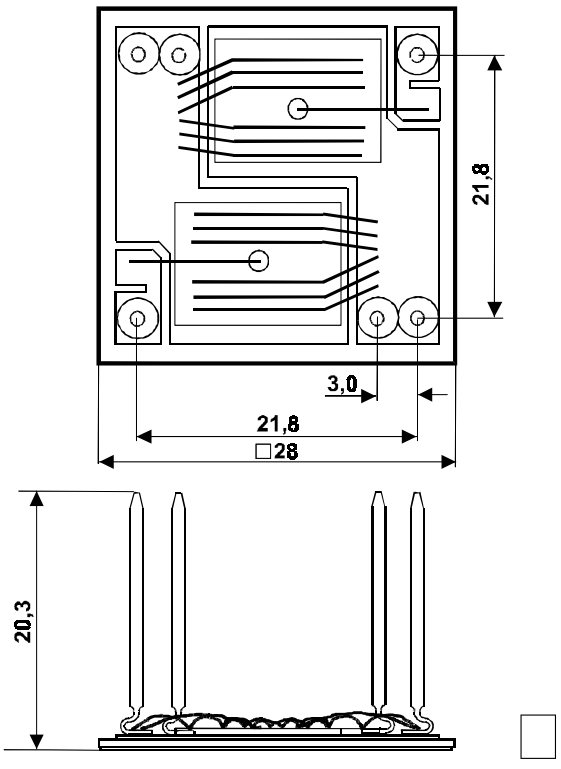
Symbol	Test Conditions		Characteristic Value		
I_D, I_R	T_{VJ} = 125°C,	$V_R = V_{RRM}$, $V_D=V_{DRM}$	≤	5	mA
V_T	I_T = 200 A,	T_{VJ} = 25 °C	≤	1.75	V
V_{TO}	For power-loss calculations only			0.85	V
r_T				5.2	mΩ
V_{GT}	V_D=6V	T_{VJ}= 25°C	≤	1.5	V
		T_{VJ}=-40°C	≤	1.6	V
I_{GT}	V_D=6V	T_{VJ}= 25°C	≤	100	mA
		T_{VJ}=-40°C	≤	200	mA
V_{GD}	T_{VJ}= 125°C	V_D=2/3V_{DRM}	≤	0.2	V
I_{GD}	T_{VJ}= 125°C	V_D=2/3V_{DRM}	≤	10	mA
I_L	T_{VJ}= 25°C, t_P=10µs		≤	450	mA
	I_G=0.45A, di_G/dt=0.45A/µs				
I_H	T_{VJ}= 25°C, V_D=6V, R_{GK}= ∞		≤	200	mA
t_{gd}	T_{VJ}= 25°C, V_D=1/2V_{DRM}		≤	2	µs
	I_G=0.45A, di_G/dt=0.45A/µs				
R_{thJC}	per thyristor; DC			0.7	K/W
	per module			0.35	K/W
a	Max. allowable acceleration			50	m/s²

Package style and outline
Dimensions in mm (1mm = 0.0394“)



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