BTA10 BTB10

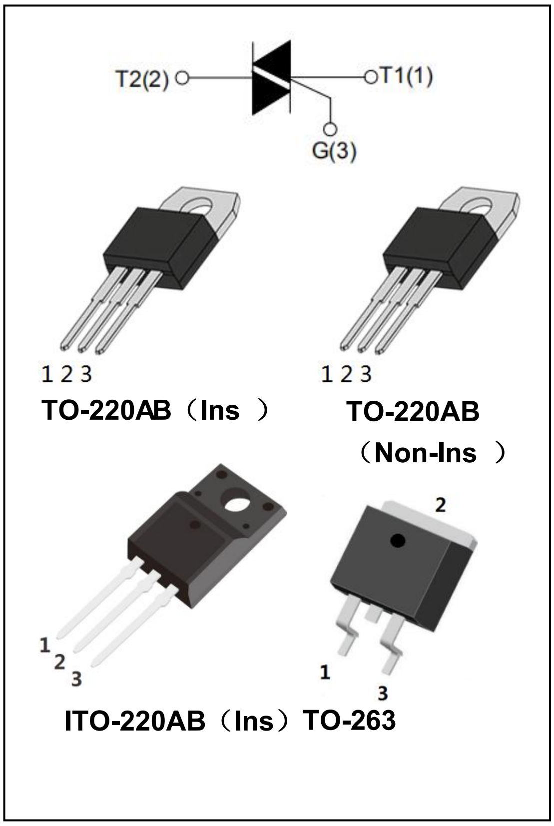
10A Ⅲ&ⅣSERIES TRIACS

Features

◇The LGE BTA10/BTB10, 10A Ⅲ &Ⅳquadrants series triacs ,which can be operated in Ⅲ &Ⅳquadrants.As silicon bidirectional device,with NPNPN five-layer structure; singlesided trenching technology,mesa glass passivation process;

◇multi-layer metallized electrode on the back side;

◇High blocking voltage and high temperature stability.



Applications

The LGE BTA10/BTB10 is suitable for inductive load switching operations,also can be used in ON/OFF function applications such as washing machine,induction motor starting circuits,vacuum cleaners,power tools and other motors such as speed control maker; heating regulation, solid state relay; phases control circuit ; AC motor speed regulation,and so on.

Mechanical Data

◇ Moisture Sensitivity: MSL Level 1,per J-STD-020

◇ Terminals:Matte Tin Finish.
Solderable per MIL-STD-202 Method 208

◇ Case Material：Molded Plastic;

◇ Molding compound meet UL Flammability Classification Rating 94V-0

◇ Case:JEDEC TO-220AB,ITO-220AB,TO-263

MAXIMUM RATING

Ratings at 25℃ ambient tepmerature unless otherwise specified.

PARAMETER			SYMBOL	VALUE	UNITS
R.M.S. On-State Current	BTA BTB	Tc=80℃ Tc=90℃	$I_{T(RMS)}$	10	A
Non-Repetitive Surge Peak On-State Current(fFull Cycle,Tj initial=25℃)	F=50HZ	T=20ms	I_{TSM}	100	A
	F=60HZ	T=16.7ms		105	
I^2t Value for Fusing	tp=10ms		I^2t	55	A^2s
Critical Rate of Rise of On-State Current $I_G=2\times I_{GT}$，tr≤100ns	F=120HZ	Tj=125℃	di/dt	50	A/μs
Repetitive peak Off-State voltage		Tj=25℃	V_{DRM}/V_{RRM}	600/800	V
Non repetitive surge peak off-state voltage	tp=10ms	Tj=25℃	V_{DSM}/V_{RSM}	V_{DRM}/V_{RRM}+100	V
Peak Gate Current	tp=20μs	Tj=125℃	I_{GM}	4	A
Average Gate Power Dissipation		Tj=125℃	$P_{G(AV)}$	1	W
Typical Thermal Resistance (Junction to Ambient)	TO-220AB /TO-263		$R_{\theta JA}$	50	℃/W
	ITO-220AB			60	
Typical Thermal Resistance(Junction to Case (AC))	TO-220AB(Non-ins)		$R_{\theta JC}$	1.6	℃/W
	TO-220AB Ins			2.5	
	ITO-220AB			2.7	
	TO-263			1.7	
Maximum Operating Junction temperature			T_J	-40~+125	℃
Storage temperature range			T_{STG}	-40~+150	℃

ELECTRICAL CHARACTERISTICS(Ⅲ QUADRANTS)

PARAMETER	TEST CONDITIONS	Symbol	VALUES					Units
				TW	SW	CW	BW	
Gate Trigger Current	VD=12V,RL=100Ω (Ⅰ ⅡⅢquadrant)	I_{GT}	MAX	5	10	35	50	mA
Gate Trigger Voltage		V_{GT}	MAX	1.5				V
Gate Non-Trigger Voltage	Tj=125℃(Ⅰ ⅡⅢquadrant)	V_{GD}	MIN	0.2				V
Holding Current I_T=0.5A		I_H	MAX	10	20	40	60	mA
Latching Current I_G=1.2I_{GT}	Ⅰ Ⅲ quadrant	I_L	MAX	20	25	50	70	mA
	Ⅱquadrant		MAX	25	35	70	90	
Critical Rate of Rise of Off-State Voltage V_D=2/3V_{DRM},Tj=125℃		dv/dt	MIN	200	200	500	1000	V/μs
Critical Rate of Rise of Off-State Voltage at Commutation, Tj=125℃		(dv/dt)c	MIN	5.5	5.5	5.5	10	V/μs

ELECTRICAL CHARACTERISTICS(Ⅳ QUADRANTS)

PARAMETER	TEST CONDITIONS		SYMBOL	VALUE					UNITS
					D	E	F	G	
Gate Trigger Current	VD=12V,RL=100Ω (Ⅰ ⅡⅢⅣ quadrant)	Ⅰ ⅡⅢ	I_{GT}	MAX	5	10	25	50	mA
		Ⅳ		MAX	10	25	70	100	
Gate Trigger Voltage		All	V_{GT}	MAX	1.5				V
Gate Non-Trigger Voltage	Tj=125℃(Ⅰ ⅡⅢquadrant)		V_{GD}	MIN	0.2				V
Holding Current I_T=0.5A			I_H	MAX	10	20	30	60	mA
Latching Current =1.2I_{GT}	Ⅰ Ⅲ Ⅳquadrant		I_L	MAX	15	30	40	60	mA
	Ⅱquadrant			MAX	20	40	60	90	
Critical Rate of Rise of Off-State Voltage V_D=2/3V_{DRM},Tj=125℃			dv/dt	MIN	5	10	200	500	V/μs
Critical Rate of Rise of Off-State Voltage at Commutation, Tj=125℃			(dv/dt)c	MIN	1	2	5.5	10	V/μs

STATIC CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL		VALUE	UNITS
Peak On-State Voltage	I_{TM}=14A,tp=380μs,Tj=25℃	V_{TM}	MAX	1.55	V
Threshold Voltage	Tj=125℃	V_{TO}	MAX	0.85	V
Dynamic Resistance	Tj=125℃	Rd	MAX	40	mΩ
Repetitive Peak Off-Statte Curren V_{DRM}=V_{RRM}	Tj=25℃	I_{DRM}/ I_{RRM}	MAX	5	μA
	Tj=125℃	I_{DRM}/I_{RRM}	MAX	1	mA

RATING AND CHARACTERISTICS CURVES

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

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

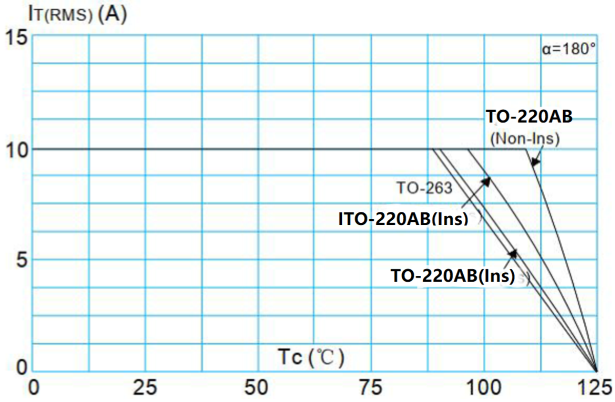


FIG.3: Surge peak on-state current versus number of cycles

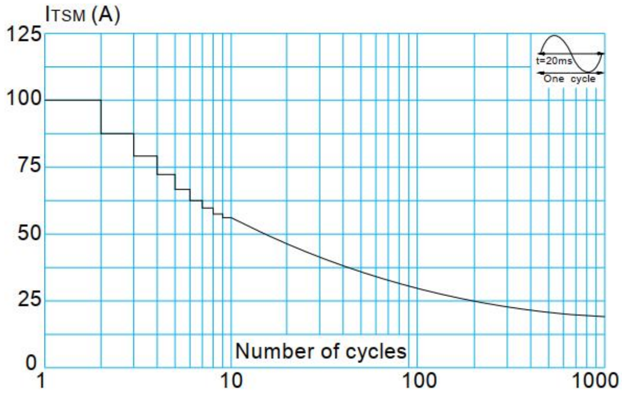


FIG.4: On-state characteristics (maximum values)

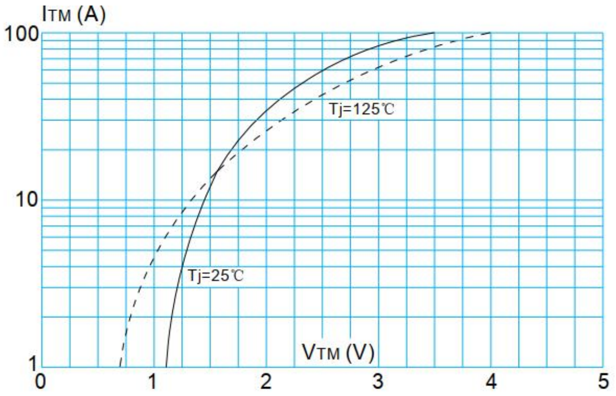
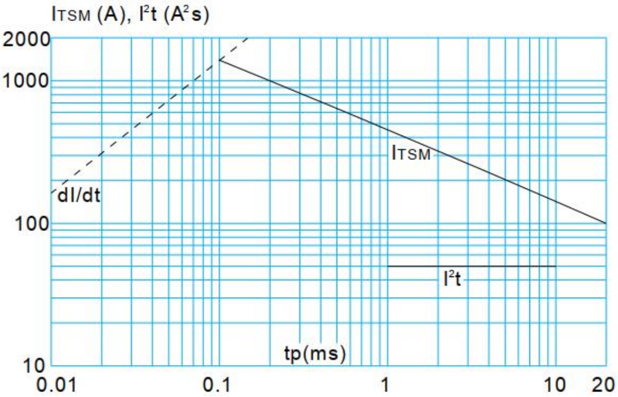
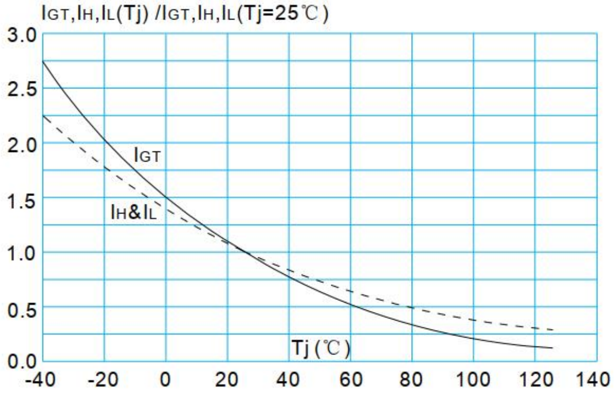


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (Ⅰ-Ⅱ-Ⅲ:dI/dt < 50A/μs;Ⅳ:dI/dt < 10A/μs)

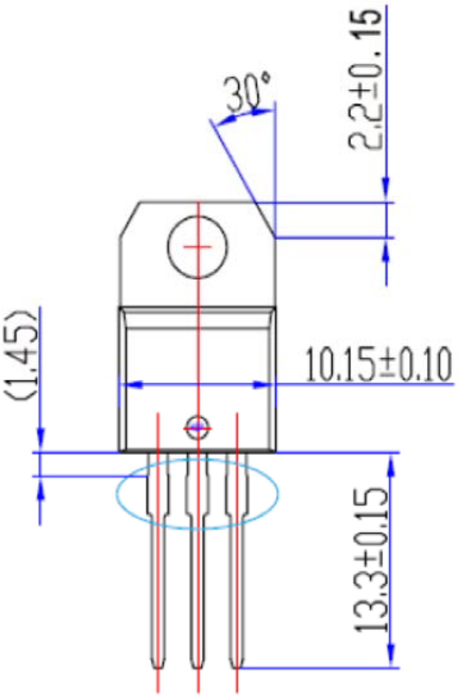
FIG.6: Relative variations of gate trigger current,holding current and latching current versus junction temperature

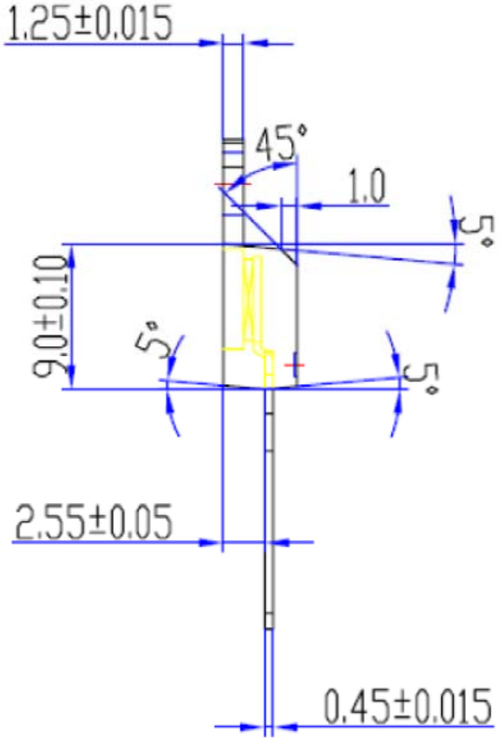




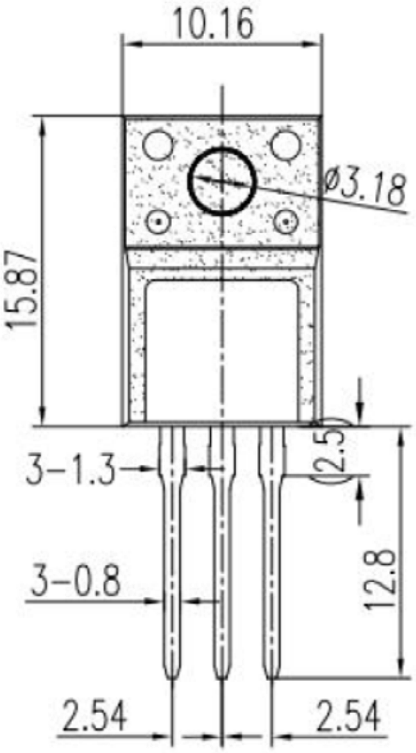
PACKAGE OUTLINE DIMENSIONS

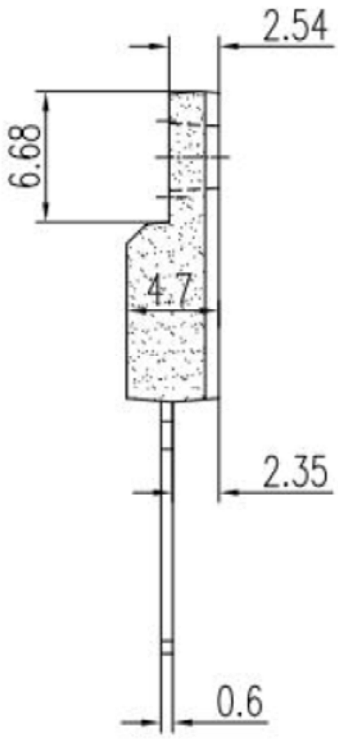
TO-220AB units:mm





ITO-220AB units:mm(±0.10)

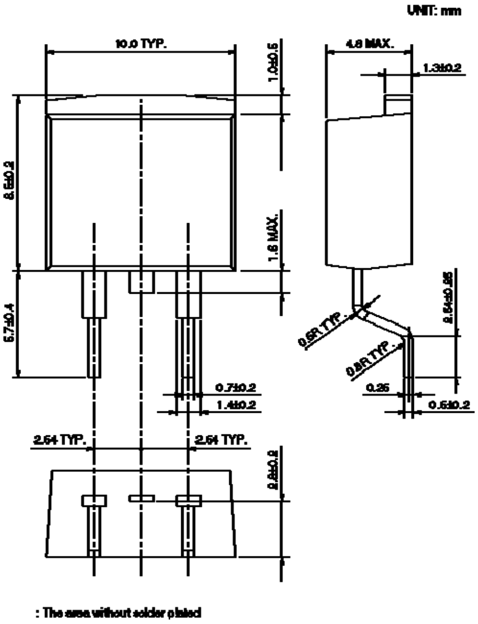




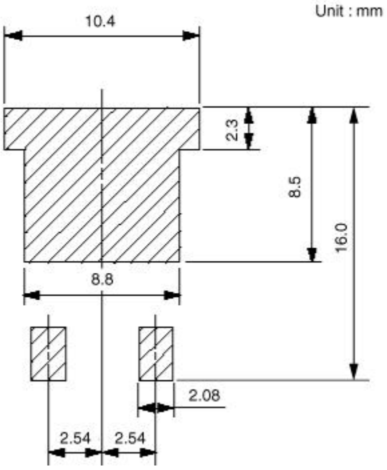
PACKAGE OUTLINE DIMENSIONS

TO-263 units:mm

Suggested Pad Layout



: The area without solder plated



ORDERING INFORMATION

BT A 10- 800 E

Triac

Insulation
A=Insulated
B=Non-insulated

Current
10=10A

Voltage
600=600V
800=800V

Sensitivity and Type
BW=50mA CW=35mA SW=10mA TW=5mA
G=50mA F=25mA E=10mA D=5mA