

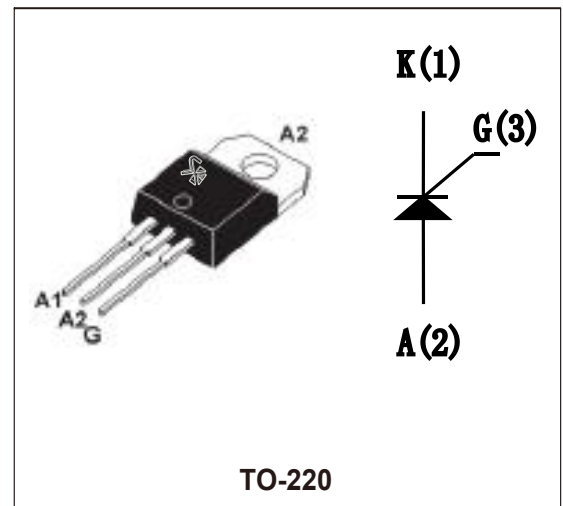
Silicon Controlled Rectifier

Features

- 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

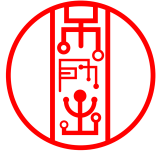
- Solid state relay;
- Phase-controlled circuit;
- Adjustable heating controller;
- Speed control controller;



MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified

PARAMETER	SYMBOL	Conditions	Limits	Units
RMS On-state Current	$I_{T(RMS)}$	$T_c=90^{\circ}\text{C}$	16	A
Non repetitive surge peak on-state current	I_{TSM}	$F=50\text{HZ}$ $t=20\text{ms}$	160	A
I^2t value for fusing	I^2t	$t_p=10\text{ms}$	128	A^2S
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	V_{RRM}	$T_j=25^{\circ}\text{C}$	800	V
Average gate power dissipation	$P_{G(AV)}$	$T_j=125^{\circ}\text{C}$	1	W
Operating junction temperature range	T_j		-40~150	$^{\circ}\text{C}$
Storage junction temperature range	T_{stg}		-40~125	$^{\circ}\text{C}$



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

Parameter	Test Condition	MIN	TYPE	MAX	Unit
I_{GT}	$V_D=12\text{V}, R_L=100\Omega$	-	-	20	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM} \quad T_j=110^{\circ}\text{C}$	0.2	-	-	V
I_H	$I_T=0.5\text{A}$	-	-	30	mA
I_L	$I_G=1.2I_{GT}$	-	-	100	mA
dv/dt	$V_D=2/3 \times V_{DRM} \quad T_j=125^{\circ}\text{C}$ Gate open	500	-	-	V/ μs
(dv/dt)c	$T_j=125^{\circ}\text{C}$	10	-	-	mA

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 Ω
R_d	Slope resistance	$T_j=125^{\circ}\text{C}$ MAX	36.6	m Ω
I_{DRM} I_{RRM}	$V_D=V_{DRM}=V_{RRM}$	$T_j=25^{\circ}\text{C}$ MAX	5	μA
		$T_j=125^{\circ}\text{C}$ MAX	1	mA
$R_{th(j-c)}$	junction to case(AC)	BTA	2.05	$^{\circ}\text{C}/\text{W}$
		BTB	1.25	

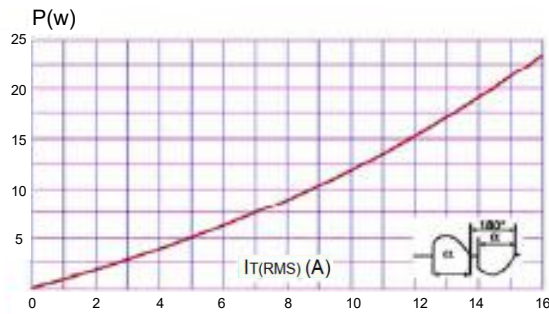
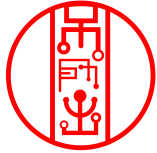


FIG.1: Maximum power dissipation versus RMS on-state current

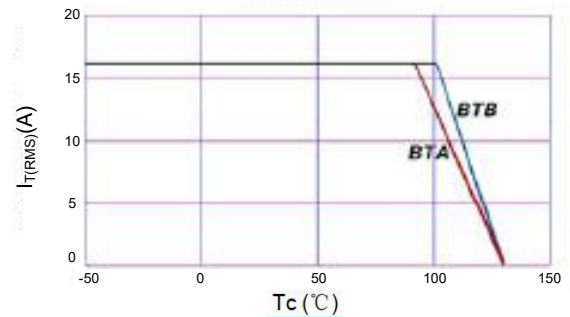


FIG.2: RMS on-state current versus case temperature

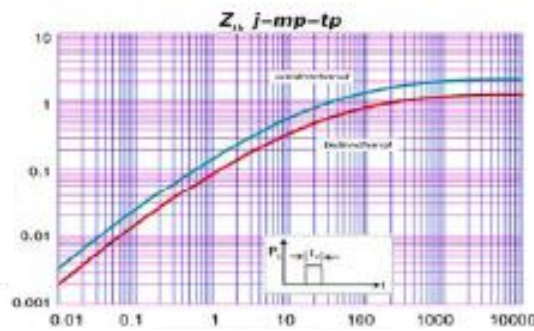


FIG.3: Transient thermal resistance diagram

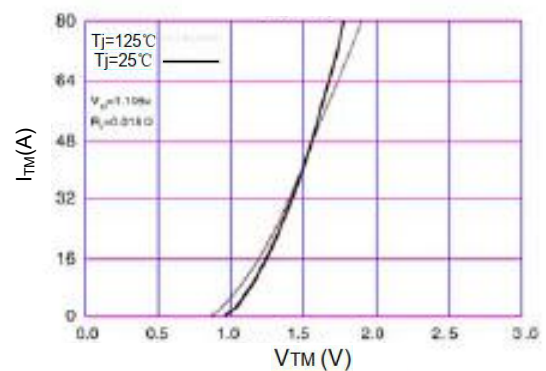


FIG.4: On-state characteristics (maximum values)

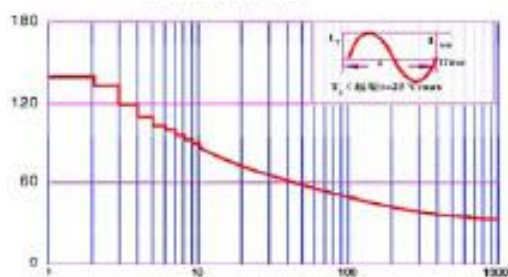


FIG.5: Surge peak on-state current versus number of cycles

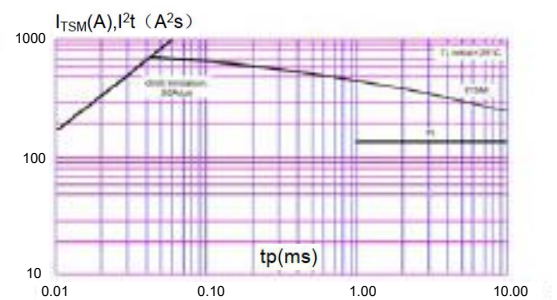


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t .

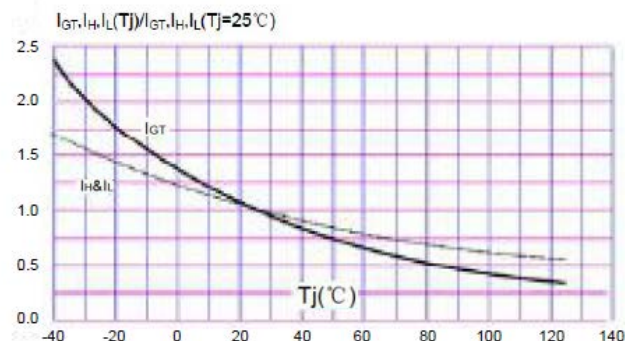
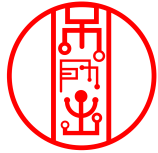


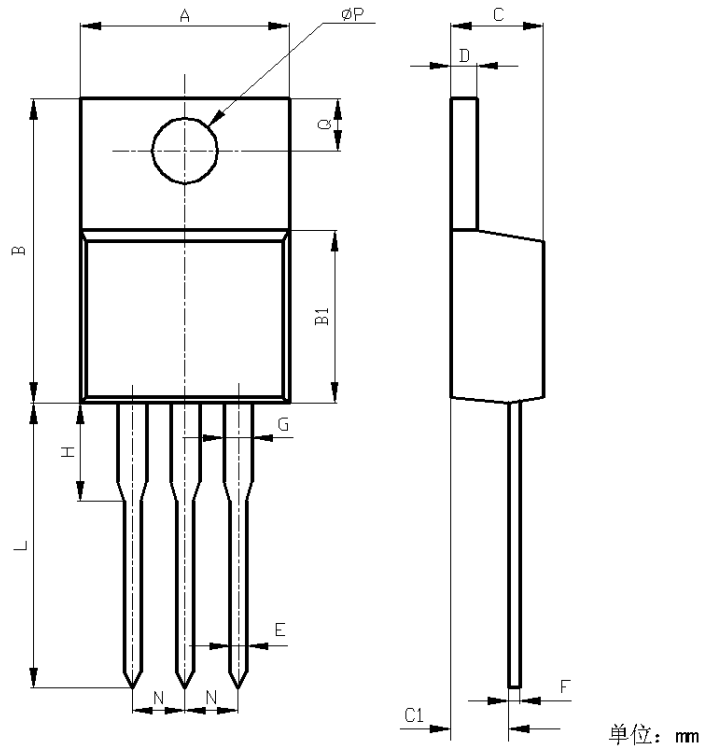
FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature



BT153

PACKAGE MECHANICAL DATA

TO-220



	.Unit (mm)	
	MIN	MAX
A	10.1	10.5
B	15.2	15.6
B1	9.00	9.40
C	4.40	4.60
C1	2.40	3.00
D	1.20	1.40
E	0.70	0.90
F	0.40	0.60
G	1.17	1.37
H	3.30	3.80
L	13.1	13.7
N	2.34	2.74
Q	2.40	3.00
Ø P	3.70	3.90