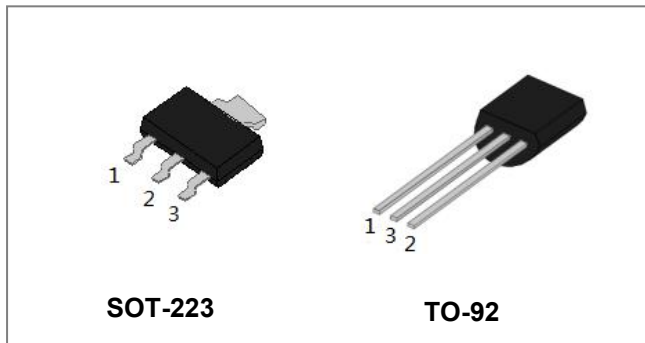
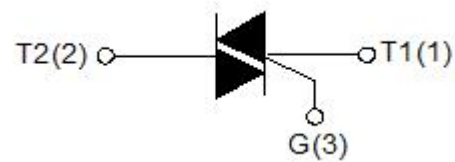


SST131 Series 1A TRIACs



Circuit Diagram



Description

With low holding and latching current, SST131 series triacs are especially recommended for use on middle and small resistance type power load.

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	T_{stg}	-	-40 - 150	°C
Operating junction temperature range	T_j	-	-40 - 125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	-	600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	-	600	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	$I_{(TRMS)}$	TO-92($T_c=50^\circ\text{C}$) SOT-223($T_c=70^\circ\text{C}$)	1	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)	I_{TSM}	-	16	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	-	1.28	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	-	20	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	-	2	A
Average gate power dissipation	P_{GM}	-	0.5	W
Peak gate power	$P_{G(AV)}$	-	5	W

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

Symbol	Test Condition	Quadrant	Value		Unit
			T	D	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II - III	5	5	mA
		IV	5	10	
V_{GT}		ALL	1.3		V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C } R_L=3.3\text{K}\Omega$	ALL	0.2		V
I_L	$I_G=1.2I_{GT}$	I - III	5	5	mA
		II - IV	10	20	
I_H	$I_T=200\text{mA}$	MAX	5	7	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$	MIN	15	50	V/ μs

Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	$I_T=1.4\text{A } t_p=380\mu\text{s}, T_j=25^\circ\text{C}$	1.5	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}, T_j=25^\circ\text{C}$	5	μA
I_{RRM}	$V_D=V_{DRM} V_R=V_{RRM}, T_j=125^\circ\text{C}$	500	μA

Thermal Resistances

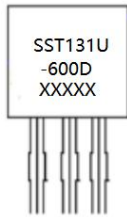
Symbol	Condition	Value	Units
$R_{th(j-c)}$	Junction to case(AC)	TO-92	60
		SOT-223	31

Ordering Information

S ST 131 U -600 D	
SMC Diode Solutions	D: $I_{GT1-3} \leq 5\text{mA } I_{GT4} \leq 10\text{mA}$
Triacs	
$I_{T(RMS)}: 1\text{A}$	
U: TO-92	600: $V_{DRM}/V_{RRM} \geq 600\text{V}$
V: SOT-223	

Device	Package	Shipping
SST131U-600D	TO-92	2000pcs/ reel
SST131U-600DTR	TO-92	2000pcs/ reel
SST131V-600D	SOT-223	8000pcs/ reel
SST131V-600DTR	SOT-223	8000pcs/ reel

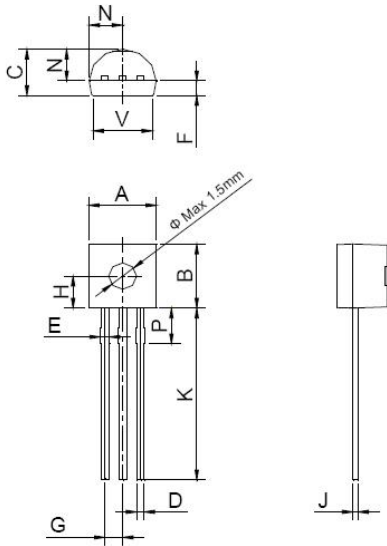
Marking Diagram



Where XXXXX is YYWWL

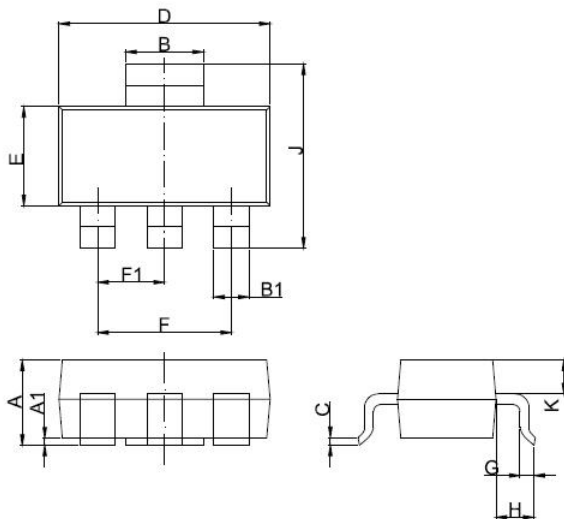
SST131U/V-600D = Part name
YY = Year
WW = Week
L = Lot Number

Mechanical Dimensions TO-92



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45	-	5.20	0.175	-	0.205
B	4.32	-	5.33	0.170	-	0.210
C	3.18	-	4.19	0.125	-	0.165
D	0.407	-	0.533	0.016	-	0.021
E	0.60	-	0.80	0.024	-	0.031
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.050	-
H	-	2.30	-	-	0.091	-
J	0.36	-	0.50	0.014	-	0.020
K	12.70	-	15.0	0.500	-	0.591
N	2.04	-	2.66	0.080	-	0.105
P	1.86	-	2.06	0.073	-	0.081
V	-	-	4.3	-	-	0.169

Mechanical Dimensions SOT-223



SYMBOL	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	1.50	1.5	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

Ratings and Characteristics Curves

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

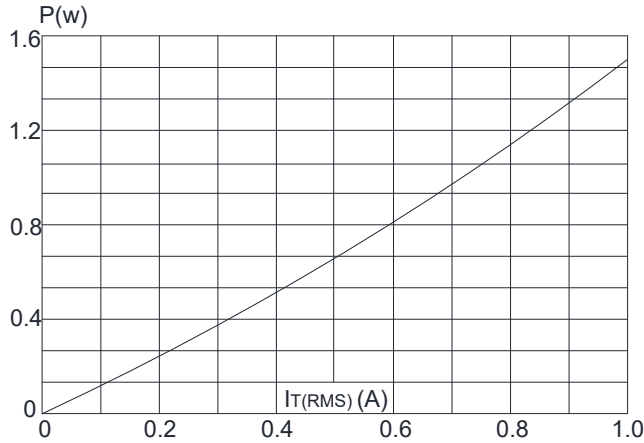


FIG.2: RMS on-state current versus case temperature

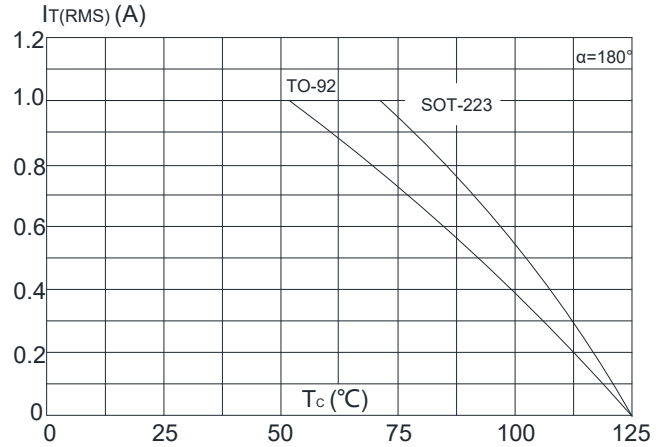


FIG.3: Surge peak on-state current versus number of cycles

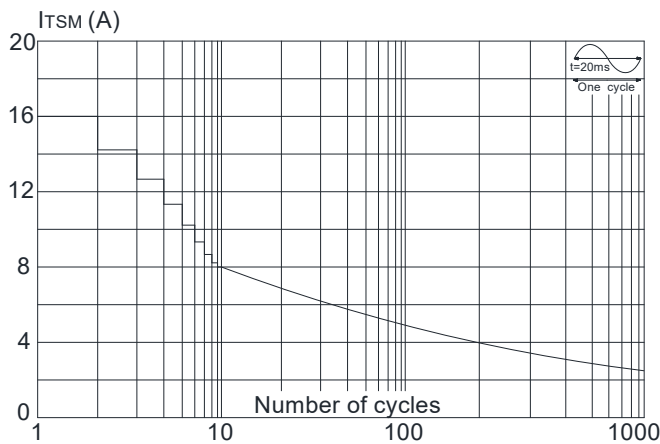


FIG.4: On-state characteristics (maximum values)

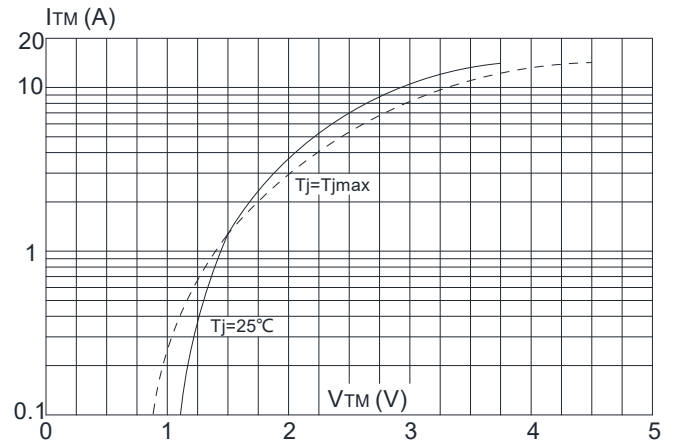


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($di/dt < 20\text{A}/\mu\text{s}$)

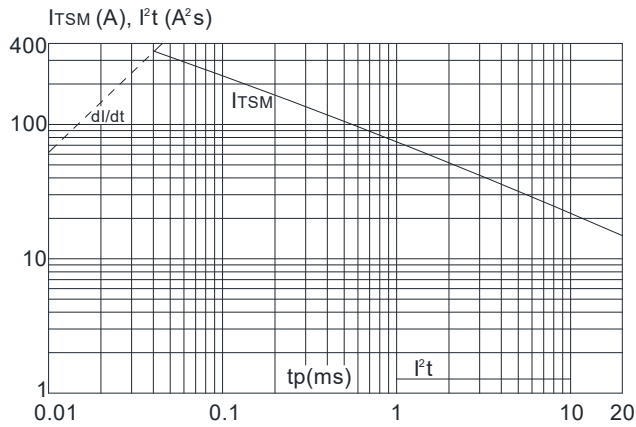
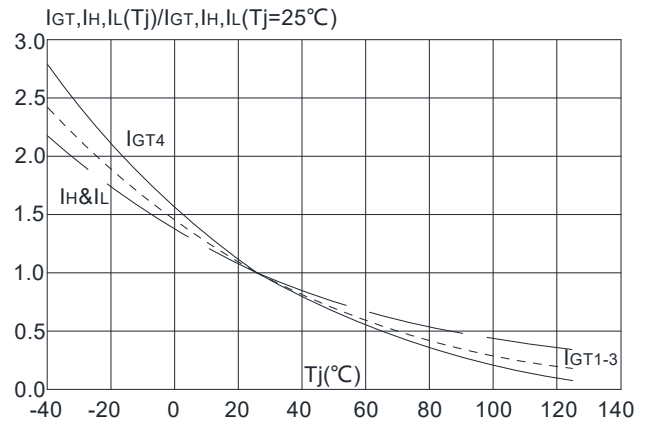


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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