

Features

- ◇ The LGE BTA16/BTB16, 16A III & IV quadrants series triacs, which can be operated in III & IV quadrants. As silicon bidirectional device, with NPNPN five-layer structure; singlet-sided trenching technology, mesa glass passivation process;
- ◇ multi-layer metallized electrode on the back side;
- ◇ High blocking voltage and high temperature stability.

Applications

The LGE BTA16/BTB16 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.

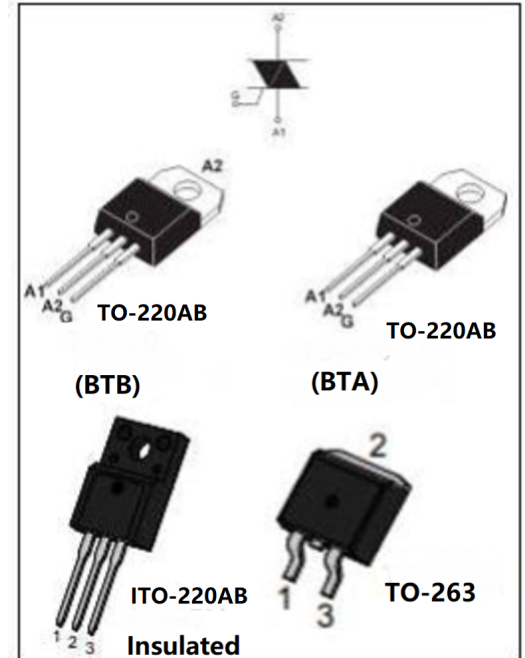
Mechanical Data

- ◇ 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°C ambient temperature unless otherwise specified.

PARAMETER			SYMBOL	VALUE	UNITS
R.M.S. On-State Current	BTA BTB	Tc=80℃ Tc=90℃	I _{T(RMS)}	16	A
Non-Repetitive Surge Peak On-State Current(fFull Cycle,Tj initial=25℃)	F=50HZ	T=20ms	I _{TSM}	160	A
	F=60HZ	T=16.7ms		168	
I ² t Value for Fusing	tp=10ms		I ² t	144	A ² s
Critical Rate of Rise of On-State Current IG=2×IGT, tr≤100ns	F=120HZ	Tj=125℃	di/dt	50	A/ μ s
Repetitive peak Off-State voltage		Tj=25℃	VDRM/VRRM	600/800	V
Non repetitive surge peak off-state voltage	tp=10ms	Tj=25℃	VDSM/VRSM	VDRM/VRRM+100	V
Peak Gate Current	tp=20μs	Tj=125℃	IGM	4	A
Average Gate Power Dissipation		Tj=125℃	PG(AV)	1	W
Typical Thermal Resistance (Junction to Ambient)	TO-220AB/TO-220ABins		RθJA	60	℃/W
	TO-263			45	
Typical Thermal Resistance(Junction to Case (AC))	TO-220AB/TO-263		RθJC	1.2	℃/W
	TO-220AB Insulated			2.1	
Maximum Operating Junction temperature			TJ	-40~+125	℃
Storage temperature range			TSTG	-40~+150	℃



ELECTRICAL CHARACTERISTICS(III QUADRANTS)

PARAMETER	TEST CONDITIONS	Symbol	VALUES					Units
				TW	SW	CW	BW	
Gate Trigger Current	$V_D=12V, R_L=100\Omega$	I_{GT}	MAX	5	10	35	50	mA
Gate Trigger Voltage	(I II IIIquadrant)	V_{GT}	MAX	1.5				V
Gate Non-Trigger Voltage	$T_j=125^\circ C$ (I II IIIquadrant)	V_{GD}	MIN	0.2				V
Holding Current $I_T=0.5A$		I_H	MAX	5	15	35	50	mA
Latching Current $I_G=1.2I_{GT}$	I III quadrant	I_L	MAX	5	25	50	70	mA
	II quadrant		MAX	20	30	60	80	
Critical Rate of Rise of Off-State Voltage $V_D=2/3V_{DRM}, T_j=125^\circ C$		dv/dt	MIN	15	100	500	1000	V/ μs
Critical Rate of Rise of Off-State Voltage at Commutation, $T_j=125^\circ C$		$(dv/dt)_c$	MIN	8.5	8.5	10	10	V/ μs

ELECTRICAL CHARACTERISTICS(IV QUADRANTS)

PARAMETER	TEST CONDITIONS		SYMBOL	VALUE			UNITS
					C	B	
Gate Trigger Current	VD=12V,RL=100 Ω (I II IIIIV quadrant)	I II III	IGT	MAX	25	50	mA
		IV		MAX	50	100	
Gate Trigger Voltage		All	VGT	MAX	1.3		V
Gate Non-Trigger Voltage	Tj=125°C (I II IIIquadrant)		VGD	MIN	0.2		V
Holding Current IT=0.5A			IH	MAX	40	60	mA
Latching Current =1.2IGT	I III IVquadrant		IL	MAX	50	70	mA
	II quadrant			MAX	80	120	
Critical Rate of Rise of Off-State Voltage VD=2/3VDRM,Tj=125°C			dv/dt	MIN	200	400	V/ μ s
Critical Rate of Rise of Off-State Voltage at Commutation, Tj=125°C			(dv/dt)c	MIN	5	10	V/ μ s

STATIC CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL		VALUE	UNITS
Peak On-State Voltage	$I_{TM}=23A, T_j=25^\circ C$	V_{TM}	MAX	1.50	V
Threshold Voltage	$T_j=125^\circ C$	V_{TO}	MAX	0.87	V
Dynamic Resistance	$T_j=125^\circ C$	R_d	MAX	14.6	m Ω
Repetitive Peak Off-Statte Curren $V_{DRM}=V_{RRM}$	$T_j=25^\circ C$	I_{DRM}/I_{RRM}	MAX	5	μA
	$T_j=125^\circ C$	I_{DRM}/I_{RRM}	MAX	1	mA

RATING AND CHARACTERISTICS CURVES

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

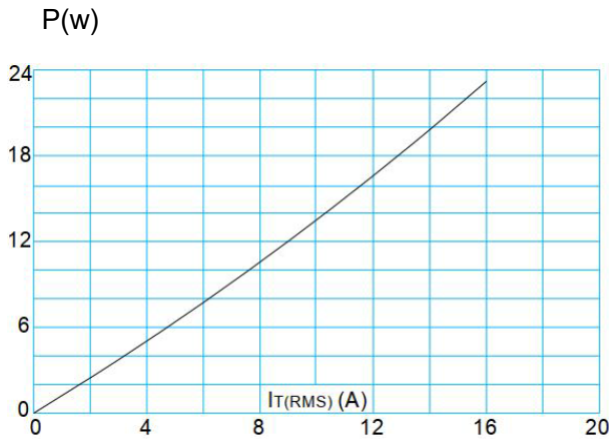


FIG.3: Surge peak on-state current versus number of cycles

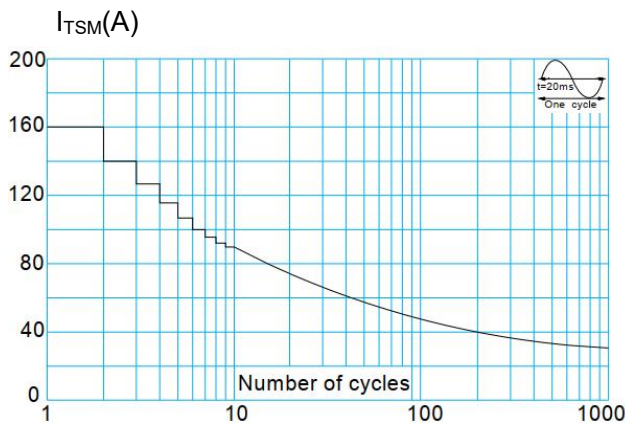


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II - III: $di/dt < 50\text{A}/\mu\text{s}$; IV: $di/dt < 10\text{A}/\mu\text{s}$)

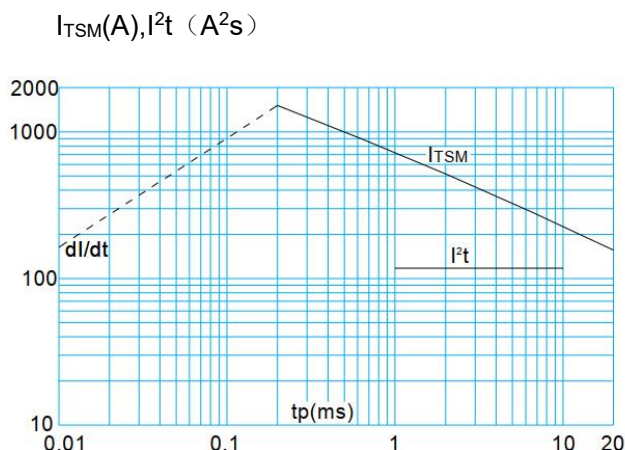


FIG.2: RMS on-state current versus case temperature

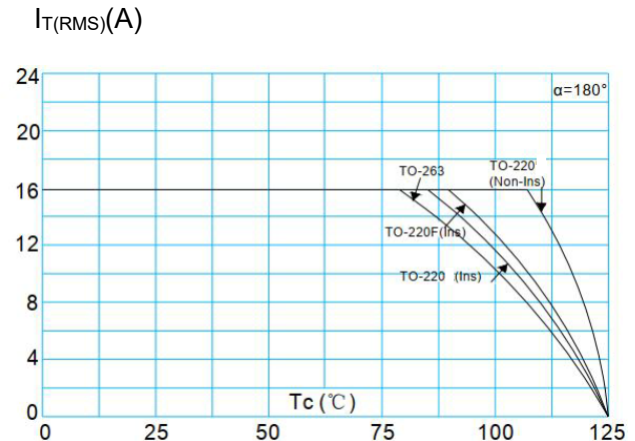


FIG.4: On-state characteristics (maximum values)

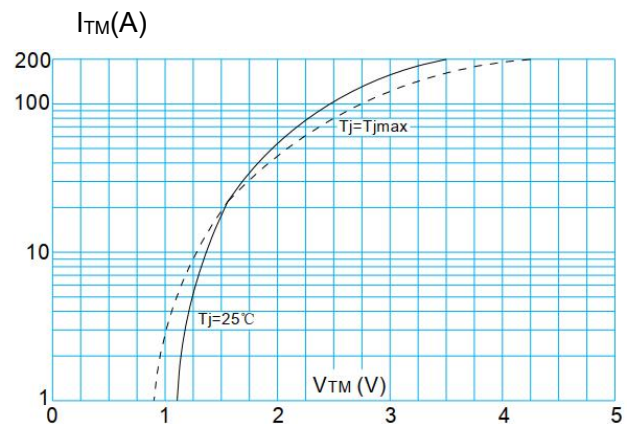
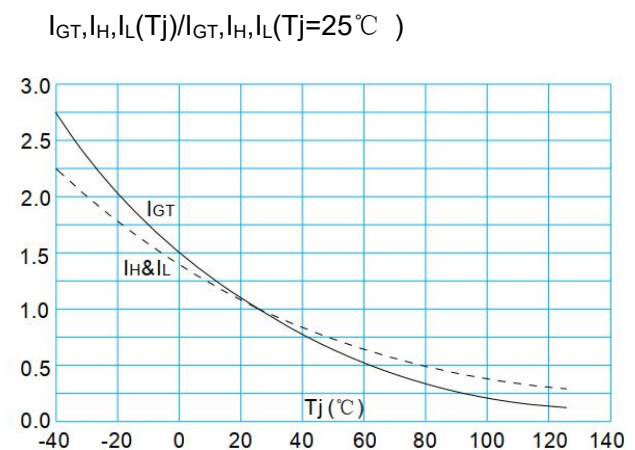
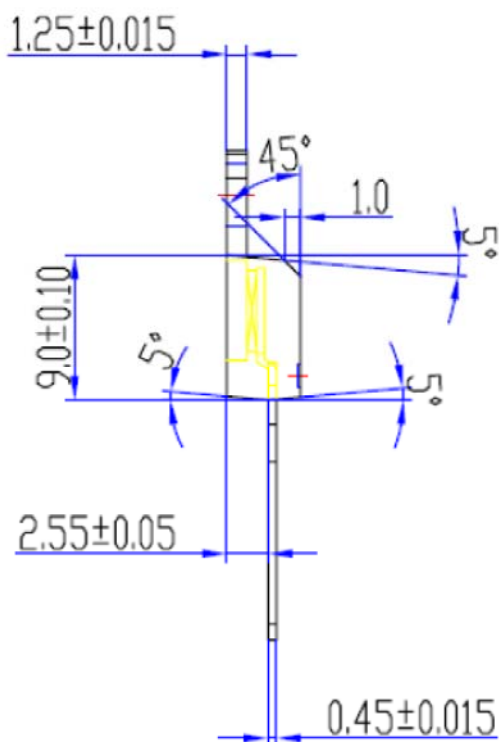
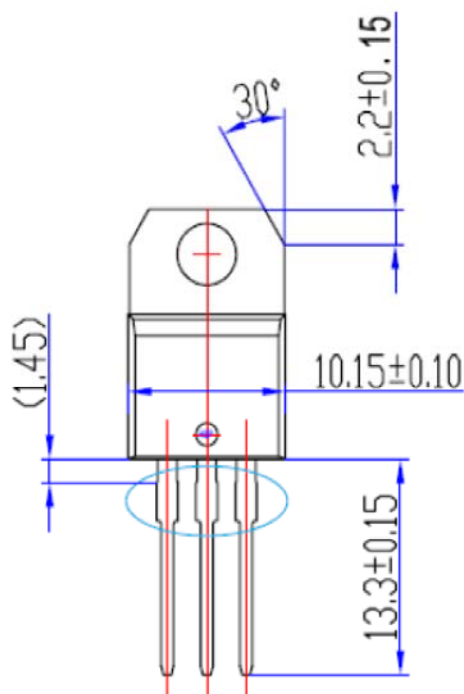


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

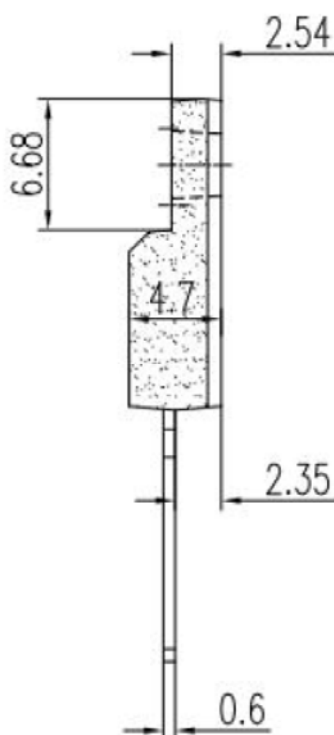
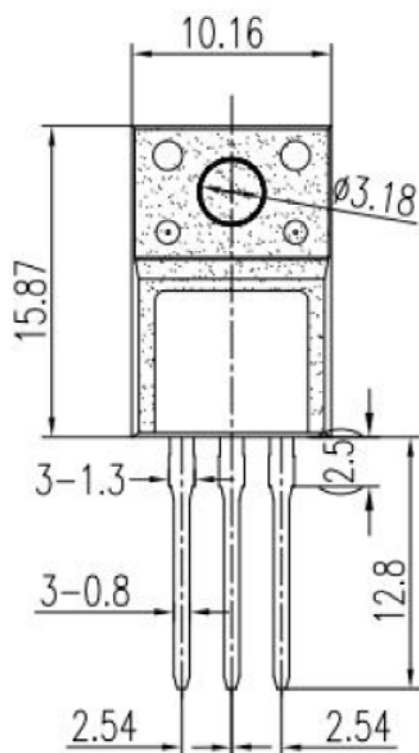


PACKAGE OUTLINE DIMENSIONS

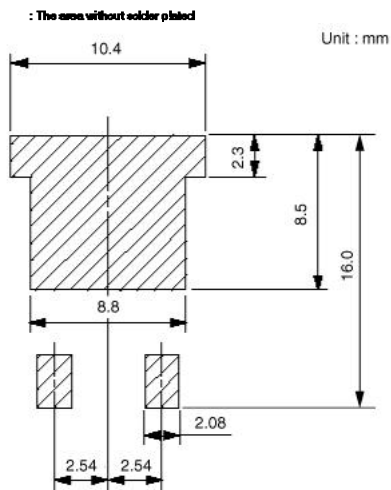
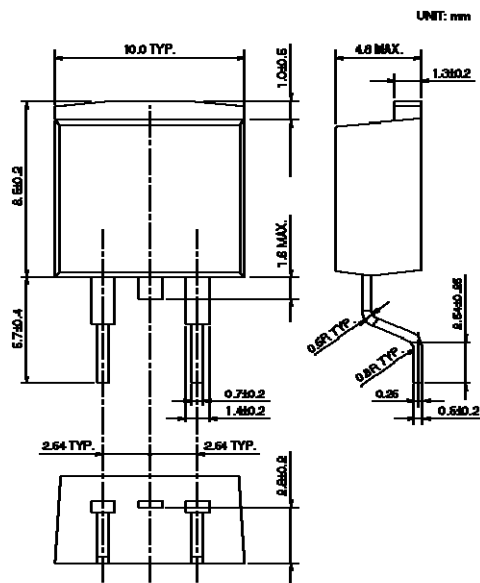
TO-220 units:mm



TO-220F units:mm(± 0.10)

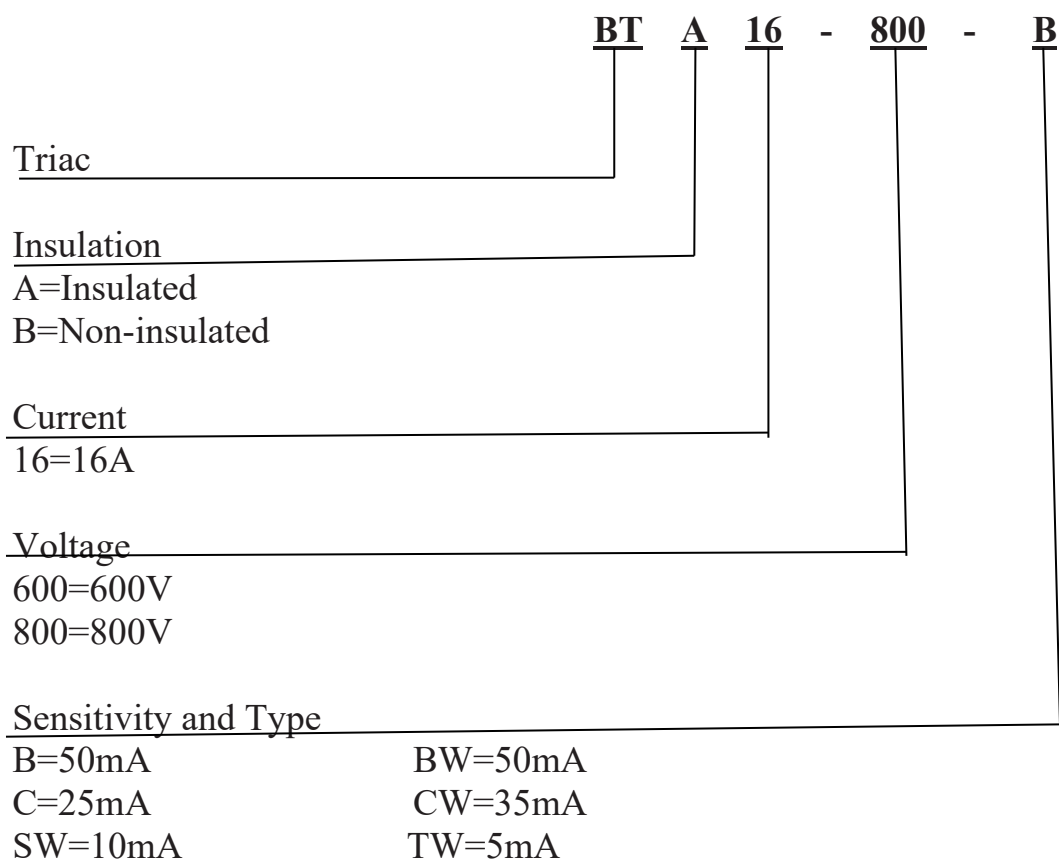


PACKAGE OUTLINE DIMENSIONS
TO-263 units:mm(± 0.10)





ORDERING INFORMATION



Package	Packing	Box Size L×W×H(mm)	Quatity(pcs/box)	Carton Size L×W×H(mm)	Quatity(pcs/carton)
TO-220	50pcs/Tube	558×148×38	1000	565×225×175	5000

Package	Packing	Box Size L×W×H(mm)	Quatity(pcs/box)	Carton Size L×W×H(mm)	Quatity(pcs/carton)
TO-263	50pcs/Tube	560×178×38	1000	585×385×220	10000