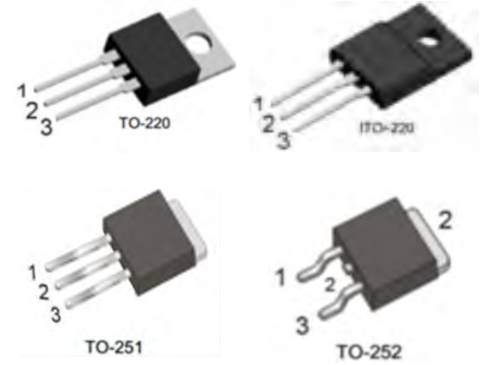




**DESCRIPTION:**

BTB04 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 quadrants products especially recommended for use on inductive load.

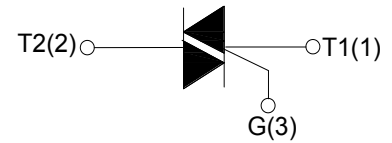


**MAIN FEATURES**

Symbol	Value	Unit
$V_{DRM} / V_{RRM}$	600 and 800	V
$I_{T(RMS)}$	4	A

**ORDERING INFORMATION**

	BT	B	04	-	600	BW
<b>Triac series</b>						
<b>Insulation</b> B = non insulated						
<b>Current</b> 04 = 4A						
<b>Voltage</b> 600 = 600V 800 = 800V						
<b>Sensitivity and type</b> SW = $I_{GT1-3} < 10mA$ BW = $I_{GT1-3} < 50mA$ CW = $I_{GT1-3} < 35mA$ TW = $I_{GT1-3} < 5mA$ B = $I_{GT1-3} < 50mA, I_{GT} < 100mA$ C = $I_{GT1-3} < 25mA, I_{GT} < 50mA$ D = $I_{GT1-3} < 5mA, I_{GT} < 10mA$ E = $I_{GT1-3} < 10mA, I_{GT} < 25mA$						



**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40 - 150	°C
Operating junction temperature range	$T_j$	-40 - 125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ C$ )	$V_{DRM}$	600/800	V
Repetitive peak reverse voltage ( $T_j=25^\circ C$ )	$V_{RRM}$	600/800	V
Non repetitive surge peak Off-state voltage	$V_{DSM}$	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage	$V_{RSM}$	$V_{RRM} + 100$	V
RMS on-state current	$I_{T(RMS)}$	4	A
	TO-251/ TO-252 ( $T_C=86^\circ C$ )		



RMS on-state current	ITO-220FP (T <sub>C</sub> =80°C)	I <sub>T(RMS)</sub>	4	A
	TO-220(Non-ins) (T <sub>C</sub> =95°C)			
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I <sub>TSM</sub>	40	A
I <sup>2</sup> t value for fusing (tp=10ms)		I <sup>2</sup> t	8	A <sup>2</sup> s
Critical rate of rise of on-state current (I <sub>G</sub> =2×I <sub>GT</sub> )		di/dt	50	A/μs
Peak gate current		I <sub>GM</sub>	4	A
Average gate power dissipation		P <sub>G(AV)</sub>	1	W
Peak gate power		P <sub>GM</sub>	5	W

**ELECTRICAL CHARACTERISTICS** (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant		Value				Unit
				TW	SW	CW	BW	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I - II -III	MAX	5	10	35	50	mA
V <sub>GT</sub>		I - II -III	MAX	1.5				V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =125°C R <sub>L</sub> =3.3KΩ	I - II -III	MIN	0.2				V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I -III	MAX	10	20	50	70	mA
		II		15	35	60	80	
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX	10	15	35	60	mA
dV/dt	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C		MIN	20	40	400	1000	V/μs

**Standard (4 quadrants)**

Symbol	Test Conditions	Quadrant		Value				Unit
				B	C	D	E	
I <sub>GT</sub> (1)	V <sub>D</sub> = 12 V R <sub>L</sub> = 30 Ω	I - II - III IV	MAX.	50 100	25 50	5 10	10 25	mA
V <sub>GT</sub>		ALL	MAX.	1.3				V
V <sub>GD</sub>	V <sub>D</sub> = V <sub>DRM</sub> R <sub>L</sub> = 3.3 kΩ T <sub>j</sub> = 125°C	ALL	MIN.	0.2				V
I <sub>H</sub>	I <sub>T</sub> = 500 mA		MAX.	50	25	10	15	mA
I <sub>L</sub>	I <sub>G</sub> = 1.2 I <sub>GT</sub>	I - III - IV	MAX.	50	40	10	15	mA
		II		100	80	15	20	
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> gate open T <sub>j</sub> = 125°C		MIN.	400	200	10	20	V/μs

**STATIC CHARACTERISTICS**

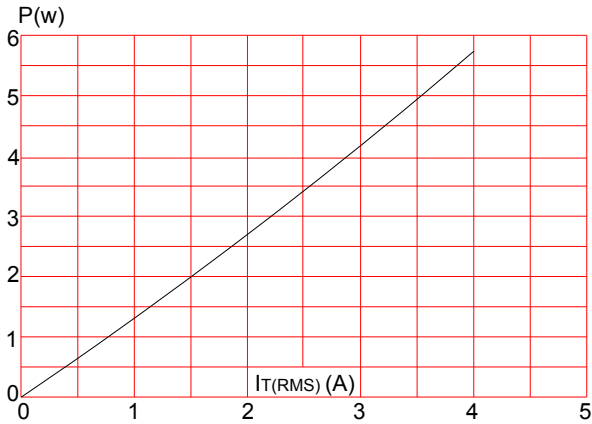
Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM} = 5.5A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	1.55	V
$I_{DRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ C$	10	$\mu A$
$I_{RRM}$		$T_j = 125^\circ C$	0.75	mA

**THERMAL RESISTANCES**

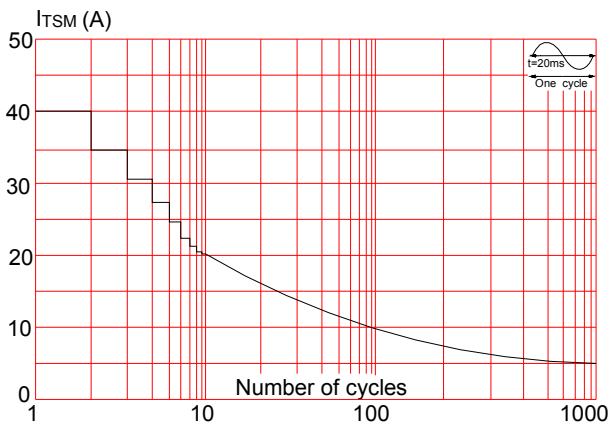
Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-251/ TO-252	4.2	$^\circ C/W$
		TO-220(Non-Ins)	2.4	
		ITO-220(Ins)	4.5	



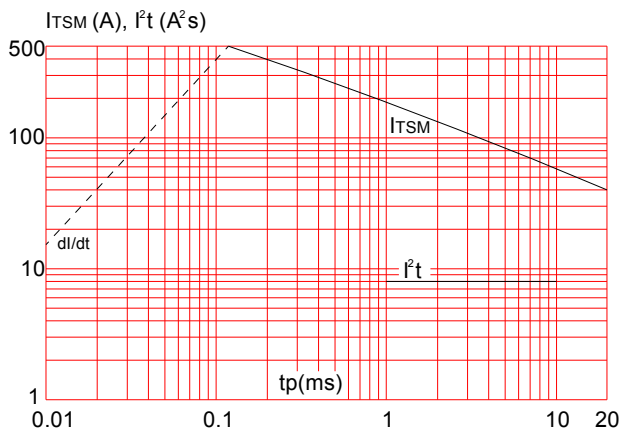
**FIG.1:** Maximum power dissipation versus RMS on-state current



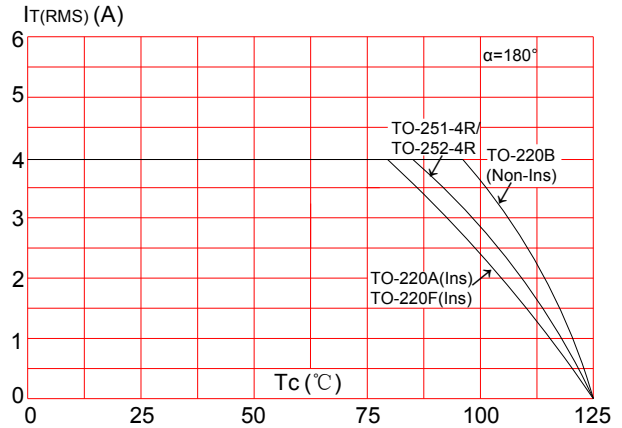
**FIG.3:** Surge peak on-state current versus number of cycles



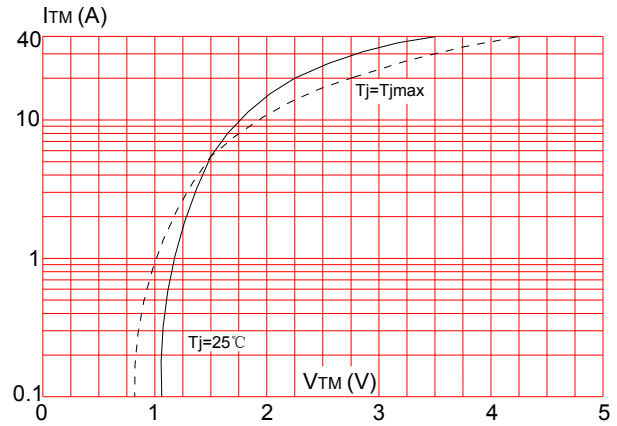
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



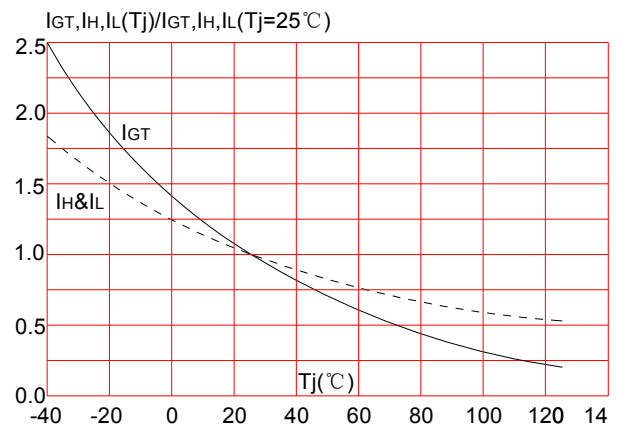
**FIG.2:** RMS on-state current versus case temperature



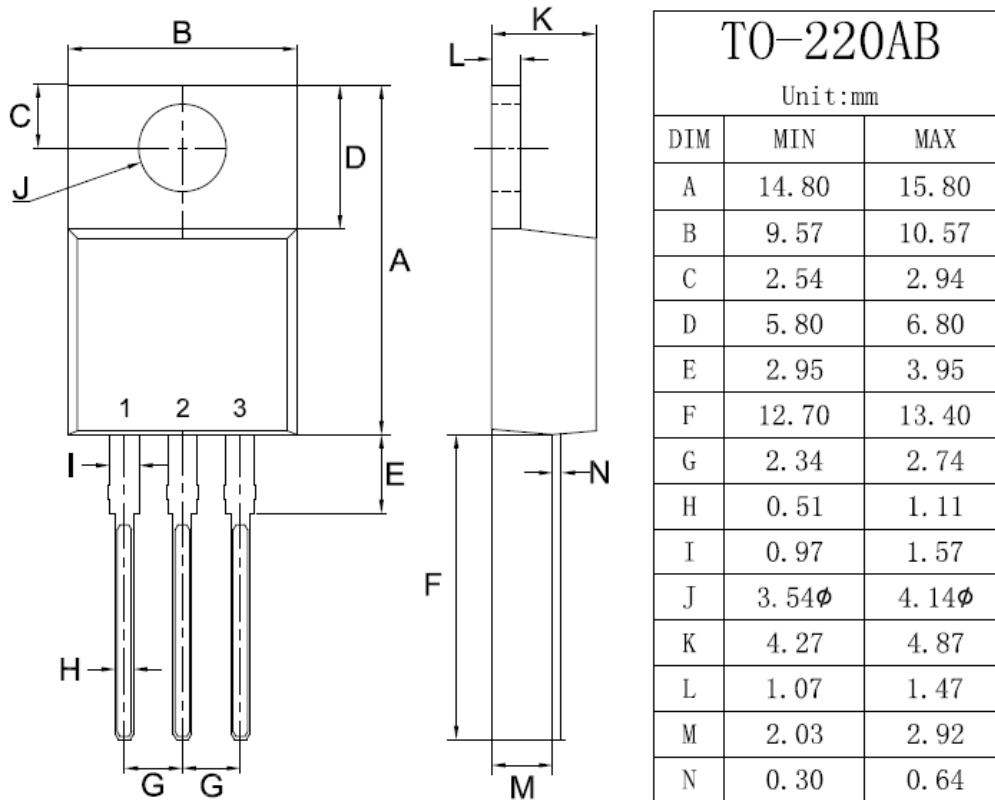
**FIG.4:** On-state characteristics (maximum values)



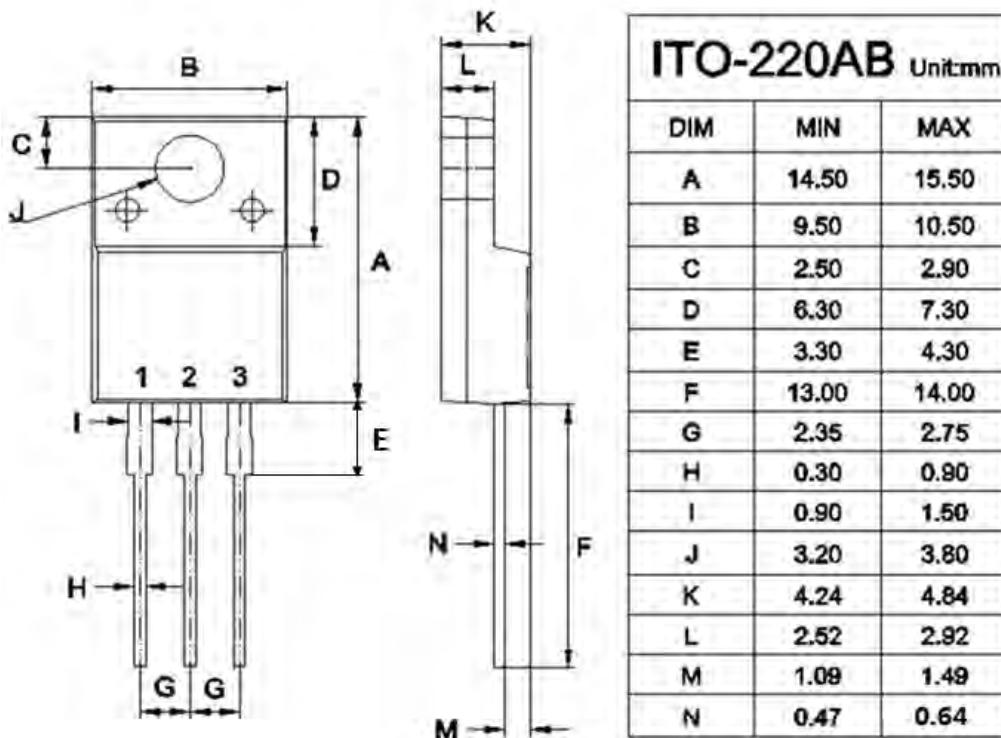
**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



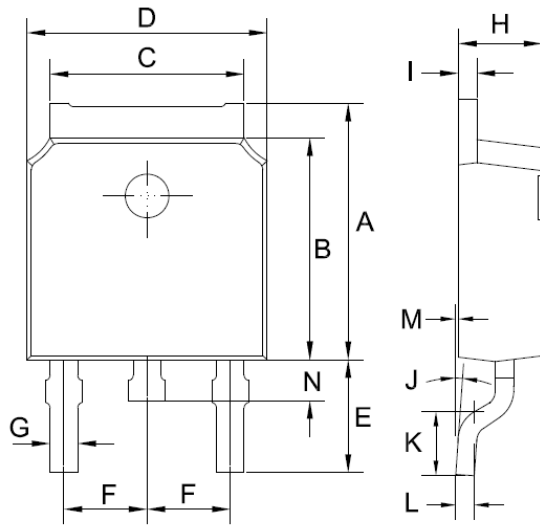
**TO-220 Mechanical Drawing**



**ITO-220 Mechanical Drawing**

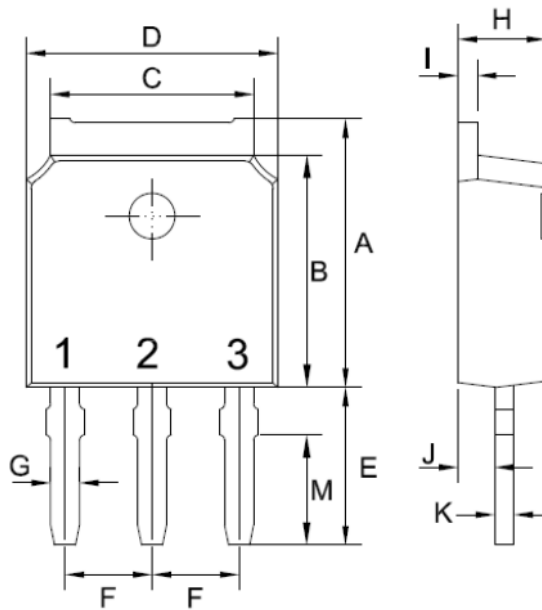


### TO-252 Mechanical Drawing



TO-252 (DPAK)		
Unit:mm		
DIM	MIN	MAX
A	6.85	7.25
B	5.90	6.30
C	5.13	5.53
D	6.40	6.80
E	2.90	3.30
F	2.19	2.39
G	0.45	0.85
H	2.20	2.40
I	0.41	0.61
J	0°	8°
K	1.45	1.85
L	0.41	0.61
M	0.00	0.12
N	0.60	1.00

### TO-251 Mechanical Drawing



TO-251(IPAK)		
Unit:mm		
DIM	MIN	MAX
A	6.85	7.25
B	5.90	6.30
C	5.13	5.53
D	6.40	6.80
E	3.95	4.35
F	2.19	2.39
G	0.45	0.85
H	2.20	2.40
I	0.41	0.61
J	0.71	1.31
K	0.41	0.61
M	2.96	3.16

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