

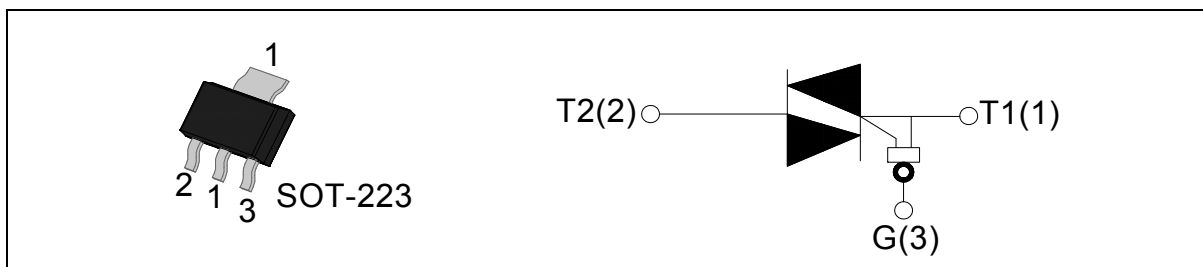


DESCRIPTION:

Available in surface-mount package, the JPTT01V-800SW can be used as an AC static ON/OFF function in domestic and industrial control systems, or as a driver of low power and high inductance loads, such as solenoid valves, pumps, fans, micro-motors. JPTT01V-800SW carries a planar chip which is Pb-free. Package SOT-223 is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	800	V
I_{GT}	10	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	°C
Operating junction temperature range	T_j	-40-150	°C
Repetitive peak off-state voltage($T_j=25^{\circ}C$)	V_{DRM}	800	V
Repetitive peak reverse voltage($T_j=25^{\circ}C$)	V_{RRM}	800	V
RMS on-state current	SOT-223 ($T_C=100^{\circ}C$) $I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current ($t_p=20ms$)	I_{TSM}	13	A
I^2t value for fusing ($t_p=20ms$)	I^2t	1.125	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}	1	A
Average gate power dissipation	$P_{G(AV)}$	0.1	W
Peak pulse voltage ($T_j=25^{\circ}C$; non-repetitive, off-state; FIG.7)	V_{PP}	2.5	kV

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

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	II-III	MAX	10	mA
V_{GT}		II-III	MAX	1.0	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^\circ\text{C}$ $R_L=3.3\text{K}\Omega$	II-III	MIN	0.15	V
I_L	$I_G=1.2I_{GT}$	II	MAX	30	mA
		III		20	
I_H	$I_T=100\text{mA}$		MAX	20	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^\circ\text{C}$		MIN	500	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=1.1\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.3	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	2	μA
I_{RRM}		$T_j=150^\circ\text{C}$	0.5	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	SOT-223	32	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient		60	

MARKING

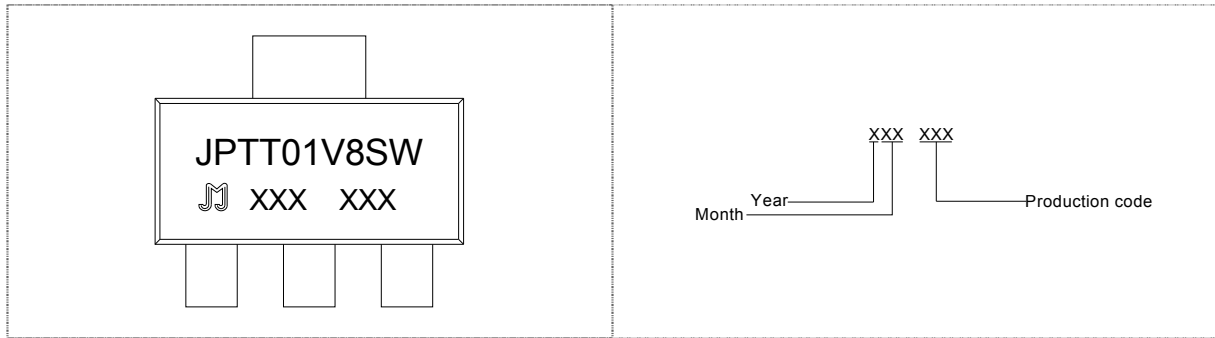


FIG.1 Maximum power dissipation versus RMS on-state current

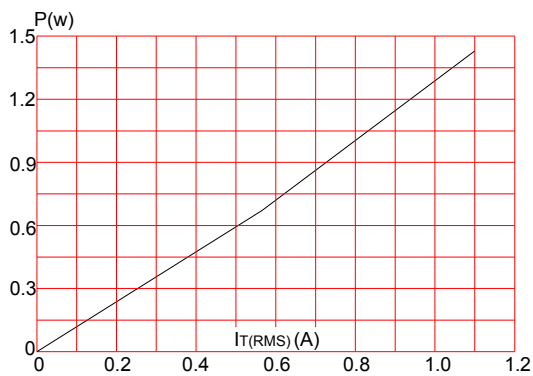


FIG.2: RMS on-state current versus case temperature

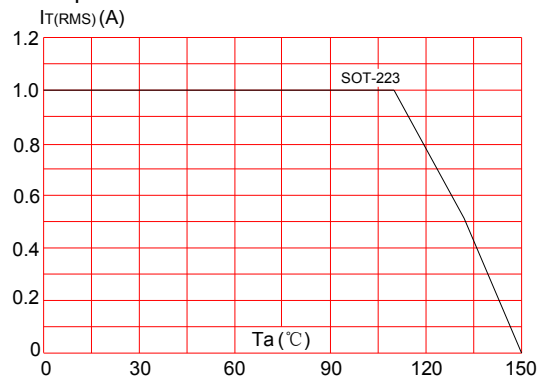


FIG.3: Surge peak on-state current versus number of cycles

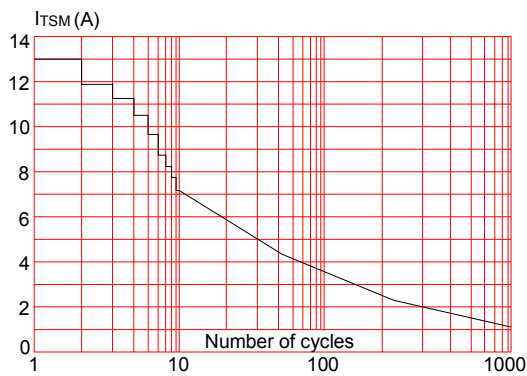


FIG.4: On-state characteristics (maximum values)

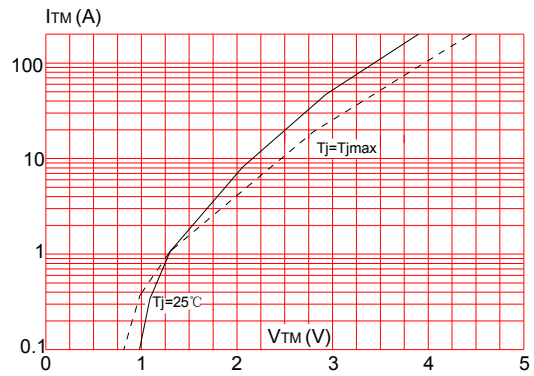


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of i_t ($di/dt < 100\text{A}/\mu\text{s}$)

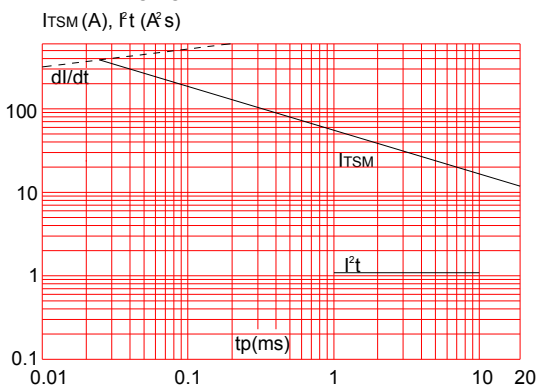


FIG.6: Relative variations of gate trigger current versus junction temperature

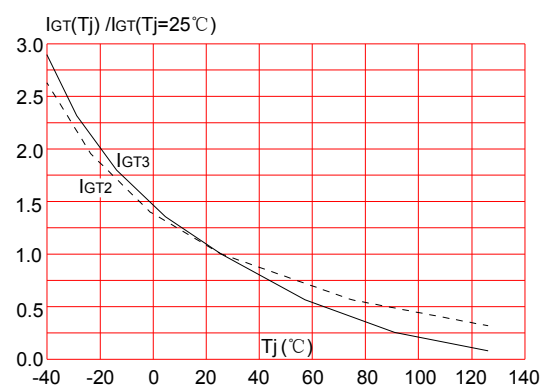
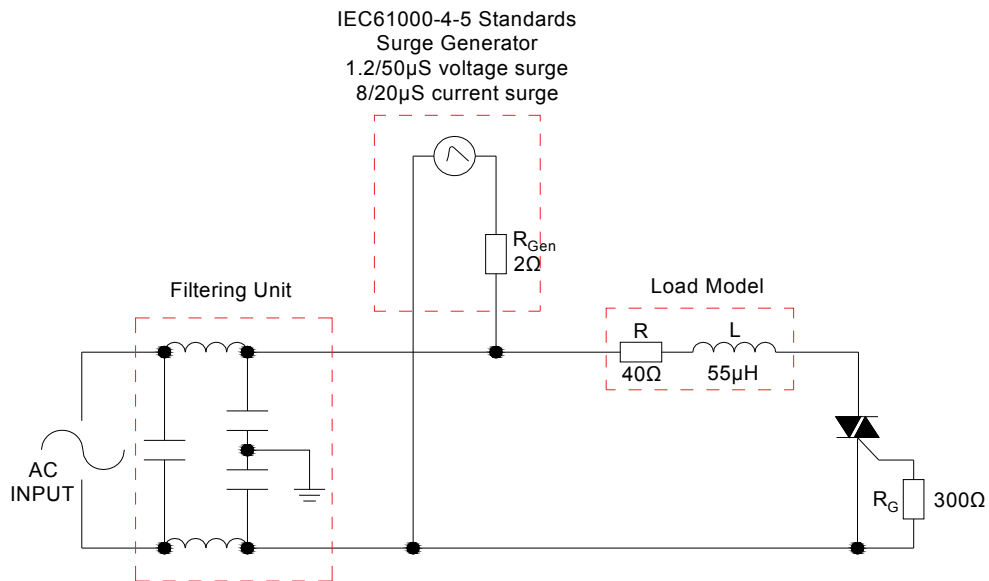
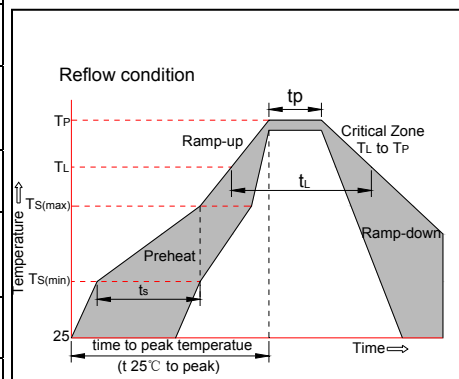


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



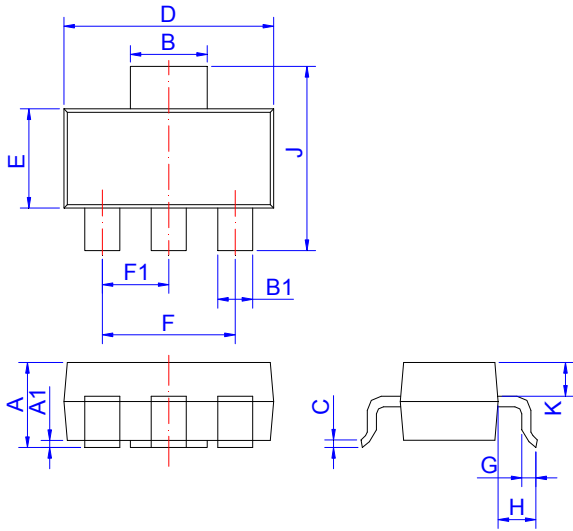
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JPTT01V-800SW	800	10	SOT-223	4,000	Tape & Reel

Document Revision History

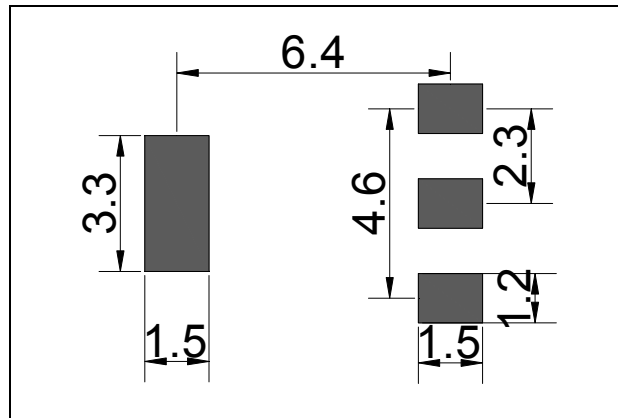
Date	Revision	Changes
Feb. 4, 2021	1	Last update
Sep. 23, 2021	2	To optimize parameter

PACKAGE MECHANICAL DATA

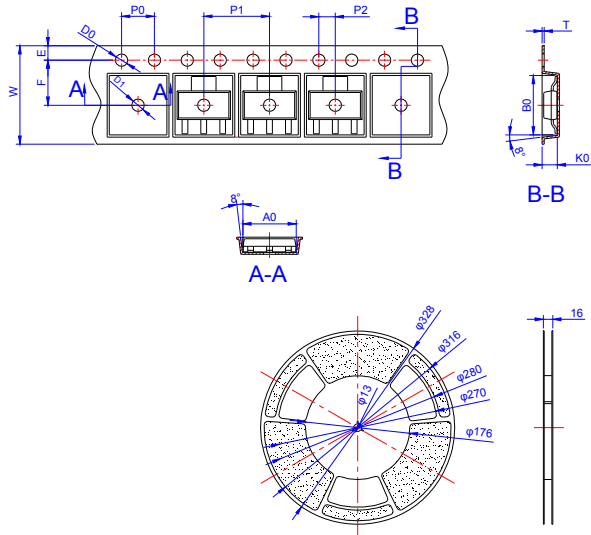


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
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	-	12.00	12.20	-	0.472	0.480
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	1.60	-	0.059	0.063
D1	-	1.55	1.80	-	0.061	0.071
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	6.73	6.83	6.93	0.265	0.269	0.273
B0	7.30	7.40	7.50	0.287	0.291	0.295
K0	1.78	1.88	1.98	0.070	0.074	0.078
T	0.25	0.30	0.35	0.010	0.012	0.014

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
SOT-223	TAPING	4,000	40,000	13 inch



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