BTA41A,BTB 41A

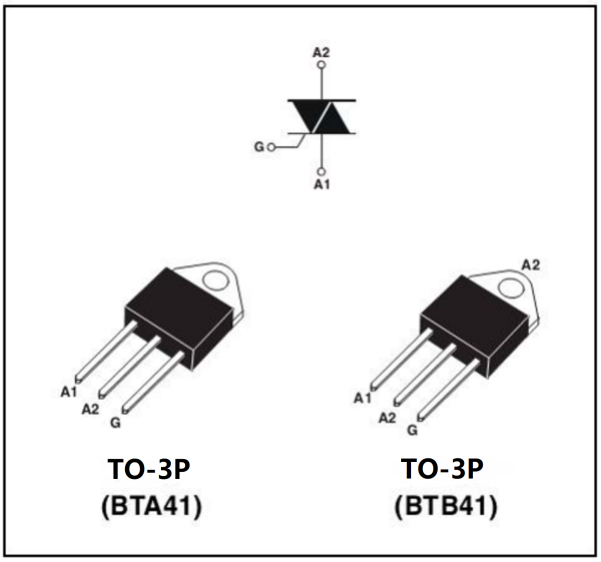
Bidirectional Thyristor

● Product features and main uses:

NPNPN five-layer structure of silicon bidirectional devices; with independent intellectual property rights of single-sided digging technology, table glass passivation process; multi-layer metallized electrodes on the back; with high blocking voltage and high temperature stability.

Mainly used in:

vacuum cleaners, power tools and other motor speed controllers; solid state relays; heating controllers (temperature regulation); other phase control circuits.



TO-3P (BTA41)　　TO-3P (BTB41)

●Characteristics

Table 1. Absolute maximum ratings (T_j = 25 °C unless otherwise stated)

Symbol	Parameter name			value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	BTA BTB	T_c=80℃ T_c=90℃	41	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25 °C)	F=50HZ t_p=20ms		410	A
I^2t	I^2t value for fusing	t_p=10ms		880	A^2S
di/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT}, t_r ≤ 100 ns	T_j=125℃		50	A/us
V_{DRM}/V_{RRM}	Off state repetitive peak voltage Reverse repetitive peak voltage	T_j=25℃		1600	V
I_{GM}	Peak gate current	tp=20us	T_j=125℃	8	A
$P_{G(AV)}$	Average gate power dissipation	T_j=125℃		1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			−40to+150 −40to+125	℃

●Table 2. Electrical characteristics (T_j = 25 °C, unless otherwise specified) --3 quadrants

Symbol	Name and test conditions	Quadrant	Range	value	Unit
I_{GT}	V_D=12V R_L=100Ω	Ⅰ Ⅱ Ⅲ	MAX	≦50	mA
V_{GT}			MAX	1.5	V
V_{GD}	V_D = V_{DRM}, R_L = 3.3 kΩ, T_j = 125 °C		MIN	0.2	V
I_H	I_T=0.5A		MAX	60	mA
I_L	I_G=1.2I_{GT}		MAX	60	mA
				100	
dv/dt	V_D=2/3V_{DRM} Tj=125℃		MIN	550	V/us
$(dv/dt)_c$	Tj=125℃		MIN	10	V/us

●Table 3. Electrical characteristics (Tj = 25 °C, unless otherwise specified) - Standard Triac--- 4 quadrants

Symbol	Name and test conditions	Quadrant	Range	value		Unit
I_{GT}	V_D=12V R_L=100Ω	Ⅰ Ⅱ Ⅲ Ⅳ	MAX	Ⅰ、Ⅱ、Ⅲ	≤50	mA
				Ⅳ	≤120	
V_{GT}			MAX	1.5		V
V_{GD}	V_D = V_{DRM}, R_L = 3.3 kΩ, T_j = 125 °C		MIN	0.2		V
I_H	I_T=0.5A		MAX	80		mA
I_L	I_G=1.2I_{GT}	Ⅰ,Ⅱ,Ⅲ	MAX	80		mA
		Ⅳ		160		
dv/dt	V_D=2/3V_{DRM} T_j=125℃		MIN	550		V/us
$(dv/dt)_c$	T_j=125℃		MIN	10		V/us

●Static parameters

Symbol	Parameter name			value	Unit
V_{TM}	I_{TM}= 60A	T_j=25℃	MAX	1.55	V
V_{T0}	threshold on-state voltage	T_j=125℃	MAX	0.86	V
R_d	Dynamic resistance	T_j=125℃	MAX	6.4	mΩ
I_{DRM} I_{RRM}	Repetitive peak off-state current Repetitive peak reverse current	T_j=25℃ T_j=125℃	MAX	10	uA
				2	mA
$R_{th(j-c)}$	Junction to ambient	BTA		0.9	℃/W
		BTB		0.6	

BTA41A,BTB41A characteristic curve

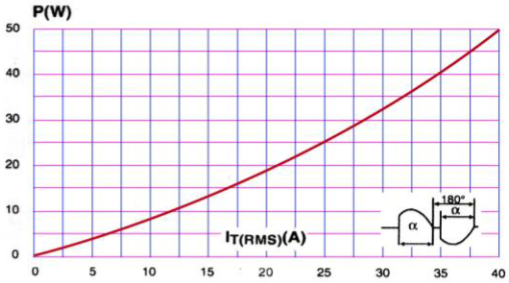


FIG.1:Maximum power dissipation versus RMS on-state current(180℃)

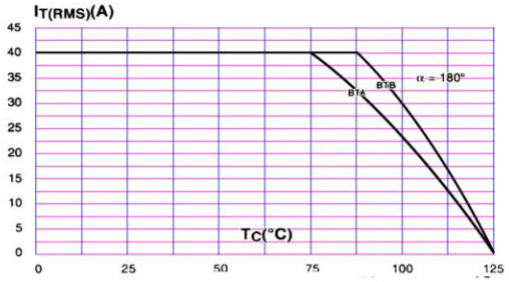


FIG.2:RMS on-state current versus case

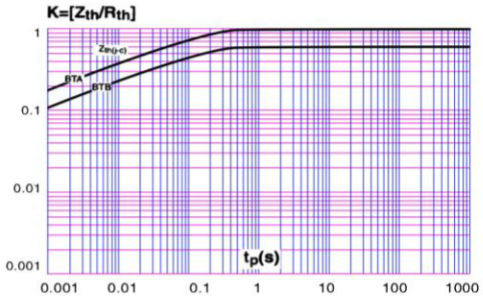


FIG.3:Transient thermal impedance curves

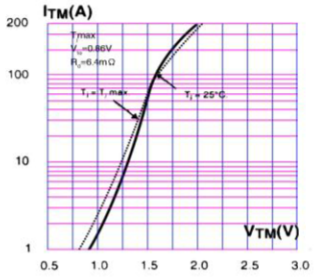


FIG.4: On-state characteristics

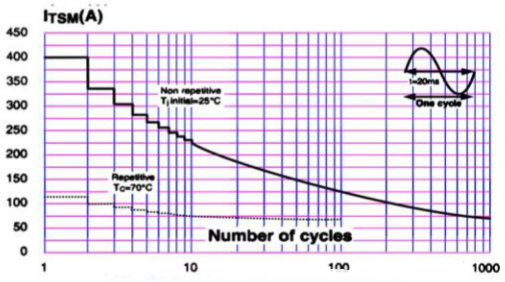


FIG.5:Surge peak on-state current versus number of cycles

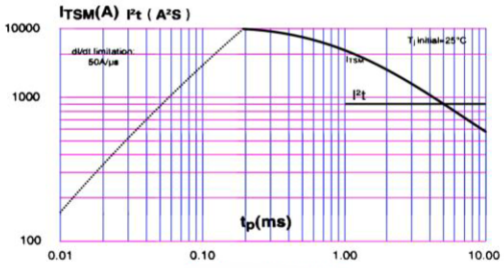


FIG.6:ITSM-t,I2t-t

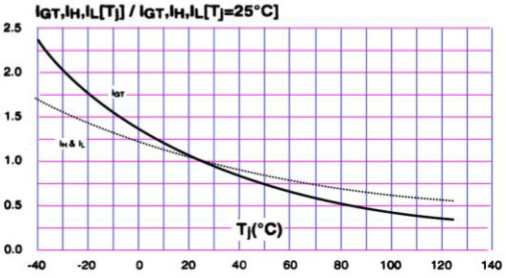
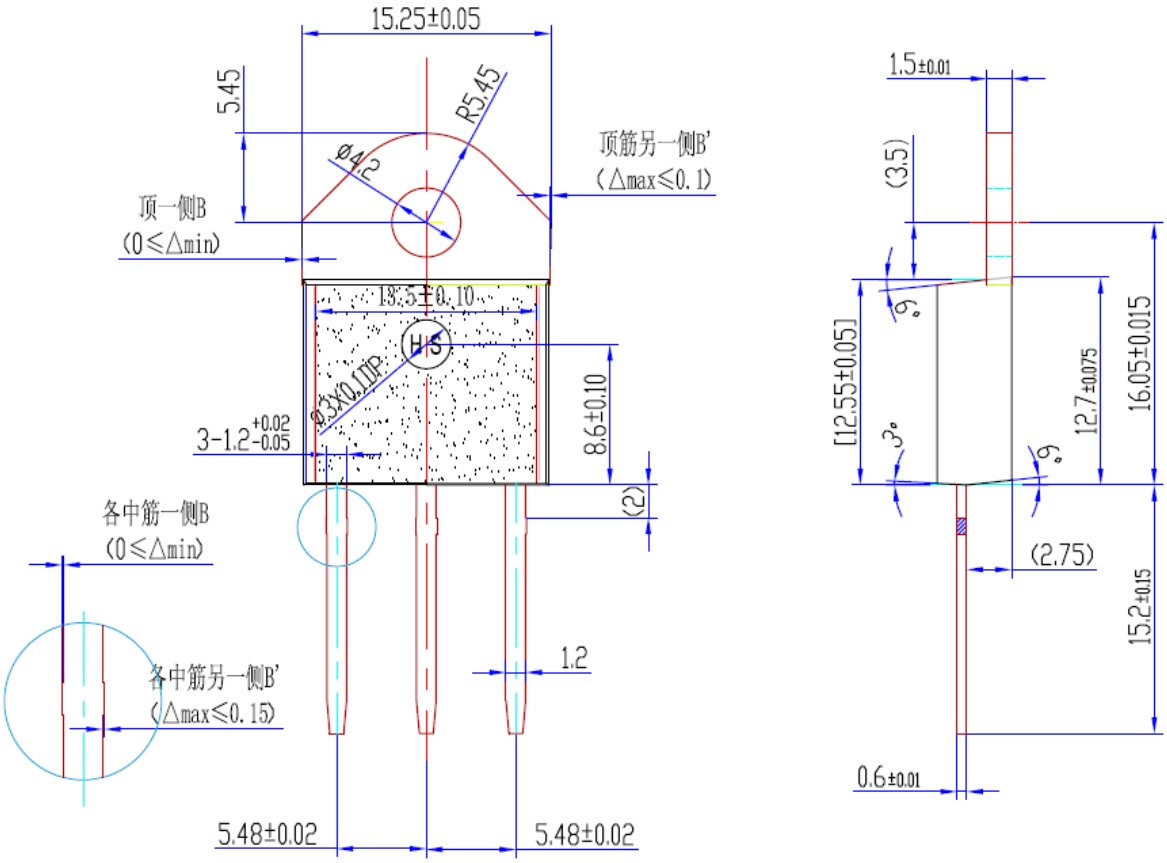


FIG.7:Gate trigger characteristic curves

●TO-3P Dimensional drawing:

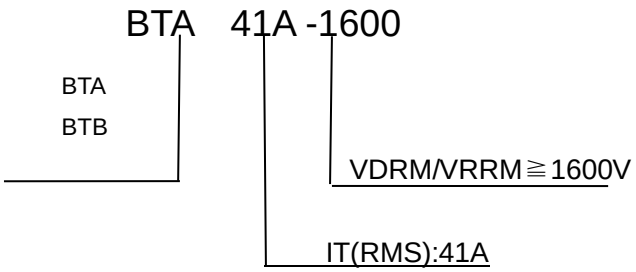
Unit：mm（±0.1）



●Product Marking Comments：

XXXXX_____Production batch number

LGE _____Company Logo



BTA：Insulation type
BTB：Non insulated type