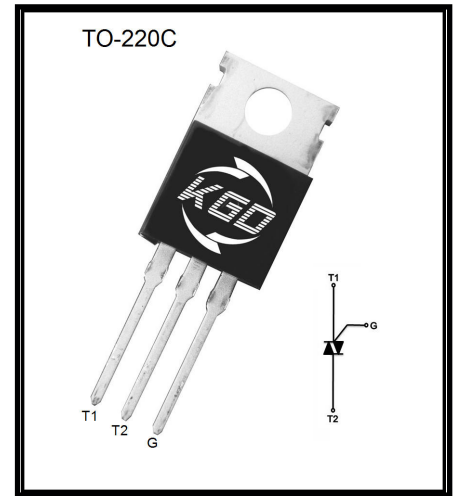


# BT139 Series

- Description:**  
 High current density due to mesa technology;Glass Passivation.
- Applications**  
 BT139 series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF Function in applications such as static relays,heating regulation,induction motor stator circuits... or for phase control operation light dimmers,motor speed controllers.
- Features:**  
 Blocking voltage to 600 & 800V  
 On-state RMS current to 16A  
 Non-repetitive peak on-state current to 140A
- Absolute Maximum Ratings**



Symbol	Parameter	Conditions	Value	Unit
$V_{DRM}$	Repetitive peak off-state voltage	$T_J=25^{\circ}C$	600 & 800	V
$V_{RRM}$	Repetitive peak Reverse voltage	$T_J=25^{\circ}C$	600 & 800	V
$I_{T(RMS)}$	RMS on-state current (full sine wave)	$T_c=99^{\circ}C$	16	A
$I_{TSM}$	Non-repetitive surge peak On-state current (full cycle, $T_J=25^{\circ}C$ )	$t_p=20ms$	140	A
$I^2t$	$I^2t$ Value for fusing	$t_p=10ms$	98	$A^2S$
$I_{GM}$	Peak gate current	$t_p=20\mu s, T_J=125^{\circ}C$	2	A
$P_{G(AV)}$	Average gate power dissipation		0.5	W
$P_{GM}$	Peak gate power dissipation	$t_p=10ms, T_J=125^{\circ}C$	5	W
$T_{STG}$	Storage temperature		-40      150	$^{\circ}C$
$T_J$	Junction temperature		-40      125	$^{\circ}C$

- Electrical Characteristics**

**BT139 Series**

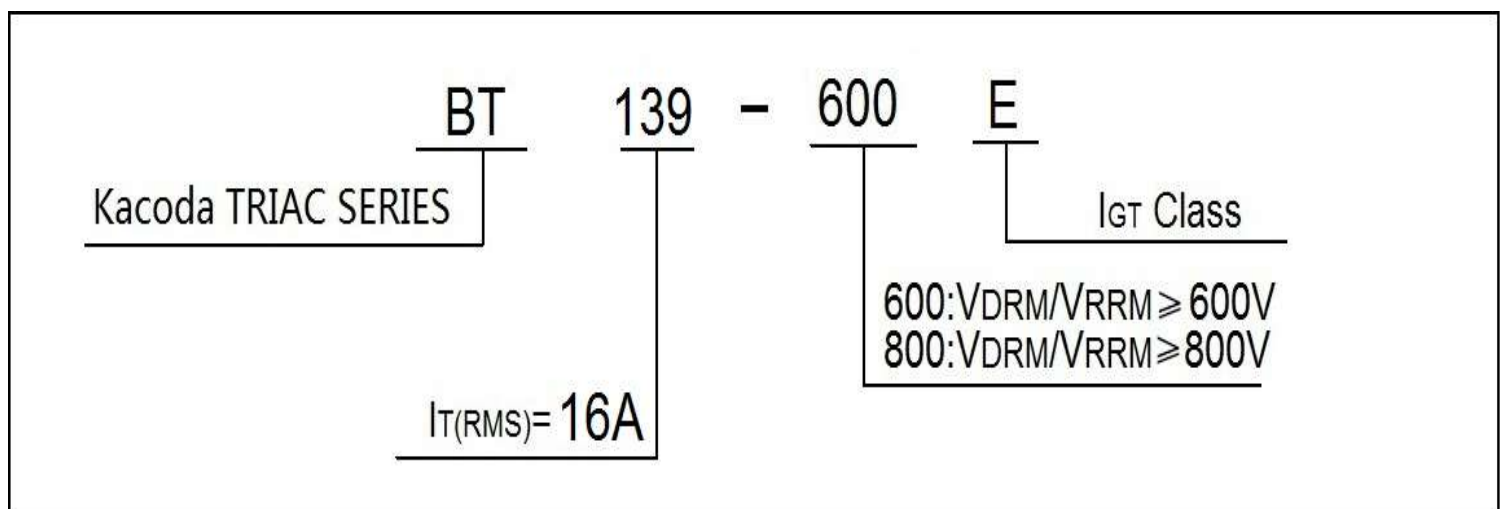
Symbol	Conditions	Quadrant	Value				Unit
			D	E	F	G	
$I_{GT}$	$V_D=12V, R_L=33\Omega$	I - II - III	5	10	25	50	mA
		IV	10	25	70	100	
$V_{GT}$		ALL		1.5			V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3K\Omega, T_J=125^\circ C$	ALL		0.2			V
$I_L$	$I_G=1.2I_{GT}$	I - III - IV	15	30	40	60	mA
		II	20	40	60	90	
$I_H$	$I_T=100mA$		10	25	30	60	mA
$dv/dt$	$V_{DM}=67\%V_{DRM}, \text{gate open}, T_J=125^\circ C$		5	10	50	200	V/ $\mu s$

**● Electrical Characteristics**

Symbol	Parameter	Numerical	Unit
$V_{TM}$	$I_T=15A, t_p=380\mu s$ $T_J=25^\circ C$	1.65	V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$ $T_J=25^\circ C$	5	$\mu A$
$I_{RRM}$	$T_J=125^\circ C$	1	mA

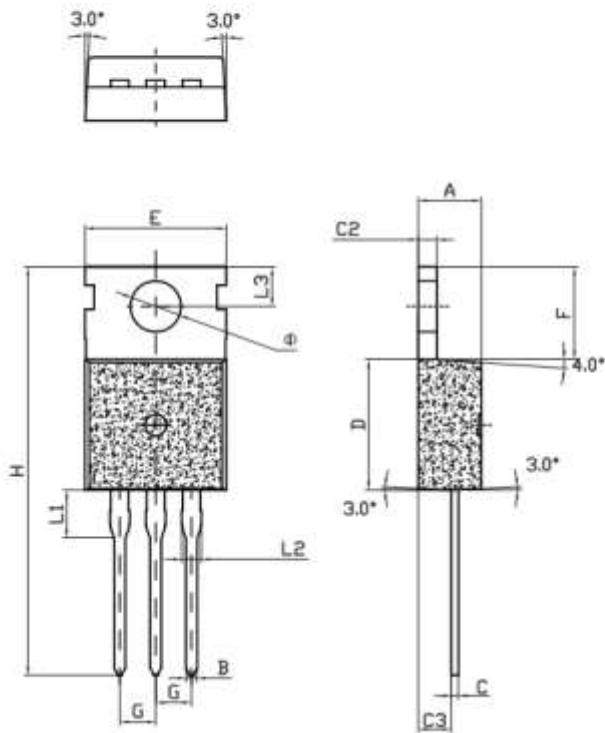
**● Thermal Characteristics**

Symbol	Parameter	Numerical(MAX)	Unit
$R_{th(j-c)}$	Junction to case(AC)	3.0	$^\circ C/W$

**● Ordering Information**


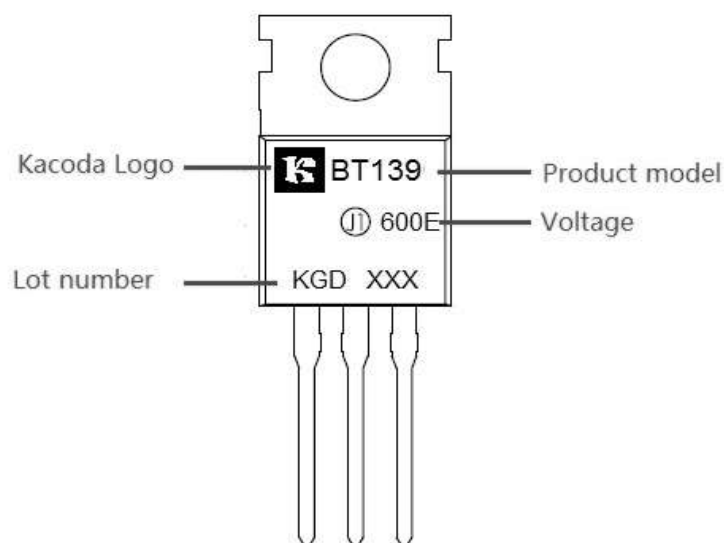
## ● Package Outline Dimensions

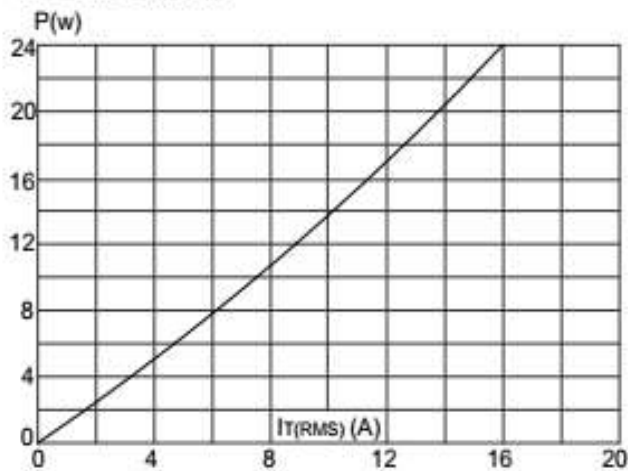
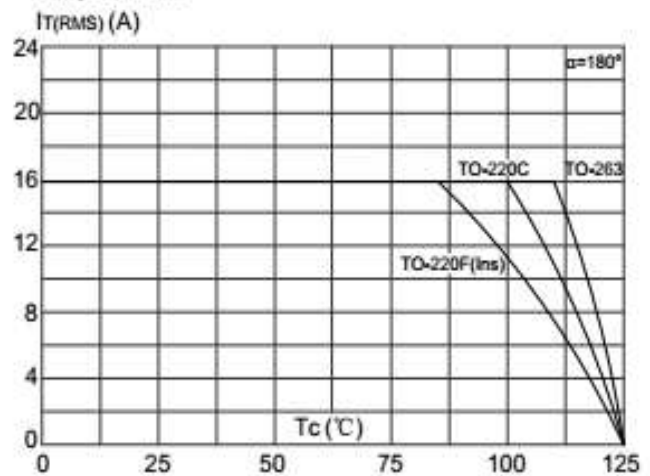
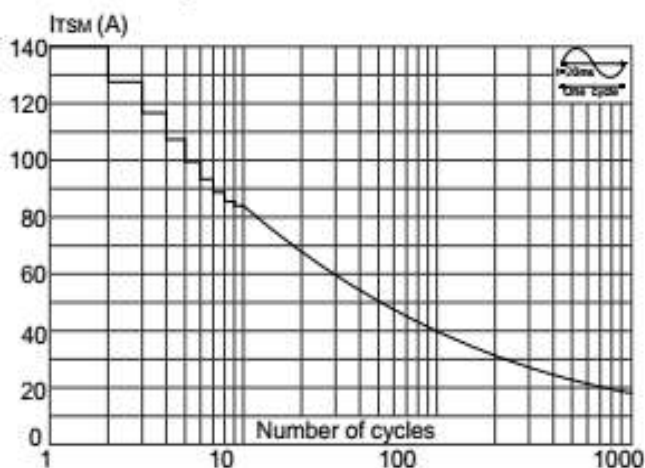
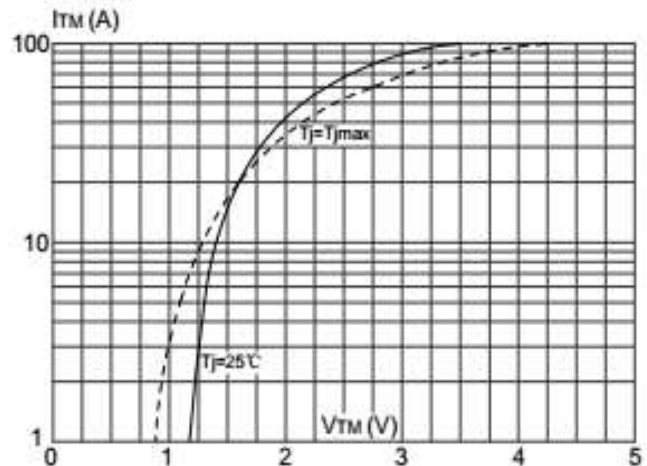
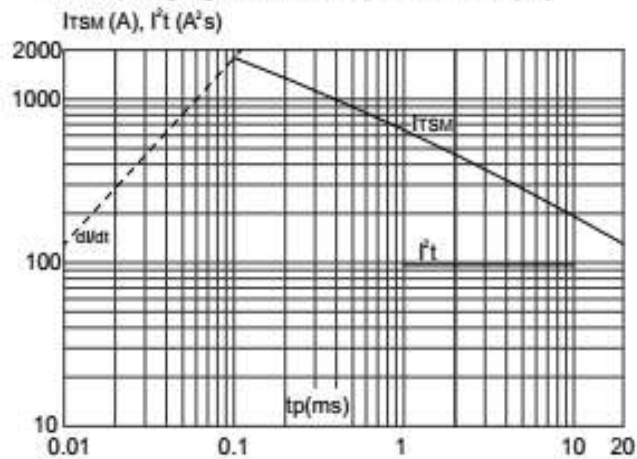
## TO-220C



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.7		0.9	0.027		0.035
C	0.45		0.6	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.2		2.6	0.086		0.102
D	8.9		9.9	0.350		0.390
E	9.9		10.3	0.390		0.406
F	6.3		6.9	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	11.0		11.7
L1		3.2			0.126	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

## ● Marking:



**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  $t_p < 20\text{ms}$ , and corresponding value of  $I_t \dot{t}$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )

**FIG.6:** Relative variations of gate trigger current versus junction temperature
