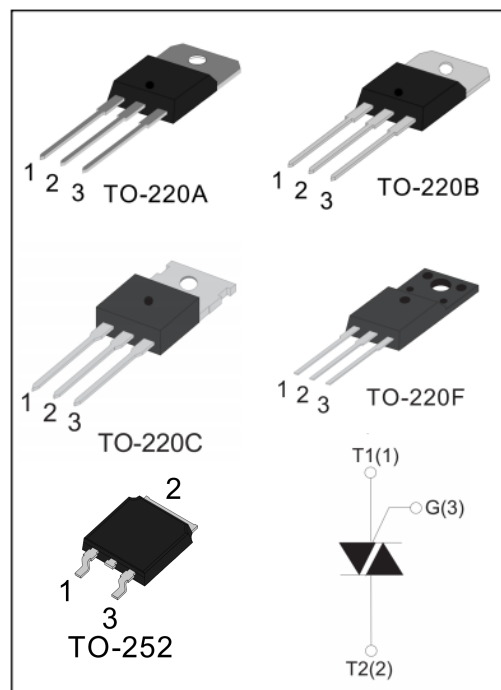


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
V_{DRM}/V_{RRM}	800	V
I_{GT3}	35	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40 - 150	°C
Operating junction temperature range	T_j	-40 - 150	°C
Repetitive peak off-state voltage ($T_j=25^{\circ}\text{C}$)	V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)	V_{RRM}	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	$I_{T(RMS)}$	8	A

TO-220A $T_c = 100^{\circ}\text{C}$
TO-220B $T_c = 110^{\circ}\text{C}$
TO-220C $T_c = 75^{\circ}\text{C}$
TO-220F $T_c = 90^{\circ}\text{C}$
TO-252 $T_c = 100^{\circ}\text{C}$

T0835/F0835 Series

Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	80	A
I^2t value for fusing ($t_p=10ms$)	I^2t	32	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	$A/\mu s$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ C$ unless otherwise specified)

3 Quadrants T0835 series

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II - III	MAX	35	mA
V_{GT}		I - II - III	MAX	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K\Omega$	I - II - III	MIN	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III	MAX	50	mA
		II		70	mA
I_H	$I_{TM}=100mA$		MAX	40	$V/\mu s$
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	500	mA

4 Quadrants F0835 series

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II - III	MAX	35	mA
		IV		50	
V_{GT}		ALL	MAX	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K\Omega$	ALL	MIN	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III - IV	MAX	50	mA
		II		70	
I_H	$I_{TM}=200mA$		MAX	40	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	200	$V/\mu s$

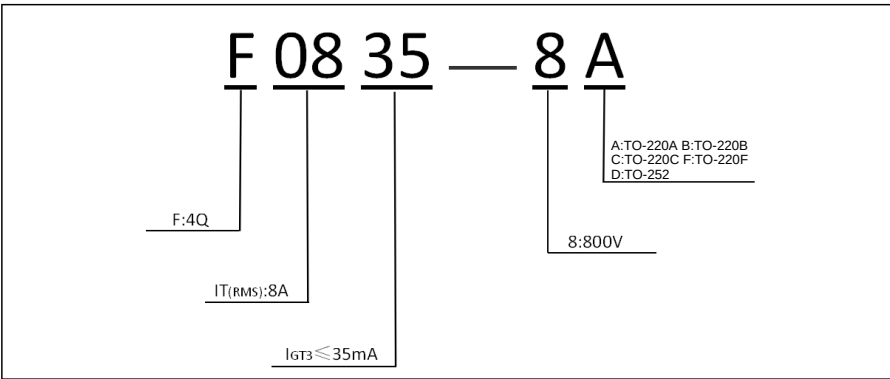
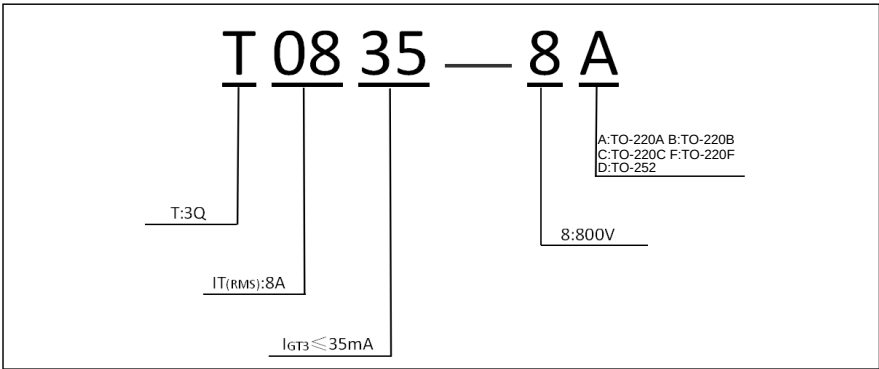
STATIC CHARACTERISTICS

Symbol	Parameter		Value	Unit
V_{TM}	$I_{TM} = 11A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	1.5	V
I_{DRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ C$	5	μA
I_{RRM}		$T_j = 125^\circ C$	1	mA

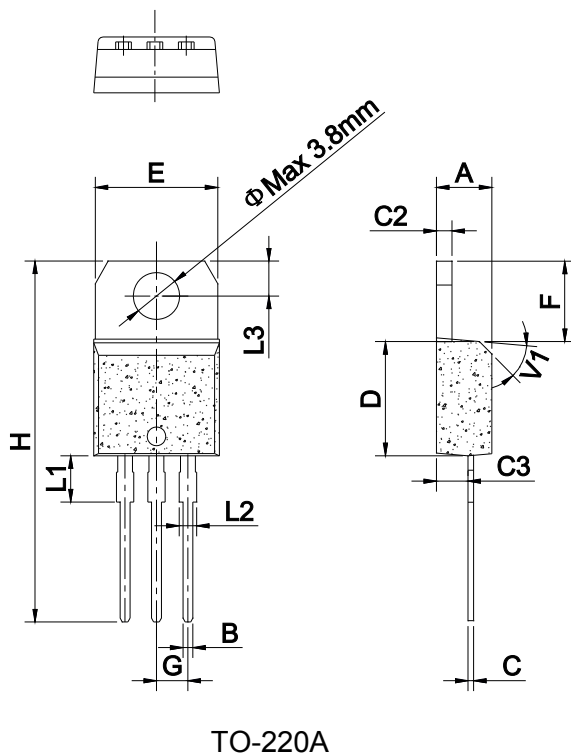
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-252	2.1	$^\circ C/W$
		TO-220A	2.7	
		TO-220B	1.8	
		TO-220F	2.9	

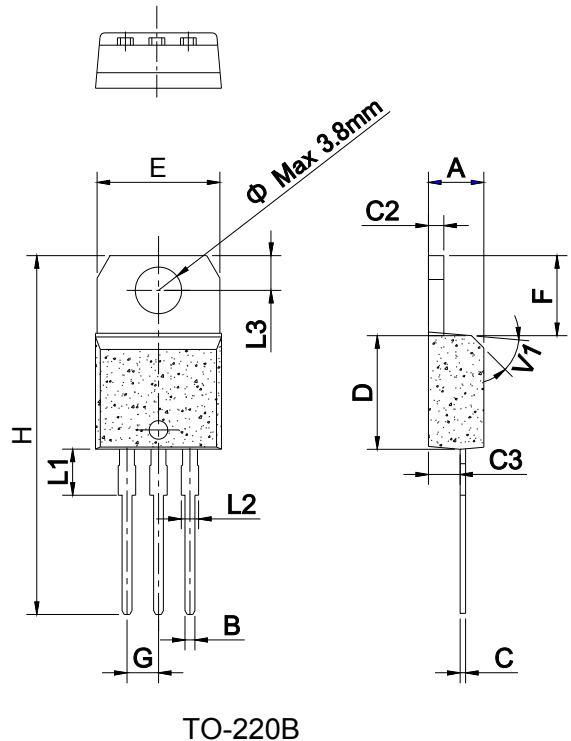
ORDERING INFORMATION



PACKAGE MECHANICAL DATA

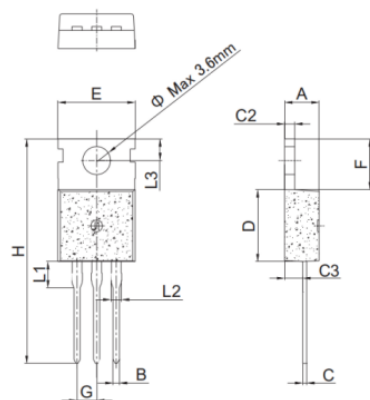


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	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



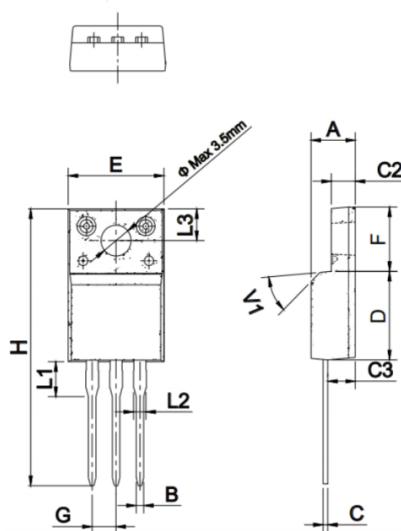
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
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°	

PACKAGE MECHANICAL DATA



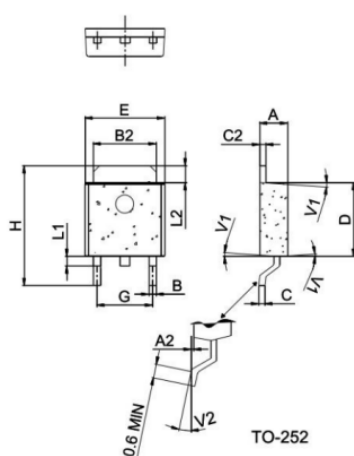
TO-220C

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	1.30		1.48	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	



TO-220F

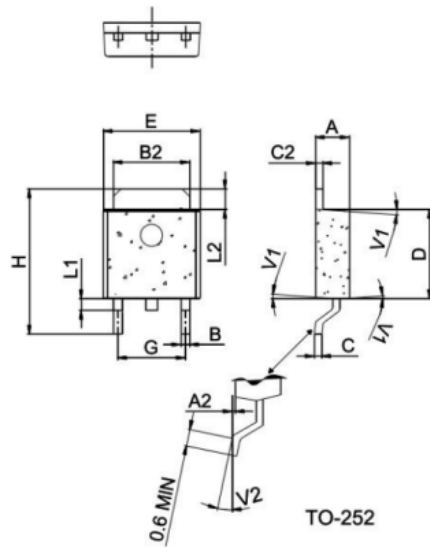
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.50		3.10	0.096		0.108
C3	2.40		2.80	0.102		0.118
D	8.60		8.90	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.70		7.50	0.252		0.268
G		2.54			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-252

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°

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 RMS on-state current(full cycle)

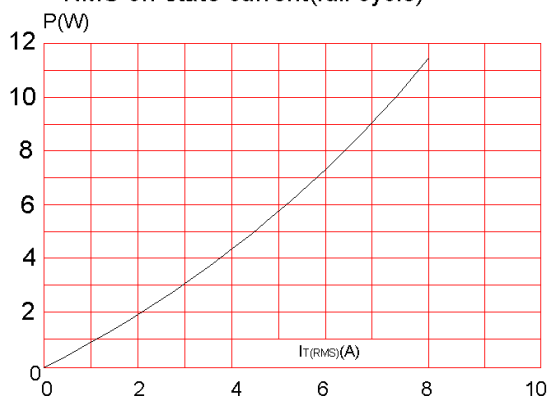


FIG.3:On-state characteristics (maximum values).

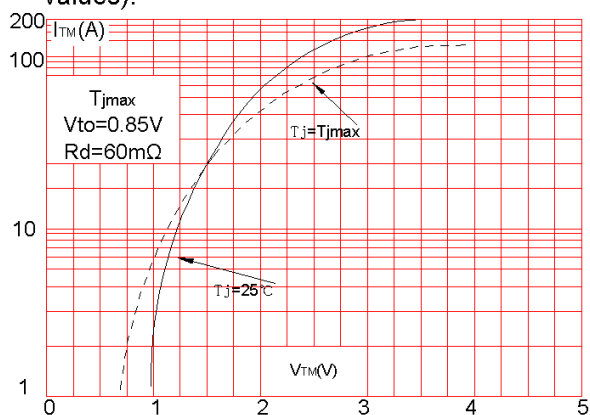
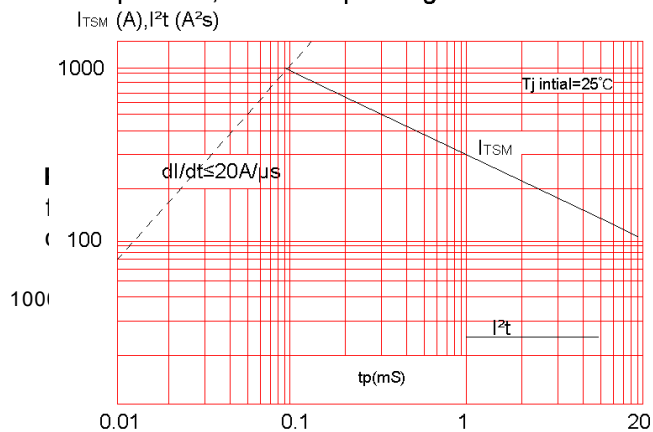

 FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t .


FIG.2:RMS on-state current versus mounting base temperature(full cycle)

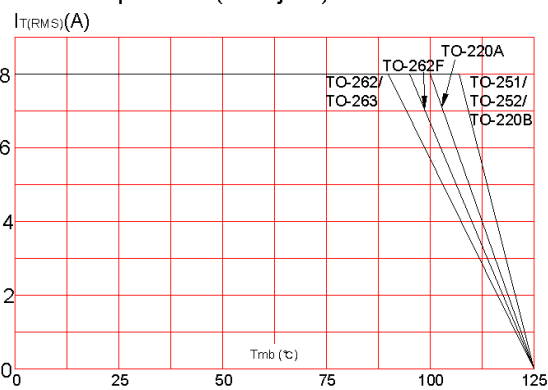


FIG.4:Surge peak on-state current versus number of cycles.

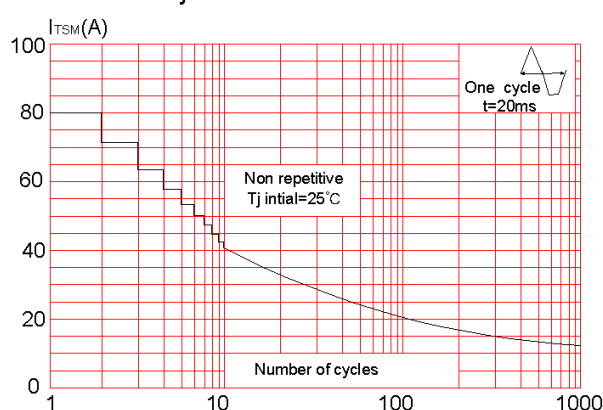


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)

