

BTA24A_BT B24A

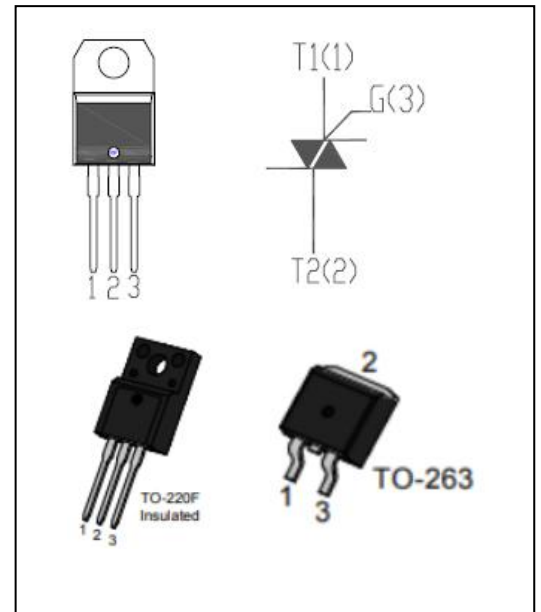
Triac

● FEATURES

NPNPN Silicon bidirectional devices with five-layer structure; Single-sided slotting technology with independent intellectual property rights, countertop glass passivation process; Backside multilayer metallized electrode; Has a higher Blocking voltage and high temperature stability;

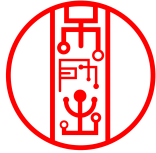
● APPLICATIONS

Vacuum cleaners, power tools and other motor speed controllers; Solid state relays; Heating controller (temperature regulation); Other phased circuits.



● ABSOLUTE MAXIMUM RATINGS(Ta=25℃)

SYMBOL	PARAMETER			RATINGS	UNIT
$I_{T(RMS)}$	Non-repetitive peak on-state current	BTA BTB	$T_c=80^{\circ}\text{C}$ $T_c=90^{\circ}\text{C}$	24	A
I_{TSM}	RMS on-state current	F=50HZ	t=20ms	240	A
I^2t	I^2t Limit value	tp=10ms		288	A ² S
di/dt	Critical Rate of Rise of Off-State Voltage at Commutation		$T_j=125^{\circ}\text{C}$	50	A/us
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage Repetitive peak reverse voltage		$T_j=25^{\circ}\text{C}$	800	V
I_{GM}	Peak Gate Current	tp=20us	$T_j=125^{\circ}\text{C}$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation		$T_j=125^{\circ}\text{C}$	1	W
T_{stg} T_j	Storage Temperature Range Junction Temperature			-40to+150 -40to+125	℃



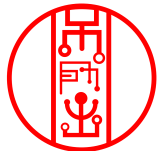
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● ELECTRICAL CHARACTERISTICS (Third quadrant)

SYMBOL	PARAMETER/ TEST CONDITIONS	QUADRANT		RATINGS	UNIT
I_{GT}	Trigger current $V_D=12V$ $R_L=100\ \Omega$	I II III	MAX	≤ 50	mA
V_{GT}	Trigger voltage		MAX	1.5	V
V_{GD}	Gate Non-Trigger Voltage $T_j=125^\circ C$		MIN	0.2	V
I_H	Holding current $I_T=0.5A$		MAX	80	mA
I_L	Latching Current $I_G=1.2I_{GT}$		MAX	80	mA
				100	
dv/dt	Critical Rate of Rise of Off-State Voltage $V_D=2/3V_{DRM}$ $T_j=125^\circ C$		MIN	500	V/us
(dv/dt)c	Critical Rate of Rise of Off-State Voltage at Commutation $T_j=125^\circ C$		MIN	10	V/us

● ELECTRICAL CHARACTERISTICS (Fourth quadrant)

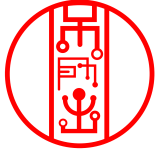
SYMBOL	PARAMETER/ TEST CONDITIONS	QUADRANT		RATINGS		UNIT
I _{GT}	Trigger current V _D =12V R _L =100 Ω	I II III IV	MAX	I 、 II 、 III	IV	mA
				≦ 50	≦ 120	
V _{GT}	Trigger voltage		MAX	1.5		V
V _{GD}	Gate Non-Trigger Voltage T _j =125℃		MIN	0.2		V
I _H	Holding current I _T =0.5A		MAX	80		mA
I _L	Latching Current I _G =1.2I _{GT}	MAX	80		mA	
			100			
dv/dt	Critical Rate of Rise of Off-State Voltage V _D =2/3V _{DRM} T _j =125℃	MIN	500		V/us	
(dv/dt) _c	Critical Rate of Rise of Off-State Voltage at Commutation T _j =125℃	MIN	10		V/us	



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● STATIC CHARACTERISTICS

SYMBOL	PARAMETER/ TEST CONDITIONS			RATINGS	UNIT
V_{TM}	On-state voltage $I_{TM}=50A$	$T_j=25^{\circ}C$	MAX	1.55	V
V_{T0}	Threshold Voltage	$T_j=125^{\circ}C$	MAX	0.87	V
R_d	Dynamic Resistance	$T_j=125^{\circ}C$	MAX	14.6	$m\Omega$
I_{DRM} I_{RRM}	Repetitive Peak Off-State Current	$T_j=25^{\circ}C$	MAX	5	μA
		$T_j=125^{\circ}C$		1	mA
$R_{th(j-c)}$	Thermal resistance, junction to case	BTA		2.05	$^{\circ}C/W$
		BTB		1.25	



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

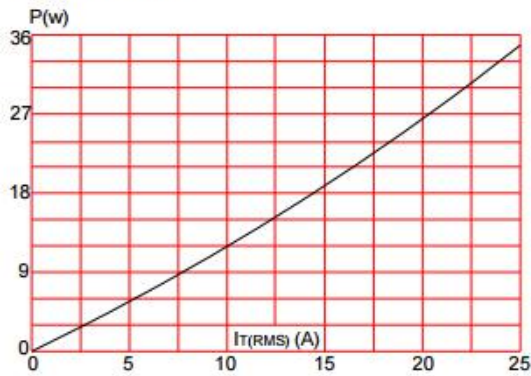


FIG.2: RMS on-state current versus case temperature

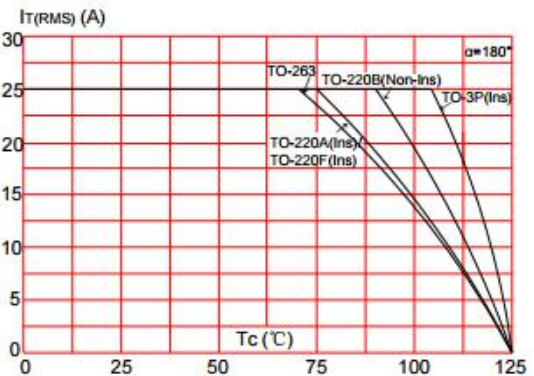


FIG.3: Surge peak on-state current versus number of cycles

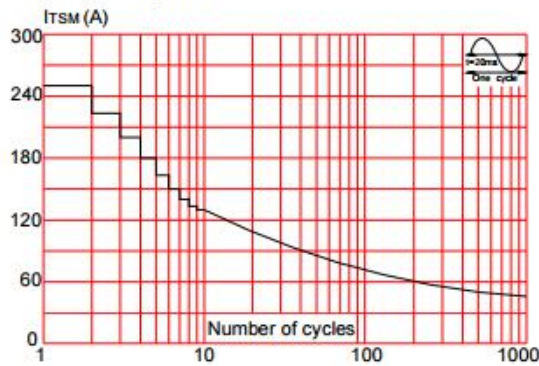


FIG.4: On-state characteristics (maximum values)

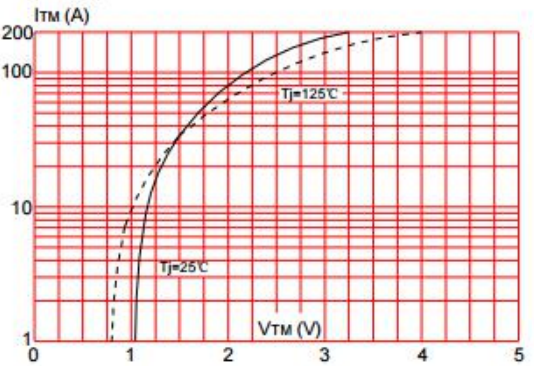


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of $I^2 t$ ($dI/dt < 50\text{A}/\mu\text{s}$)

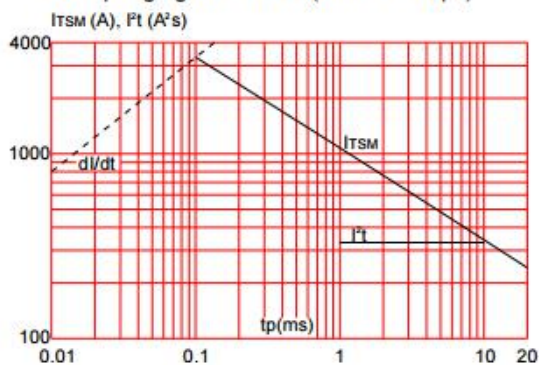
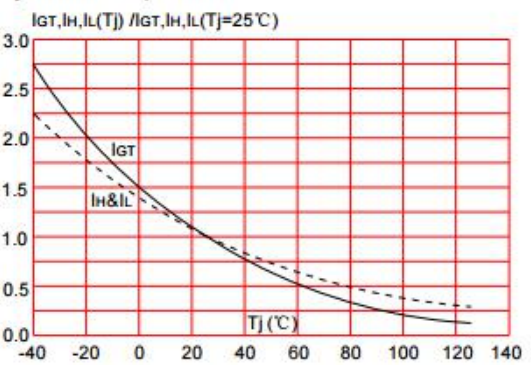
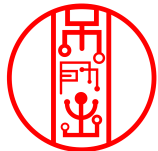


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

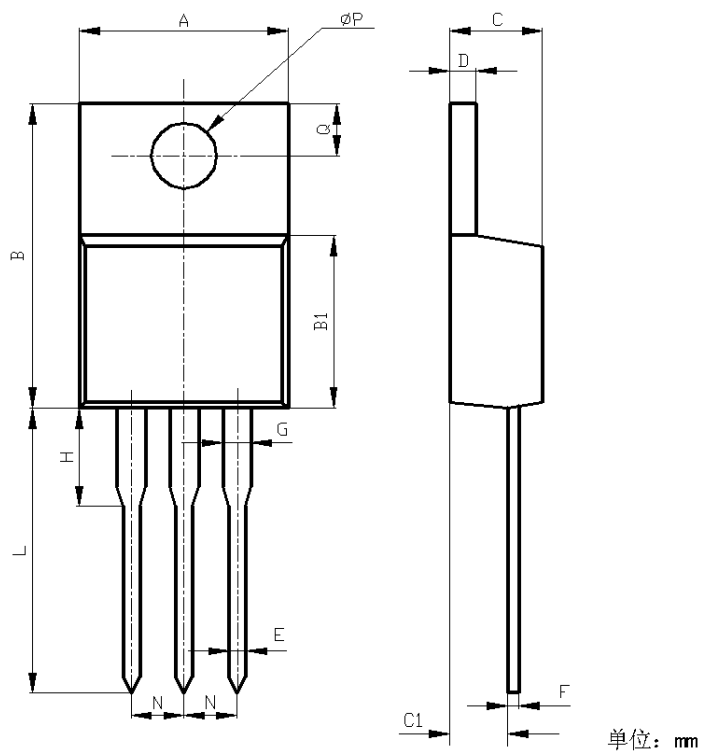




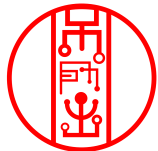
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PACKAGE OUTLINE

TO-220



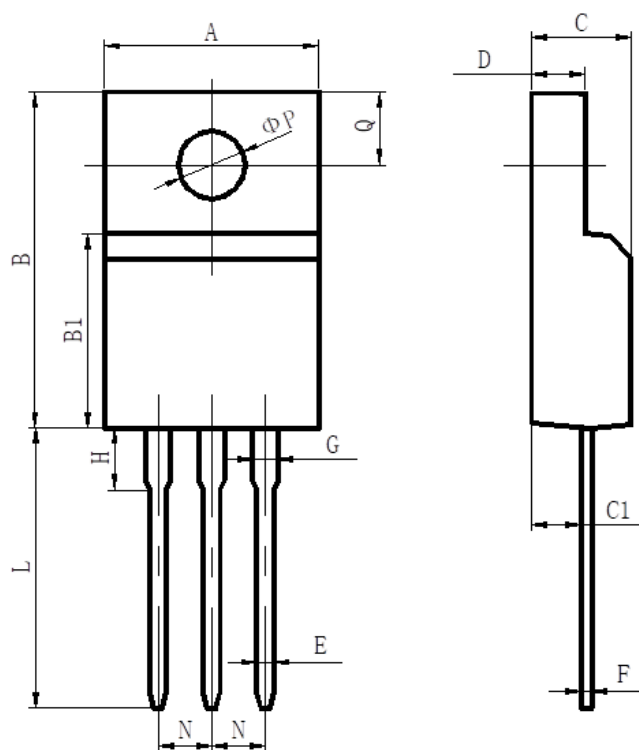
	Unit (mm)	
	MIN	MAX
A	10.1	10.5
B	15.2	15.6
B1	9.00	9.40
C	4.40	4.60
C1	2.40	3.00
D	1.20	1.40
E	0.70	0.90
F	0.40	0.60
G	1.17	1.37
H	3.30	3.80
L	13.1	13.7
N	2.34	2.74
Q	2.40	3.00
ϕP	3.70	3.90



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PACKAGE OUTLINE

TO-220F



	Unit (mm)	
	MIN	MAX
A	9.70	10.30
B	15.50	16.10
B1	8.99	9.39
C	4.40	4.80
C1	2.15	2.55
D	2.50	2.90
E	0.70	0.90
F	0.40	0.60
G	1.12	1.42
H	3.40	3.80
L	12.6	13.6
N	2.34	2.74
Q	3.15	3.55
Φ P	3.00	3.30



TO-263

Technical drawing of a stainless steel box with the following dimensions and tolerances:

- Overall width: 10.0 TYP.
- Overall height: 8.5 ± 0.2
- Top flange thickness: 1.0 ± 0.5
- Bottom flange thickness: 1.6 MAX.
- Side panel thickness: 0.7 ± 0.2
- Internal width: 1.4 ± 0.2
- Internal height: 5.7 ± 0.4
- Internal width (bottom): 2.54 TYP.
- Internal height (bottom): 2.8 ± 0.2
- Top flange width: 4.8 MAX.
- Top flange thickness: 1.3 ± 0.2
- Bottom flange width: 0.8R TYP.
- Bottom flange thickness: 0.25
- Bottom flange width (bottom): 0.5 ± 0.2
- Bottom flange height: 2.54 ± 0.25

Unit : mm

10.4

2.3

8.5

16.0

8.8

2.54

2.54

2.08