

## 1、Description

BTA204 series triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. With high commutation performances, 3 quadrant products especially recommended for use on inductive load.

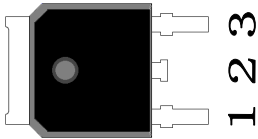

## 2、Applications

- Motor control
- Industrial and domestic lighting
- Heating
- Static switching

## 3、Features

- Blocking voltage to 800 V
- On-state RMS current to 4 A
- Ultra low gate trigger current
- Low cost package.

## 4、Pinning information

PIN	Description	Simplified outline	Symbol
1	main terminal 1(T1)	 TO-252	
2	main terminal 2(T2)		
3	gate (G)		
tab	main terminal T2		

## 5、Quick reference data

SYMBOL	PARAMETER	MAX	UNIT
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltages	800	V
$I_{T(RMS)}$	RMS on-state current	4	A
$I_{TSM}$	Non-repetitive peak on-state current	40	A

## 6、Thermal characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th(j-c)}$	junction to case(AC)	in free air	-	2.8	-	°C/W

## 7、 Limiting value

Limiting values in accordance with the Maximum System(IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V <sub>DRM</sub> V <sub>RRM</sub>	Repetitive peak off-state voltages		-	800	V
I <sub>T(RMS)</sub>	RMS on-state current	Full Cycle Sine Wave 50 to 60 Hz (TC = 86°C)	-	4	A
I <sub>TSM</sub>	Non-repetitive peak Surge current	One Full cycle, 50 Hz	-	40	A
I <sup>2</sup> <sub>t</sub>	I <sup>2</sup> <sub>t</sub> for fusing	t =10ms	-	8	A <sup>2</sup> s
dI/dt	Critical rate of rise of on-state current	I <sub>G</sub> =2XI <sub>GT</sub>		50	A/μs
I <sub>GM</sub>	Peak gate current		-	4	A
P <sub>GM</sub>	Peak gate power		-	5	W
P <sub>G(AV)</sub>	Average gate power		-	1	W
T <sub>stg</sub>	Storage temperature		-40	150	°C
T <sub>j</sub>	Operating junction temperature		-40	125	°C

## 8、 Characteristics

T<sub>J</sub> = 25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
<b>Static characteristics</b>						
I <sub>GT</sub>	Gate trigger current	V <sub>D</sub> = 12 V; R <sub>L</sub> =33Ω T2+ G+ T2+ G- T2- G-	-	-	10	mA
I <sub>L</sub>	Latching current	I <sub>G</sub> =1.2XI <sub>GT</sub> T2+ G+ T2+ G- T2- G-	-	-	20	mA
I <sub>H</sub>	Holding current	I <sub>T</sub> =100mA	-	-	15	mA
V <sub>TM</sub>	On-state voltage	I <sub>TM</sub> =5.5A tp=380μs	-	-	1.55	V
V <sub>GT</sub>	Gate trigger voltage	V <sub>D</sub> = 12 V; R <sub>L</sub> =33Ω T2+ G+ T2+ G- T2- G-	-	-	1.5	V
V <sub>GD</sub>	Gate Non-Trigger Voltage	V <sub>D</sub> =V <sub>DRM</sub> T <sub>J</sub> =125°C R <sub>L</sub> =3.3KΩ T2+ G+, T2+ G-, T2- G-	0.2	-	-	V
I <sub>DRM</sub> I <sub>R</sub> RM	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub>	T <sub>J</sub> = 25°C	-	-	10	uA
		T <sub>J</sub> = 125°C	-	-	0.75	mA

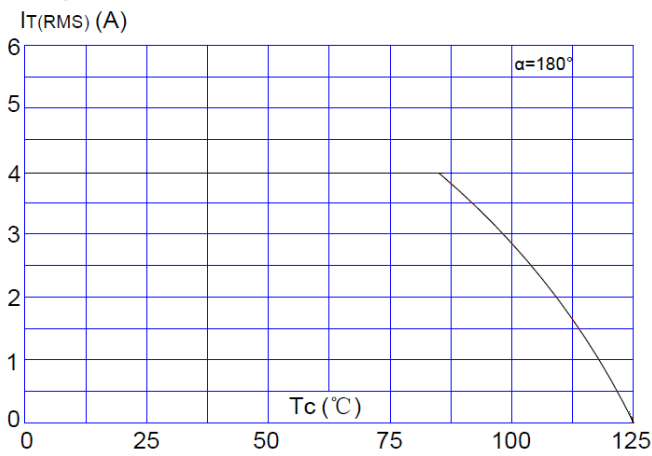
### Dynamic Characteristics

dV/dt	Critical rate of rise of off-state voltage	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>J</sub> =125°C	100	-	-	V/μs
(dV/dt) <sub>c</sub>	Critical rate of change of commutating voltage	(dI/dt) <sub>c</sub> =1.8A/ms T <sub>J</sub> =125°C	1	-	-	V/μs

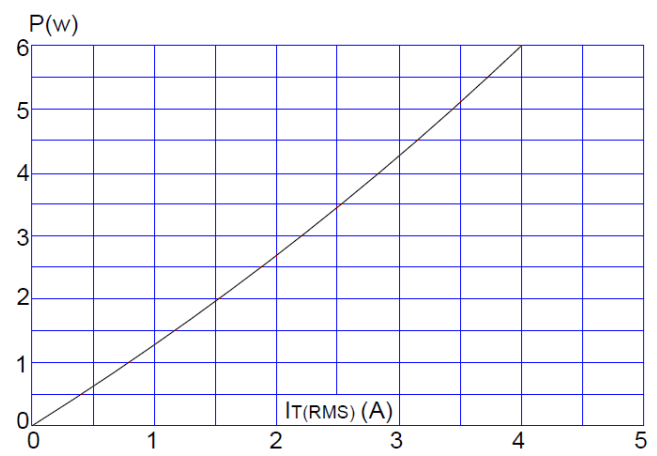
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9. Electrical Characteristics Curve

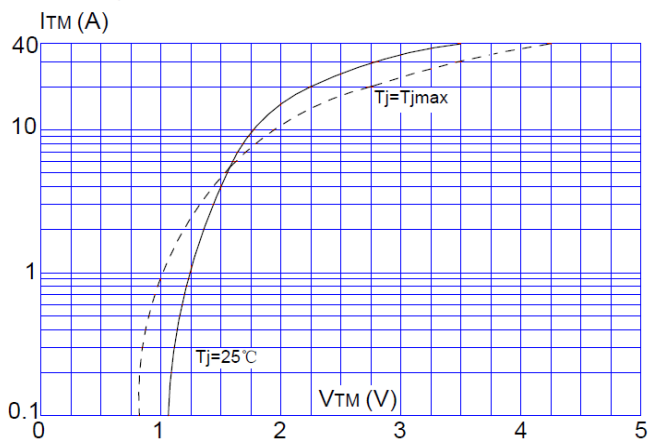
**FIG.1:** RMS on-state current versus case temperature



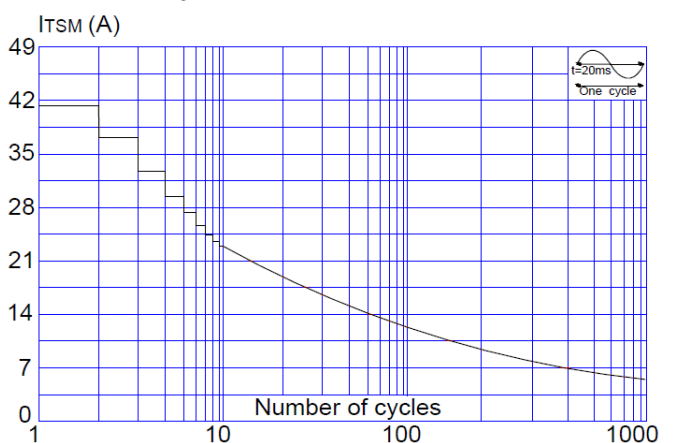
**FIG.2:** Maximum power dissipation versus RMS on-state current



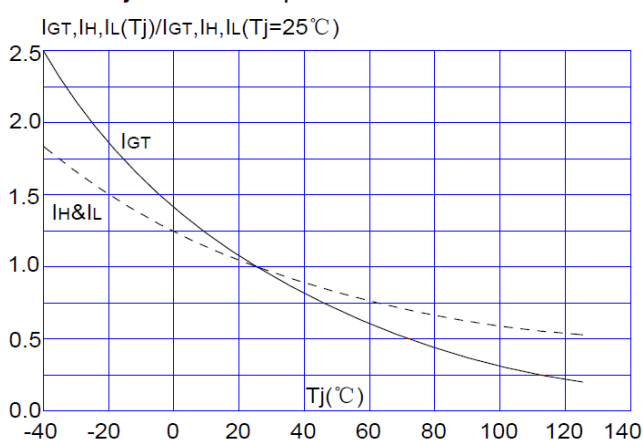
**FIG.3:** On-state characteristics (maximum values)



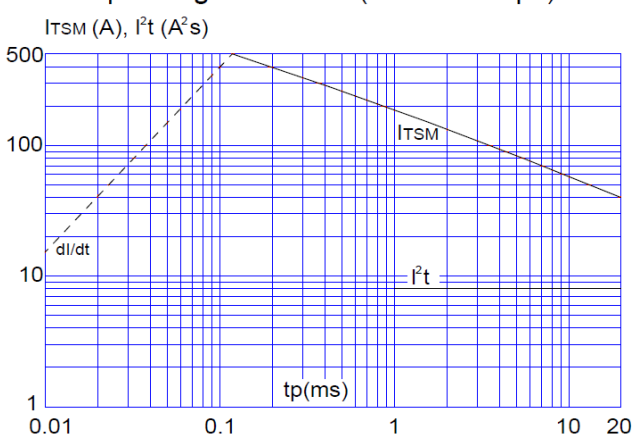
**FIG.4:** Surge peak on-state current versus number of cycles



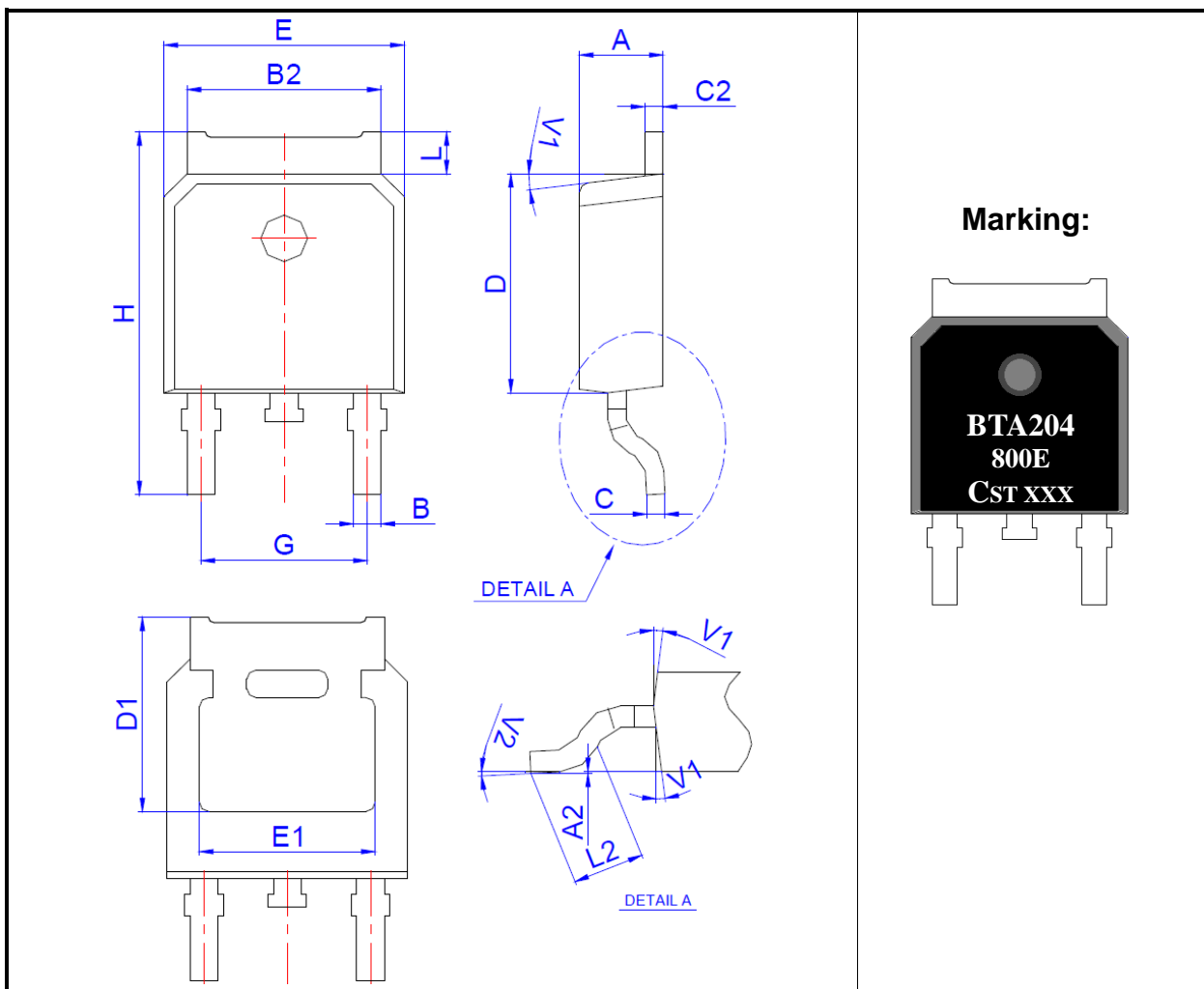
**FIG.5:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



**FIG.6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



10、 Package outline(TO-252)



DIM	Inches			Millimeters		
	Min	Type	Max	Min	Type	Max
A	0.083	-	0.098	2.10	-	2.50
A2	0.001	-	0.009	0.03	-	0.23
B	0.026	-	0.034	0.66	-	0.86
B2	0.202	-	0.216	5.18	-	5.48
C	0.016	-	0.024	0.40	-	0.60
C2	0.017	-	0.023	0.44	-	0.58
D	0.232	-	0.248	5.90	-	6.30
D1		0.209REF			5.30REF	
E	0.252	-	0.268	6.40	-	6.80
E1	0.182			4.63		
G	0.176	-	0.184	4.47	-	4.67
H	0.374	-	0.421	9.50	-	10.70
L	0.043	-	0.048	1.09	-	1.21
L2	0.053	-	0.065	1.35	-	1.65
V1		7°			7°	
V2	0°		6°	0°		6°

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