

**12A Standard SCRs**

**Product Summary**

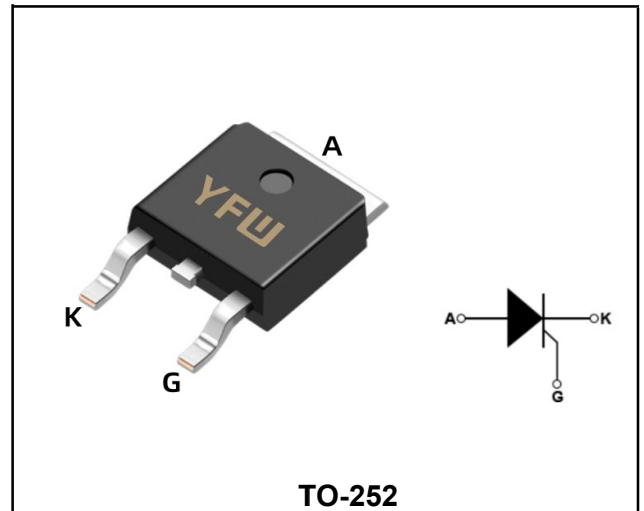
Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM} V_{RRM}$	600/800	V
$V_{TM}$	1.55	V

**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	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)	$I_{TSM}$	95	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	45	A <sup>2</sup> s
Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	$di_T/dt$	50	A/ $\mu$ s
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_G (AV)$	1	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	Max	
Gate trigger current	$I_{GT}$	$V_D = 12V R_L = 140\Omega$	-	10	<b>mA</b>
Gate trigger voltage	$V_{GT}$		-	1.3	<b>V</b>
Gate non-trigger voltage	$V_{GD}$	$V_D = V_{DRM} T_j = 125^\circ C$	0.2	-	<b>V</b>
latching current	$I_L$	$I_G = 1.2I_{GT}$	-	50	<b>mA</b>
Holding current	$I_H$	$I_T = 50mA$	-	40	<b>mA</b>
Critical-rate of rise of commutation voltage	$dV_D/dt$	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ C$	200	-	<b>V/<math>\mu s</math></b>

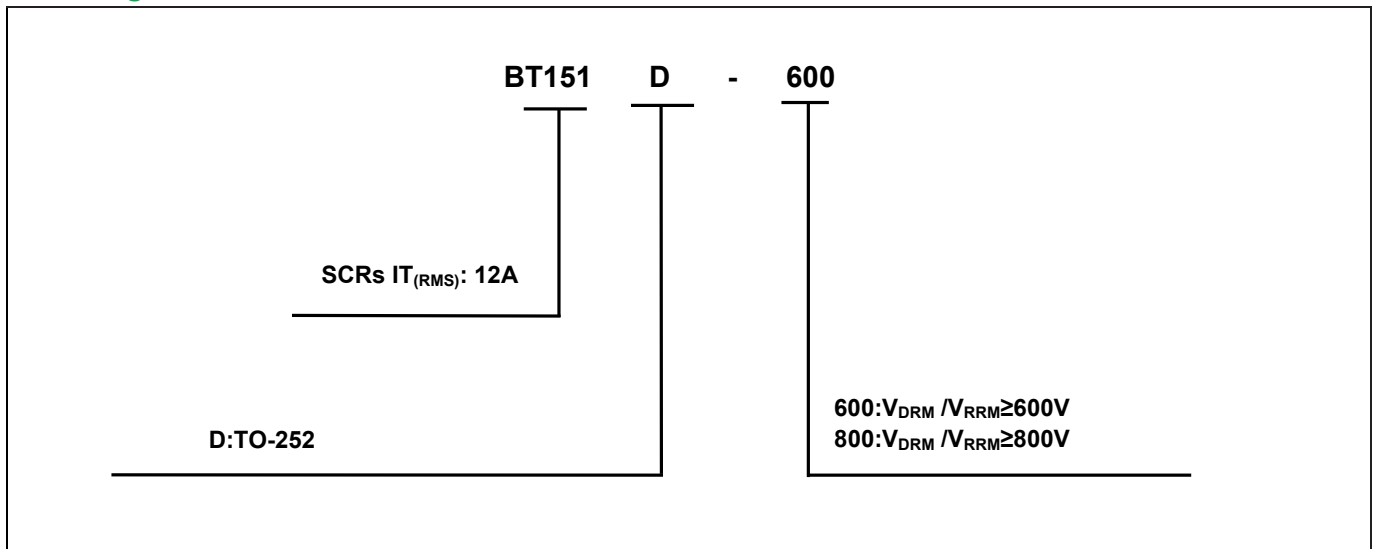
**STATIC CHARACTERISTICS**

Forward "on" voltage	$V_{TM}$	$I_{TM} = 16A$ $t_p = 380\mu s$	-	1.55	<b>V</b>	
Repetitive Peak Off-State Current	$I_{DRM}$	$V_D = V_{DRM} V_R = V_{RRM}$	$T_j = 25^\circ C$	-	5	<b><math>\mu A</math></b>
Repetitive Peak Reverse Current	$I_{RRM}$		$T_j = 125^\circ C$	-	2	<b>mA</b>

**THERMAL RESISTANCES**

Thermal resistance	$R_{th(j-c)}$	Junction to case	TYP.	1.3	<b><math>^\circ C/W</math></b>
	$R_{th(j-a)}$	Junction to ambient	TYP.	70	<b><math>^\circ C/W</math></b>

**Ordering Information**



Typical Characteristics

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

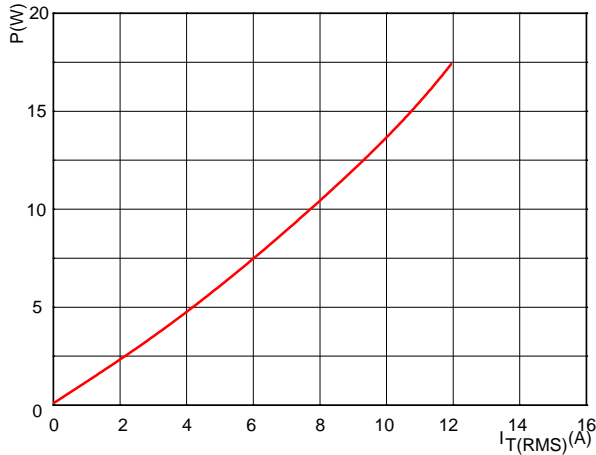


FIG.2: RMS on-state current versus case temperature (full cycle)

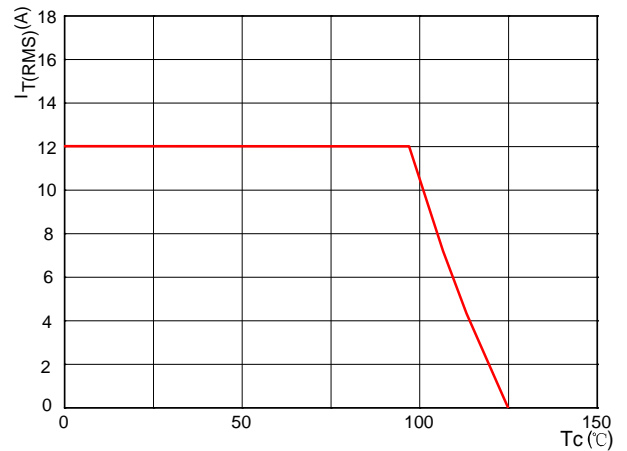


FIG.3: Surge peak on-state current versus number of cycles

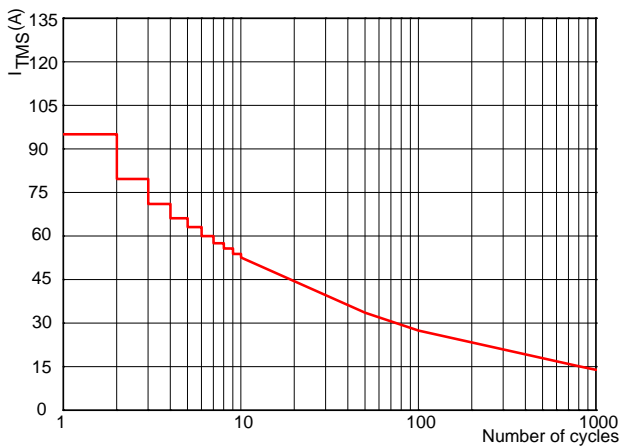


FIG.4: On-state characteristics (maximum values)

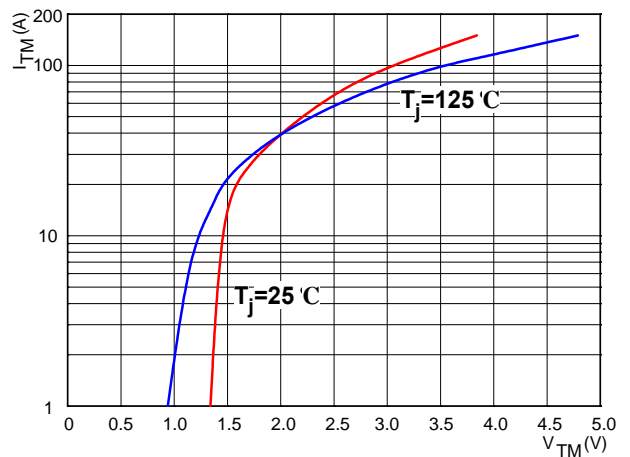


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

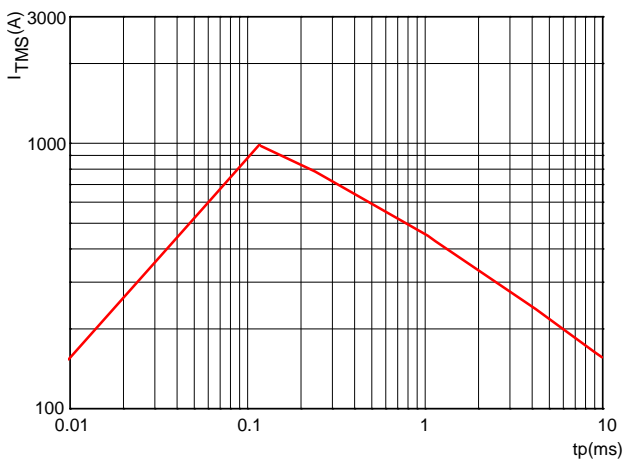
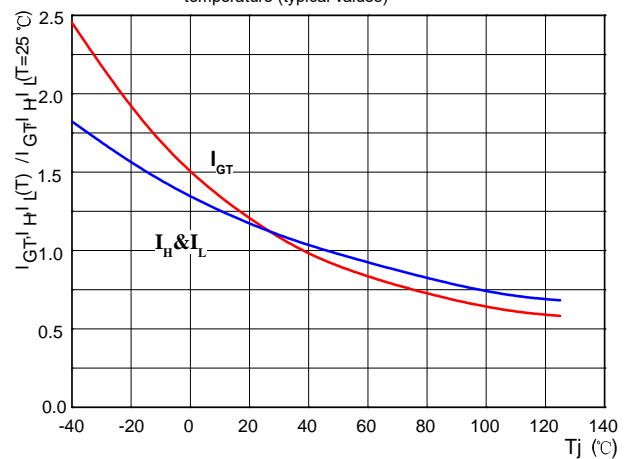
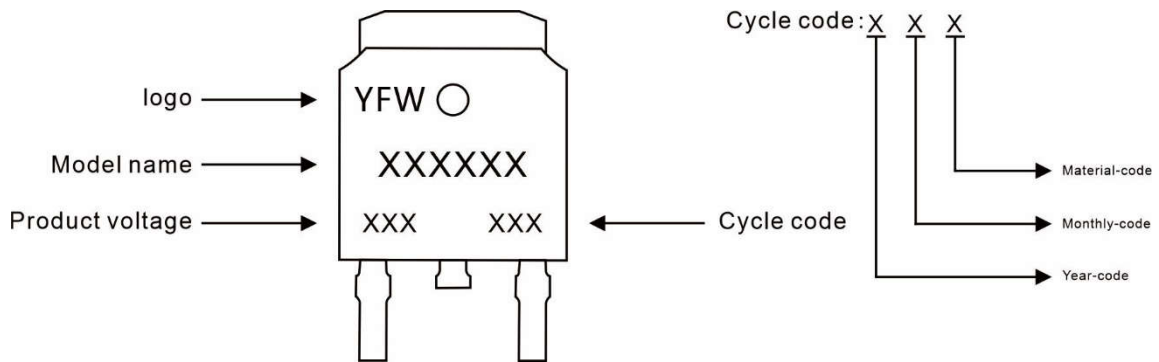


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Typical Characteristics

**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BT151D	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

**Package Dimensions**

**TO-252**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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