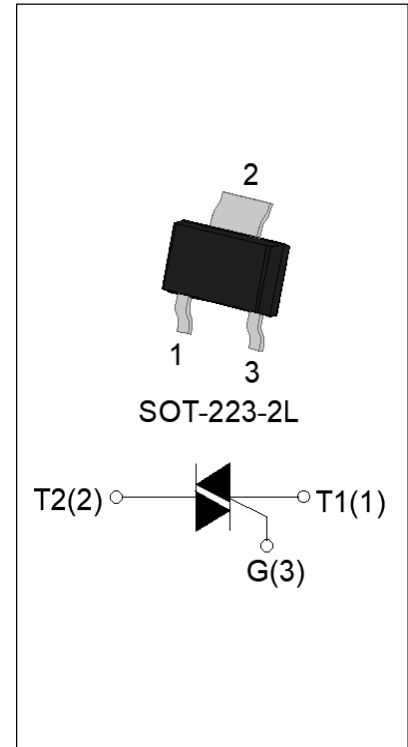


**JST02W-1000SW 2A TRIAC**

Rev.A.1.0

**DESCRIPTION:**

The JST02W-1000SW triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. JST02W-1000SW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. Package SOT-223-2L is RoHS compliant.


**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	2	A
$V_{DRM}/V_{RRM}$	1000	V
$I_{GT} / /$	10/10/10	mA

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	
Operating junction temperature range	$T_j$	-40-125	
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	1000	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	1000	V
RMS on-state current ( $T_c = 71^\circ\text{C}$ )	$I_{T(RMS)}$	2	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	25	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )		27.5	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	3.7	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ )	$di/dt$	100	$\text{A/s}$
Peak gate current ( $t_p=20\text{ }\mu\text{s}$ , $T_j=125^\circ\text{C}$ )	$I_{GM}$	2	A
Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	0.5	W
Peak gate power	$P_{GM}$	10	W

Peak pulse voltage ( $T_j=25$ ; non-repetitive, off-state; FIG.8)	$V_{pp}$	4	kV
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**ELECTRICAL CHARACTERISTICS** ( $T_j=25$  unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
$I_{GT}$	$V_D=12V R_L=33$	- -	MAX.	10	mA
$V_{GT}$		- -	MAX.	1	V
$V_{GD}$	$V_D=V_{DRM} T_j=125$ $R_L=3.3K$	- -	MIN.	0.2	V
$I_L$	$I_G=1.2I_{GT}$	-	MAX.	20	mA
				30	
$I_H$	$I_T=100mA$		MAX.	15	mA
dV/dt	$V_D=670V$ Gate Open $T_j=125$		MIN.	300	V/s
(dI/dt) <sub>c</sub>	(dV/dt) <sub>c</sub> =10 $T_j=125$		MIN.	1.5	A/ms
$t_{on}$	$I_G=20mA I_A=200mA I_R=20mA$ $T_j=25$		TYP.	2.5	s
$t_{off}$				25	

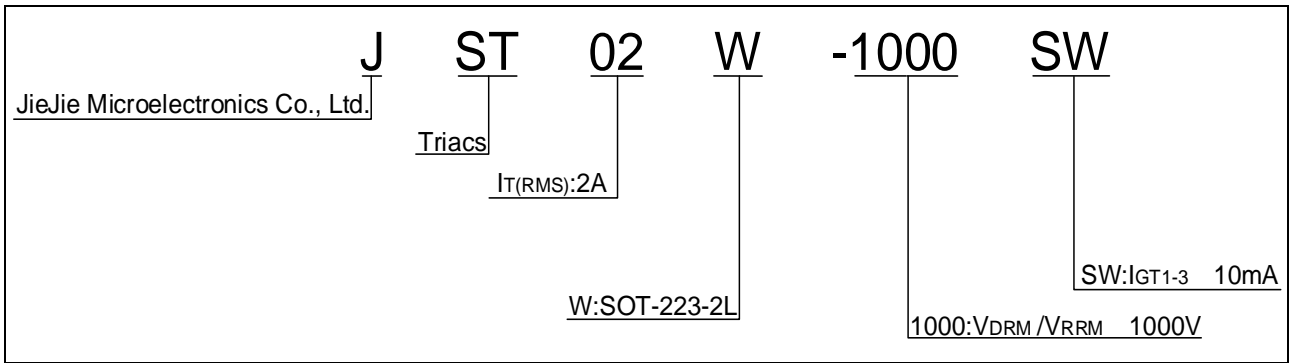
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=3A t_p=380 \mu s$	$T_j=25$	1.5	V
$V_{TO}$	Threshold voltage	$T_j=125$	0.93	V
$R_D$	Dynamic resistance	$T_j=125$	146	m
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25$	8	A
$I_{RRM}$		$T_j=125$	0.2	mA

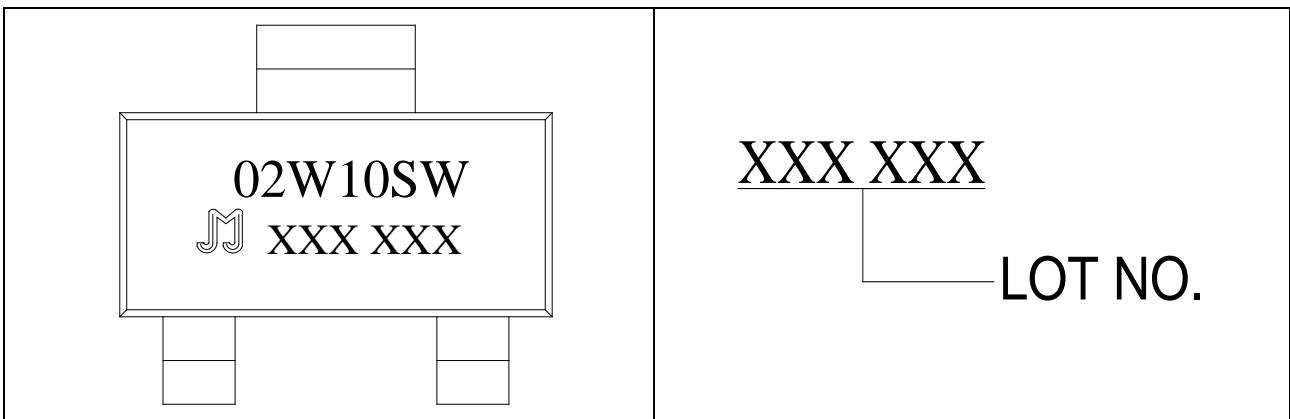
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	20	/W
$R_{th(j-a)}$	junction to ambient (AC)	150	/W

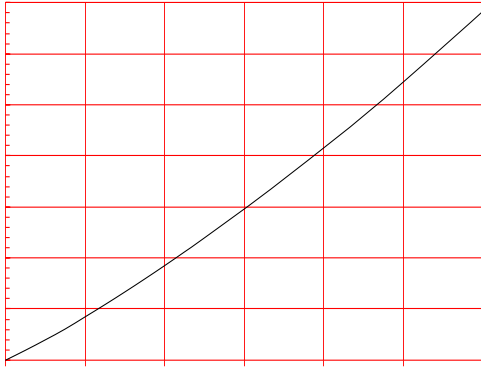
ORDERING INFORMATION



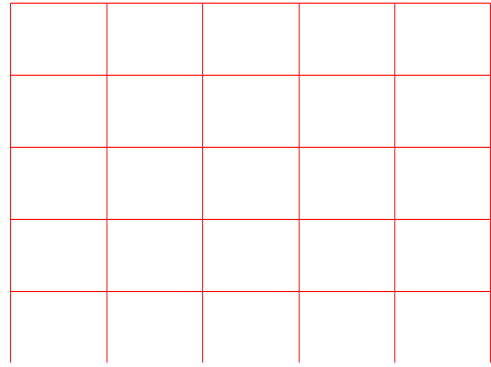
MARKING



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



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



**FIG.7:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

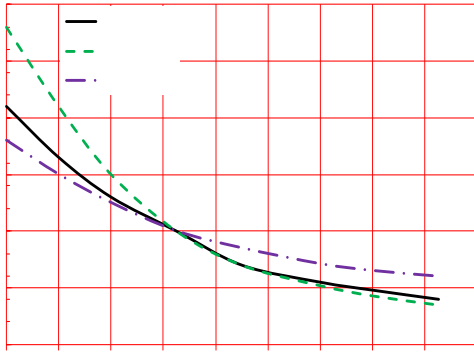
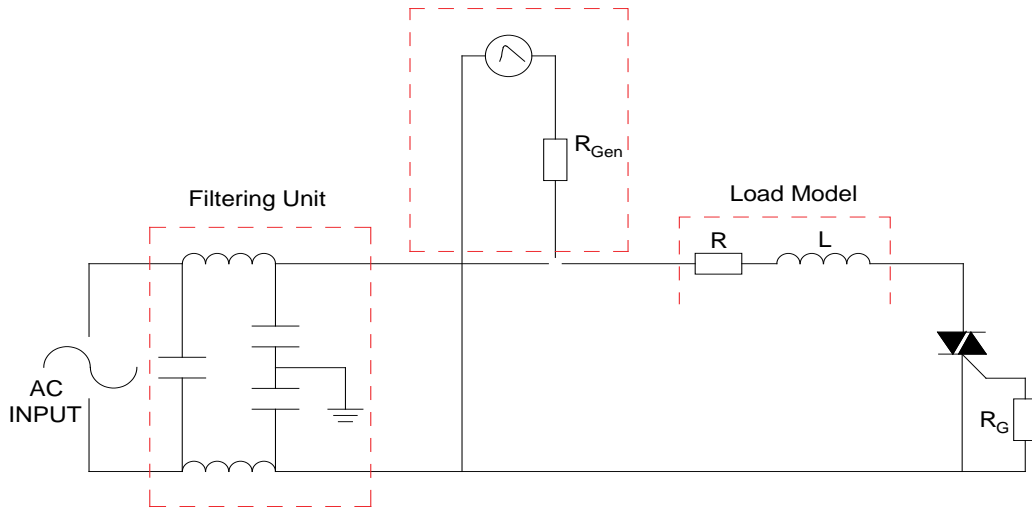


FIG.8 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

IEC61000-4-5 Standards  
Surge Generator



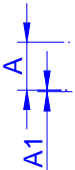
**ORDERING INFORMATION**

Order code	Voltage V <sub>DRM</sub> /V <sub>RRM</sub> (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		- -			
<b>JST02W-1000SW</b>	<b>1000</b>	<b>10</b>	<b>SOT-223-2L</b>	<b>4,000</b>	<b>Tape &amp; Reel</b>

**Document Revision History**

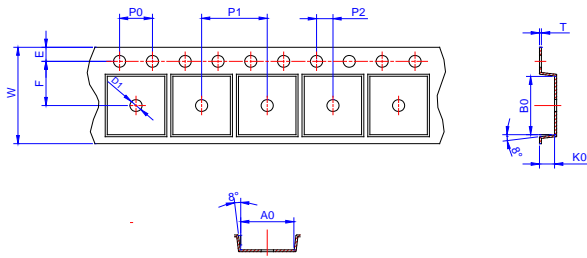
Date	Revision	Changes
Apr.10, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA






DELIVERY MODE



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	-		12.30	-		0.482
E	1.65	1.75	1.85	0.065	0.069	0.073
F	5.45	5.50	5.55	0.215	0.217	0.219
D0		1.55	1.60		0.061	0.063
D1		-	-			
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.95	2.00	2.05	0.077	0.079	0.081
10P0	39.80	40.00	40.20	1.567	1.575	1.583
A0	6.85	6.95	7.05	0.269	0.273	0.276
B0	7.15	7.25	7.35	0.280	0.284	0.288
K0	1.95	2.05	2.15	0.076	0.080	0.084
T	0.20	0.25	0.30	0.008	0.010	0.012

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