

12A Standard SCRs

Product Summary

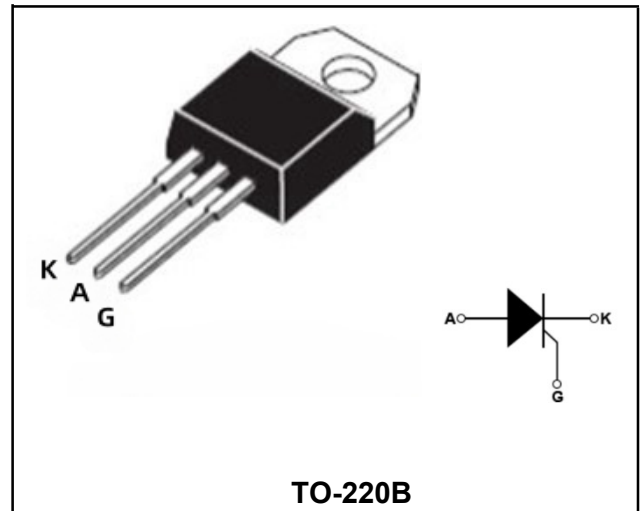
Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM} V_{RRM}$	600/800/1000	V
V_{TM}	1.6	V

Features

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

Application

Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	600/800/1000	V
Repetitive peak reverse voltage	V_{RRM}	600/800/1000	V
RMS on-state current	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	120	A
I^2t value for fusing (tp=10ms)	I^2t	72	A ² s
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	di_T/dt	50	A/ μ s
Peak gate current	I_{GM}	2	A
Average gate power dissipation	$P_G (AV)$	0.5	W
Junction Temperature	T_J	-40~+125	°C
Storage Temperature	T_{STG}	-40 ~+150	°C

Electrical characteristics (TA=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Value			Unit
			Min	typ	Max	
Gate trigger current	I_{GT}	$V_D=12V, I_T=0.1A, T_j=25^\circ C, \text{Fig. 6}$	-	-	15	mA
Gate trigger voltage	V_{GT}	$V_D=12V, I_T=0.1A, T_j=25^\circ C$	-	-	1.0	V
Gate non-trigger voltage	V_{GD}	$V_D = V_{DRM} T_j=125^\circ C$	0.2	-	-	V
Holding current	I_H	$V_D=12V, I_{GT}=0.1A, T_j=25^\circ C,$	-	-	30	mA
latching current	I_L	$V_D=12V, I_{GT}=0.1A, T_j=25^\circ C,$	-	-	40	mA
Critical-rate of rise of commutation voltage	dV_D/dt	$V_D=67\%V_{DRM}$ Gate Open $T_j=125^\circ C$	200	-	-	V/μs

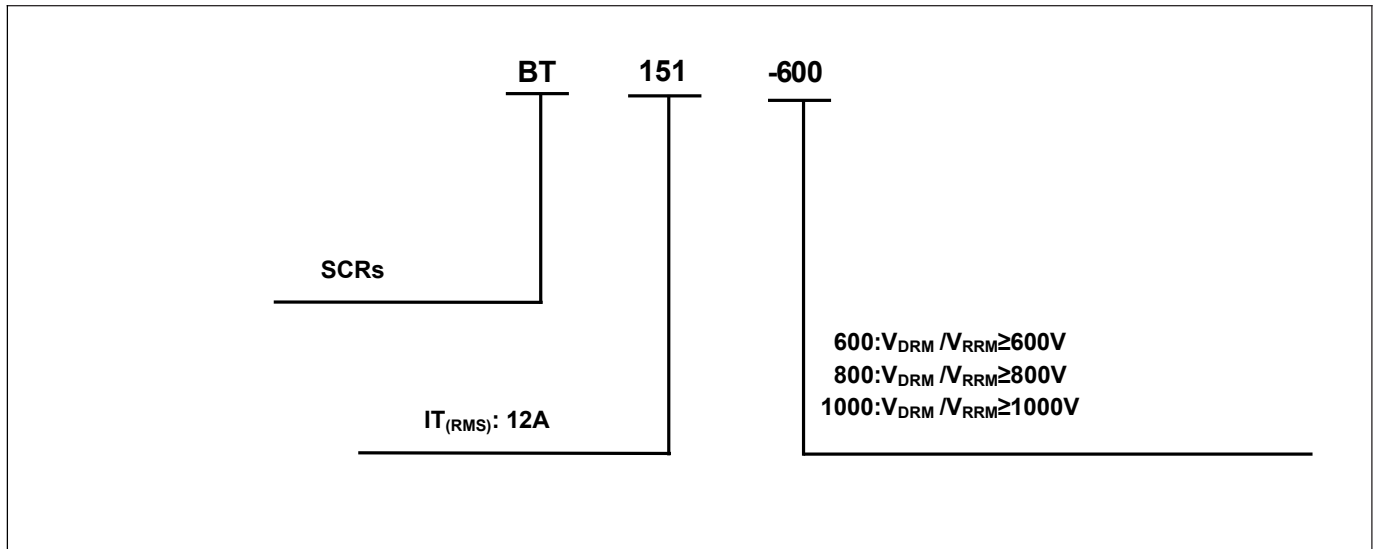
STATIC CHARACTERISTICS

Forward "on" voltage	V_{TM}	$I_T = 23A t_p=380\mu s, T_j=25^\circ C$	-	-	1.6	V	
Repetitive Peak Off-State Current	I_{DRM}	$V_D=V_{DRM}/V_{RRM}$	$T_j=25^\circ C$	-	-	10	μA
Repetitive Peak Reverse Current	I_{RRM}		$T_j=125^\circ C$	-	-	1	mA

THERMAL RESISTANCES

Thermal resistance	$R_{th(j-c)}$	Junction to case	TYP.	1.3	$^\circ C/W$
	$R_{th(j-a)}$	Junction to ambient	TYP.	60	$^\circ C/W$

Ordering Information



Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

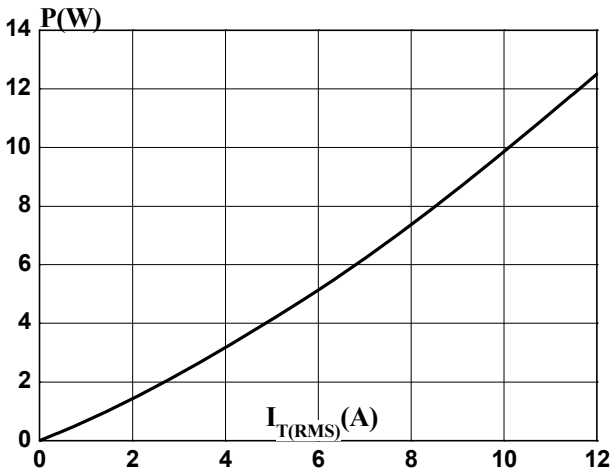


FIG.2: RMS on-state current versus case temperature (full cycle)

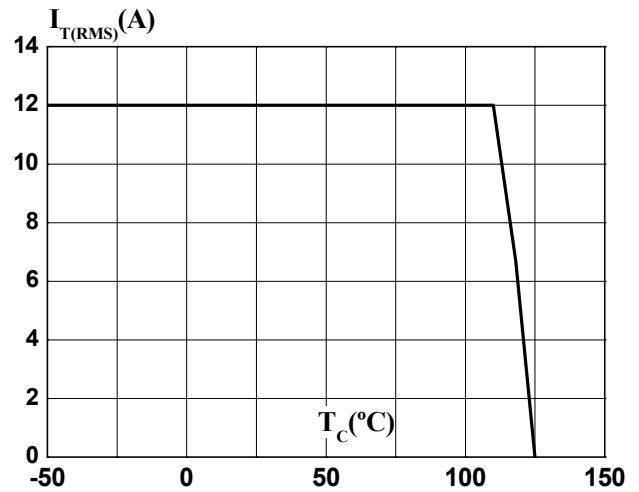


FIG.3: Surge peak on-state current versus number of cycles

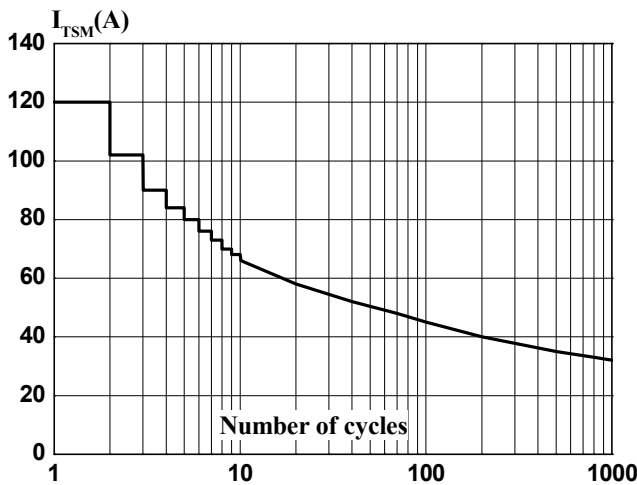


FIG.4: On-state characteristics (maximum values)

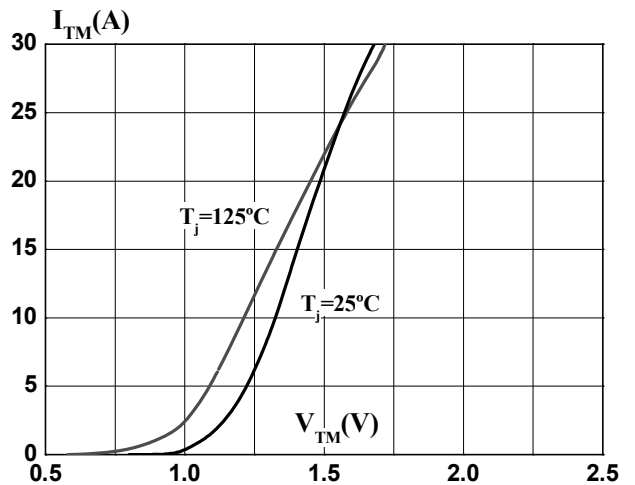


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

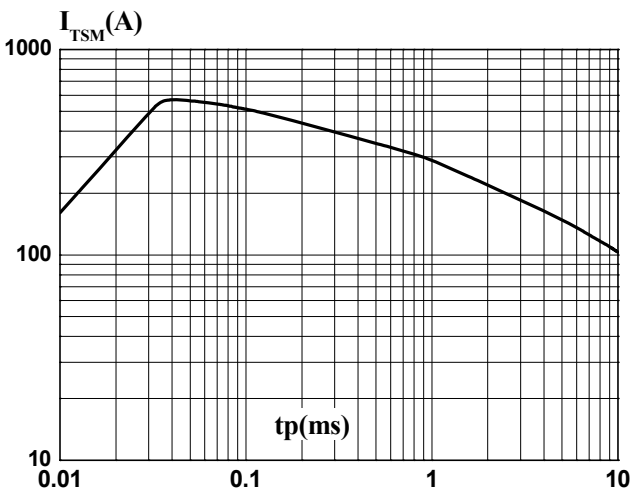
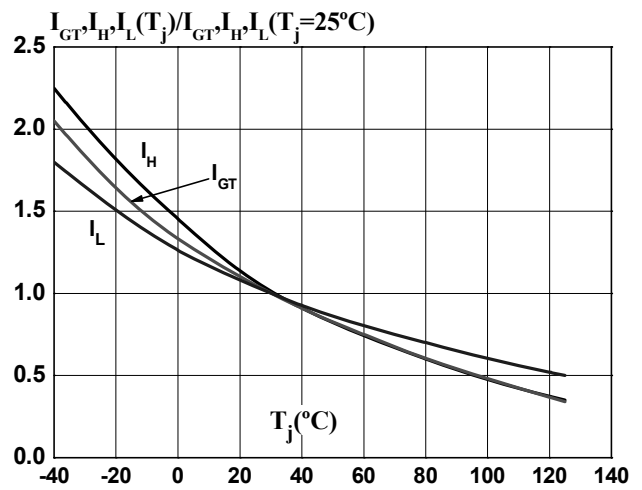
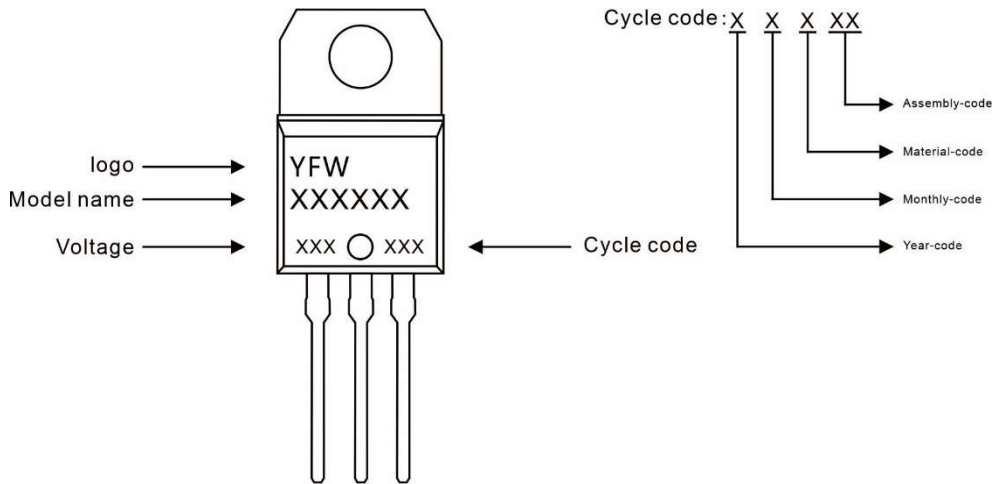


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BT151	TO-220B	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220B(Non Insulated)

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	9.80	10.40	0.386	0.409
B	2.65	3.10	0.104	0.122
C	14.80	16.10	0.583	0.634
D	0.70	0.92	0.028	0.036
D1	1.18	1.42	0.047	0.056
E	2.40	2.70	0.095	0.106
L	2.80	4.20	0.11	0.17
L1	13.05	13.60	0.514	0.535
H	5.85	6.82	0.23	0.27
K	2.35	2.75	0.093	0.108
T	4.38	4.61	0.172	0.181
T1	1.15	1.36	0.045	0.054
T2	0.35	0.65	0.014	0.026
ΦR	3.75	3.95	0.148	0.156

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