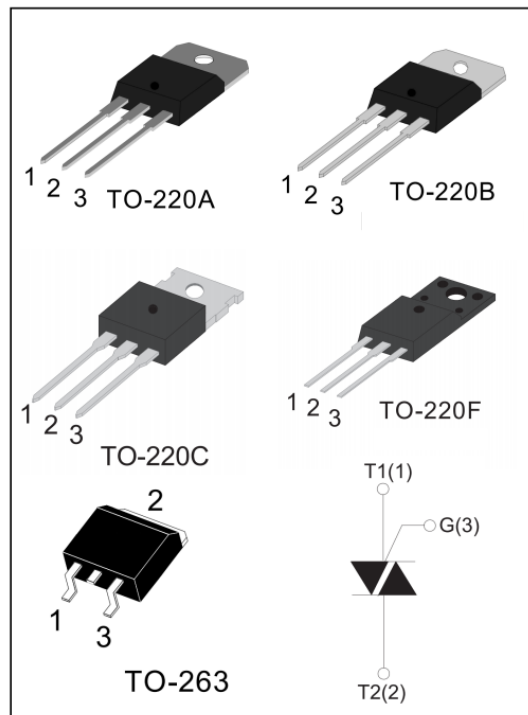


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	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 TO-220A $T_c = 85^{\circ}\text{C}$ TO-220B $T_c = 110^{\circ}\text{C}$ TO-220C $T_c = 110^{\circ}\text{C}$ TO-220F $T_c = 95^{\circ}\text{C}$ TO-263 $T_c = 80^{\circ}\text{C}$	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)	I_{TSM}	160	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	128	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	$\text{A}/\mu\text{s}$
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 ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D = 12\text{V } R_L = 33\Omega$	I - II - III	MAX	35	mA
V_{GT}		I - II - III	MAX	1.3	V
V_{GD}	$V_D = V_{DRM} T_J = 125^{\circ}\text{C}$ $R_L = 3.3\text{K}\Omega$	I - II - III	MIN	0.2	V
I_L	$I_G = 1.2I_{GT}$	I - III	MAX	50	mA
		II		60	
I_H	$I_T = 100\text{mA}$		MAX	40	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_J = 125^{\circ}\text{C}$		MIN	500	V/ μs

4 Quadrants

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D = 12\text{V } R_L = 33\Omega$	I - II - III	MAX	35	mA
		IV		50	
V_{GT}		ALL	MAX	1.5	V
V_{GD}	$V_D = V_{DRM} T_J = 125^{\circ}\text{C}$ $R_L = 3.3\text{K}\Omega$	ALL	MIN	0.2	V
I_L	$I_G = 1.2I_{GT}$	I - III - IV	MAX	50	mA
		II		80	
I_H	$I_T = 100\text{mA}$		MAX	40	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_J = 125^{\circ}\text{C}$		MIN	200	V/ μs

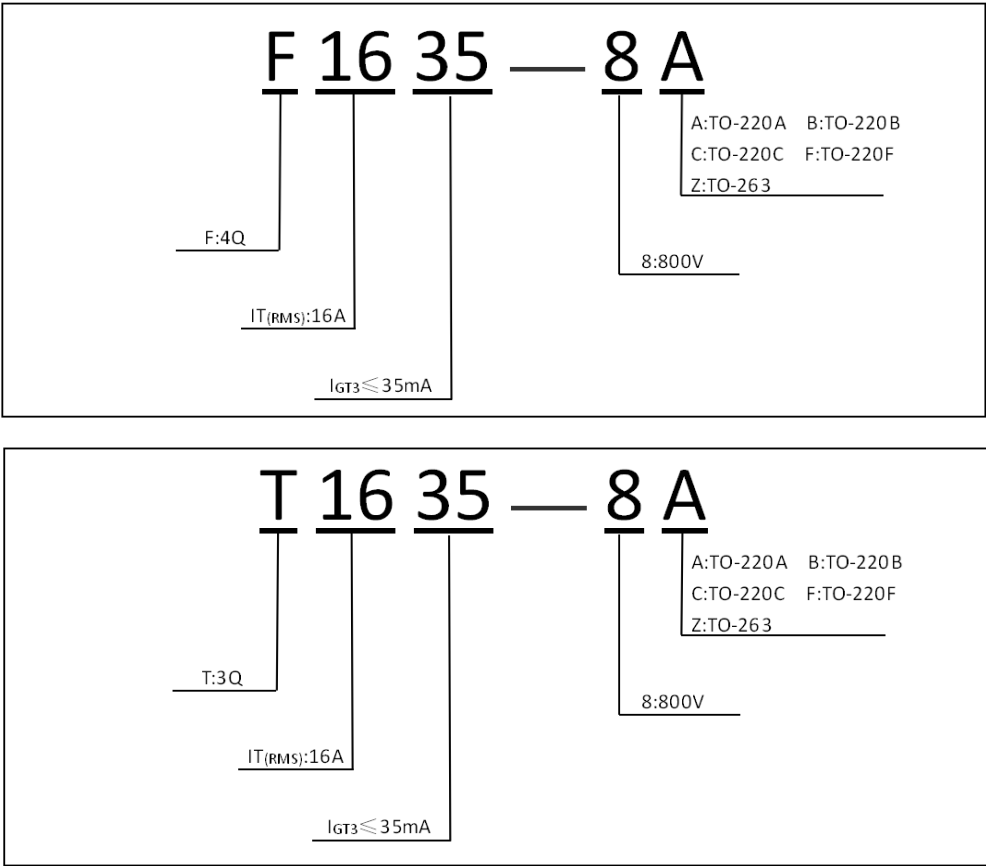
STATIC CHARACTERISTICS

Symbol	Parameter		Value			Unit
V_{TM}	$I_{TM}=22.5A$	$t_p=380\mu s$	$T_j=25^{\circ}C$ 1.5			V
I_{DRM}	$V_D=V_{DRM} \quad V_R=V_{RRM}$		$T_j=25^{\circ}C$ 5 5 10			μA
I_{RRM}			$T_j=125^{\circ}C$ 2 2 1			mA

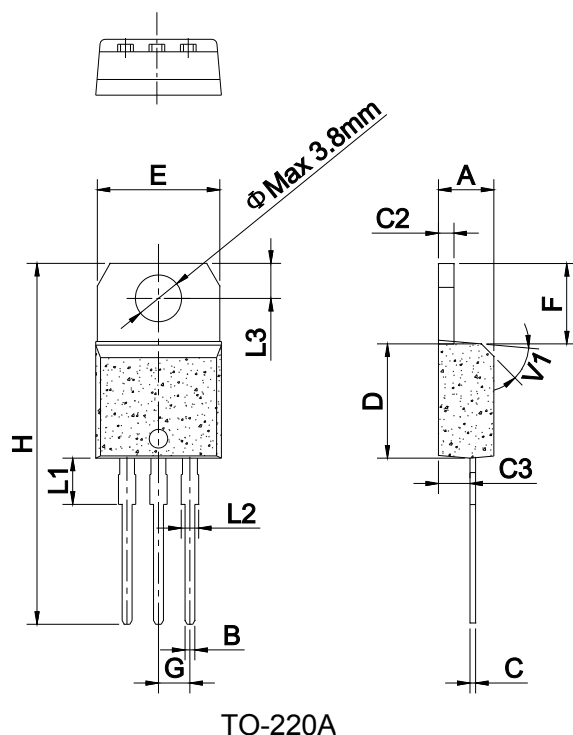
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	junction to case(AC)	TO-220A	2.1	°C/W
		TO-220B/TO-220C	1.2	
		TO-220F	2.3	
		TO-263	2.5	

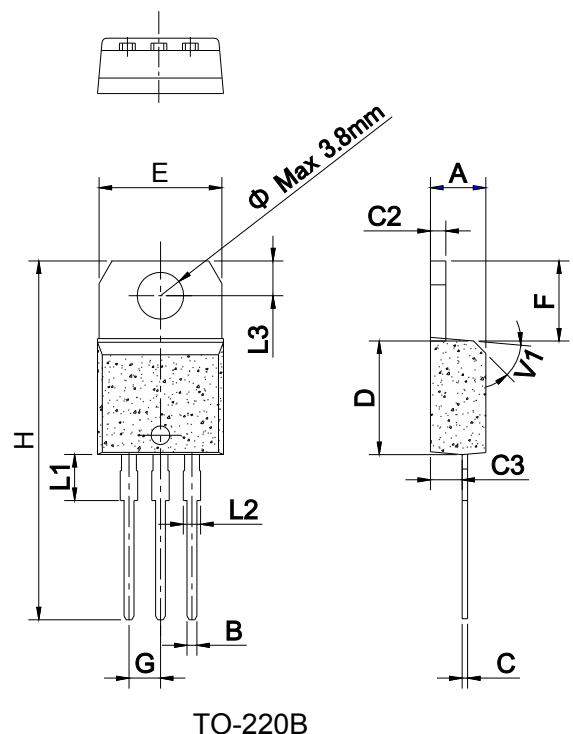
ORDERING INFORMATION



PACKAGE MECHANICAL DATA

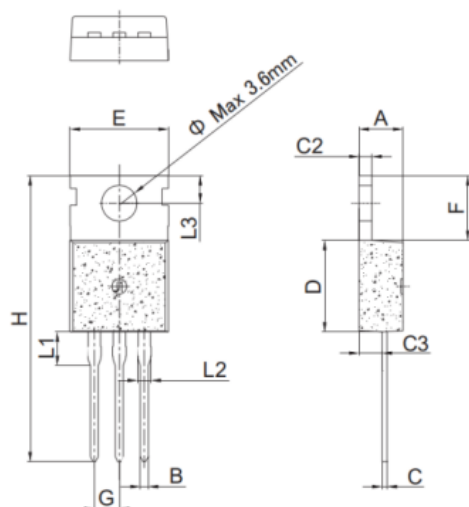


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.20		4.60	0.165		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
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°	



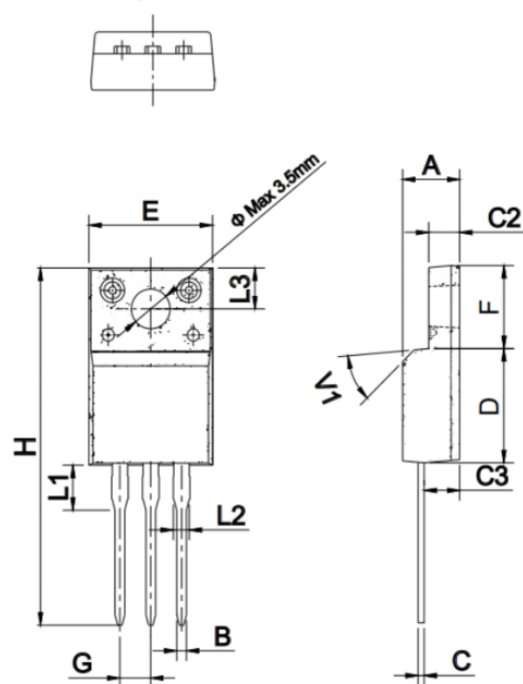
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	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

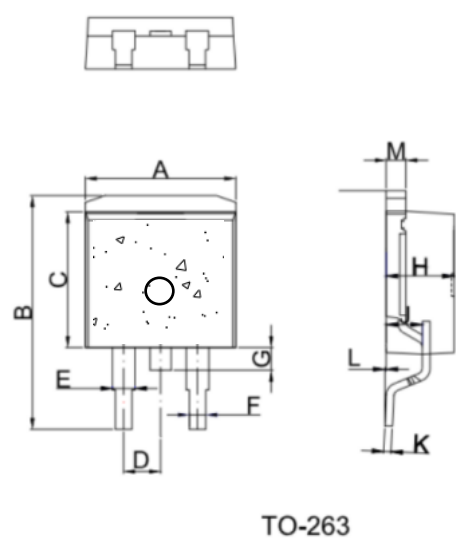
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.30		1.48	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
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°	

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

PACKAGE MECHANICAL DATA

FIG.1:Maximum power dissipation versus RMS on-state current(full cycle)

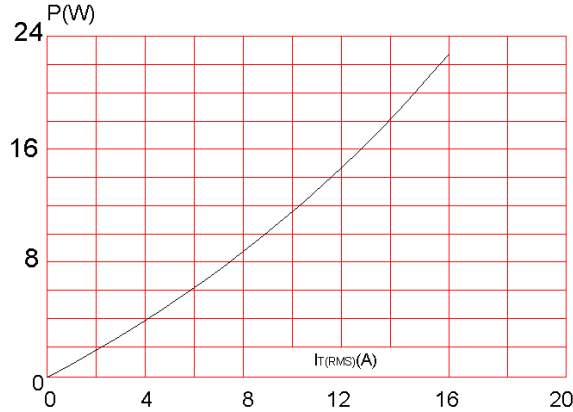


FIG.2:RMS on-state current versus mounting base temperature(full cycle)

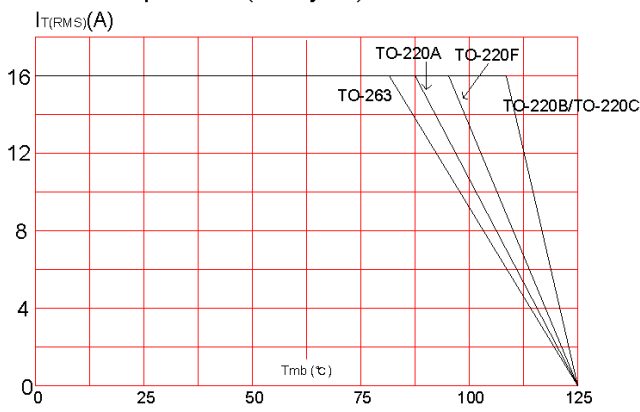


FIG.3: On-state characteristics (maximum values).

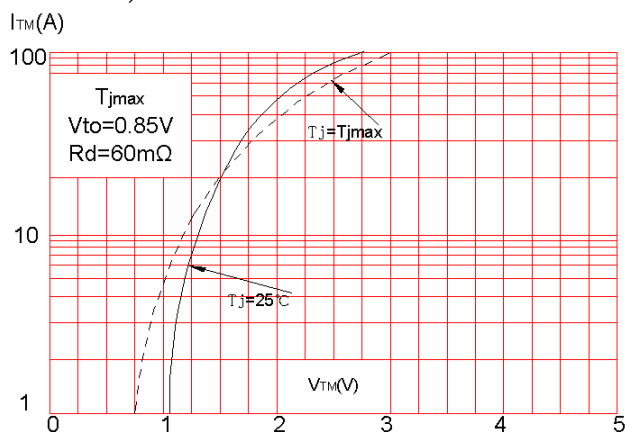
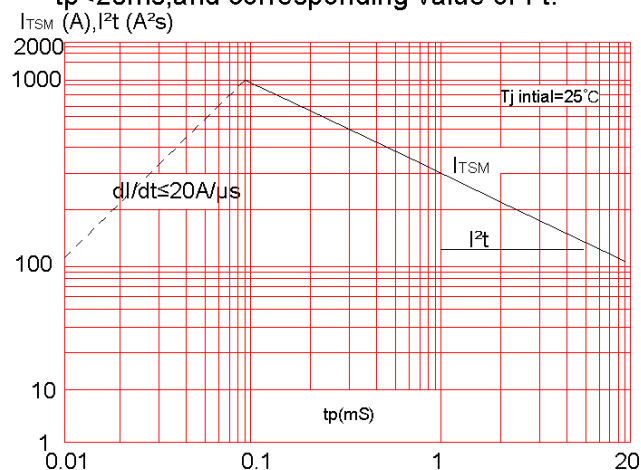
FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t .

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

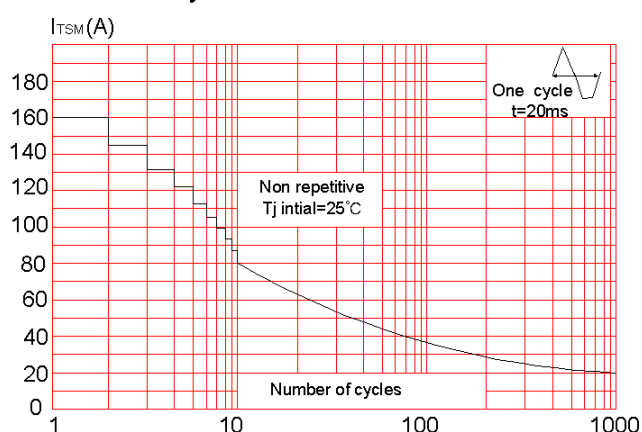


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)

