

## F06 Series 6A TRIACs

### FEATURES

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

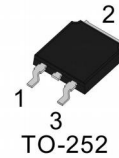
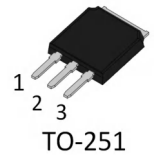
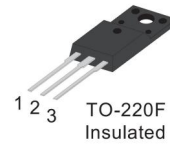
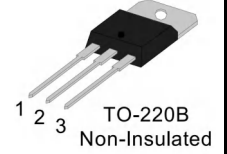
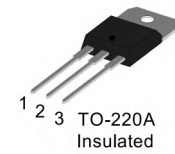
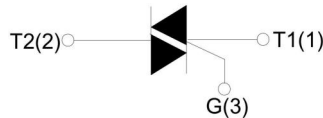
### APPLICATIONS

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



### Parameters Summary

VD/VR:800V IT(RMS):6A IGT3:25mA



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Storage junction temperature range	T <sub>stg</sub>	-40 ~ 150	°C	
Operating junction temperature range	T <sub>j</sub>	-40 ~ 125	°C	
Repetitive peak off-state voltage (T = 25°C)	V <sub>DRM</sub>	800	V	
Repetitive peak reverse voltage (T = 25°C)	V <sub>RRM</sub>	800	V	
Non repetitive surge peak Off-state voltage	V <sub>DSM</sub>	V <sub>DRM</sub> + 100	V	
Non repetitive peak reverse voltage	V <sub>RSM</sub>	V <sub>RRM</sub> + 100	V	
RMS on-state current	I <sub>T(RMS)</sub>	TO-251/TO-252(TC=100°C)	6	A
		TO-220A(TC=100°C)		
		TO-220B(TC=105°C)		
		TO-220F(TC=100°C)		
Non repetitive surge peak on-state current (180° conduction angle, F=50Hz)	I <sub>TSM</sub>	60	A	
I <sup>2</sup> t value for fusing (tp=10ms)	I <sup>2</sup> t	18	A <sup>2</sup> S	
Critical rate of rise of on-state current (I = 2×IGT, tr ≤ 100 ns)	dI/dt	50	A/μS	
Peak gate current	I <sub>GM</sub>	2	A	
Average gate power dissipation	P <sub>G(AV)</sub>	1	W	

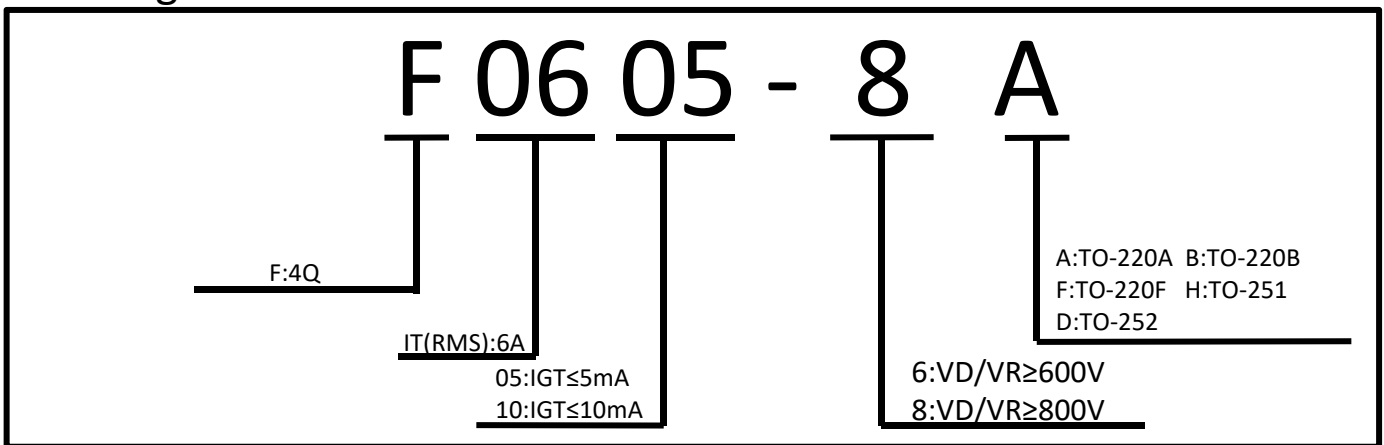
### Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (AC)	TO-220A	°C/W
		TO-220B	
		TO-220F	
		TO-251/TO-252	

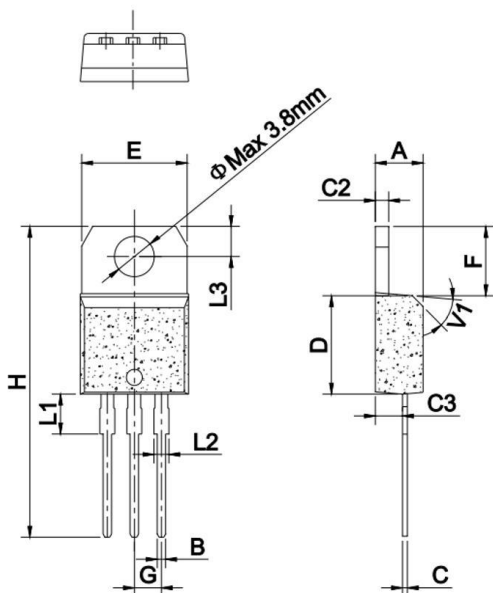
ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)						
Symbol	Test Condition	Quadrant		Value		Unit
				05	10	
$I_{GT}$	$V_D=12V$	I-II-III	MAX	5	10	mA
		IV		10	25	
$V_{GT}$		ALL	MAX	1.3		V
$V_{GD}$	$V_D=V_{DRM}$ $T_j=125^\circ C$	ALL	MIN	0.2		V
$I_L$	$I_G=1.2I_{GT}$	I-III	MAX	5	20	mA
		II-IV		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/ $\mu s$

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX. )	Unit
$V_{TM}$	$I_{TM}=8.5A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.5	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

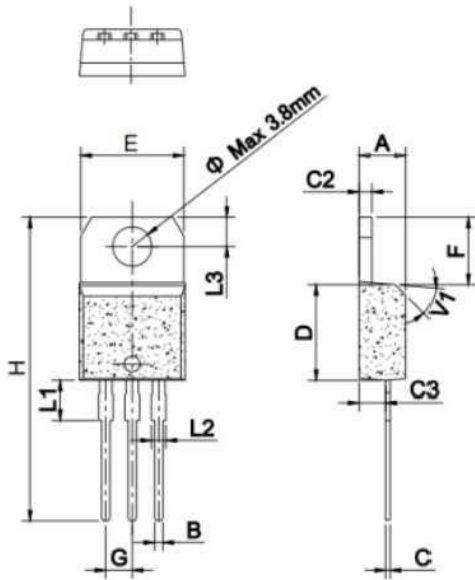
### Ordering Information Scheme



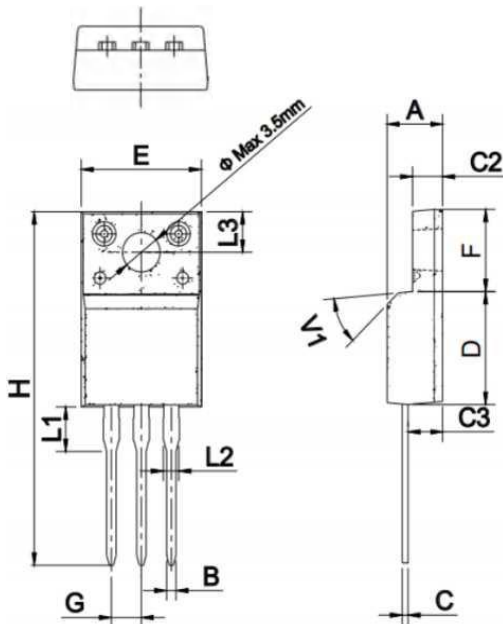
### TO-220A Package Mechanical Data



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°	

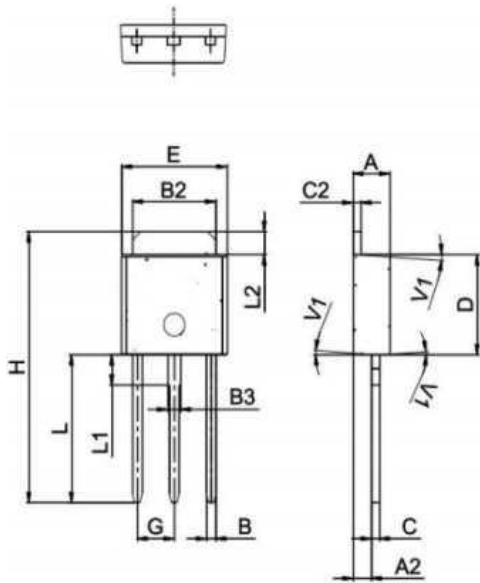
**TO-220B Package Mechanical Data**


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**


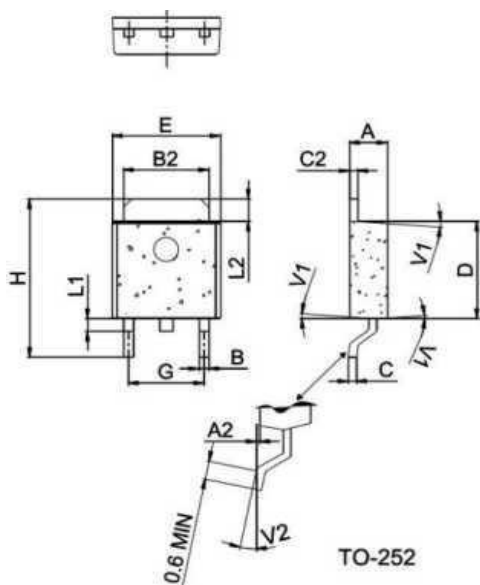
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.50		3.10	0.096		0.108
C3	2.40		2.80	0.102		0.118
D	8.60		8.90	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.70		7.50	0.252		0.268
G		2.54			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

FIG.1 Maximum power dissipation versus on-state current

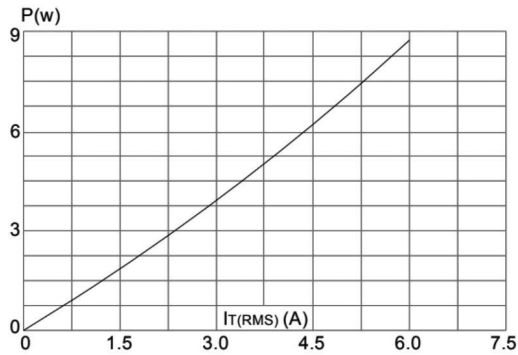


FIG.2: on-state current versus case temperature

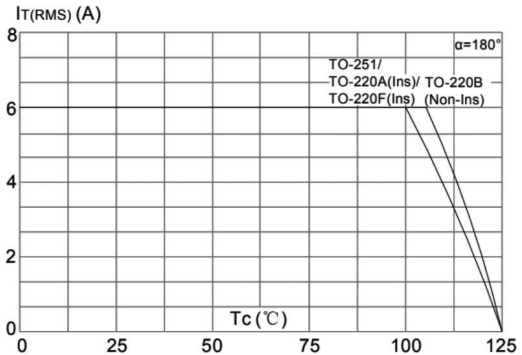


FIG.3: Surge peak on-state current versus number of cycles

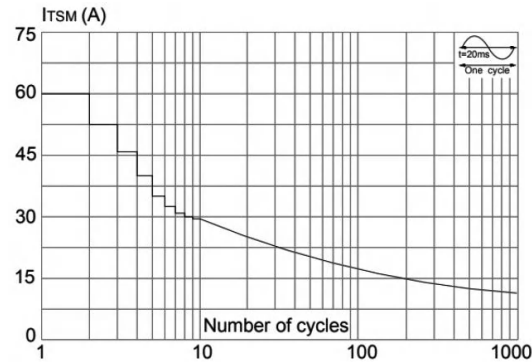


FIG.4: On-state characteristics (maximum values)

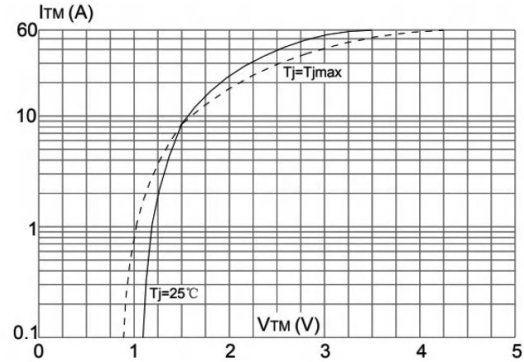


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I_2 t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )

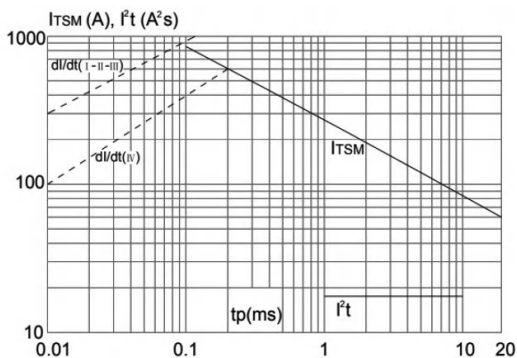
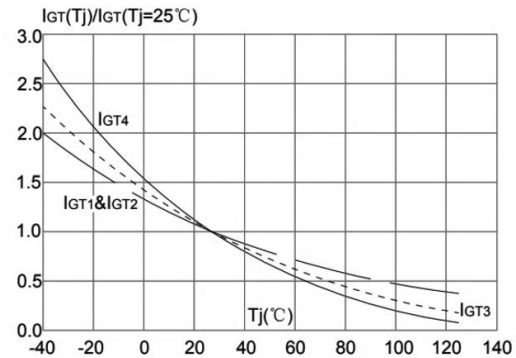


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



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