



## JST12X-1000CW

Rev.A-1

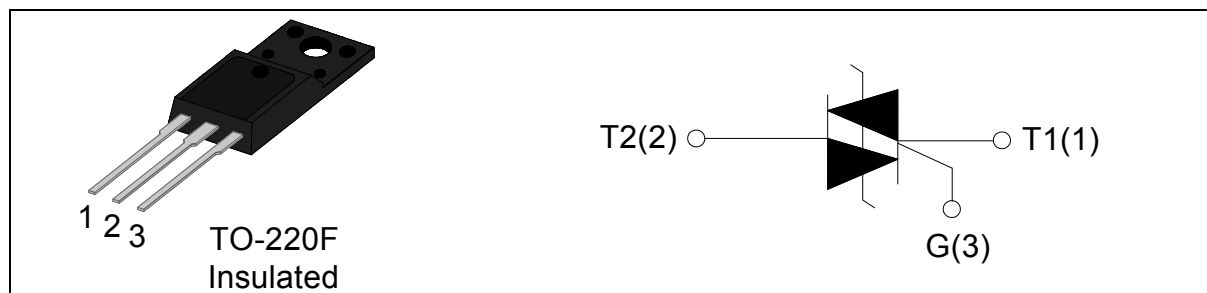
### DESCRIPTION:

The triacs of JST12X-1000CW provides high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on home appliances such as motor control of washing machine.

JST12X provide insulation voltage rated at 2000  $V_{RMS}$  from all three terminals to external heatsink complying with UL standards (File ref: E252906).

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	1000	V



### ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		$T_{stg}$	-40-150	$^{\circ}C$
Operating junction temperature range		$T_j$	-40-125	$^{\circ}C$
Repetitive peak off-state voltage( $T_j=25^{\circ}C$ )		$V_{DRM}$	1000	V
Repetitive peak reverse voltage( $T_j=25^{\circ}C$ )		$V_{RRM}$	1000	V
Non repetitive surge peak Off-state voltage		$V_{DSM}$	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		$V_{RSM}$	$V_{RRM} + 100$	V
RMS on-state current	TO-220F(Ins) ( $T_C=90^{\circ}C$ )	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current ( full cycle, $F=50Hz$ )		$I_{TSM}$	120	A
$I^2t$ value for fusing ( $t_p=10ms$ )		$I^2t$	72	$A^2s$
Rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )		$di/dt$	100	$A/\mu s$

Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	5	W

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^{\circ}C$  unless otherwise specified)

Symbol	Test Condition	Quadrant		Value	Unit
$I_{GT}$	$V_D=12V R_L=33\Omega$	I - II -III	MAX	35	mA
$V_{GT}$		I - II -III	MAX	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^{\circ}C$ $R_L=3.3K\Omega$	I - II -III	MIN	0.2	V
$I_L$	$I_G=1.2I_{GT}$	I -III	MAX	50	mA
		II		60	
$I_H$	$I_T=100mA$		MAX	40	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}C$		MIN	1000	V/ $\mu s$

**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=18A t_p=380\mu s$	$T_j=25^{\circ}C$	1.5	V
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}C$	5	$\mu A$
$I_{RRM}$		$T_j=125^{\circ}C$	0.5	mA

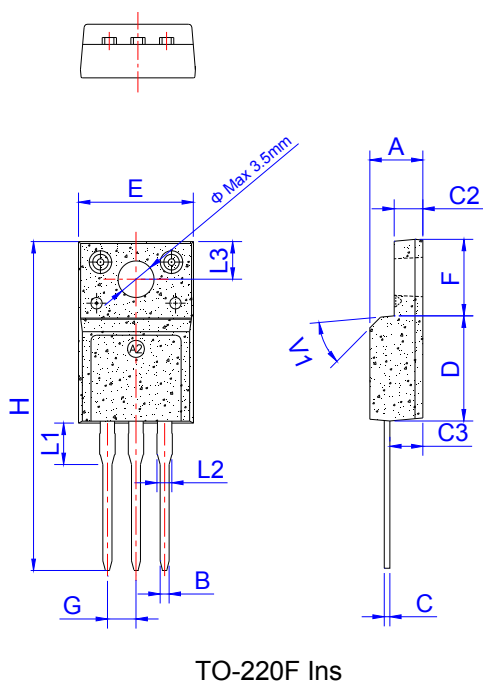
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220F(Ins)	3.4	$^{\circ}C/W$

**ORDERING INFORMATION**

<p><b>J</b>     <b>ST</b>     <b>12</b>     <b>X</b>     <b>-1000</b>     <b>CW</b></p> <p>JieJie Microelectronics Co.,Ltd</p> <p>Triacs</p> <p><math>I_{T(RMS)}:12A</math></p>	<p><math>CW:I_{GT1-3}\leq 35mA</math></p> <p><math>1000:V_{DRM} \setminus V_{RRM}\geq 1000V</math></p> <p>X: TO-220F(Ins)</p>
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PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

FIG.1: Maximum power dissipation versus RMS on-state current

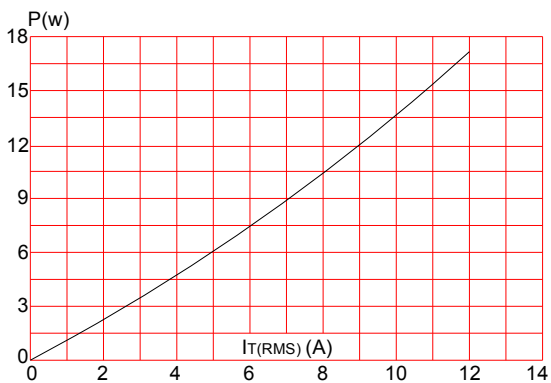


FIG.2: RMS on-state current versus case temperature

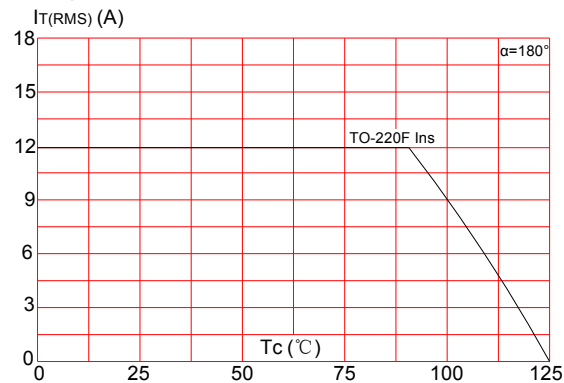


FIG.3: Surge peak on-state current versus number of cycles

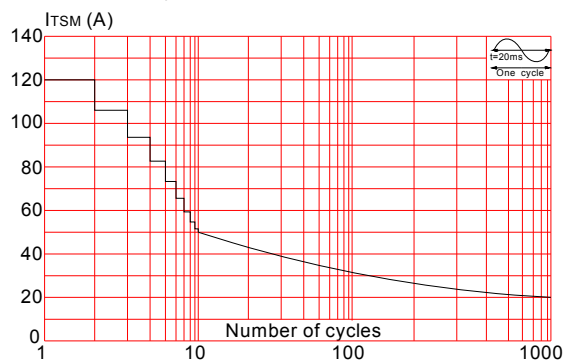
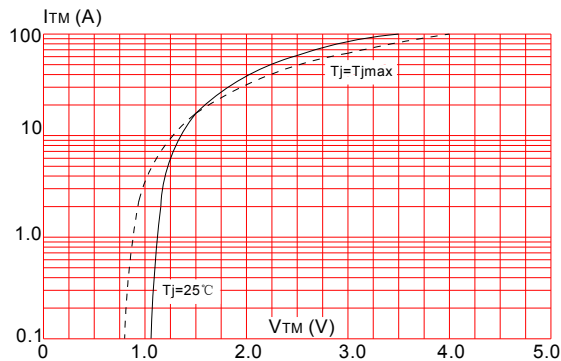
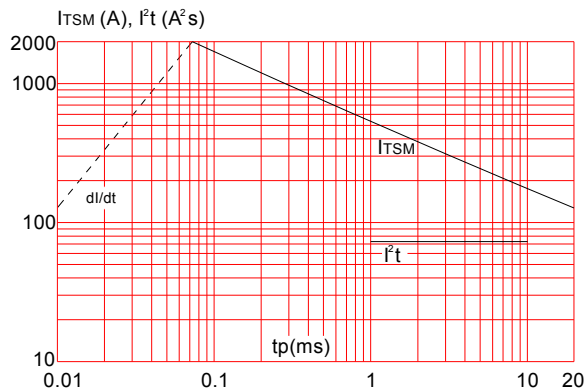


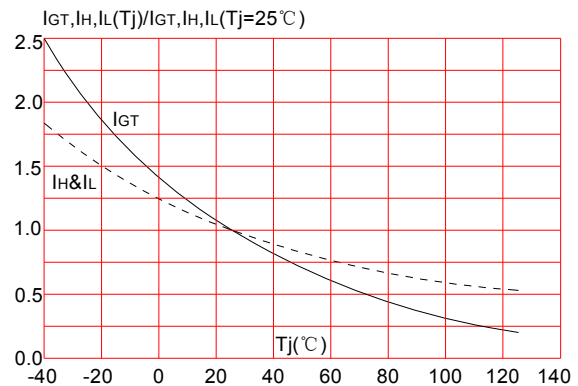
FIG.4: On-state characteristics (maximum values)




**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( $dI/dt < 100\text{A}/\mu\text{s}$ )



**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



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