

F08 Series 8A TRIACs

FEATURES

- Glass Passivated Junctions
- High voltage and surge capability
- Low Thermal Resistance and Durability
- Triggering in all four quadrants

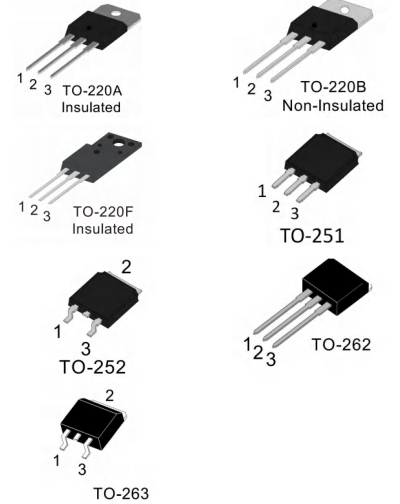
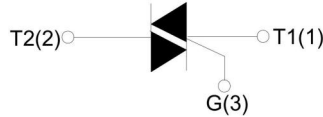
APPLICATIONS

- Static relays
- Heating regulation
- In-duction motor starting circuits
- Phase control operation in light dimmers
- Motor speed controllers



Parameters Summary

VD/VR:600/800V IT(RMS):8A IGT:5 to 10mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40 ~150	°C
Operating junction temperature range	T _j	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	600/800	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	600/800	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{RRM} +100	V
RMS on-state current	TO-220A(TC=100°C)	8	A
	TO-220B(TC=107°C)		
	TO-220F(TC=95°C)		
	TO-251(TC=107°C)		
	TO-252(TC=107°C)		
	TO-262(TC=90°C)		
	TO-263(TC=90°C)		
Non repetitive surge peak on-state current (180° conduction angle, F=50Hz)	I _{TSM}	80	A
I ² t value for fusing (tp=10ms)	I ² t	32	A ² S
Critical rate of rise of on-state current (I =2×IGT, tr ≤ 100 ns)	di/dt	50	A/μS
Peak gate current	I _{GM}	4	A
Average gate power dissipation	P _{G(AV)}	1	W

Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (AC)	TO-220A	2.7
		TO-220B	1.8
		TO-220F	2.9
		TO-252/TO-252	2.1
		TO-262/TO-263	3.0

ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)						
Symbol	Test Condition	Quadrant		Value		Unit
				05	10	
I_{GT}	$V_D=12V$	I-II-III	MAX	5	10	mA
		IV		10	25	
V_{GT}		ALL	MAX	1.3		V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$	ALL	MIN	0.2		V
I_L	$I_G=1.2I_{GT}$	I-III	MAX	5	20	mA
		II-IV		10	35	
I_H	$I_T=200mA$		MAX	5	20	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	15	100	V/ μs

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=11A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.55	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}		$T_j=125^\circ C$	1	mA

Ordering Information Scheme

F 08 35 - 8 A

F:4Q

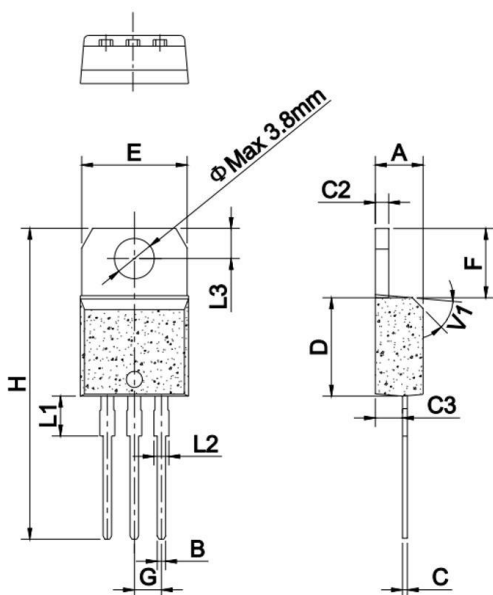
$I_T(RMS):8A$

05: $I_{GT}\leq 5mA$
10: $I_{GT}\leq 10mA$

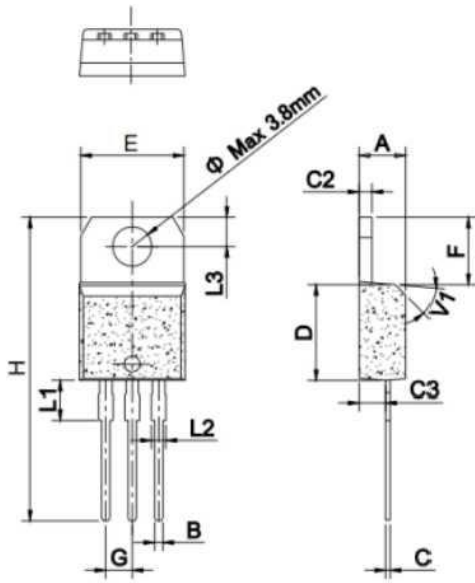
A:TO-220A B:TO-220B
F:TO-220F H:TO-251
D:TO-252 Z:SOT-263

6: $V_D/V_R\geq 600V$
8: $V_D/V_R\geq 800V$

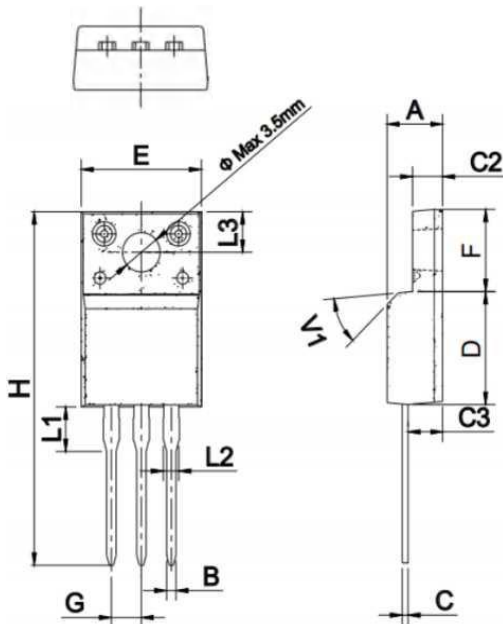
TO-220A Package Mechanical Data



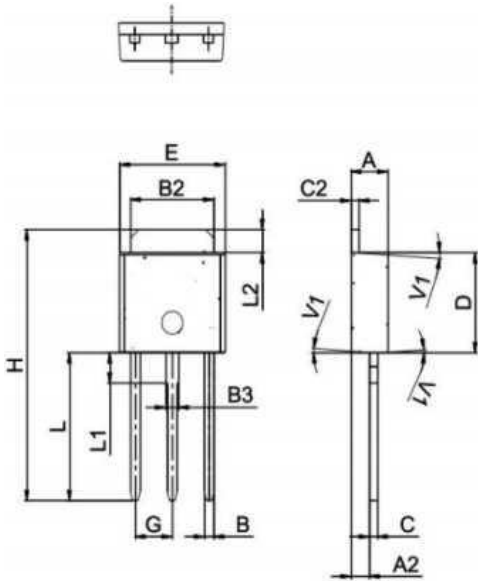
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	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

TO-220B Package Mechanical Data


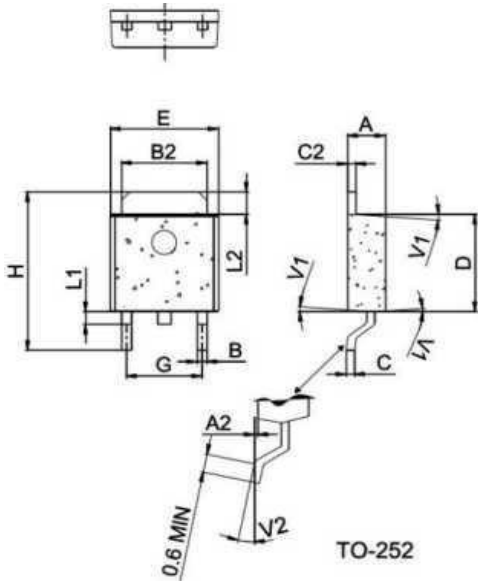
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.10		4.30	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.25		7.05	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1					0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45			45	

TO-220F Package Mechanical Data


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	2.50		3.10	0.096		0.108
C3	2.40		2.80	0.102		0.118
D	8.60		8.90	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.70		7.50	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°	

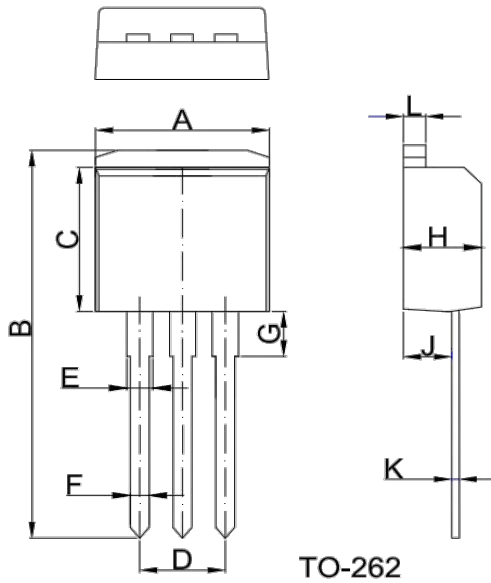
TO-251 Package Mechanical Data


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.50	0.035		0.059
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.66		0.94	0.025		0.037
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30				
H	15.25		15.65	0.600		0.616
L	7.8		8.8	0.307		0.346
L1	1.50		1.90	0.059		0.075
L2	1.10		1.50	0.043		0.059
V1		4			4	

TO-252 Package Mechanical Data


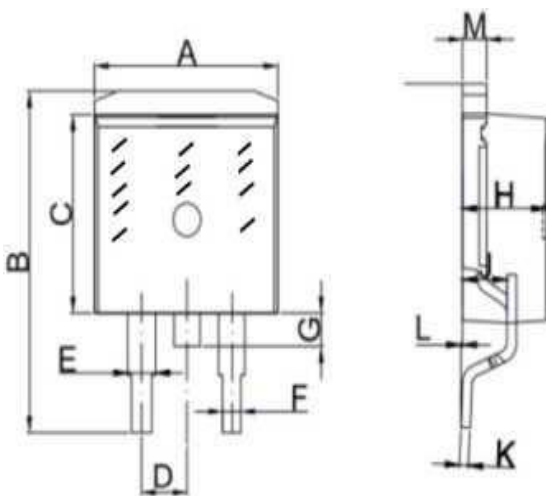
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.71		0.99	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.60	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4				
V2	0		8	0		8

TO-262 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.95		10.20	0.392		0.402
B	23.25		23.45	0.915		0.923
C	8.90		9.10	0.35		0.358
D	2.50		2.60	0.098		0.102
E	1.20		1.35	0.047		0.053
F	0.80		0.85	0.031		0.033
G	3.30		3.60	0.130		0.142
H	4.45		4.55	0.175		0.179
J	2.50		2.70	0.098		0.106
K	0.38		0.42	0.015		0.017
L	1.25		1.29	0.049		0.051

SOT-263 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.5	0.390		0.402
B	14.70		15.80	0.579		0.622
C	8.8		9.2	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		0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

FIG.1 Maximum power dissipation versus on-state current

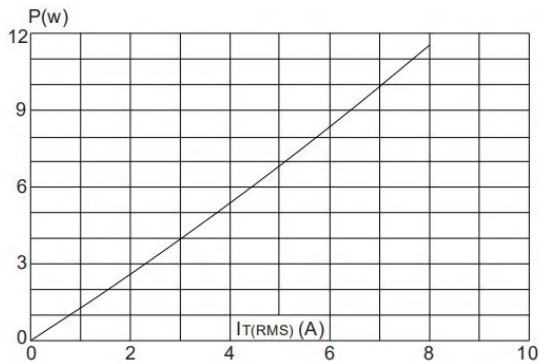


FIG.2: on-state current versus case temperature

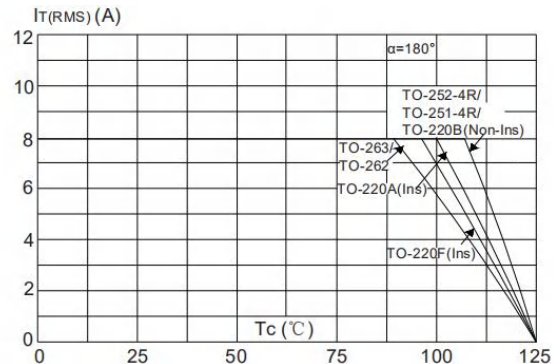


FIG.3: Surge peak on-state current versus number of cycles

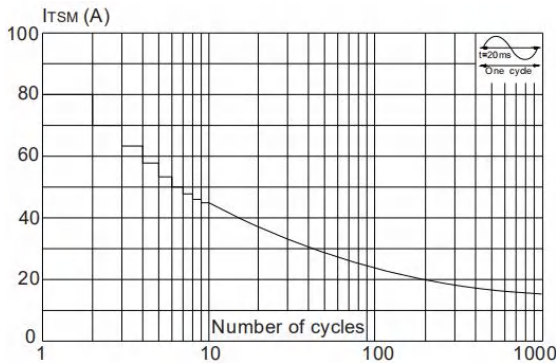


FIG.4: On-state characteristics (maximum values)

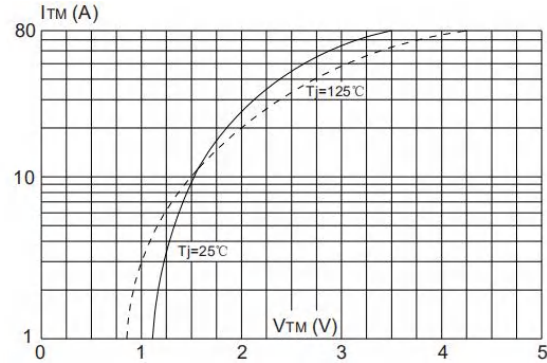


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I_2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

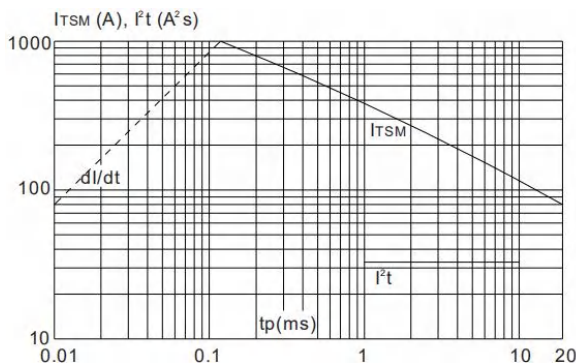
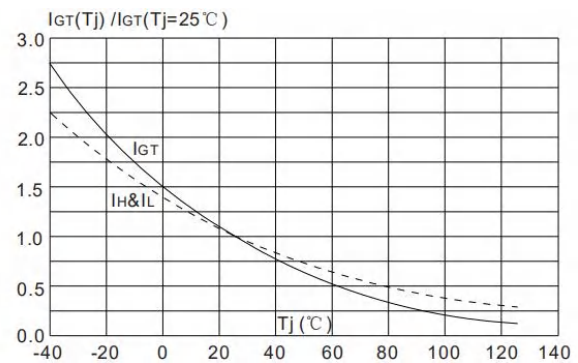


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



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