

## 1、Description

BTA41 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.

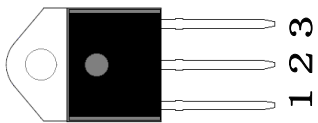
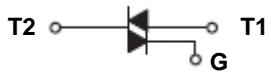
## 2、Applications

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

## 3、Features

- Blocking voltage to 800 V
- On-state RMS current to 40 A
- Ultra low gate trigger current
- Low cost package.

## 4、Pinning information

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

## 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	40	A
$I_{TSM}$	Non-repetitive peak on-state current	400	A

## 6、Thermal characteristics

SYMBOL	PARAMETER	Value	UNIT	
$R_{th(j-c)}$	junction to case(AC)	TO-3P	0.9	°C/W

## 7、Limiting value

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltages		-	800	V
$I_{T(RMS)}$	RMS on-state current	Full Cycle Sine Wave 50 to 60 Hz (TC = 80°C)	-	40	A
$I_{TSM}$	Non-repetitive peak Surge current	One Full cycle, 60 Hz, $T_J = +110^{\circ}C$	-	400	A
$I^2t$	$I^2t$ for fusing	$t = 8.3ms$	-	880	$A^2s$
$I_{GM}$	Peak gate current	Pulse Width $\leq 1.0 \mu s$ , TC = 85°C	-	4	A
$P_{GM}$	Peak gate power	Pulse Width $\leq 1.0 \mu s$ , TC = 85°C	-	10	W
$P_{G(AV)}$	Average gate power	Pulse Width $\leq 1.0 \mu s$ , TC = 85°C	-	1	W
$T_{stg}$	Storage temperature		-40	150	°C
$T_J$	Operating junction temperature		-40	125	°C

## 8、Characteristics

$T_J = 25^{\circ}C$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
<b>Static characteristics</b>						
$I_{GT}$	Gate trigger current	$V_D = 12 V$ ; $I_T = 0.1A$ T2+ G+ T2+ G- T2- G-	-	-	50	mA mA mA
$I_L$	Latching current	$V_D = 12 V$ ; $I_{GT} = 0.1A$ T2+ G+ T2+ G- T2- G-	-	-	80 100 80	mA mA mA
$I_H$	Holding current	Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current $\leq 1 A_{dc}$ $T_J = 25^{\circ}C$	-	-	60	mA
$V_{TM}$	On-state voltage	$I_{TM} = 60A$ , $t_p = 380\mu s$	-	-	1.65	V
$V_{GT}$	Gate trigger voltage (Continuous dc)	Main Terminal Voltage = 12 Vdc, $R_L = 100 \Omega$ , $T_J = -40^{\circ}C$ All Quadrants	-	-	1.5	V
$V_{GD}$	Gate Non-Trigger Voltage	$V_D = V_{DRM}$ $T_J = 125^{\circ}C$ $R_L = 3.3K\Omega$	0.2	-	-	V
<b>Dynamic Characteristics</b>						
dV/dt	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM(max)}$ ; $T_J = 125^{\circ}C$ ; Exponential wave form; $R_{GK} = 1K\Omega$	1000	-	-	V/ $\mu s$

9. Electrical Characteristics Curve

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

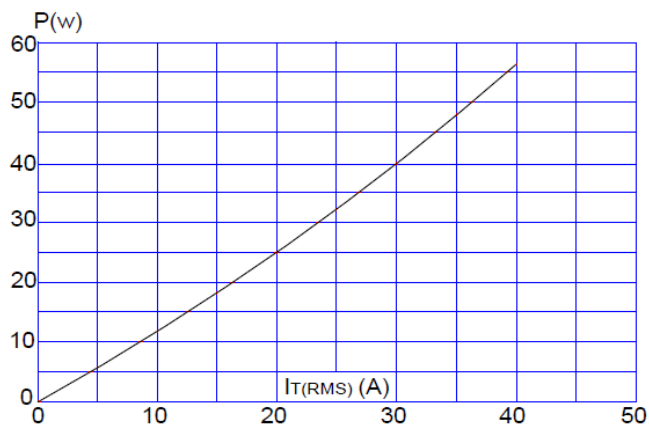


FIG.2: RMS on-state current versus case temperature

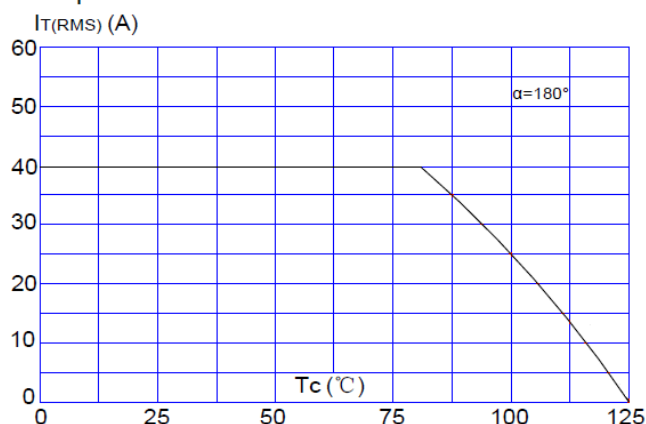


FIG.3: Surge peak on-state current versus number of cycles

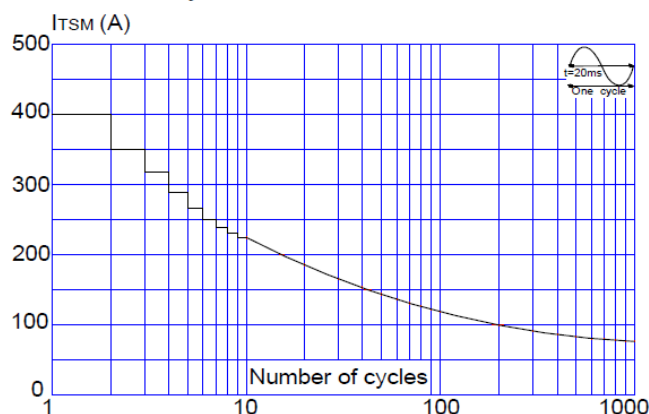


FIG.4: On-state characteristics (maximum values)

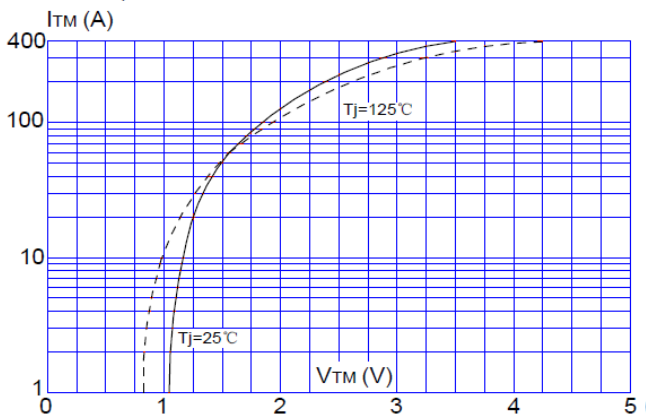


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponding value of I²t (di/dt < 50A/µs)

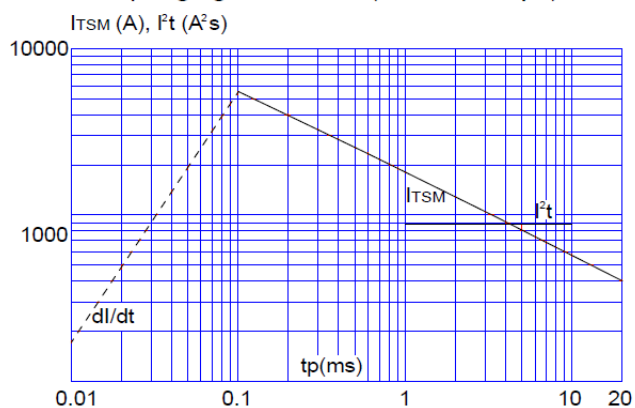
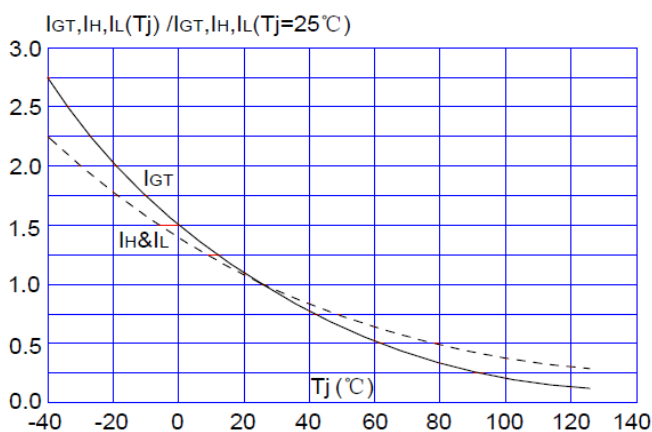
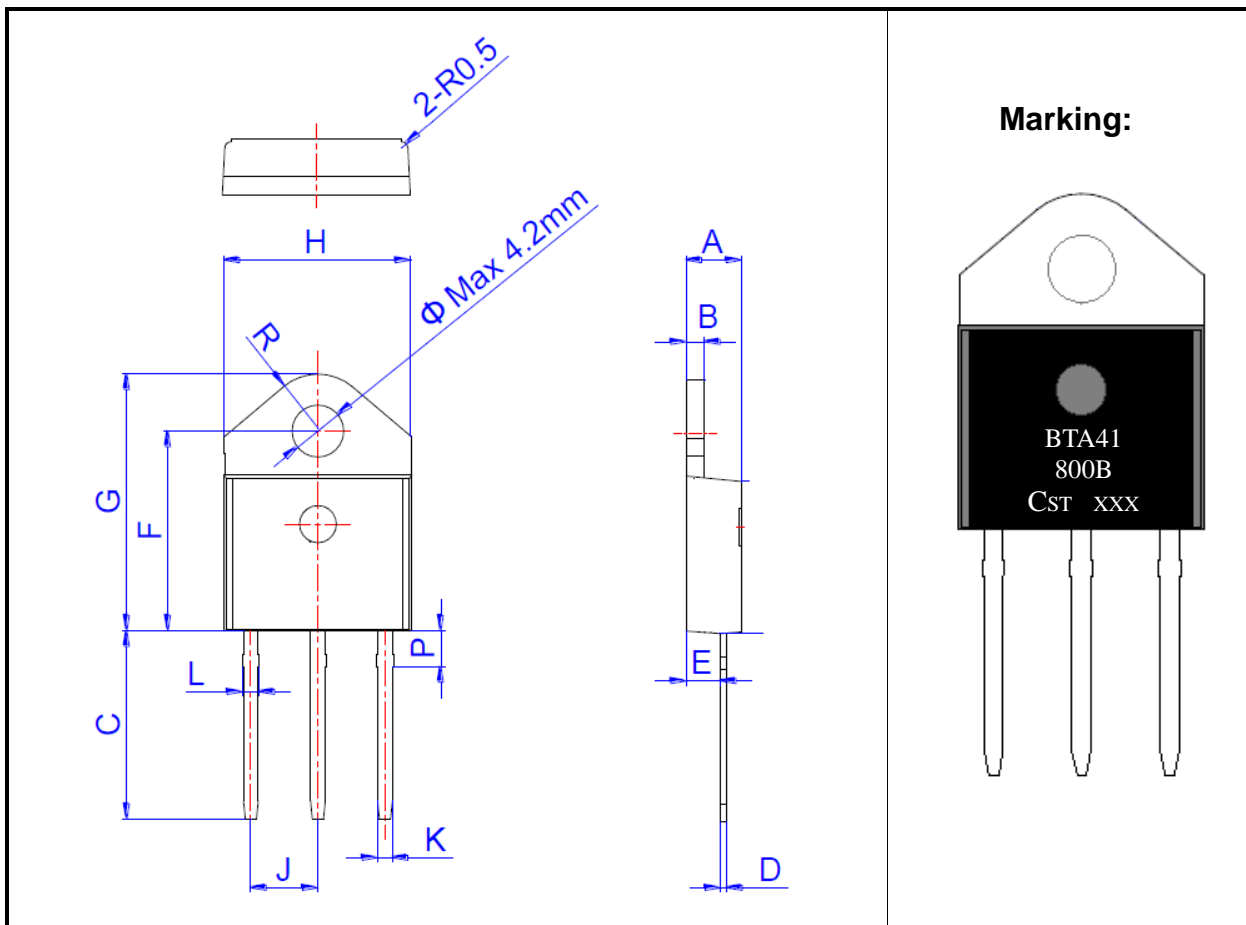


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



10、 Package outline (TO-3P Ins)



DIM	Millimeters			Inches		
	Min	Type	Max	Min	Type	Max
A	4.45		4.65	0.175		0.183
B	1.45		1.55	0.057		0.061
C	14.5		15.8	0.571		0.622
D	0.50		0.70	0.20		0.028
E	2.50		2.80	0.098		0.110
F	15.8		16.5	0.622		0.650
G	20.0		21.1	0.803		0.831
H	15.1		15.5	0.594		0.610
J	5.20		5.50	0.205		0.217
K	1.10		1.40	0.043		0.055
L	1.30		1.45	0.051		0.057
P	2.80		3.00	0.110		0.118
R		4.15			0.163	