

12A Standard SCRs

Product Summary

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

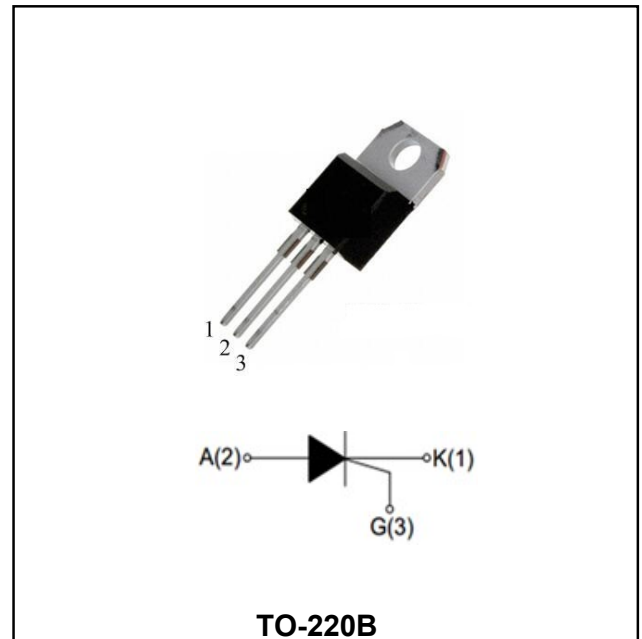
Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

Order Information

Part Number	Package	Marking	Delivery Quantity
BT151	TO-220B	BT151 800 XXXX	1000PCS/box

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

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	600/800	V
Repetitive peak reverse voltage	V_{RRM}	600/800	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°C, Fig. 6	-	-	15	mA
Gate trigger voltage	V_{GT}	V _D =12V, I _T =0.1A, T _j =25°C	-	-	1.0	V
Gate non-trigger voltage	V_{GD}	V _D =V _{DRM} T _j =125°C	0.2	-	-	V
Holding current	I_H	V _D =12V, I _{GT} =0.1A, T _j =25°C,	-		30	mA
latching current	I_L	V _D =12V, I _{GT} =0.1A, T _j =25°C,	-		40	mA
Critical-rate of rise of commutation voltage	dV_D/dt	V _D =67%V _{DRM} Gate Open T _j =125°C	200	-	-	V/μs

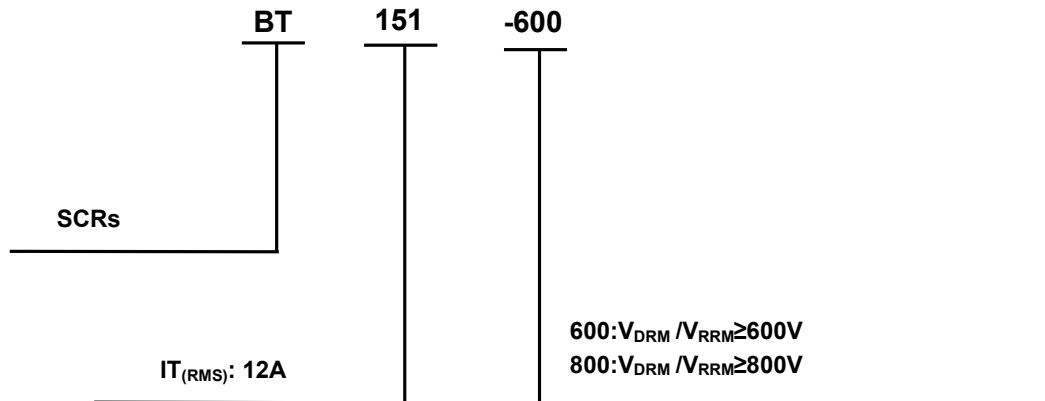
STATIC CHARACTERISTICS

Forward "on" voltage	V_{TM}	I _T =23A tp=380μs, T _j =25°C	-	-	1.6	V	
Repetitive Peak Off-State Current	I_{DRM}	V _D =V _{DRM} /V _{RRM}	T _j =25°C	-	-	10	μA
Repetitive Peak Reverse Current	I_{RRM}		T _j =125°C	-	-	1	mA

THERMAL RESISTANCES

Thermal resistance	Rth(j-c)	Junction to case	TYP.	1.3	°C/W
	Rth(j-a)	Junction to ambient	TYP.	60	°C/W

Ordering Information



Typical Characteristics

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

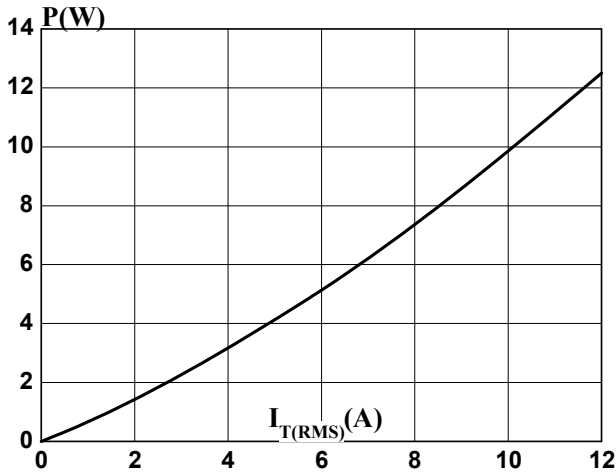


FIG.2: RMS on-state current versus case temperature (full cycle)

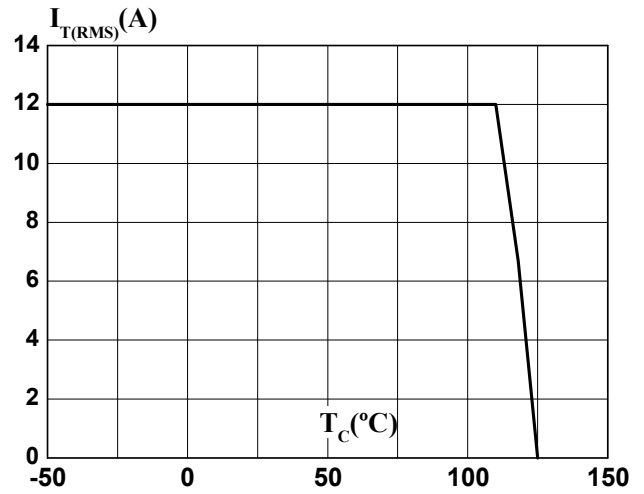


FIG.3: Surge peak on-state current versus number of cycles

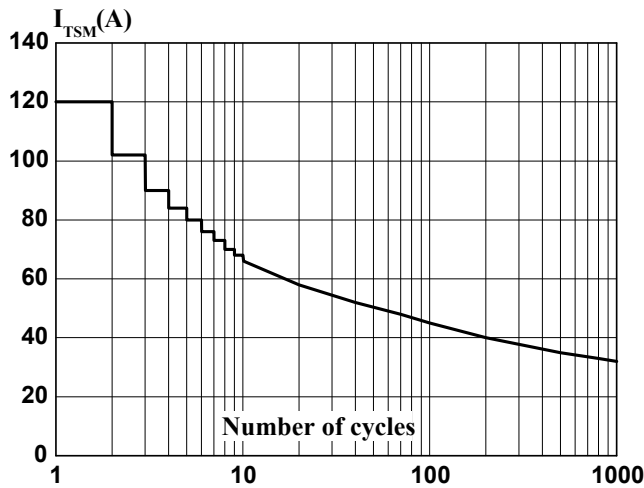


FIG.4: On-state characteristics (maximum values)

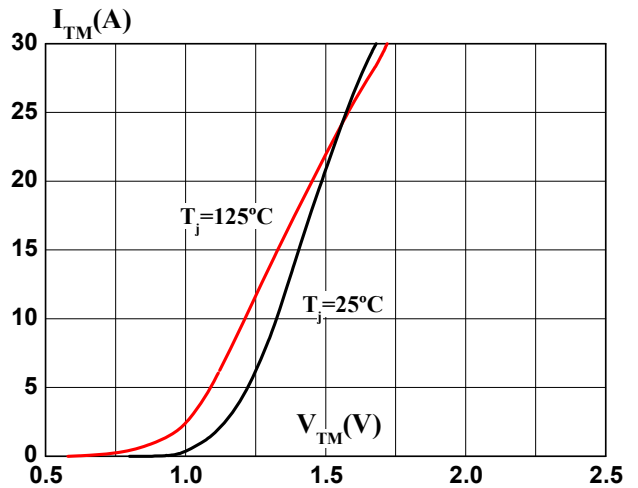


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

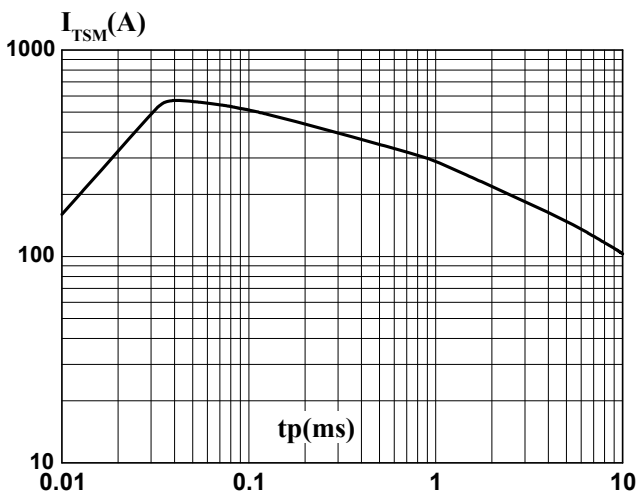
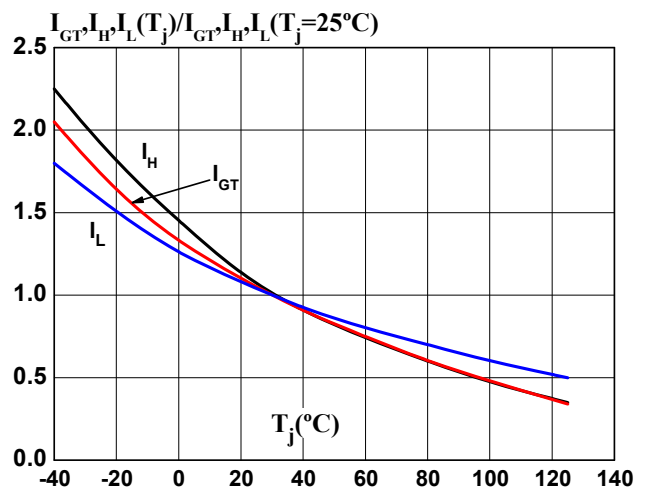
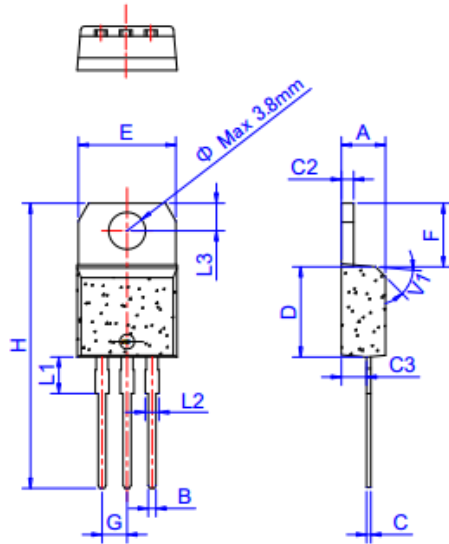


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



TO-220B



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	