



BT138

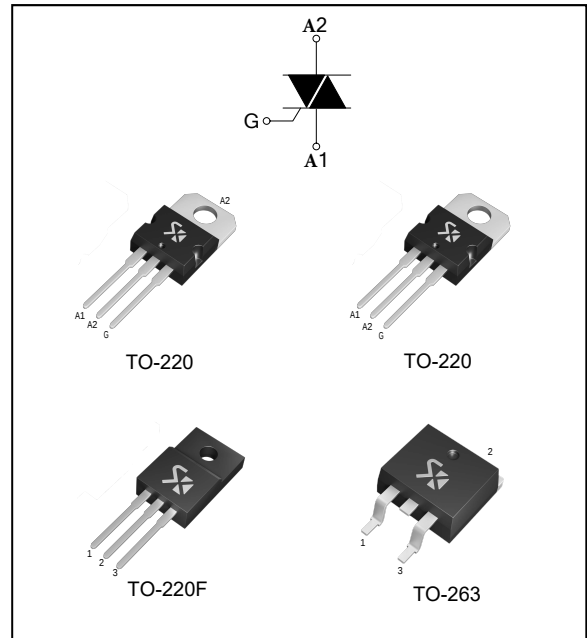
Silicon Controlled Rectifier

Features

- NPNPN 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;



■ ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER			RATINGS	UNIT
$I_{T(RMS)}$	RMS On-State Current	BTA BTB	$T_c=80^{\circ}C$ $T_c=90^{\circ}C$	12	A
I_{TSM}	Non Repetitive Surge Peak On-State Current	F=50HZ	t=20ms	120	A
I^2t	I^2t Value	tp=10ms		72	A ² S
di/dt	Critical Rate of Rise of On-State Current	$T_j=125^{\circ}C$		50	A/us
V_{DRM}/V_{RRM}	Repetitive Peak Off-State Voltage	$T_j=25^{\circ}C$		600/800	V
I_{GM}	Peak Gate Current	tp=20us	$T_j=150^{\circ}C$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation		$T_j=150^{\circ}C$	10	W
Tstg T_j	Storage Junction Temperature Operating Junction Temperature			-40to+150 -40to+125	$^{\circ}C$



■ Electrical characteristics (three quadrants)

PARAMETER	SYMBOL	TEST CONDITIONS	Quadrants		RATINGS	UNIT
Gate Trigger Current	I _{GT}	V _D =12V (DC) R _L =100Ω	I II III	MAX	≦ 50	mA
Gate Trigger Voltage	V _{GT}			MAX	1.5	V
GateNon-Trigger Voltage	V _{GD}	T _j =150℃		MIN	0.2	V
HoldingCurrent	I _H	I _T =0.5A		MAX	60	mA
Latching Current	I _L	I _G =1.2I _{GT}		MAX	60	mA
					100	
Critical Rate of Rise of Off-State Voltage	dv/dt	V _D =2/3V _{DRM} T _j =150℃		MIN	500	V/us
Critical Rate of Rise of Off-State Voltage at Commutation	(dv/dt) _c	T _j =150℃		MIN	8	V/us

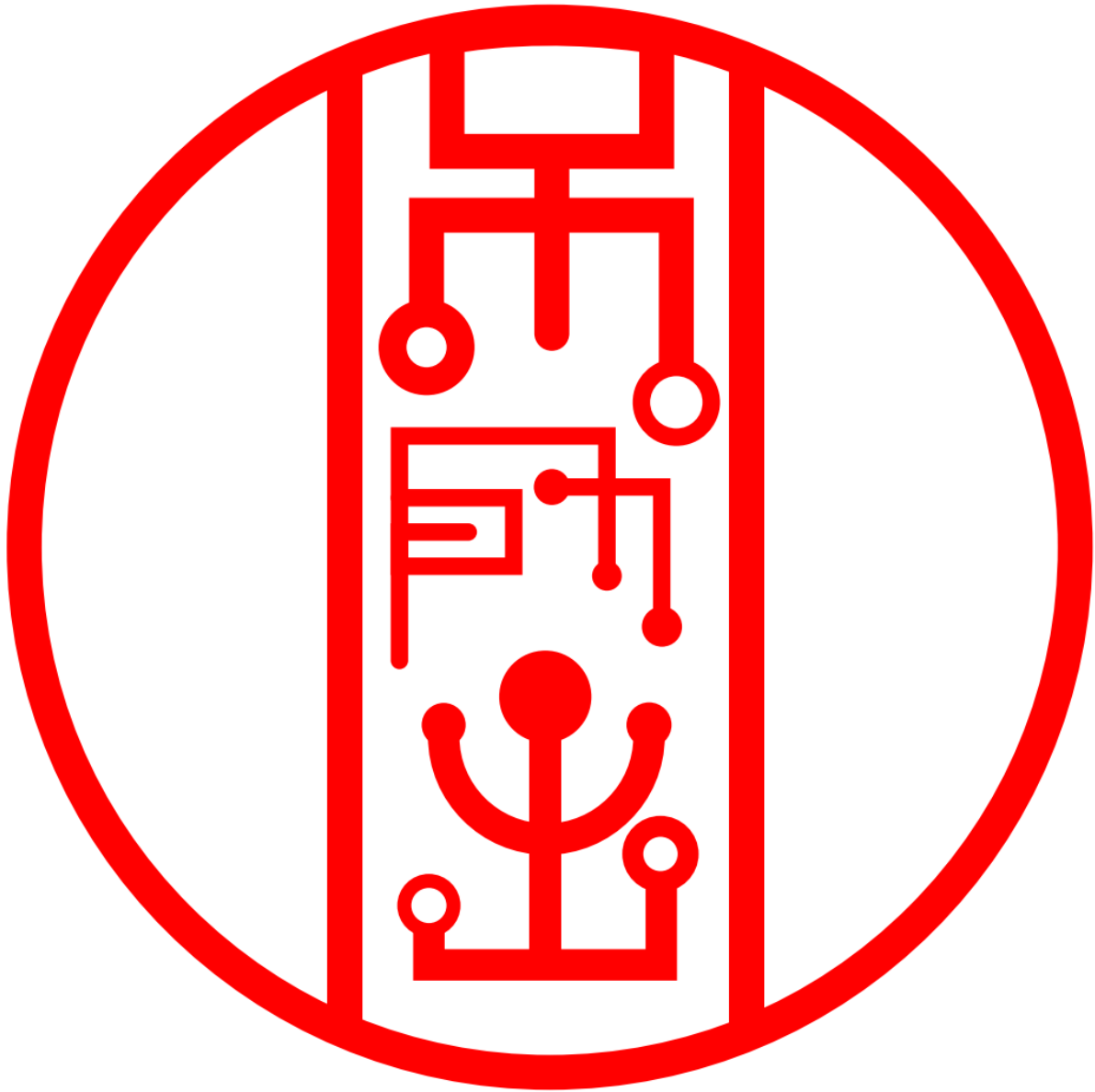
■ Electrical characteristics (four quadrants)

PARAMETER	SYMBOL	TEST CONDITIONS	Quadrants		RATINGS		UNIT
Gate Trigger Current	I _{GT}	V _D =12V R _L =100 Ω	I II III IV	MAX	I II III	IV	mA
					≅ 50	≅ 120	
Gate Trigger Voltage	V _{GT}			MAX	1.5		V
GateNon-Trigger Voltage	V _{GD}	T _j =125°C		MIN	0.2		V
HoldingCurrent	I _H	I _T =0.5A		MAX	60		mA
Latching Current	I _L	I _G =1.2I _{GT}		MAX	60		mA
					100		
Critical Rate of Rise of Off-State Voltage	dv/dt	V _D =2/3V _{DRM} T _j =125°C		MIN	500		V/us
Critical Rate of Rise of Off-State Voltage at Commutation	(dv/dt) _c	T _j =125°C		MIN	10		V/us

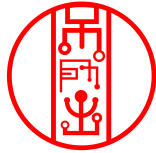


■ Static parameters

SYMBOL	PARAMETER			RATINGS	UNIT
V_{TM}	Peak On-State Voltage	$T_j=25^{\circ}\text{C}$ $I_{TM}=24\text{A}$	MAX	1.40	V
V_{T0}	Threshold voltage	$T_j=150^{\circ}\text{C}$	MAX	0.86	V
R_d	Resistance	$T_j=150^{\circ}\text{C}$	MAX	36.6	$\text{m}\Omega$
I_{DRM} I_{RRM}	Repetitive Peak Off-State Current	$T_j=25^{\circ}\text{C}$	MAX	5	μA
		$T_j=150^{\circ}\text{C}$		1	mA
$R_{th(j-c)}$	Junction to Case (DC)	BTB		2.05	$^{\circ}\text{C}/\text{W}$
		BTB		1.25	



current and latching current versus junction temperature

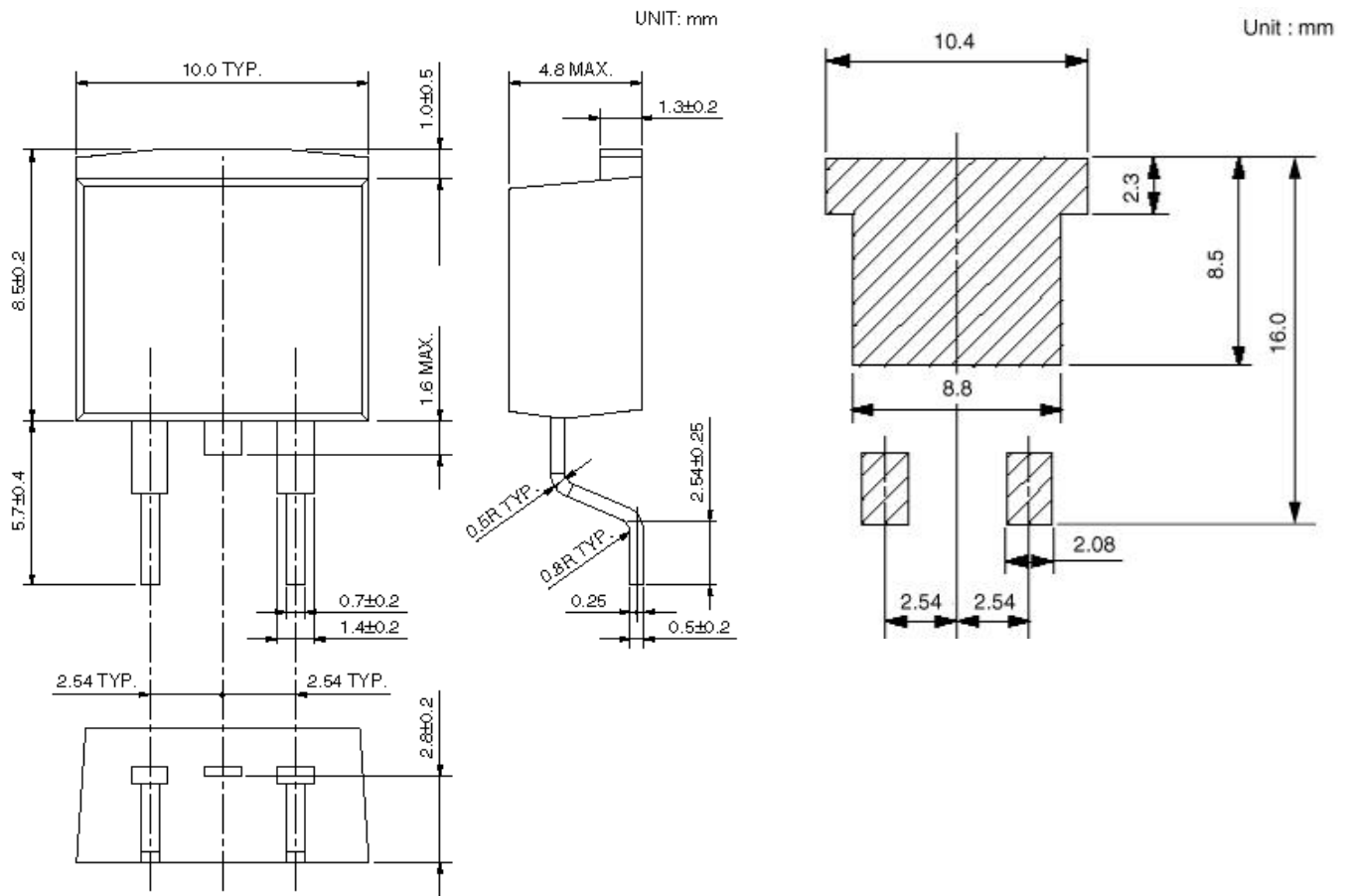


PACKAGE OUTLINE

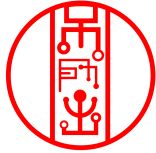
Plastic surface mounted package;

TO-263

● Unit: mm(± 0.1)



: The area without solder plated



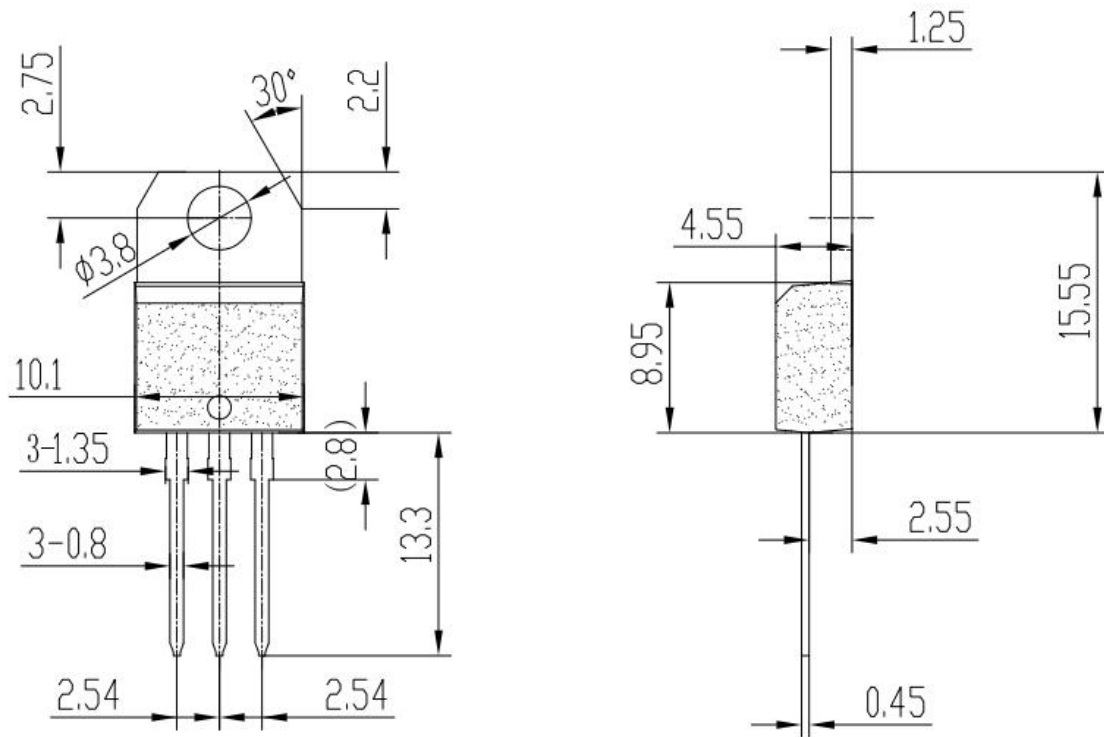
BT138

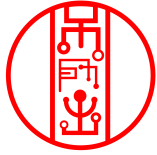
PACKAGE OUTLINE

Plastic surface mounted package;

TO-220

●Unit: mm(± 0.1)





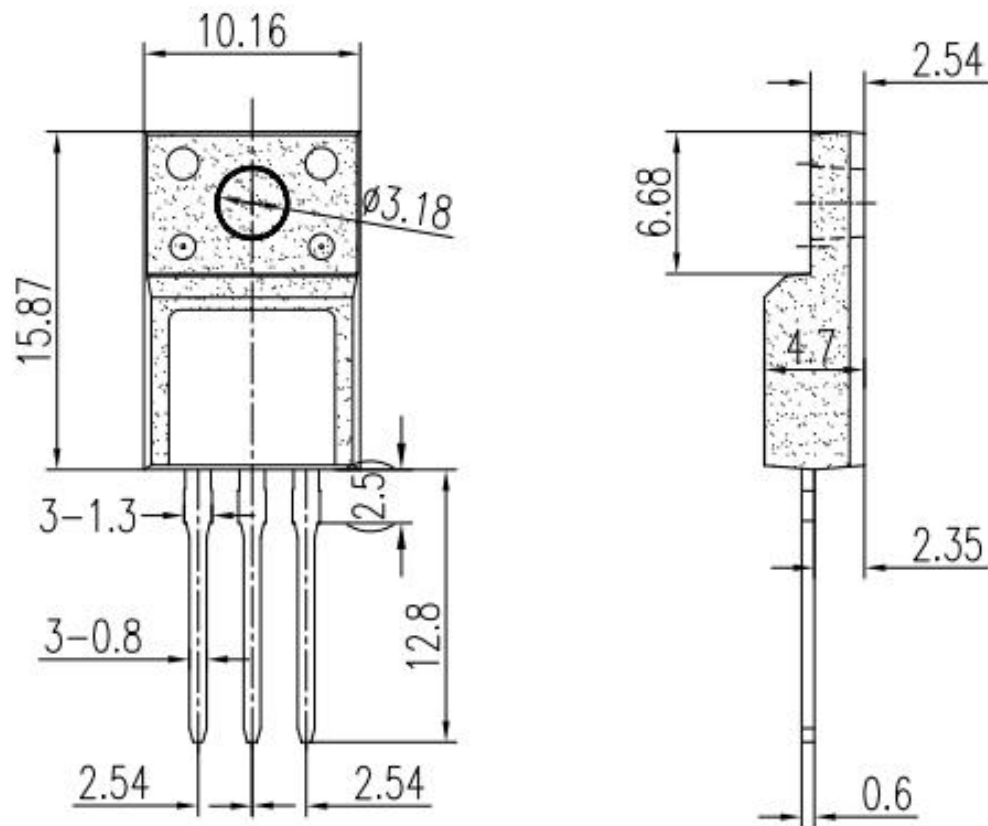
BT138

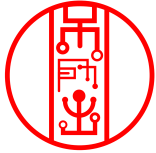
PACKAGE OUTLINE

Plastic surface mounted package;

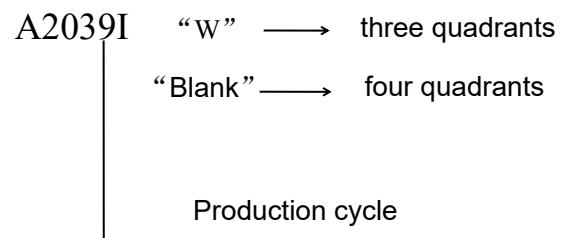
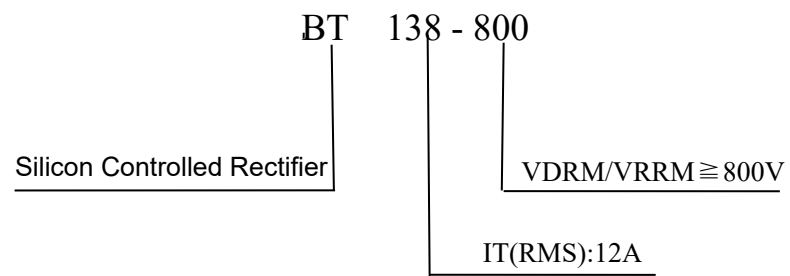
TO-220F

●Unit: mm(± 0.1)





● Product marking comments:



XXXXX _____ Production batch number