



JST04V-600SW 1A TRIAC

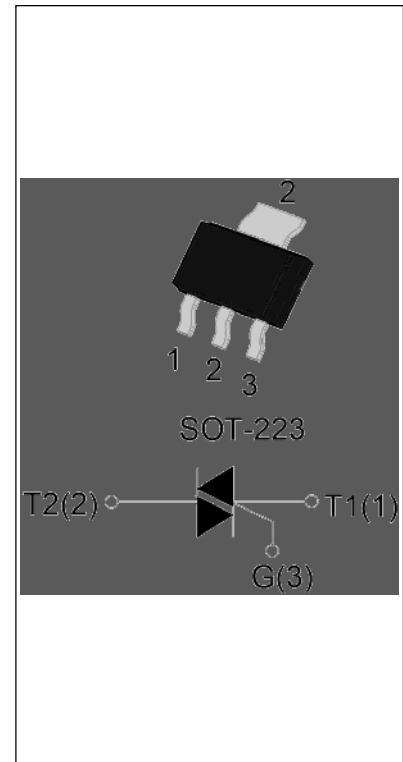
Rev.A.1.1

DESCRIPTION:

The JST04V-600SW 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. JST04V-600SW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. Package SOT-223 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	600	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 ($T_j=25^\circ C$)	V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^\circ C$)	V_{RRM}	600	V
RMS on-state current ($T_c = 102^\circ C$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (full cycle, $t_p=20ms$, $T_j=25^\circ C$)	I_{TSM}	25	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6ms$, $T_j=25^\circ C$)		27.5	
I^2t value for fusing ($t_p=10ms$, $T_j=25^\circ C$)	I^2t	3.1	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^\circ C$)	di/dt	100	$A/\mu s$
Peak gate current ($t_p=20\mu s$, $T_j=125^\circ C$)	I_{GM}	2	A
Average gate power dissipation ($T_j=125^\circ C$)	$P_{G(AV)}$	0.1	W
Peak gate power	P_{GM}	5	W



Peak pulse voltage ($T_j=25$; non-repetitive, off-state; FIG.8)	V_{pp}	3	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
				35	
I_H	$I_T=100mA$		MAX.	15	mA
dV/dt	$V_D=400V$ Gate Open $T_j=125$		MIN.	300	V/ μs
(dI/dt)c	(dV/dt)c=10V/ μs , $T_j=125$		MIN.	2.5	A/ms
t_{on}	$I_G=20mA I_A=200mA I_R=20mA$ $T_j=25$		TYP.	2.5	μs
t_{off}				25	

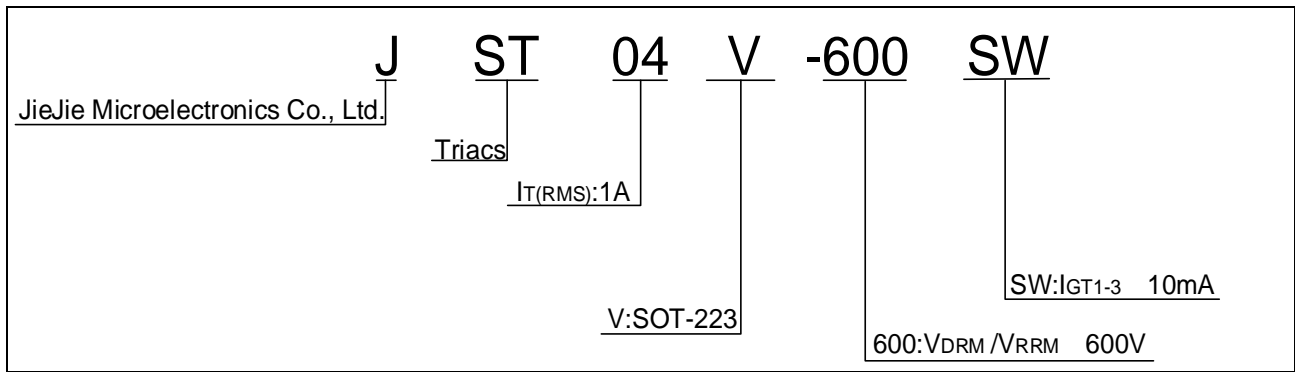
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=1.5A t_p=380\mu s$	$T_j=25$	1.35	V
V_{TO}	Threshold voltage	$T_j=125$	0.799	V
R_D	Dynamic resistance	$T_j=125$	151	m
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25$	5	μA
I_{RRM}		$T_j=125$	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	18	/W
$R_{th(j-a)}$	junction to ambient (AC)	160	/W

ORDERING INFORMATION



MARKING

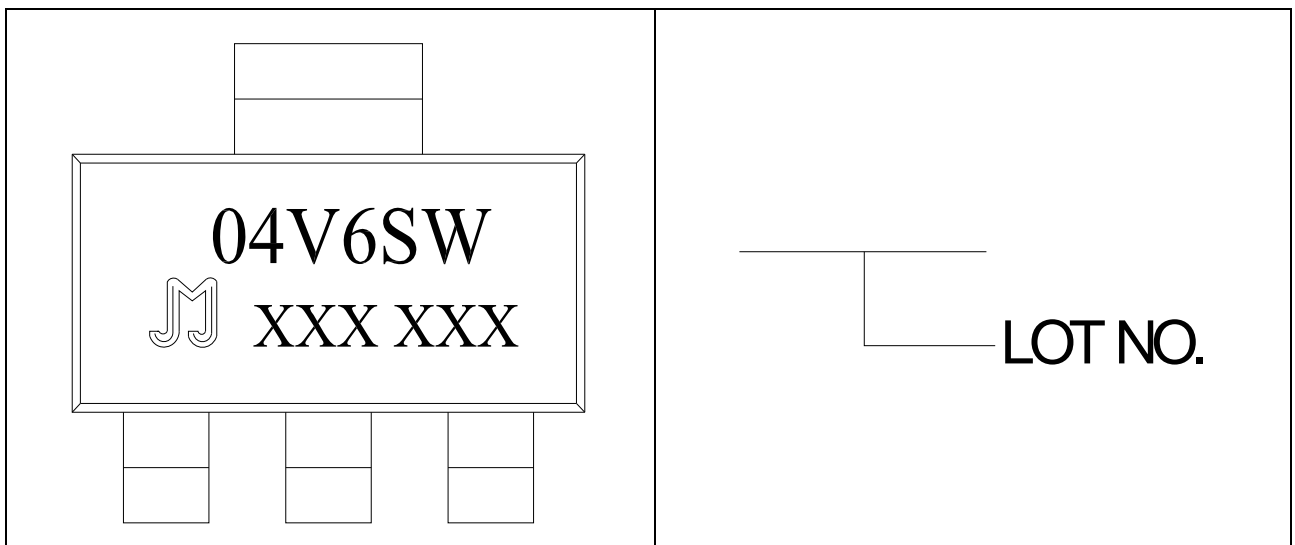




FIG.1 Maximum power dissipation versus RMS on-state current

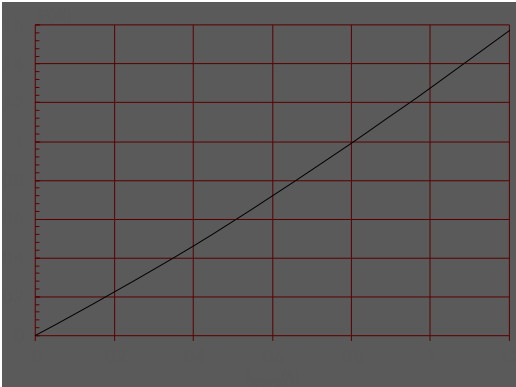


FIG.2: RMS on-state current versus case temperature

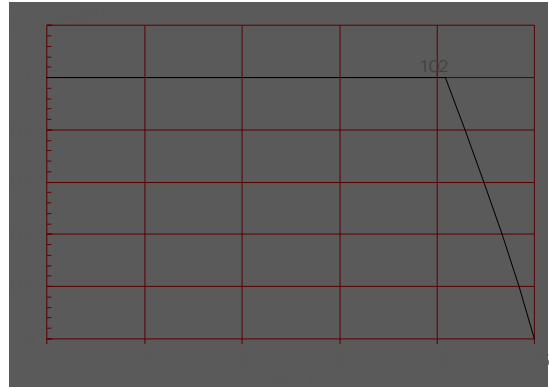


FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

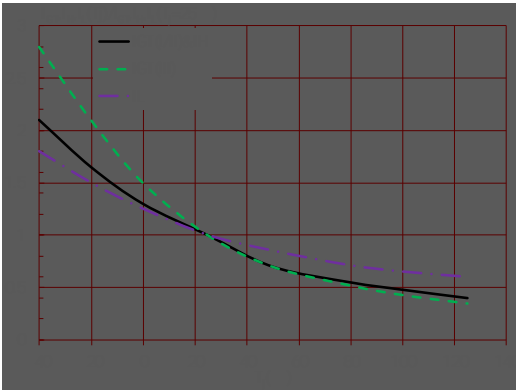
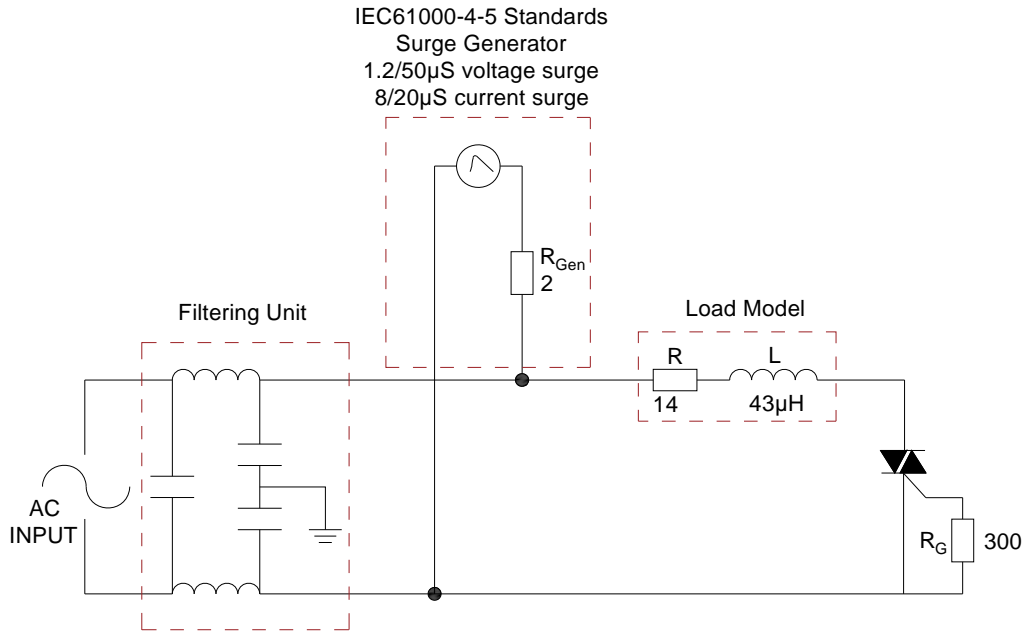


FIG.8 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



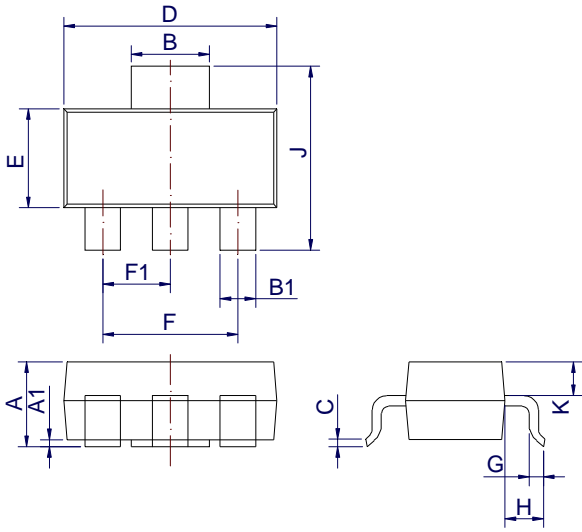
**ORDERING INFORMATION**

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		- -			
JST04V-600SW	600	10	SOT-223	4,000	Tape & Reel

Document Revision History

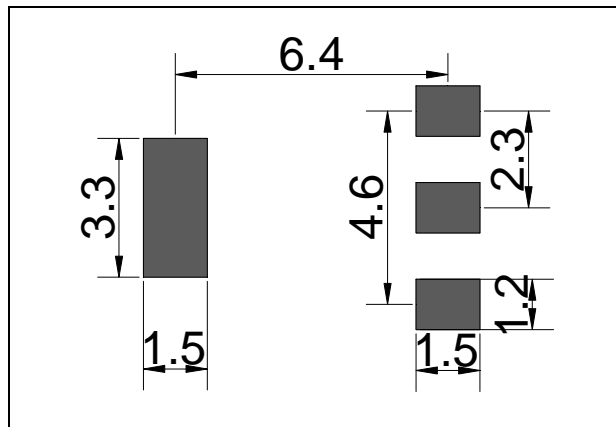
Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated
Jul.05, 2024	A.1.1	Renew dl/dt

PACKAGE MECHANICAL DATA

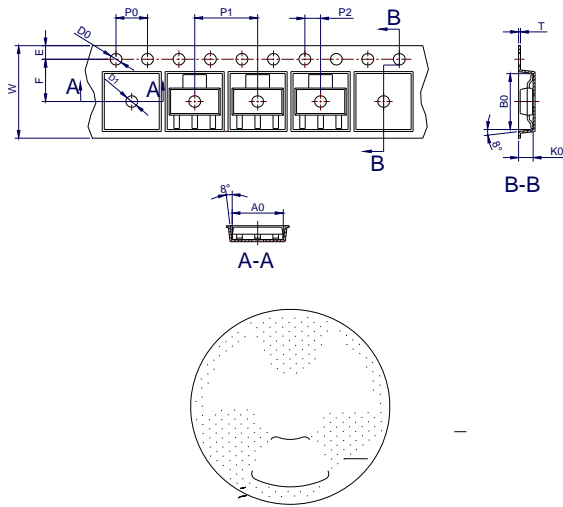


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F	4.4		4.8	0.173		0.189
F1	2.2		2.4	0.087		0.094
G	0.5		1.0	0.020		0.039
H	1.5	1.75	2.0	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K	0.8	0.9	1.0	0.031	0.035	0.039

FOOTPRINT SOT 223 (dimensions in mm)



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	1.50	1.55	1.60	0.059	0.061	0.063
D1	1.50	-	-	0.059	-	-
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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