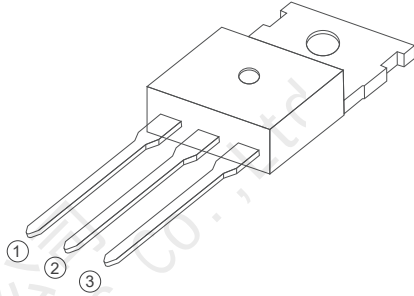


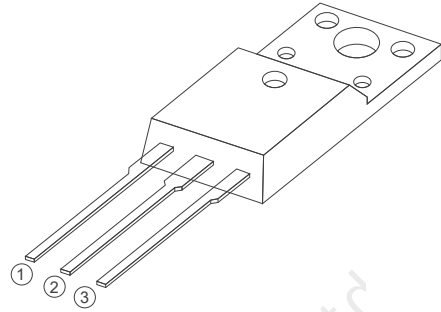
BT139 Series
16A TRIACs
4 Quadrants TRIACs



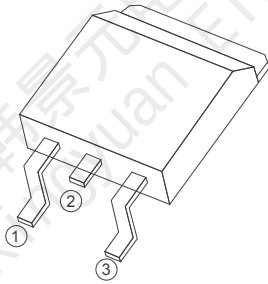
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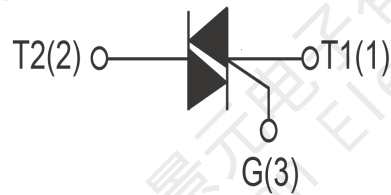
TO-220C



TO-220F Insulated



TO-263



FEATURES

> IT(RMS): 16A > VGT: 1.5V > VDRM VRRM:800V

APPLICATIONS

Washing machine,vacuums, massager,solid state relay, AC Motor speed regulation and so on.

Absolute Maximum Ratings (T_J=25°C unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BT139-600	600	V
		BT139-800	800	V
IT(RMS)	R.M.S On-State Current	T _c =110°C	16	A
ITSM	Surge On-State Current	t _p =16.7ms/t _p =10ms	160/168	A
I ² t	I ² t for fusing	T _p =10ms	144	A ² s
PG(AV)	Average Gate Power Dissipation	T _J =125°C	1	W
IGM	Peak Gate Current	T _J =125°C	4	A
T _J	Operating Junction Temperature		~40~125	°C
TSTG	Storage Temperature		~40~150	°C

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Value				Unit
			D	E	F	G	
IDRM	Repetitive Peak Off-State Current	T _J =25°C	≤5				uA
		T _J =125°C	≤1				mA
IRRM	Repetitive Peak Reverse Current	T _J =25°C	≤5				uA
		T _J =125°C	≤1				mA
VTM	Forward "on" voltage	IT=35A t _p =380us	1.55				V
VGT	Gate trigger voltage	VD=12V ,RL=30Ω	≤1.5				V
di/dt	Critical-rate of rise of commutation current.	I _G =2XIGT, tr≤100ns, F=100Hz	≥50				A /us
			≥10				A /us
IGT	Gate trigger current	VD=12V RL=30Ω	≤5	≤10	≤25	≤50	mA
			≤10	≤25	≤70	≤100	mA
IH	Holding current	IT=0.2A	≤10	≤25	≤30	≤60	mA
VDG	Gate non-trigger voltage	ALL VD=VDRM ,RL=30Ω ,T _J =125°C	≥0.2				V
dv/dt	Critical-rate of rise of commutation voltage	T _J =125°C VD=2/3VDRM Gate open circuit	≥5	≥10	≥25	≥200	V/us
Rth(j-c)	Thermal resistance	Junction to case	1.1				°C/W
Rth(j-a)	Thermal resistance	Junction to ambient	50				°C/W

FIG1

Maximum power dissipation versus RMS on-state current

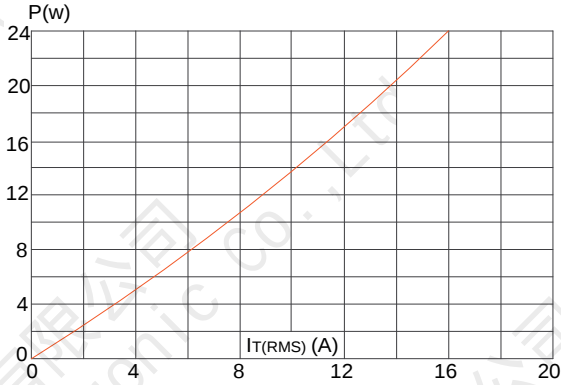


FIG2

RMS on-state current versus case temperature

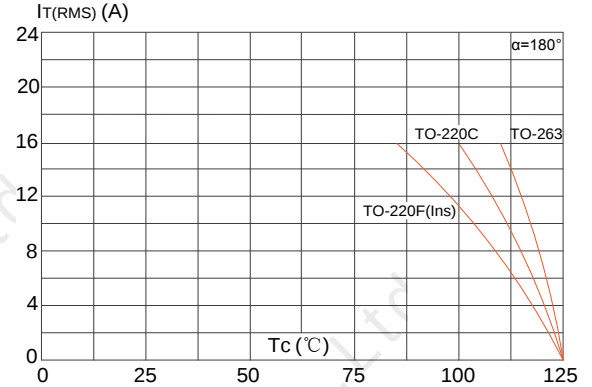


FIG3

Surge peak on-state current versus number of cycles

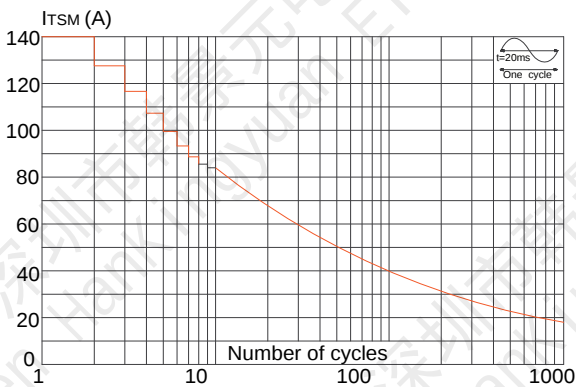


FIG4

On-state characteristics (maximum values)

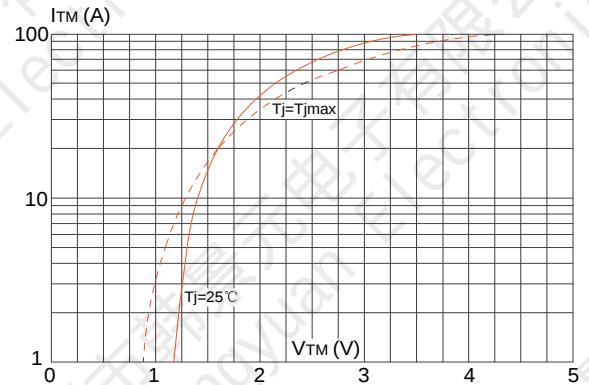


FIG5

Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($dI/dt < 100A/\mu s$)

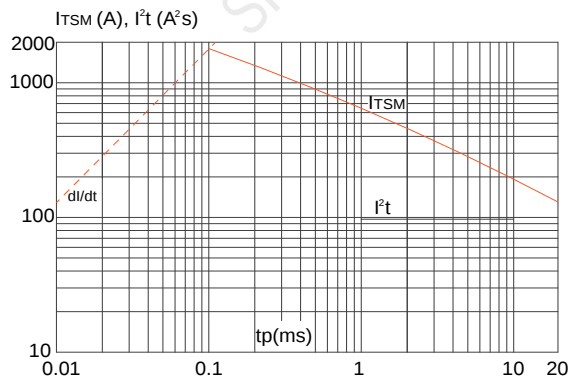


FIG6

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

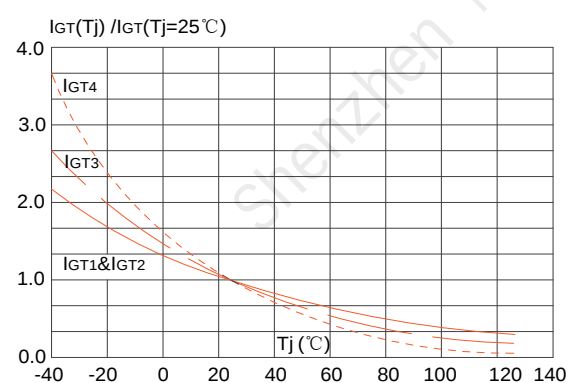
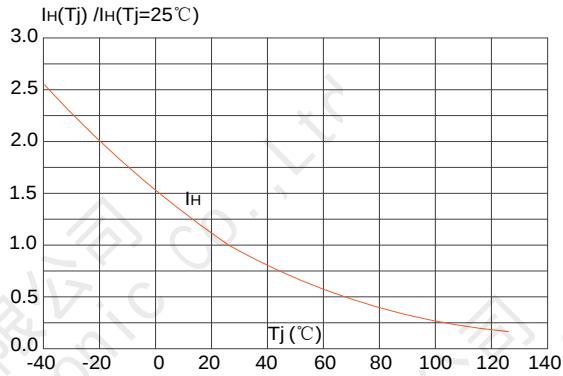
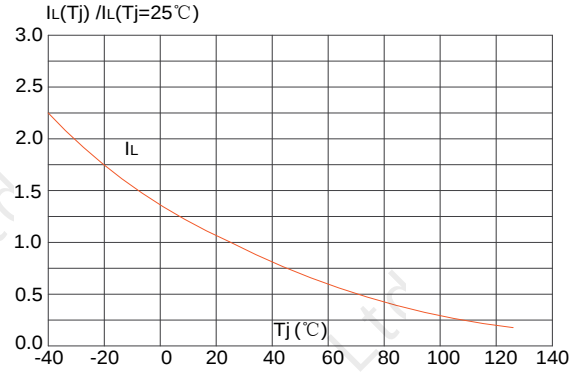
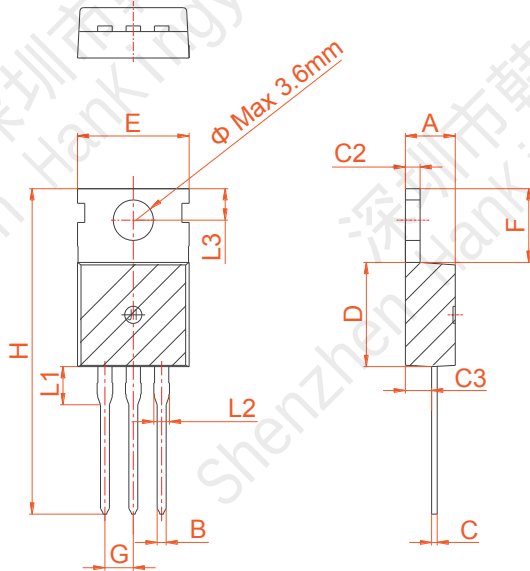


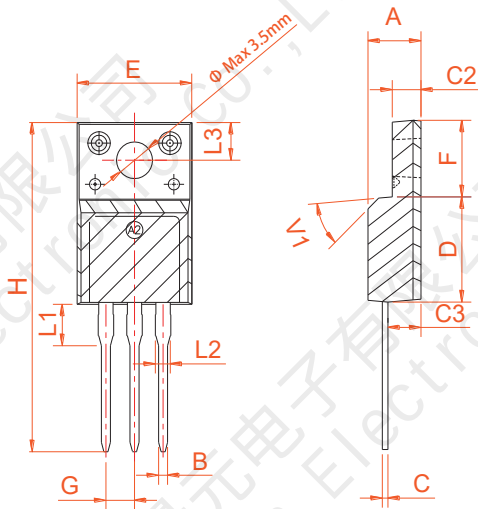
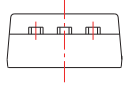
FIG7
FIG.7: Relative variations of holding current versus junction temperature

FIG8
FIG.8: Relative variations of latching current versus junction temperature


PACKAGE MECHANICAL DATA


TO-220C

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

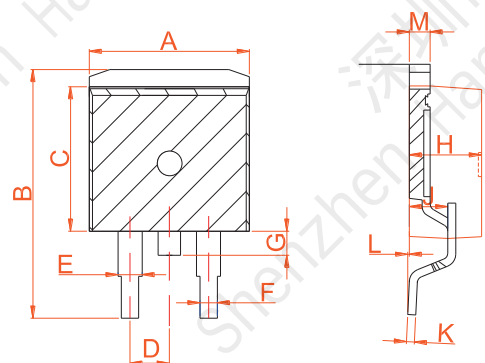
PACKAGE MECHANICAL DATA



TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053



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