

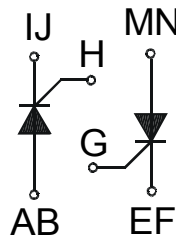
## Single Phase AC Controller Modules

## PSW1C100

$I_{TRMS} = 96 \text{ A}$   
 $V_{RRM} = 600-1600 \text{ V}$

Preliminary Data Sheet

$V_{RSM}$ $V_{DSM}$ (V)	$V_{RRM}$ $V_{DRM}$ (V)	Type
700	600	PSW1C 100/06
900	800	PSW1C 100/08
1300	1200	PSW1C 100/12
1500	1400	PSW1C 100/14
1700	1600	PSW1C 100/16



Symbol	Test Conditions	Maximum Ratings
$I_{TRMS}$	$T_{VJ} = T_{VJM}$	96 A
$I_{TAVM}$	$T_C = 75^\circ \text{C}; 180^\circ \text{ sine}$	63 A
$I_{TAVM}$	$T_C = 85^\circ \text{C}; 180^\circ \text{ sine}$	53 A
$I_{TSM}$	$T_{VJ} = 45^\circ \text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	1200 A
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	1300 A
	$T_{VJ} = 125^\circ \text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	1100 A
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	1200 A
$\int i^2 dt$	$T_{VJ} = 45^\circ \text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	7200 A <sup>2</sup> s
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	7000 A <sup>2</sup> s
	$T_{VJ} = 125^\circ \text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	6050 A <sup>2</sup> s
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	5970 A <sup>2</sup> s
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ \text{C}$ repetitive, $I_T = 150 \text{ A}$ $f=50\text{Hz}$ , $t_p=200\mu\text{s}$	150 A/ $\mu\text{s}$
	$V_D=2/3V_{DRM}$ $I_G=0.45 \text{ A}$ non repetitive, $I_T = I_{TAVM}$ $di_G/dt=0.45\text{A}/\mu\text{s}$	500 A/ $\mu\text{s}$
	$T_{VJ} = 125^\circ \text{C}$ $V_D=2/3V_{DRM}$ $R_{GK} = \infty$ , method 1 (linear voltage rise)	1000 V/ $\mu\text{s}$
$P_{GM}$	$T_{VJ} = 125^\circ \text{C}$ $t_p=30\mu\text{s}$	$\leq 10 \text{ W}$
	$I_T = I_{TAVM}$ $t_p=300\mu\text{s}$	$\leq 5 \text{ W}$
$P_{GAVM}$		0.5 W
$V_{RGM}$		10 V
$T_{VJ}$		-40... + 125 °C
$T_{VJM}$		125 °C
$T_{stg}$		-40... + 125 °C
$V_{ISOL}$	50/60 Hz, RMS $t = 1 \text{ min}$	2500 V~
	$I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	3000 V~
$M_d$	Mounting torque (M4)	1.5 - 1.8 Nm
		14 - 16 lb.in.
<b>Weight</b>	typ.	18 g

### Features

- Thyristor controller for AC (circuit W1C acc. to IEC) for mains frequency □
- Isolation voltage 3000 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- UL registered, E 148688

### Applications

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

### Advantages

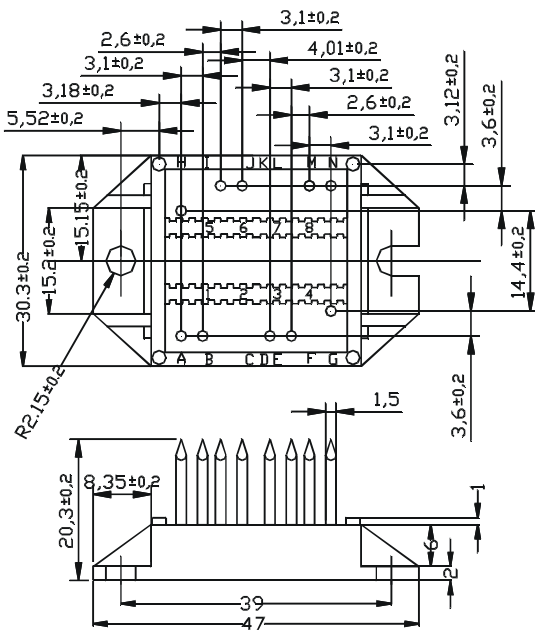
- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

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

Symbol	Test Conditions	Characteristic Value
$I_{D,R}$	$T_{VJ} = 125^{\circ}\text{C}$ , $V_R = V_{RRM}$ , $V_D = V_{DRM}$	$\leq 5$ mA
$V_T$	$I_T = 200$ A, $T_{VJ} = 25^{\circ}\text{C}$	$\leq 1.55$ V
$V_{TO}$	For power-loss calculations only	0.85 V
$r_T$		4.0 m $\Omega$
$V_{GT}$	$V_D = 6\text{V}$ , $T_{VJ} = 25^{\circ}\text{C}$	$\leq 1.5$ V
	$T_{VJ} = -40^{\circ}\text{C}$	$\leq 1.6$ V
$I_{GT}$	$V_D = 6\text{V}$ , $T_{VJ} = 25^{\circ}\text{C}$	$\leq 100$ mA
	$T_{VJ} = -40^{\circ}\text{C}$	$\leq 200$ mA
$V_{GD}$	$T_{VJ} = 125^{\circ}\text{C}$ , $V_D = 2/3V_{DRM}$	$\leq 0.2$ V
$I_{GD}$	$T_{VJ} = 125^{\circ}\text{C}$ , $V_D = 2/3V_{DRM}$	$\leq 10$ mA
$I_L$	$T_{VJ} = 25^{\circ}\text{C}$ , $t_p = 10\mu\text{s}$ , $V_D = 6\text{V}$ $I_G = 0.45\text{A}$ , $di_G/dt = 0.45\text{A}/\mu\text{s}$	$\leq 450$ mA
$I_H$	$T_{VJ} = 25^{\circ}\text{C}$ , $V_D = 6\text{V}$ , $R_{GK} = \infty$	$\leq 200$ mA
$t_{gd}$	$T_{VJ} = 25^{\circ}\text{C}$ , $V_D = 1/2V_{DRM}$ $I_G = 0.45\text{A}$ , $di_G/dt = 0.45\text{A}/\mu\text{s}$	$\leq 2$ $\mu\text{s}$
$t_q$	$T_{VJ} = T_{VJM}$ , $I_T = 120\text{A}$ ; $t_p = 200\mu\text{s}$ ; $di/dt = 10\text{A}/\mu\text{s}$ typ. 150	$\mu\text{s}$
	$V_R = 100\text{V}$ ; $dv/dt = 20\text{V}/\mu\text{s}$ ; $V_D = 2/3V_{DRM}$	
$R_{thJC}$	per thyristor; DC	0.53 K/W
	per module	0.27 K/W
$R_{thJK}$	per thyristor; sine 180° el	typ. 0.73 K/W
	per module	typ. 0.37 K/W
$d_s$	Creeping distance on surface	6.6 mm
$d_A$	Creeping distance in air	9.7 mm
$a$	Max. allowable acceleration	50 m/s <sup>2</sup>

### Package style and outline

Dimensions in mm (1mm = 0.0394")



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