

Features

- ◇ The LGE BTA24/BTB24, 24A III & IV quadrants series triacs, which can be operated in III & IV quadrants. As silicon bidirectional device, with NPNPN five-layer structure; singesided trenching technology, mesa glass passivation process;
- ◇ multi-layer metallized electrode on the back side;
- ◇ High blocking voltage and high temperature stability.

Applications

The LGE BTA24/BTB24 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.

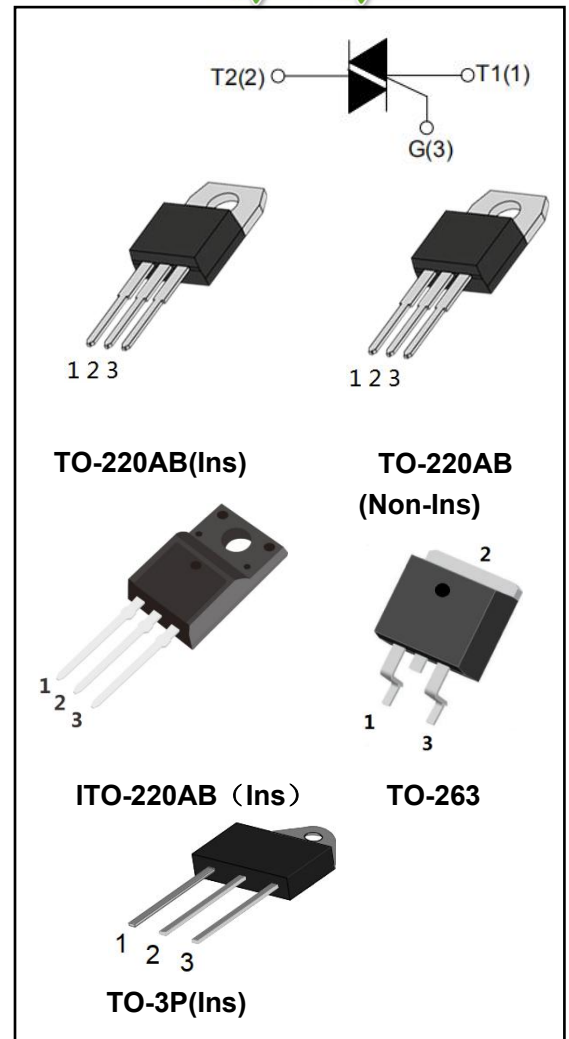
Mechanical Data

- ◇ 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-20AB, TO-263, TO-3P

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℃	IT(RMS)	24	A
Non-Repetitive Surge Peak On-State Current(fFull Cycle,Tj initial=25℃)	F=50HZ	T=20ms	ITSM	250	A
	F=60HZ	T=16.7ms		260	
I²t Value for Fusing	tp=10ms		I²t	288	A²s
Critical Rate of Rise of On-State Current IG=2×IGT, tr≤100ns	F=120HZ	Tj=125℃	di/dt	100	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	1.25	℃/W
	TO-220AB Insulated			2.10	
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	60	80	mA
Latching Current $I_G=1.2I_{GT}$	I III quadrant	I_L	MAX	5	25	70	90	mA
	II quadrant		MAX	20	30	80	100	
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	$V_D=12V, R_L=100\Omega$ (I II IIIIV quadrant)	I II III	I_{GT}	MAX	25	50	mA
		IV		MAX	50	100	
Gate Trigger Voltage		All	V_{GT}	MAX	1.3		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	60	80	mA
Latching Current $=1.2I_{GT}$	I III IVquadrant	I_L	I_L	MAX	40	60	mA
	II quadrant			MAX	80	120	
Critical Rate of Rise of Off-State Voltage $V_D=2/3V_{DRM}, T_j=125^\circ C$			dv/dt	MIN	200	400	V/ μs
Critical Rate of Rise of Off-State Voltage at Commutation, $T_j=125^\circ C$			$(dv/dt)_c$	MIN	5	10	V/ μs

STATIC CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL		VALUE	UNITS
Peak On-State Voltage	$I_{TM}=35A, T_j=25^\circ C$	V_{TM}	MAX	1.55	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

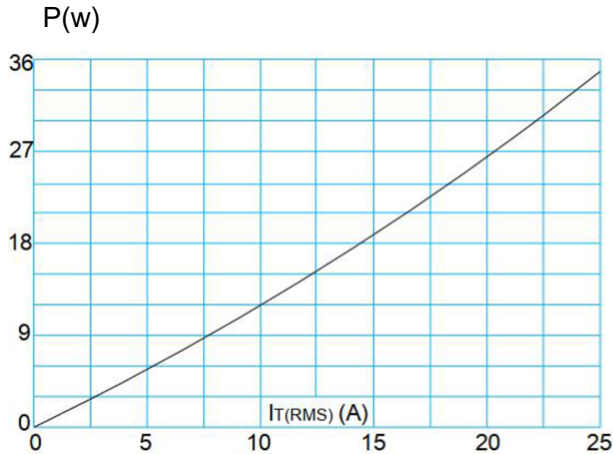


FIG.3: Surge peak on-state current versus number of cycles

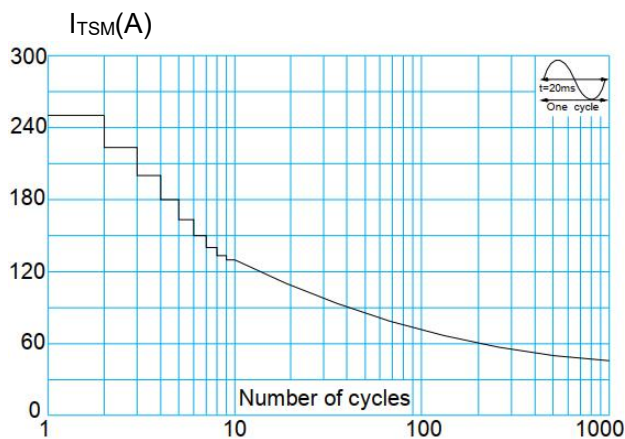


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II - III: $di/dt < 50\text{A}/\mu\text{s}$; IV: $di/dt < 10\text{A}/\mu\text{s}$)

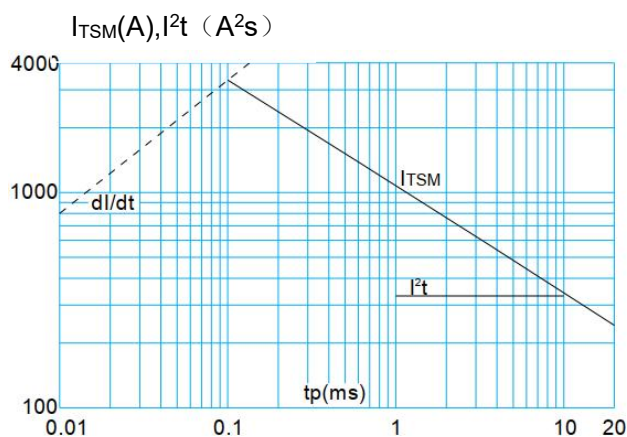


FIG.2: RMS on-state current versus case temperature

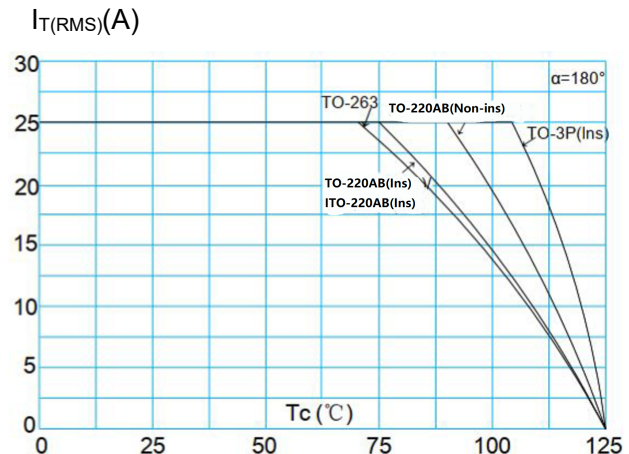


FIG.4: On-state characteristics (maximum values)

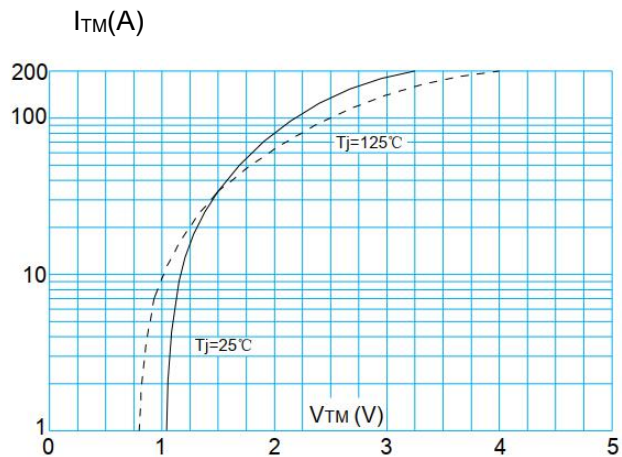
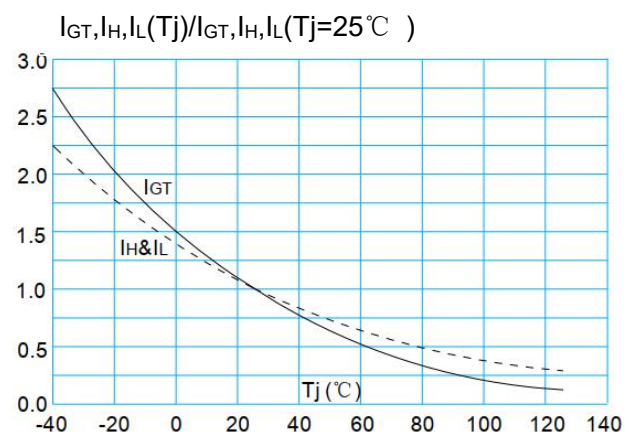
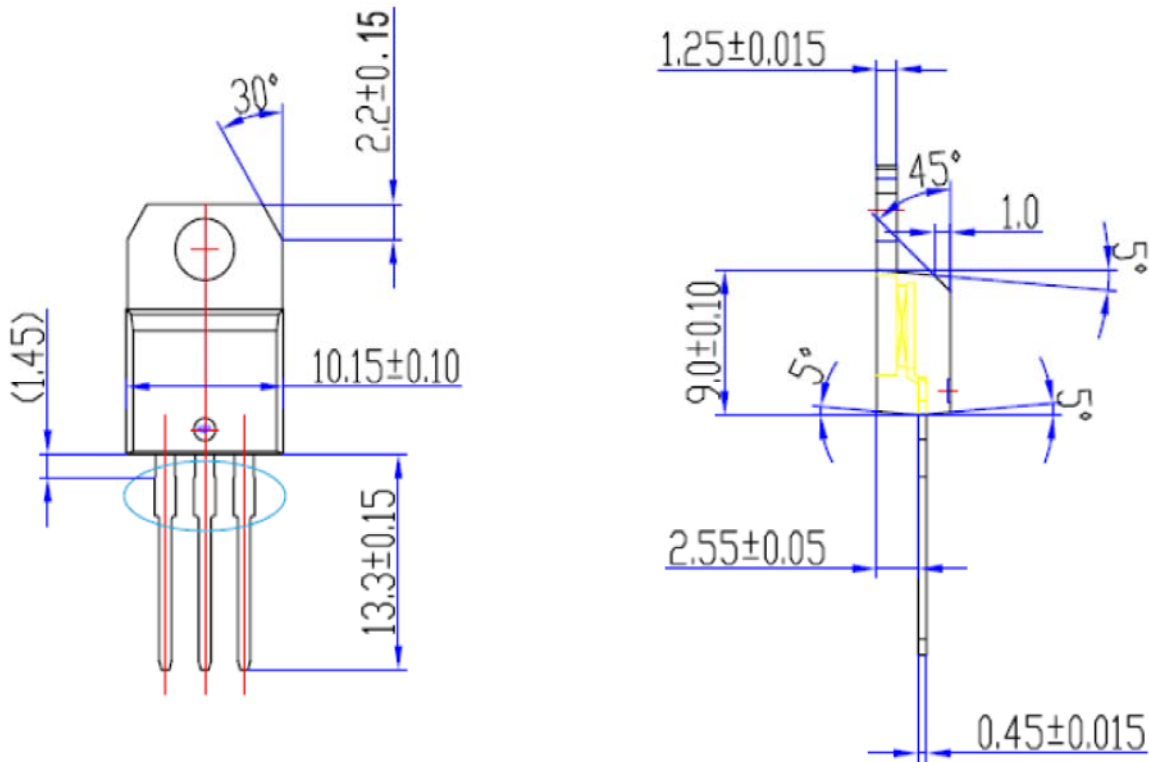


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

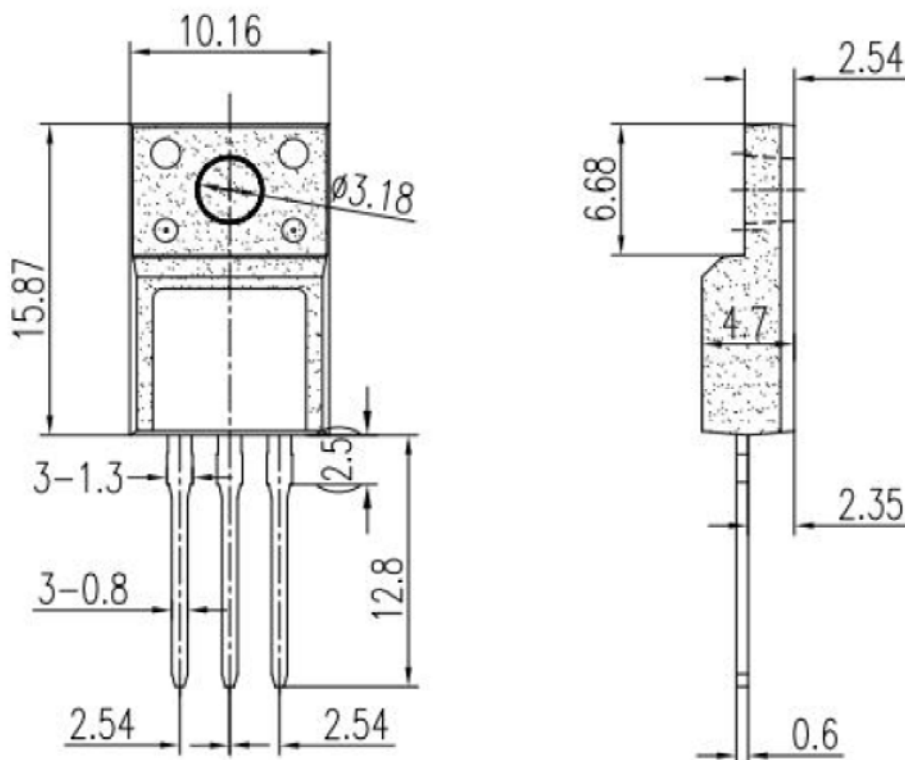


PACKAGE OUTLINE DIMENSIONS

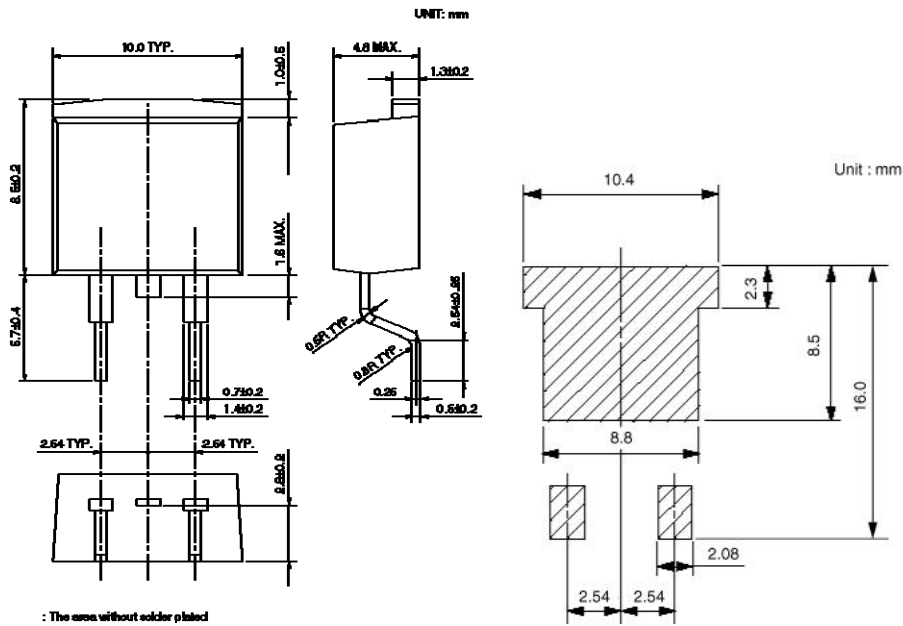
TO-220AB units:mm



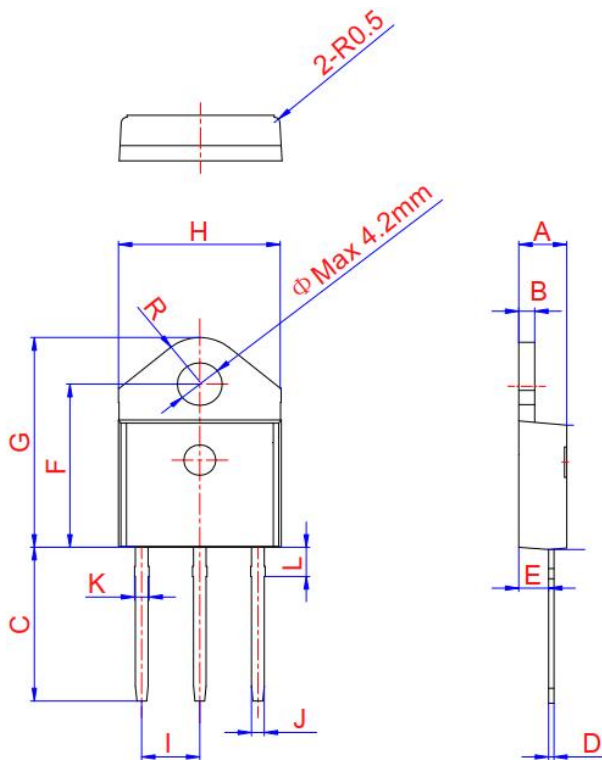
TO-220F units:mm(± 0.10)



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



TO-3P Ins



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40	4.50	4.60	0.173	0.177	0.181
B	1.45	1.50	1.55	0.057	0.059	0.061
C	14.35		15.60	0.565		0.614
D	0.50	0.60	0.70	0.02	0.024	0.028
E	2.70	2.80	2.90	0.106	0.110	0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10	15.30	15.50	0.594	0.602	0.610
I	5.40		5.65	0.213		0.222
J	1.10		1.40	0.043		0.055
K	1.35		1.50	0.053		0.059
L	2.80	2.90	3.00	0.110	0.114	0.118
R		4.35			0.171	



ORDERING INFORMATION

	<u>BT</u>	<u>A</u>	<u>24</u>	-	<u>600</u>	-	<u>BW</u>	<u>RG</u>
<u>Triac</u>								
<u>Insulation</u>								
A=Insulated								
B=Non-insulated								
<u>Current</u>								
24=24A								
<u>Voltage</u>								
600=600V								
800=800V								
<u>Sensitivity and Type</u>								
B=50mA								
C=25mA								
SW=10mA								
BW=50mA								
CW=35mA								
TW=5mA								
<u>Packing mode</u>								
RG=Tube								