

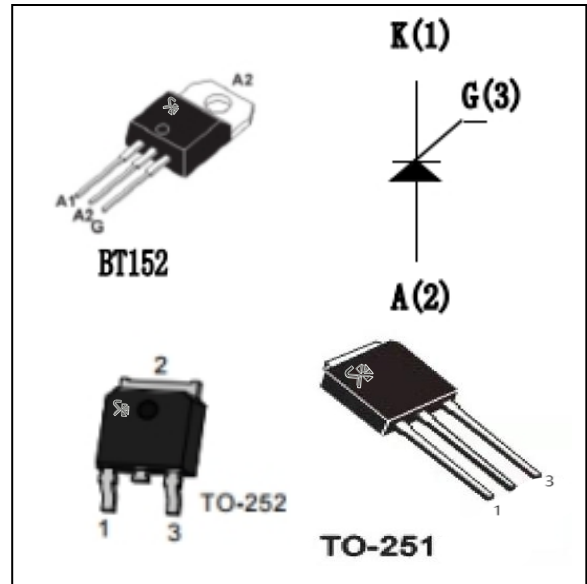
## Silicon Controlled Rectifier

### Features

- PNP four-layer silicon unidirectional device;
- With independent intellectual property rights of single-side grooving technology, table glass passivation process;
- Multilayer metallized electrode on the back;
- High blocking voltage and high temperature stability

### Application

- Solid state relay;
- Phase-controlled circuit;
- Adjustable heating controller;
- Speed control controller;



### MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified

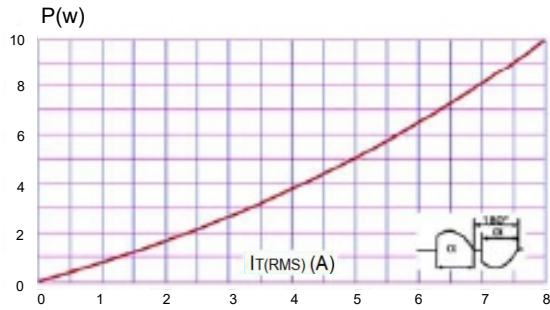
PARAMETER	SYMBOL	Conditions	Limits	Units
RMS On-state Current	$I_{T(RMS)}$	$T_c=90^\circ\text{C}$	12	A
Non repetitive surge peak on-state current	$I_{TSM}$	$F=50\text{HZ}$ $t=20\text{ms}$	120	A
$I^2t$ value for fusing	$I^2t$	$t_p=10\text{ms}$	144	$\text{A}^2\text{S}$
Critical rate of rise of on-state current	$di/dt$	$T_j=125^\circ\text{C}$	50	A/us
Peak gate current	$I_{GM}$	$t_p=20\mu\text{s}$ $T_j=125^\circ\text{C}$	4	A
Repetitive peak off-state voltage	$V_{DRM}$	$T_j=25^\circ\text{C}$	800	V
Repetitive peak reverse voltage		$T_j=25^\circ\text{C}$	800	V
Average gate power dissipation	$P_{G(AV)}$	$T_j=125^\circ\text{C}$	1	W
Operating junction temperature range	$T_j$		-40~125	$^\circ\text{C}$
Storage junction temperature range	$T_{stg}$		-40~150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^{\circ}\text{C}$  unless otherwise specified)

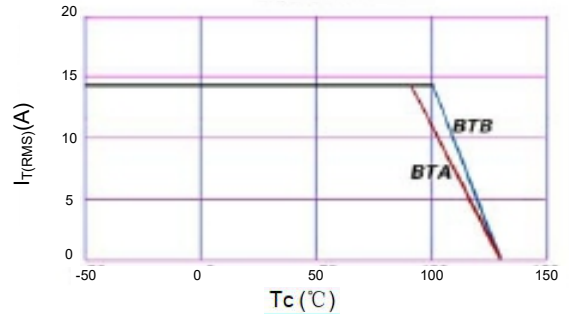
Parameter	Test Condition	MIN	TYPE	MAX	Unit
$I_{GT}$	$V_D=12\text{V}, R_L=100\Omega$	-	-	15	mA
$V_{GT}$		-	-	1.5	V
$V_{GD}$	$V_D=V_{DRM} T_j=110^{\circ}\text{C}$	0.2	-	-	V
$I_H$	$I_T=0.5\text{A}$	-	-	30	mA
$I_L$	$I_G=1.2I_{GT}$	-	-	60	mA
dv/dt	$V_D=2/3 \times V_{DRM} T_j=125^{\circ}\text{C}$ Gate open	500	-	-	V/ $\mu\text{s}$

**STATIC CHARACTERISTICS**

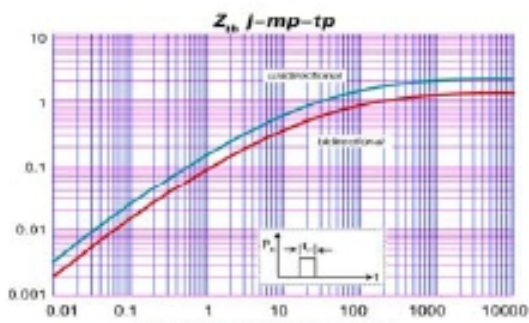
Symbol	Test Condition			Value	Unit
$V_{TM}$	Peak on-state voltage $I_{TM}=32\text{A}$	$T_j=25^{\circ}\text{C}$	MAX	1.5	V
$V_{T0}$	Threshold voltage	$T_j=125^{\circ}\text{C}$	MAX	0.86	m $\Omega$
$R_d$	Slope resistance	$T_j=125^{\circ}\text{C}$	MAX	36.6	m $\Omega$
$I_{DRM}$ $I_{RRM}$	$V_D=V_{DRM}=V_{RRM}$	$T_j=25^{\circ}\text{C}$	MAX	5	$\mu\text{A}$
		$T_j=125^{\circ}\text{C}$		1	mA
$R_{th(j-c)}$	junction to case(AC)	BTB		1.75	$^{\circ}\text{C}/\text{W}$



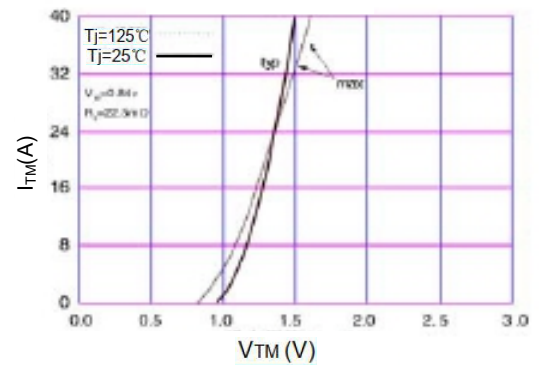
**FIG.1:** Maximum power dissipation versus RMS on-state current



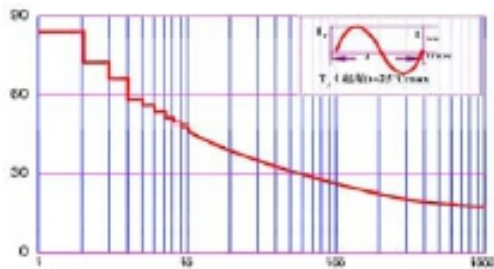
**FIG.2:** RMS on-state current versus case temperature



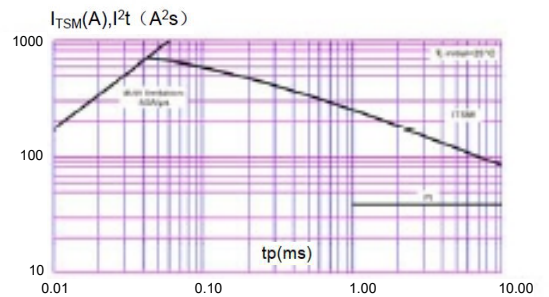
**FIG.3:** Transient thermal resistance diagram



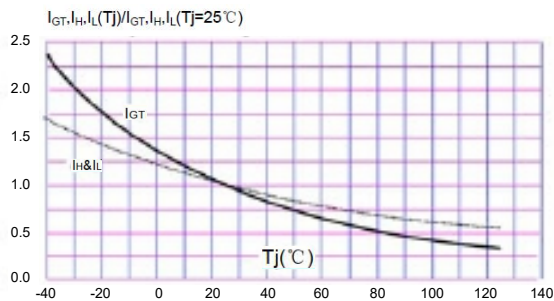
**FIG.4:** On-state characteristics (maximum values)



**FIG.5:** Surge peak on-state current versus number of cycles



**FIG.6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$ .

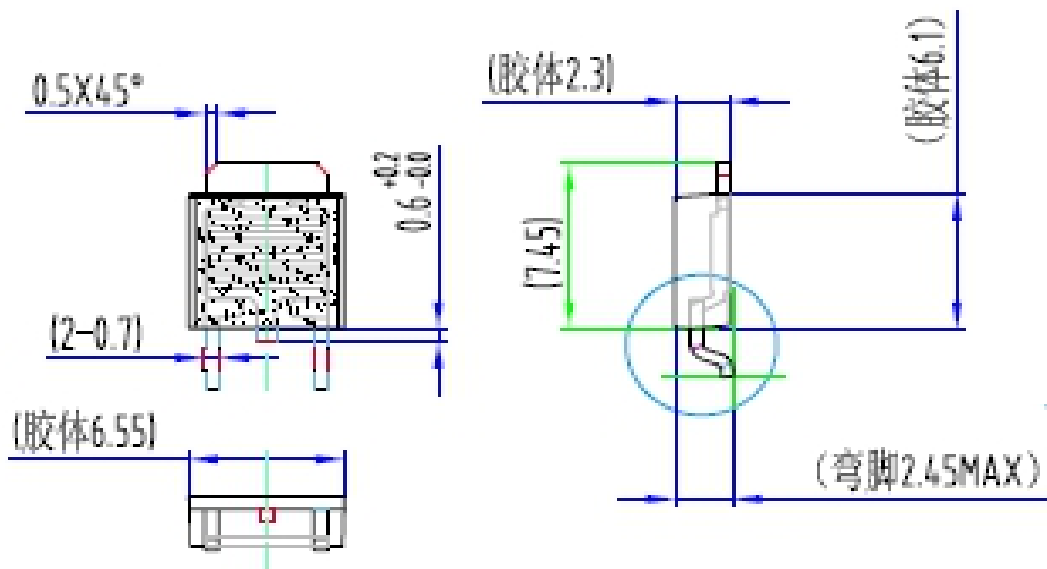


**FIG.7:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

PACKAGE MECHANICAL DATA

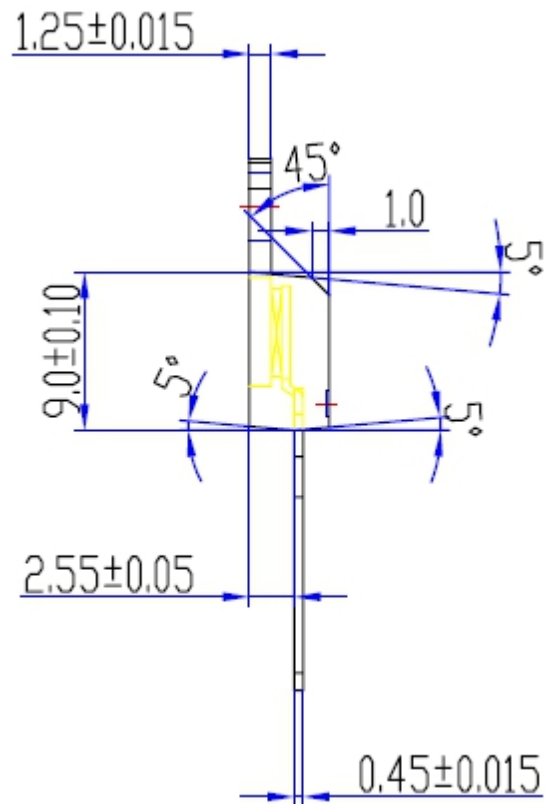
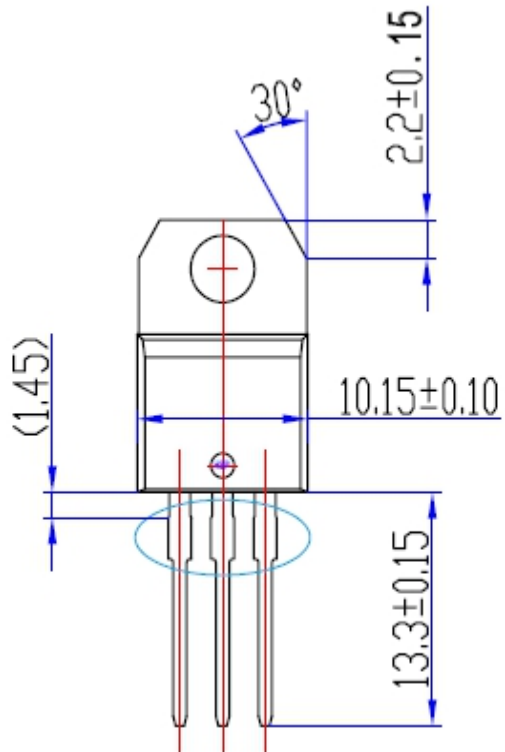
●TO-252

Unit: mm ( $\pm 0.1$ )



●TO-220

Unit: mm ( $\pm 0.1$ )



●TO-251

Unit: mm ( $\pm 0.1$ )

