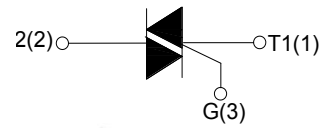
BT136 Series
4A SERIES TRIACS

Features

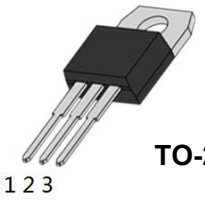
◇The LGE BT136, 4A Ⅲ &Ⅳquadrants series triacs ,which can be operated in Ⅲ &Ⅳquadrants.As silicon bidirectional device,with NPNPN five-layer structure; singlesided trenching technology,mesa glass passivation process;

◇multi-layer metallized electrode on the back side;

◇High blocking voltage and high temperature stability.



TO-252



TO-220AB

Applications

The LGE BT136 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 ClassificationRating 94V-0
- ◇ Case:JEDEC TO-220AB,TO-252

MAXIMUM RATING

Ratings at 25℃ ambient tepmerature unless otherwise specified.

PARAMETER			SYMBOL	VALUE	Units
R.M.S. On-State Current		Tc=90℃	$I_{T(RMS)}$	4	A
Non-Repetitive Surge Peak On-State Current(fFull Cycle,Tj initial=25℃)	F=50HZ	T=20ms	I_{TSM}	40	A
	F=60HZ	T=16.7ms		41	
I^2t Value for Fusing	tp=10ms		I^2t	5.1	A^2s
Critical Rate of Rise of On-State Current I_G=2×I_{GT}，tr≤100ns	F=120HZ	Tj=125℃	di/dt	50	A/μs
Repetitive peak Off-State voltage		Tj=25℃	V_{DRM}/V_{RRM}	500/600/800	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(Non-ins)	$R_{\Theta JA}$	60	℃/W
		TO-252		70	
Typical Thermal Resistance(Junction to Case (AC))		TO-220AB(Non-ins)	$R_{\Theta JC}$	2.4	℃/W
		TO-252		4.2	
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_{GT}	MAX	5	10	35	50	mA
Gate Trigger Voltage	(Ⅰ Ⅱ Ⅲquadrant)	V_{GT}	MAX	1.5				V
Gate Non-Trigger Voltage	Tj=125℃(Ⅰ Ⅱ Ⅲquadrant)	V_{GD}	MIN	0.2				V
Holding Current I_T=0.5A		I_H	MAX	10	15	35	60	mA
Latching Current I_G=1.2I_{GT}	Ⅰ Ⅲ quadrant	I_L	MAX	10	20	50	70	mA
	Ⅱ quadrant		MAX	15	35	60	80	
Critical Rate of Rise of Off-State Voltage V_D=2/3V_{DRM},Tj=125℃		dv/dt	MIN	20	40	400	1000	V/μs
Critical Rate of Rise of Off-State Voltage at Commutation, Tj=125℃		(dv/dt)c	MIN	1.8	2.7	2.5	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 Ⅱ Ⅲ Ⅳ quadrant)	Ⅰ Ⅱ Ⅲ	I_{GT}	MAX	5	10	25	50	mA
		Ⅳ		MAX	10	25	50	100	
Gate Trigger Voltage		All	V_{GT}	MAX	1.3				V
Gate Non-Trigger Voltage	Tj=125℃(Ⅰ Ⅱ Ⅲquadrant)		V_{GD}	MIN	0.2				V
Holding Current I_T=0.5A			I_H	MAX	10	15	25	50	mA
Latching Current =1.2I_{GT}	Ⅰ Ⅲ Ⅳquadrant		I_L	MAX	10	15	40	50	mA
	Ⅱ quadrant			MAX	15	20	80	100	
Critical Rate of Rise of Off-State Voltage V_D=2/3V_{DRM},Tj=125℃			dv/dt	MIN	10	20	200	400	V/μs
Critical Rate of Rise of Off-State Voltage at Commutation, Tj=125℃			(dv/dt)c	MIN	1.8	2.7	2.5	10	V/μs

STATIC CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL		VALUE	UNITS
Peak On-State Voltage	ITM=5.5A,Tj=25℃	V_{TM}	MAX	1.55	V
Threshold Voltage	Tj=125℃	V_{TO}	MAX	0.87	V
Dynamic Resistance	Tj=125℃	Rd	MAX	120	mΩ
Repetitive Peak Off-Statte Curren V_{DRM}=V_{RRM}	Tj=25℃	I_{DRM}	MAX	5	μA
	Tj=125℃	I_{RRM}	MAX	1	mA

RATING AND CHARACTERISTICS CURVES

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

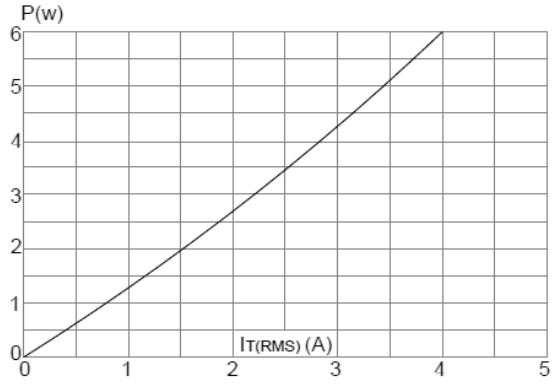


FIG.2: RMS on-state current versus case temperature

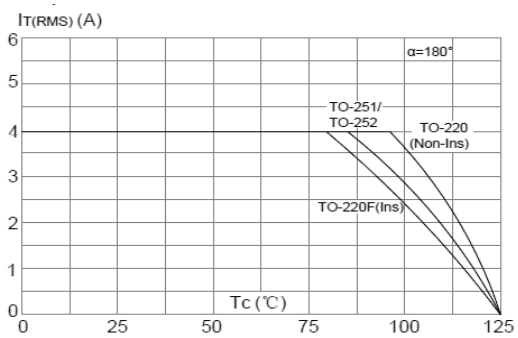


FIG.3: Surge peak on-state current versus number of cycles

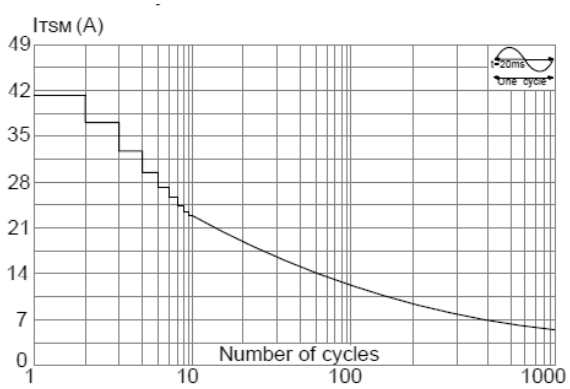


FIG.4: On-state characteristics (maximum values)

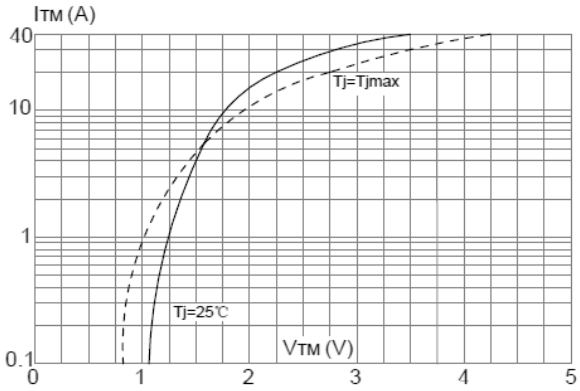


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms and corresponding value of I^2t (dI/dt < 50A/μs)

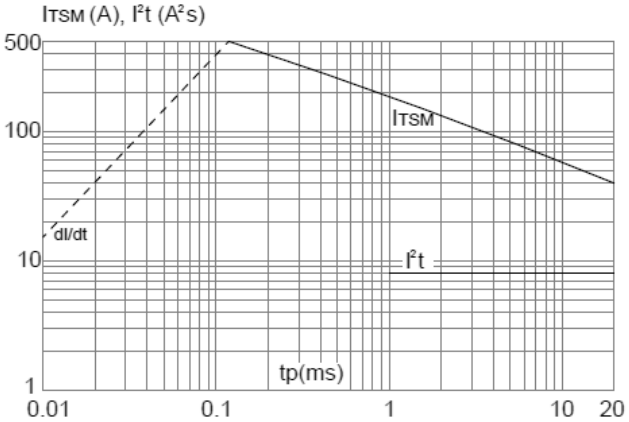
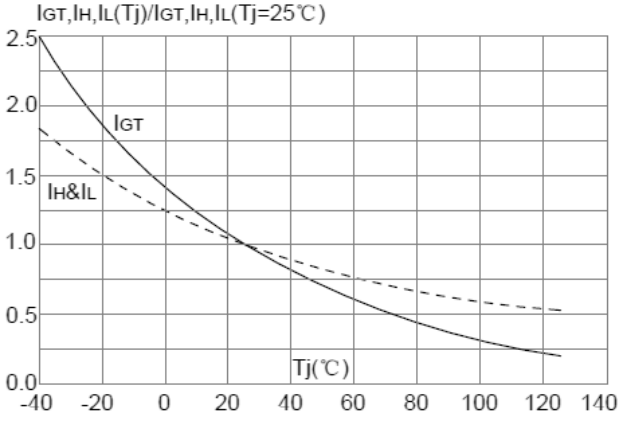
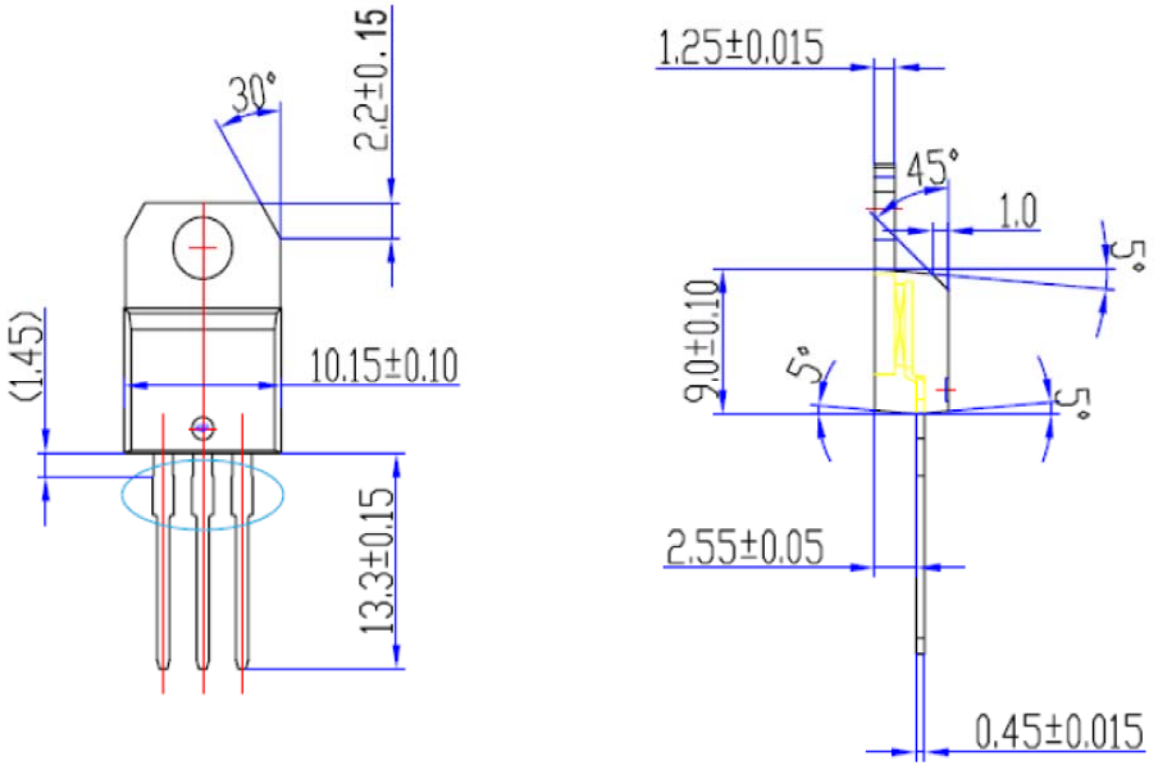


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



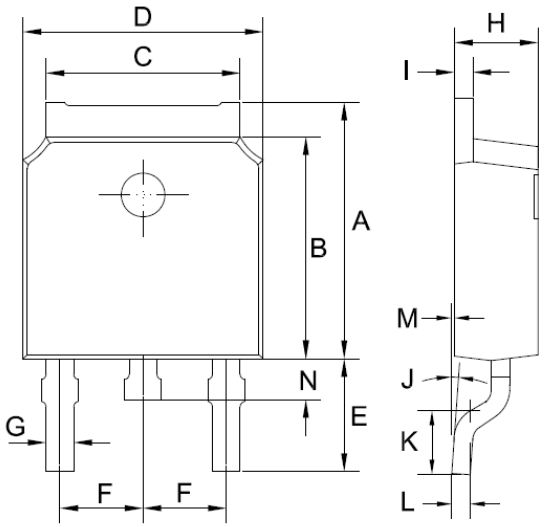
PACKAGE OUTLINE DIMENSIONS

TO-220AB units:mm



PACKAGE OUTLINE DIMENSIONS

TO-252 units:mm



TO-252 (DPAK) Unit:mm		
DIM	MIN	MAX
A	6.85	7.25
B	5.90	6.30
C	5.13	5.53
D	6.40	6.80
E	2.90	3.30
F	2.19	2.39
G	0.45	0.85
H	2.20	2.40
I	0.41	0.61
J	0°	8°
K	1.45	1.85
L	0.41	0.61
M	0.00	0.12
N	0.60	1.00

ORDERING INFORMATION

BT 136 - 600 - BW

Triac

Current
16=16A

Voltage
600=600V
800=800V

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