

## 3Quadrants/4 Quadrants TRIAC

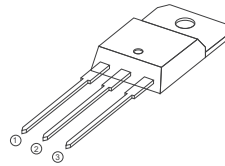
### FEATURES

- > IT(RMS): 16A
- > VGT:  $\leq 1.5V$
- > VDRM VRRM: 800V and 1000V

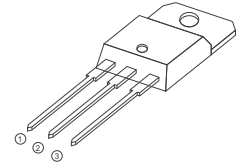
### APPLICATIONS

Washing machine, vacuums, massager, solid state relay,

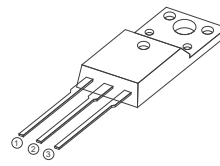
AC Motor speed regulation and so on.



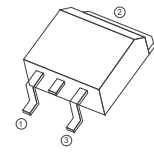
TO-220A Insulated



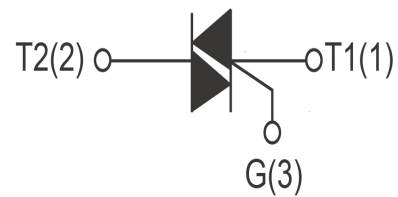
TO-220B Non-Insulated



TO-220F Insulated



TO-263



### Absolute Maximum Ratings (T<sub>j</sub>=25°C unless otherwise specified)

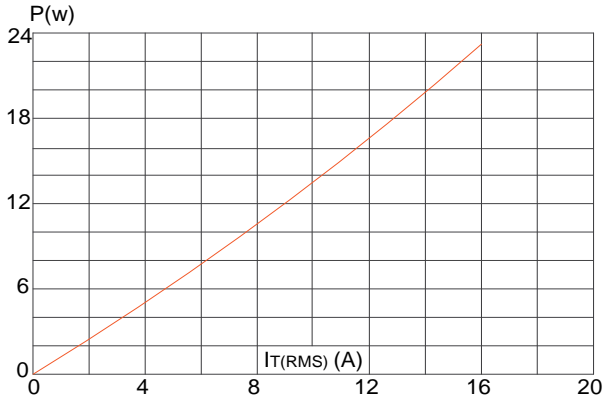
Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BTA16/BTB16-600	800	V
		BTA16/BTB16-800	1000	V
IT(RMS)	R.M.S On-State Current	T <sub>c</sub> =110°C	16	A
ITSM	Surge On-State Current	t <sub>p</sub> =16.7ms/t <sub>p</sub> =10ms	170/180	A
I <sup>2</sup> t	I <sup>2</sup> t for fusing	T <sub>p</sub> =10ms	116	A <sup>2</sup> s
PG(AV)	Average Gate Power Dissipation	T <sub>j</sub> =125°C	1	W
IGM	Peak Gate Current	t <sub>p</sub> =20us T <sub>j</sub> =125°C	4	A
T <sub>j</sub>	Operating Junction Temperature		~40~125	°C
TSTG	Storage Temperature		~40~150	°C

## Electrical Characteristics (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Value					Unit	
			SW	CW	BW	C	B		
IDRM	Repetitive Peak Off-State Current	T <sub>j</sub> =25°C	≤5					uA	
		T <sub>c</sub> =125°C	≤1					mA	
IRRM	Repetitive Peak Reverse Current	T <sub>c</sub> =25°C	≤5					uA	
		T <sub>c</sub> =125°C	≤1					mA	
VTM	Forward "on" voltage	I <sub>T</sub> =23A, t <sub>p</sub> =380us	1.5					V	
VGT	Gate trigger voltage	V <sub>D</sub> =12V, R <sub>L</sub> =30Ω	≤1.5					V	
di/dt	Critical rate of rise of on-state current	I, II, III F=100Hz, I <sub>G</sub> =2xI <sub>GT</sub> , t <sub>r</sub> ≤100ns	≥50					A/us	
		IV	≥10					A/us	
IGT	Gate trigger current	V <sub>D</sub> =12V, R <sub>L</sub> =30Ω	I, II, III	≤10	≤25	≤50	≤25	≤50	mA
			IV	/	/	/	≤50	≤100	mA
IH	Holding current	I <sub>T</sub> =0.2A	≤25	≤35	≤50	≤25	≤50	mA	
VGD	Gate non-trigger voltage	V <sub>D</sub> =V <sub>DRM</sub> , T <sub>J</sub> =125°C, R <sub>L</sub> =3.3K	≥0.2					V	
dv/dt	Critical-rate of rise of commutation voltage	T <sub>J</sub> =125°C, V <sub>D</sub> =2/3V <sub>DRM</sub> , Gate	≥100	≥400	≥1000	≥200	≥400	V/us	

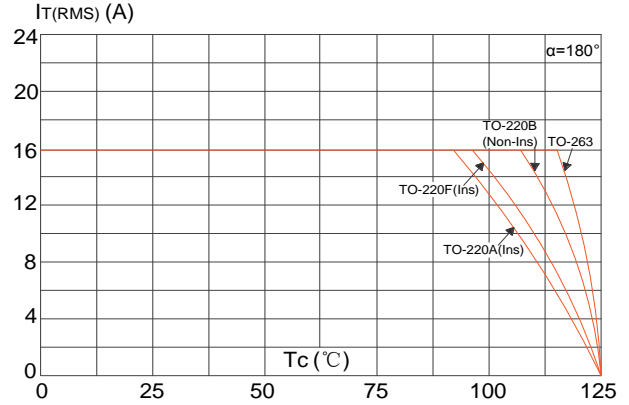
**FIG1**

Maximum power dissipation versus RMS on-state current



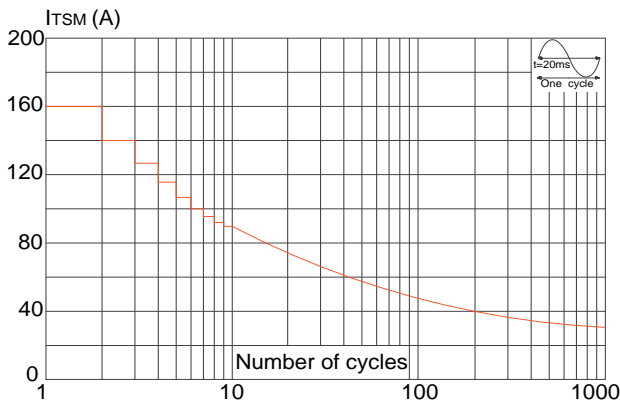
**FIG2**

RMS on-state current versus case temperature



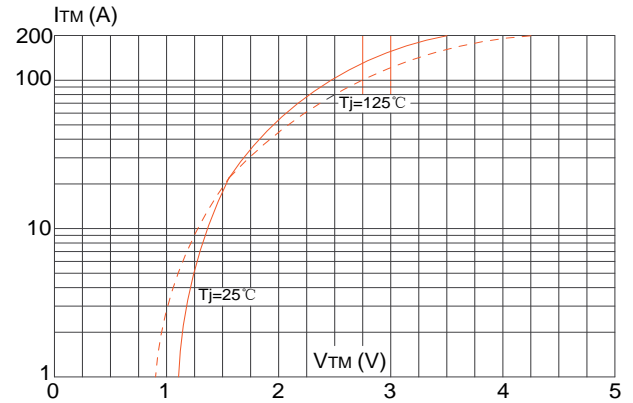
**FIG3**

Surge peak on-state current versus number of cycles



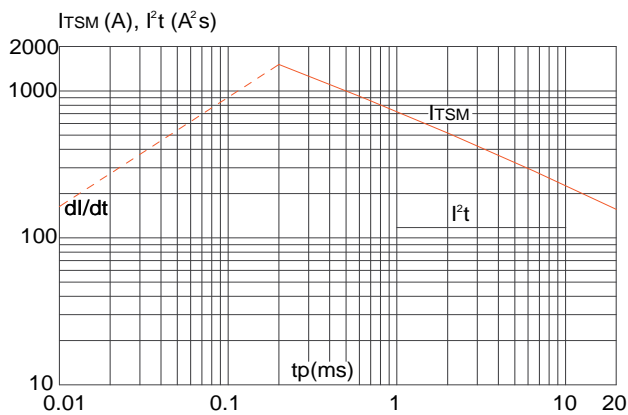
**FIG4**

On-state characteristics (maximum values)



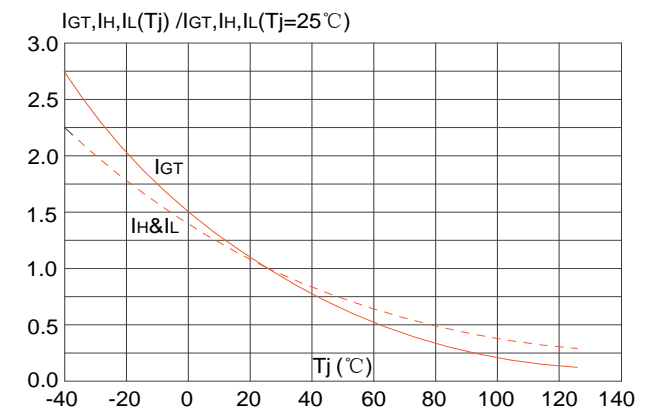
**FIG5**

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

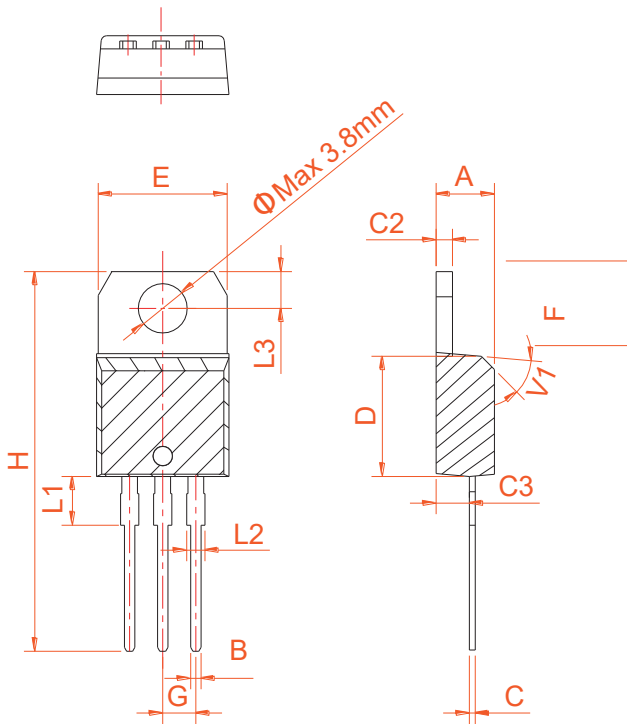


**FIG6**

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



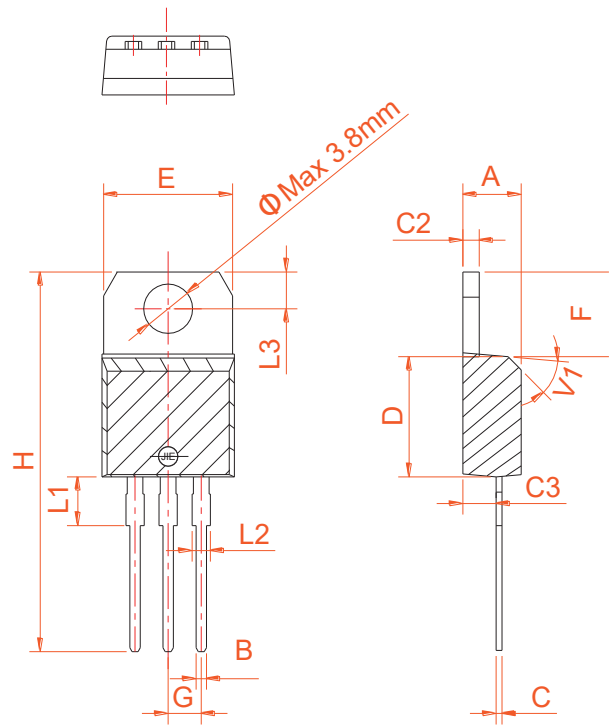
## PACKAGE MECHANICAL DATA



TO-220A Ins

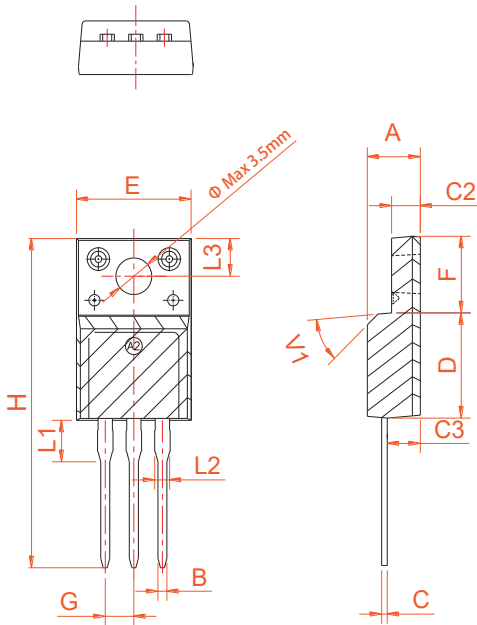
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
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

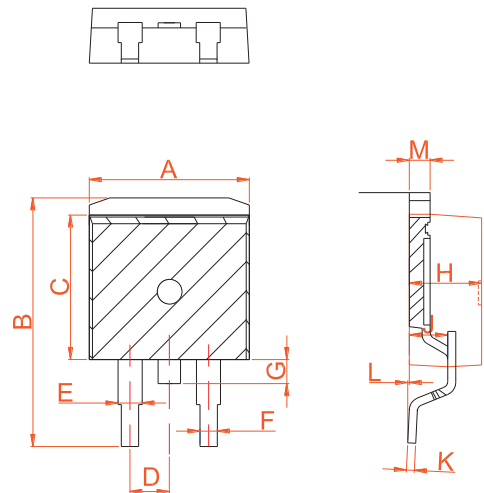
## PACKAGE MECHANICAL DATA



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	9.90		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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