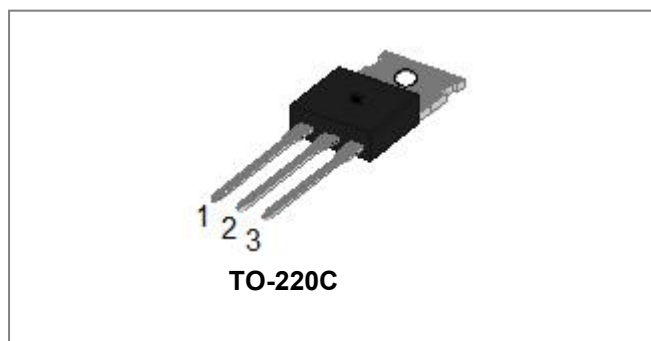
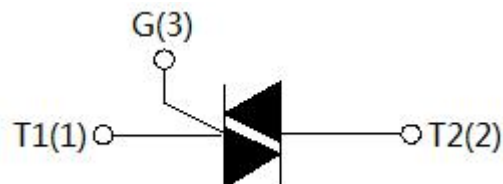


SST138 Series 12A TRIACs



Circuit Diagram



Description

SST138 series triacs with low holding and latching current 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}	-	600/800	V
Repetitive peak reverse voltage($T_j=25^{\circ}\text{C}$)	V_{RRM}	-	600/800	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-220C($T_c=110^{\circ}\text{C}$)	12	A
Non repetitive surge peak on-state current ($t_p=20\text{ms}$)	I_{TSM}	-	95	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	-	45	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	I - II - III	50	$\text{A}/\mu\text{s}$
		IV	10	
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°C unless otherwise specified)

Symbol	Test Condition	Quadrant		Value	Unit
I _{GT}	V _D =12V R _L =33Ω	I - II - III	MAX	10	mA
		IV		25	
V _{GT}		ALL	MAX	1.5	V
V _{GD}	V _D =V _{DRM} T _j =125°C R _L =3.3KΩ	ALL	MIN	0.2	V
I _L	I _G =1.2I _{GT}	I - III	MAX	30	mA
		II - IV		40	
I _H	I _T =100mA		MAX	25	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C		MIN	50	V/μs

Static Characteristics

Symbol	Condition	Max.	Units
V _{TM}	I _{TM} =15A tp=380μs, T _j =25°C	1.6	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =25°C	5	μA
I _{RRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =125°C	1	mA

Thermal Resistances

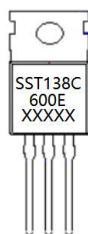
Symbol	Condition	Value	Units
R _{th(j-c)}	Junction to case(AC) TO-220AC	1.4	°C/W

Ordering Information

SMC Diode Solutions	S	ST	138	C	-600	E	
Triacs							E: I _{GT1-3} ≤ 10mA I _{GT4} ≤ 25mA
I _{T(RMS)} :12A							600: V _{DRM} /V _{RRM} ≥ 600V
C:TO-220C							800: V _{DRM} /V _{RRM} ≥ 800V

Device	Package	Shipping
SST138C-600E SST138C-800E	TO-220C	50pcs/ Tube

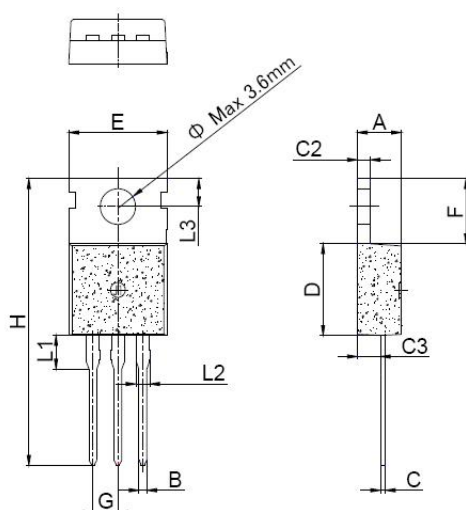
Marking Diagram



Where XXXXX is YYWWL

SST138C-600E = Part name
YY = Year
WW = Week
L = Lot Number

Mechanical Dimensions TO-220C



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.39		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
φ		3.6			0.142	

Ratings and Characteristics Curves

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

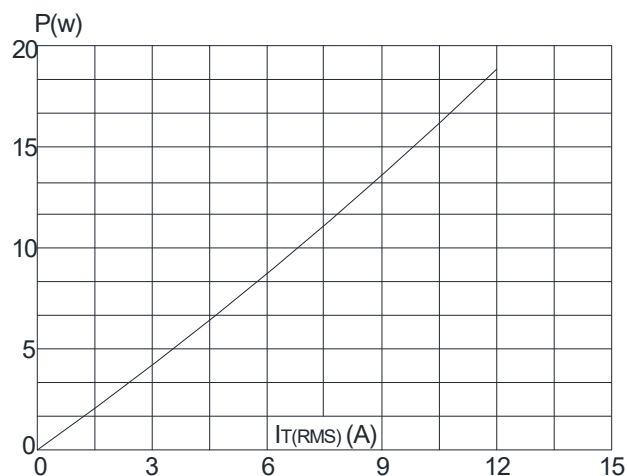


FIG.2: RMS on-state current versus case temperature

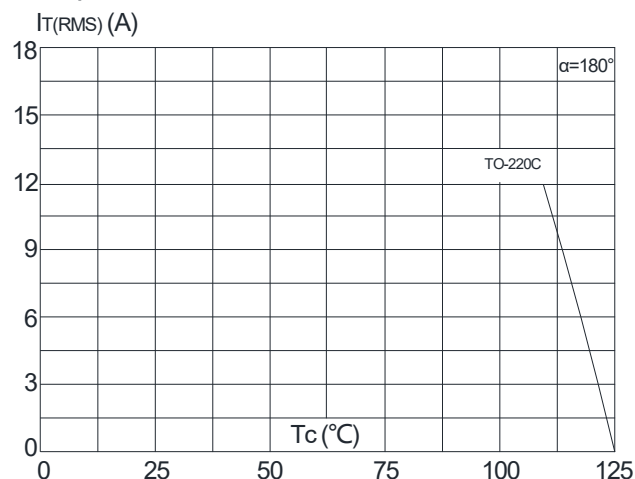


FIG.3: Surge peak on-state current versus number of cycles

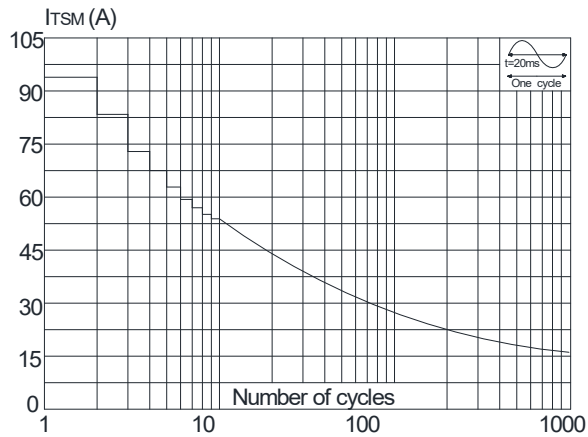


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II - III: $di/dt < 50\text{A}/\mu\text{s}$; IV: $di/dt < 10\text{A}/\mu\text{s}$)

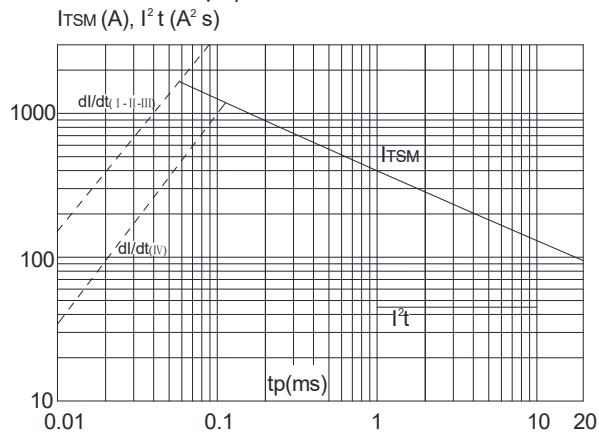


FIG.7: Relative variations of holding current versus junction temperature

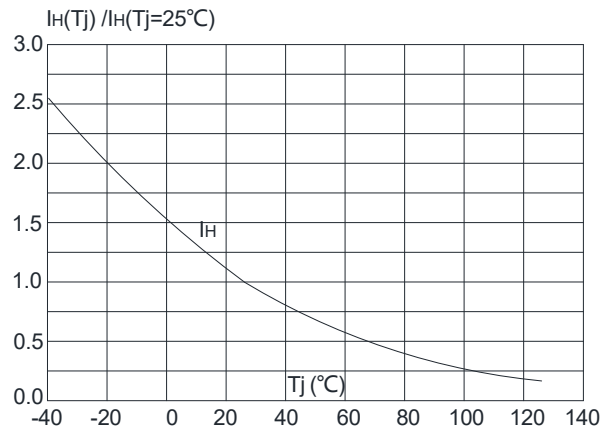


FIG.4: On-state characteristics (maximum values)

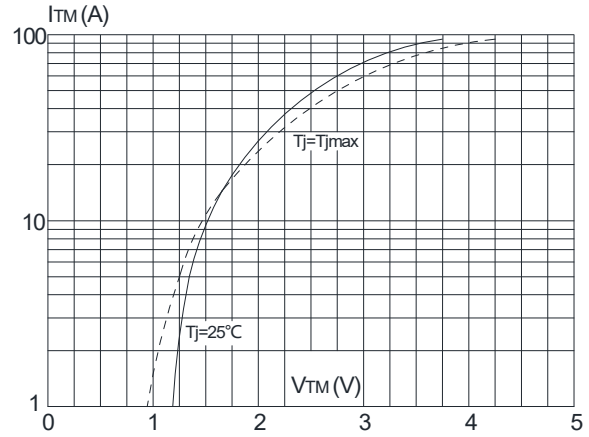


FIG.6: Relative variations of gate trigger current versus junction temperature

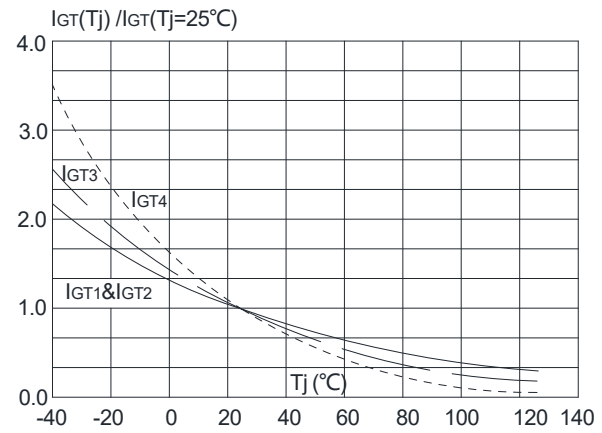
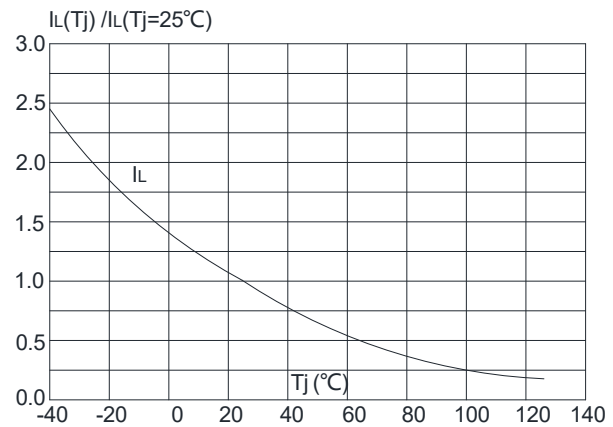


FIG.8: Relative variations of latching current versus junction temperature



Technical Data
Data Sheet N2169, Rev.-



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