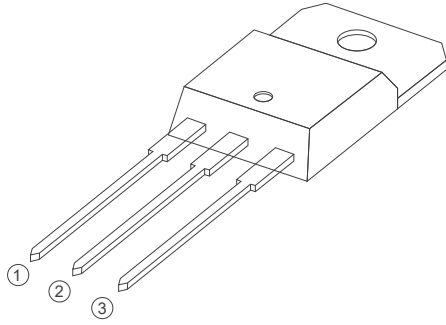
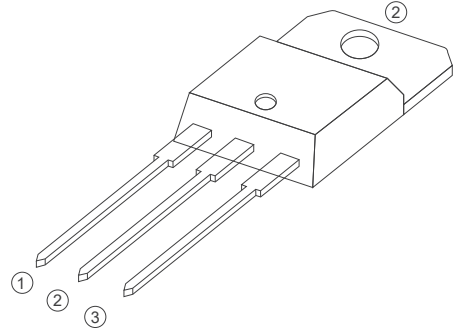


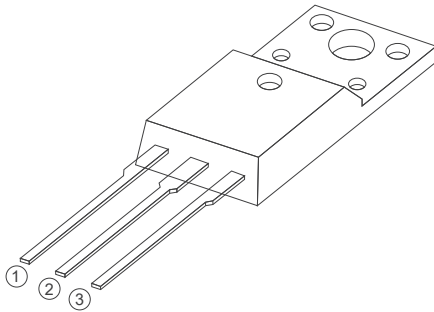
BTA/BTB12 Series
12A TRIACs
3 Quadrants
4 Quadrants



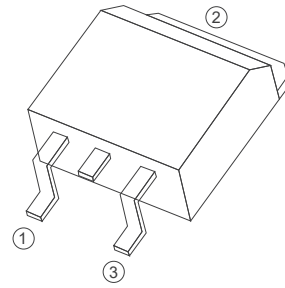
TO-220A Insulated



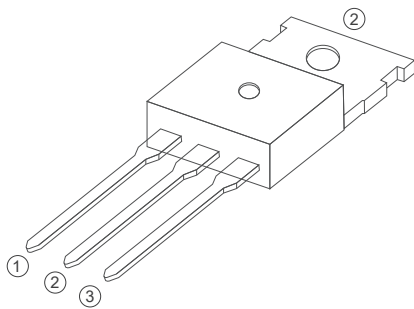
TO-220B Non-Insulated



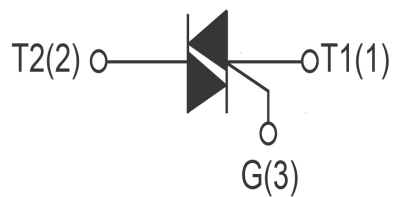
TO-220F Insulated



TO-263



TO-220C



FEATURES

> $I_T(RMS)$: 12A > V_{GT} : $\leq 1.3V$ > V_{DRM} V_{RRM} : 800V and 1000V

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	BTA12/BTB12-800	800	V
		BTA12/BTB12-1000	1000	V
IT(RMS)	R.M.S On-State Current	T _c =110°C	12	A
ITSM	Surge On-State Current	t _p =16.7ms/t _p =10ms	120/126	A
I ² t	I ² t for fusing	T _p =10ms	78	A ² s
PG(AV)	Average Gate Power Dissipation	T _J =125°C	1	W
IGM	Peak Gate Current	t _p =20us 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
			TW	SW	CW	BW	C	B	
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	I _T =17A t _p =380us	1.55						V
VGT	Gate trigger voltage	V _D =12V ,R _L =30Ω	≤1.3						V
di/dt	Critical rate of rise of on-state current	I,II,III F=100Hz, I _G =2xI _{GT} , t _r ≤100ns	≥50						A/us
			IV	≥10					
IGT	Gate trigger current	I,II,III V _D =12V R _L =30Ω	≤5	≤10	≤25	≤50	≤25	≤50	mA
			/	/	/	/	≤50	≤100	mA
IH	Holding current	I _T =0.2A	≤20	≤25	≤35	≤50	≤25	≤50	mA
VGD	Gate non-trigger voltage	ALL V _D =VDRM T _J =125°C,R _L =3.3KΩ	≥0.2						V
dv/dt	Critical-rate of rise of commutation voltage	T _J =125°C V _D =2/3VDRM Gate	≥40	≥100	≥400	≥1000	≥200	≥400	V/us
Rth(j-c)	Thermal resistance	Junction to case	3.3						°C/W
Rth(j-a)	Thermal resistance	Junction to ambient	60						°C/W

FIG1

Maximum power dissipation versus RMS on-state current

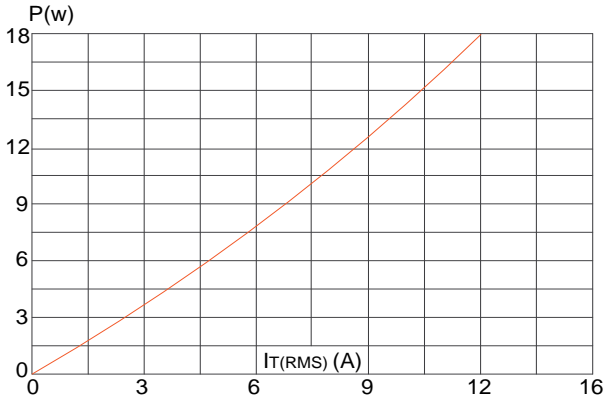


FIG2

RMS on-state current versus case temperature

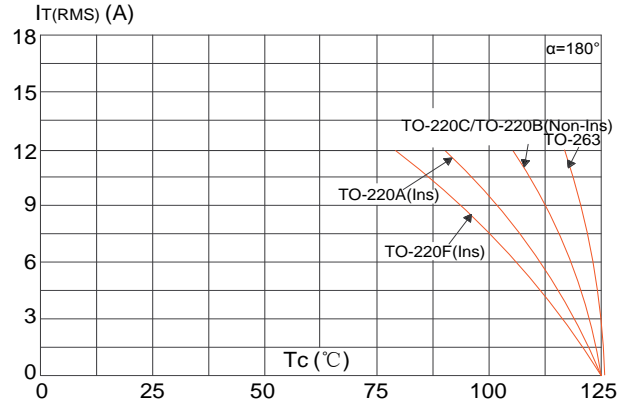


FIG3

Surge peak on-state current versus number of cycles

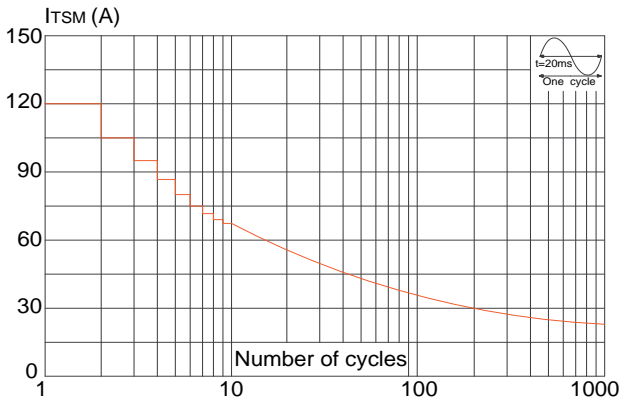


FIG4

On-state characteristics (maximum values)

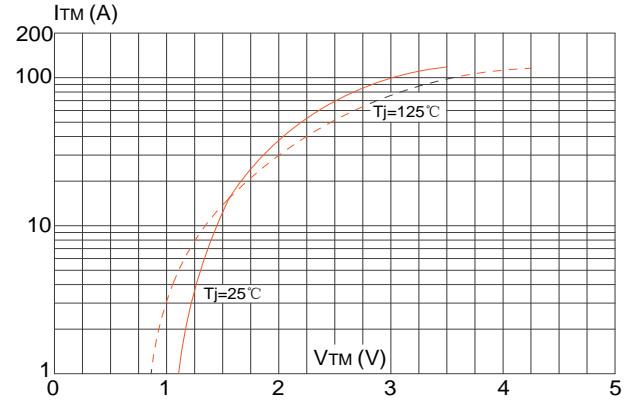


FIG5

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

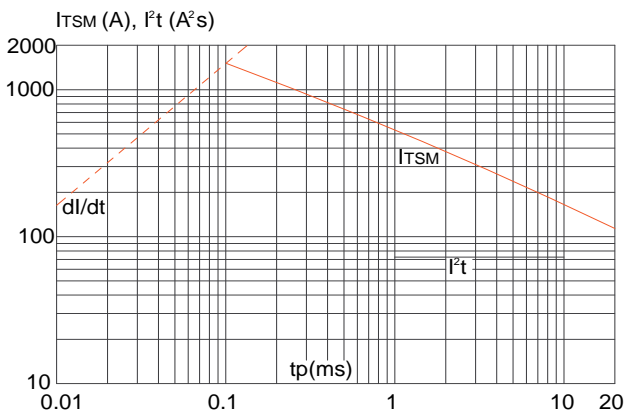
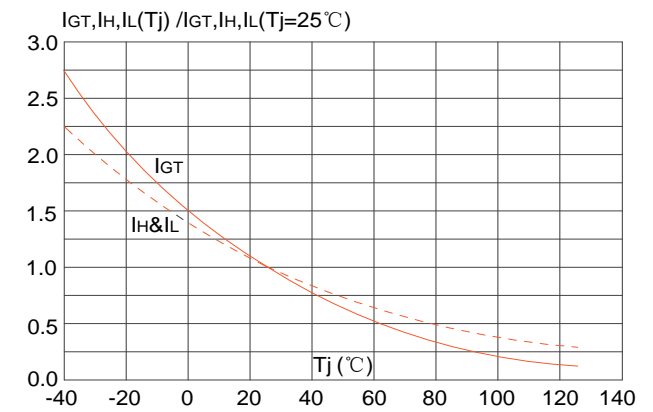
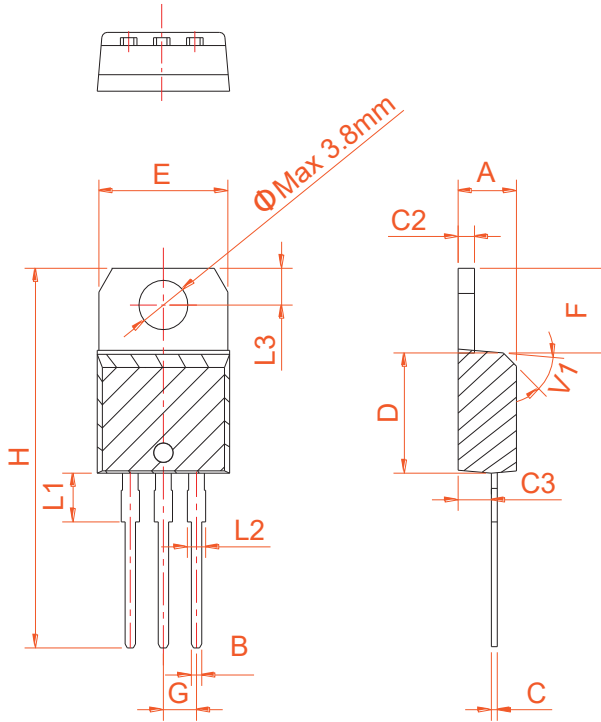


FIG6

Relative variations of gate trigger current, holding current and latching current versus junction temperature



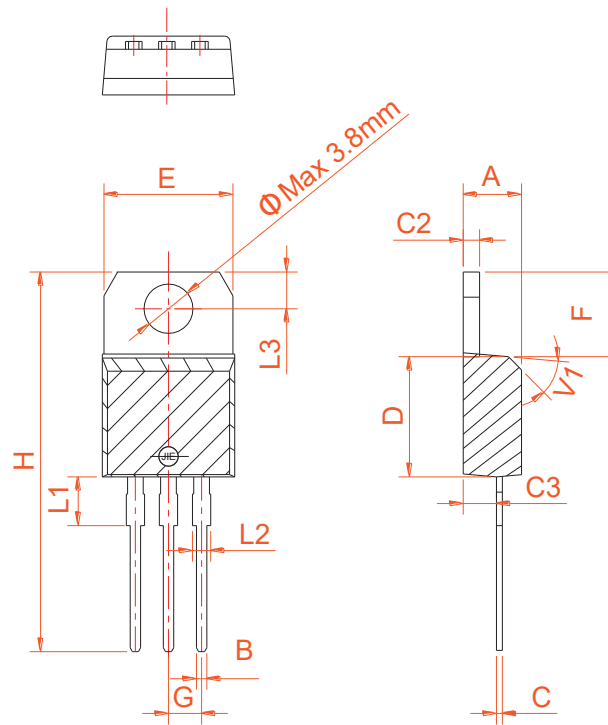
PACKAGE MECHANICAL DATA



TO-220A Ins

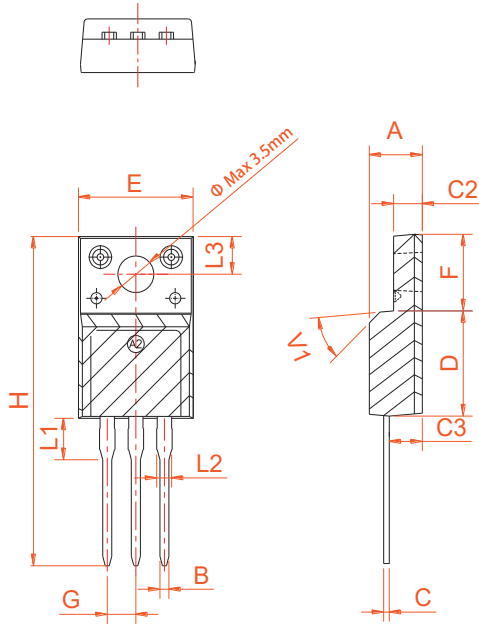
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220B Non-Ins

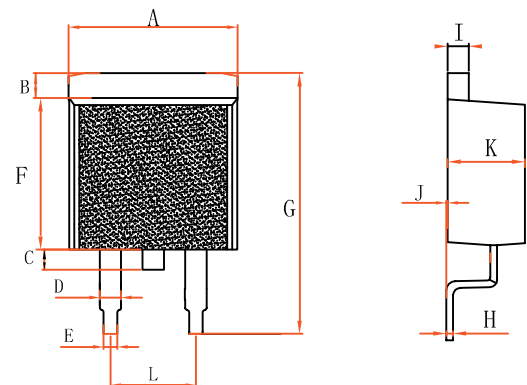
PACKAGE MECHANICAL DATA



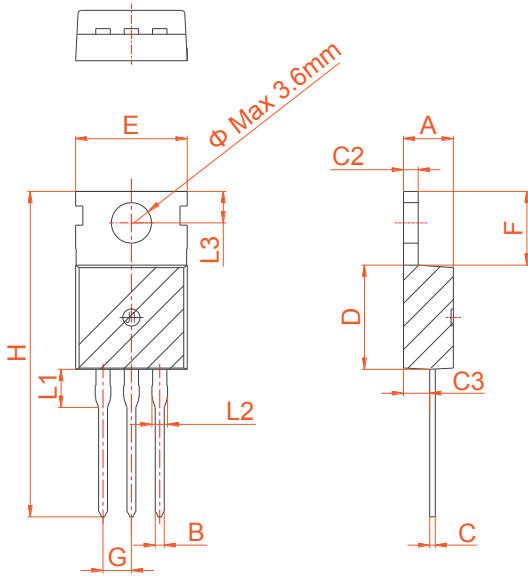
TO-220F Ins

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	9.7		10.4	0.381		0.409
B	1.31		1.62	0.051		0.063
C	0.65		1.22	0.025		0.048
D	1.15		1.36	0.045		0.053
E	0.62		0.95	0.024		0.037
F	8.75		9.32	0.344		0.366
G	14.75		15.8	0.58		0.622
H	0.32		0.48	0.012		0.018
I	1.18		1.36	0.046		0.053
J	0		0.15	0		0.005
K	4.38		4.86	0.172		0.191
L	4.85		5.23	0.19		0.205



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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	

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