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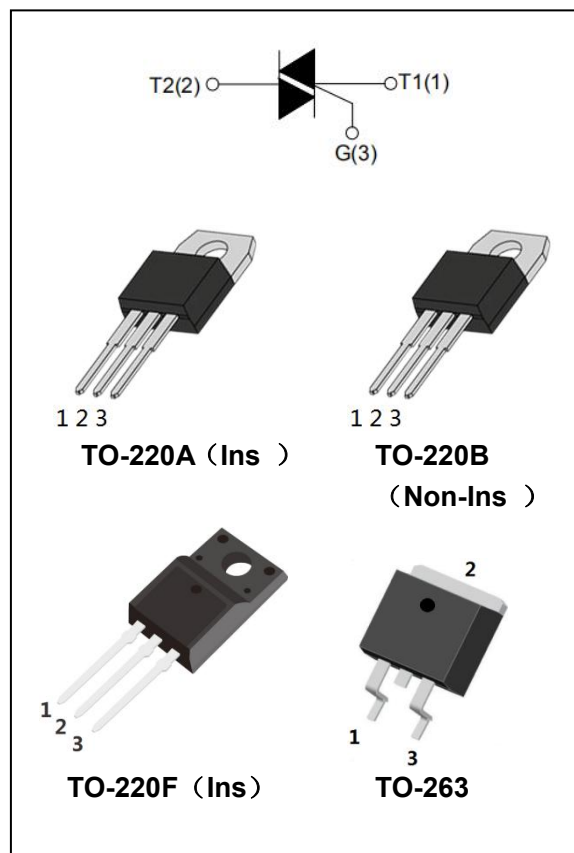
T12**H 12A High Junction Temperature Triacs

DESCRIPTION:

T12**H triacs of high junction temperature with high dv/dt rate with strong resistance to electromagnetic interference provide high ability to withstand the shock loading of large current. They are especially recommended for use on inductive load and high environment temperature condition.

MAIN FEATURES:

symbol	value	unit
$I_{T(RMS)}$	12.0	A
V_{DRM}/V_{RRM}	800/1000	V



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 ($T_j=25^{\circ}C$)	V_{DRM}	800/1000	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	800/1000	V
RMS on-state current	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	120	A
I^2t value for fusing ($t_p=10ms$)	I^2t	78	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



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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)

Parameter	Test Condition	Quadrant		Value				Unit
				T1210	T1220	T1235	T1250	
I_{GT}	$V_D=12V,$ $R_L=33\Omega$	I - II -III	MAX	10	20	35	50	mA
V_{GT}				1.5				V
V_{GD}	$V_D=V_{DRM}$	I - II -III	MIN	0.2				V
I_H	$I_T=100\text{mA}$		MAX	20	30	45	60	mA
I_L	$I_G=1.2I_{GT}$	I -III	MAX	25	40	50	70	mA
		II		35	55	70	90	
dV/dt	$V_D=2/3V_{DRM}$ $T_j=125^\circ\text{C}$ Gate open		MIN	200	500	1000	1500	V/ μs

STATIC CHARACTERISTICS

Symbol	Test Condition			Value	Unit
V_{TM}	$I_{TM}=17A$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	MAX	1.5	V
I_{DRM} I_{RRM}	$V_{DRM}=V_{RRM}$	$T_j=25^\circ\text{C}$	MAX	5	μA
		$T_j=125^\circ\text{C}$		1	mA

THERMAL RESISTANCES

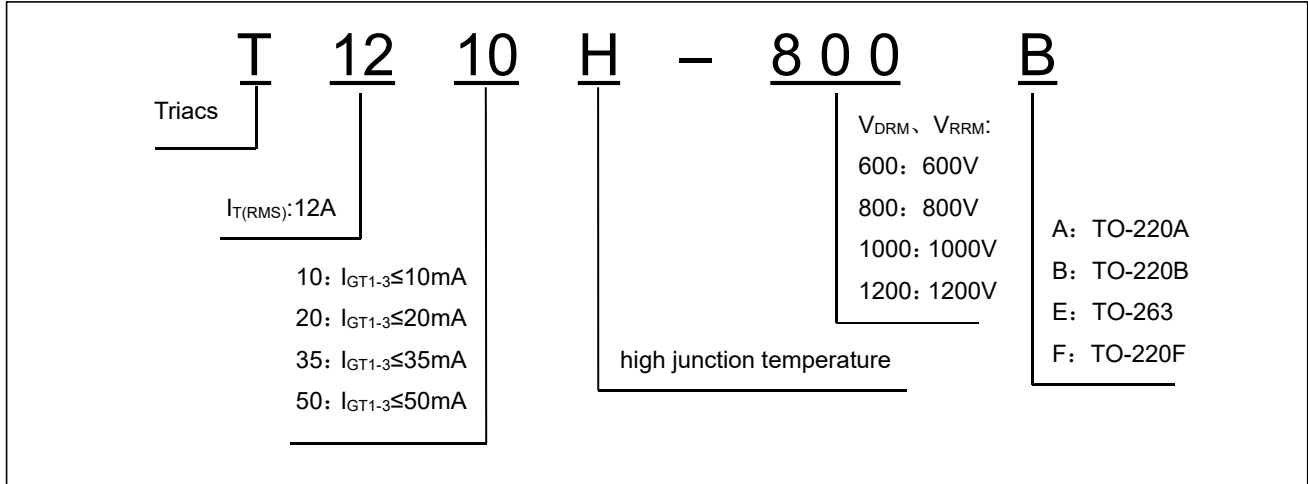
Symbol	Test Condition		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2.3	$^\circ\text{C/W}$
		TO-220B(Non-Ins)	1.5	
		TO-220F(Ins)	2.5	
		TO-263	1.5	



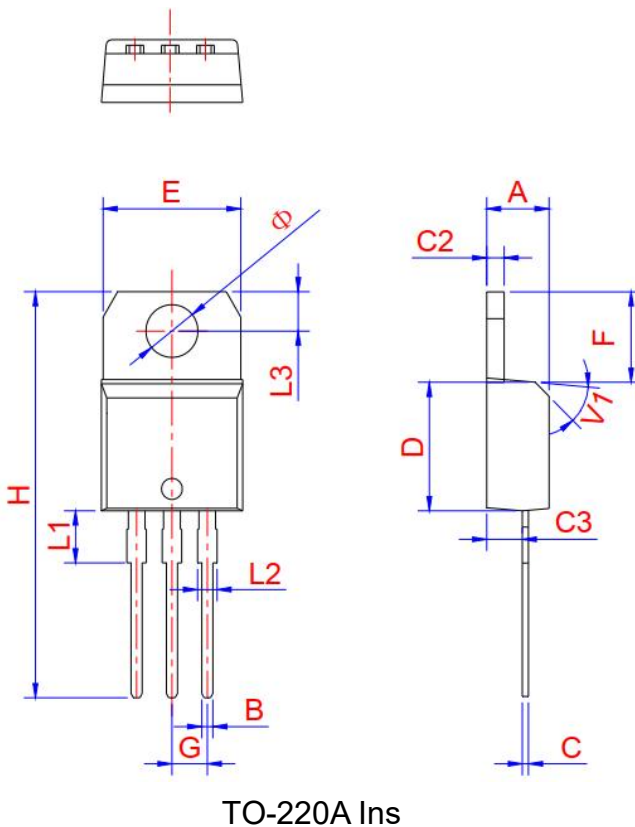
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ORDERING INFORMATION



PACKAGE MECHANICAL DATA

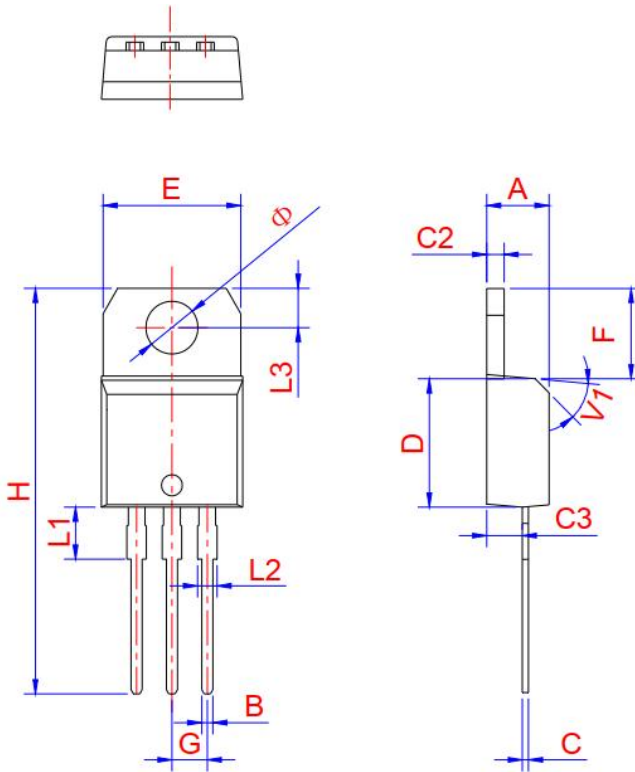


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4	4.47	4.6	0.173	0.176	0.181
B	0.61		0.88	0.024		0.035
C	0.46	0.50	0.7	0.018	0.02	0.028
C2	1.21	1.27	1.32	0.048	0.050	0.052
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.339		0.382
E	9.8		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	
Φ	3.7	3.75	3.8	0.145	0.147	0.149



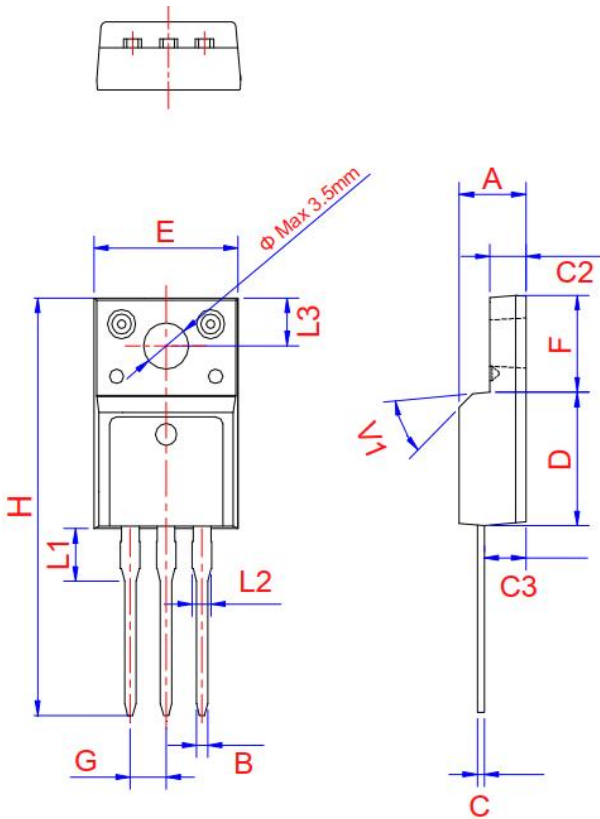
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TO-220B Non-Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4	4.47	4.6	0.173	0.176	0.181
B	0.61		0.88	0.024		0.035
C	0.46	0.50	0.7	0.018	0.02	0.028
C2	1.21	1.27	1.32	0.048	0.050	0.052
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.339		0.382
E	9.8		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	
Φ	3.7	3.75	3.8	0.145	0.147	0.149



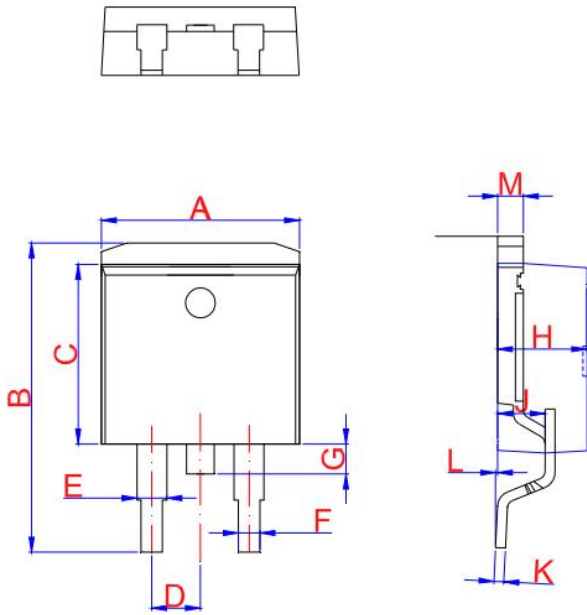
TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.5		4.9	0.177		0.193
B	0.74	0.8	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	2.6		3	0.102		0.118
D	8.8		9.3	0.346		0.366
E	9.8		10.4	0.386		0.41
F	6.4		6.8	0.252		0.268
G		2.54			0.1	
H	28		29.8	1.102		1.173
L1		3.63			0.148	
L2	1.14		1.7	0.045		0.067
L3	2.65	3.3	0		0.13	0.116
V1		45°			45°	



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TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.9		10.3	0.390		0.406
B	14.7		15.8	0.579		0.622
C	8.5		8.9	0.370		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	4.60	4.80	0.173	0.181	0.189
J	2.40	2.60	2.80	0.094	0.102	0.110
L	0	0.1	0.25	0	0.004	0.010
M	1.17	1.27	1.37	0.046	0.05	0.054

FIG.1: Maximum power dissipation versus RMS on-state current

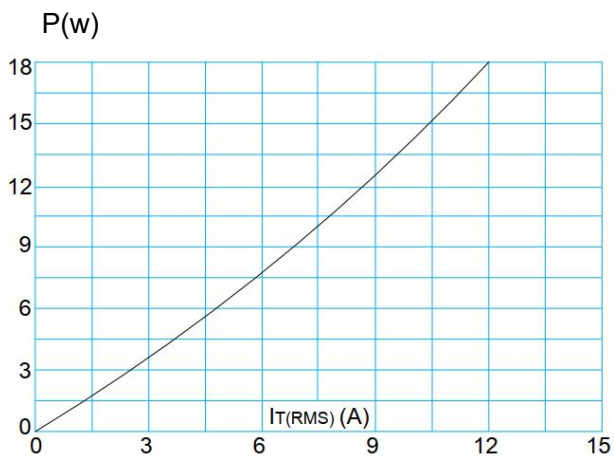
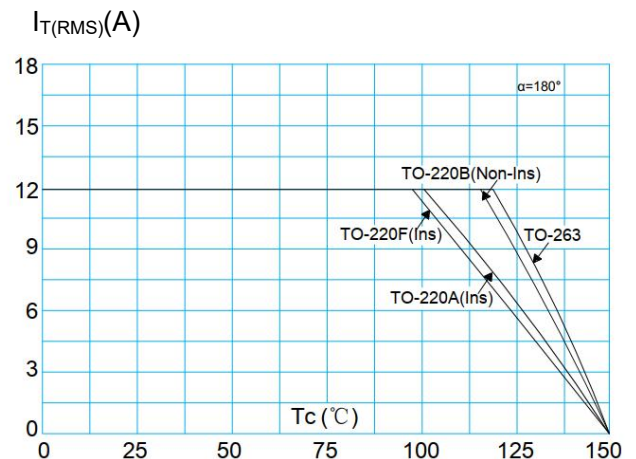


FIG.2: RMS on-state current versus case temperature





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

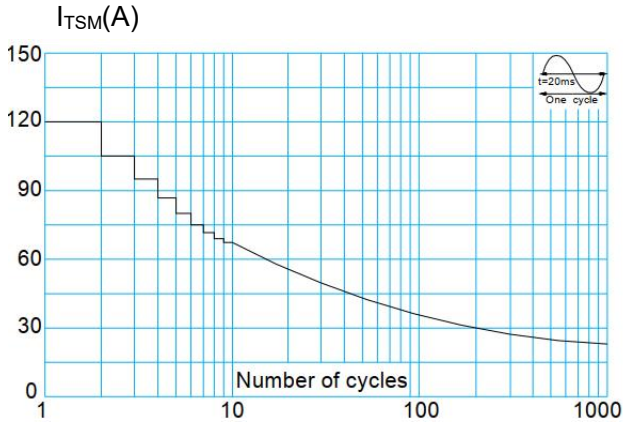


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II - III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 10\text{A}/\mu\text{s}$)

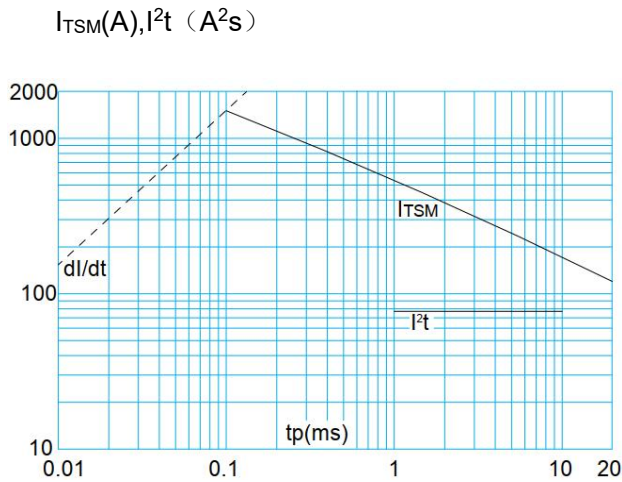


FIG.4: On-state characteristics (maximum values)

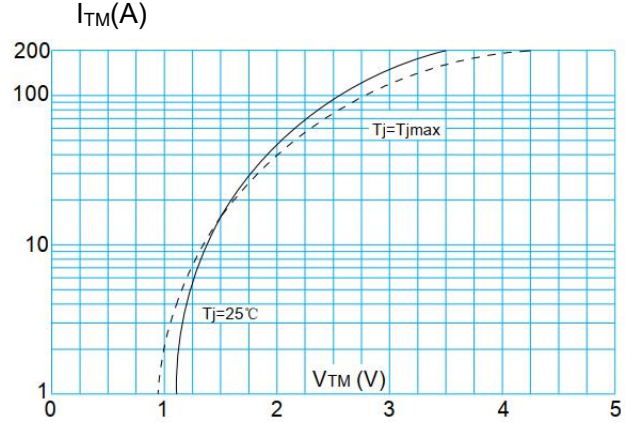
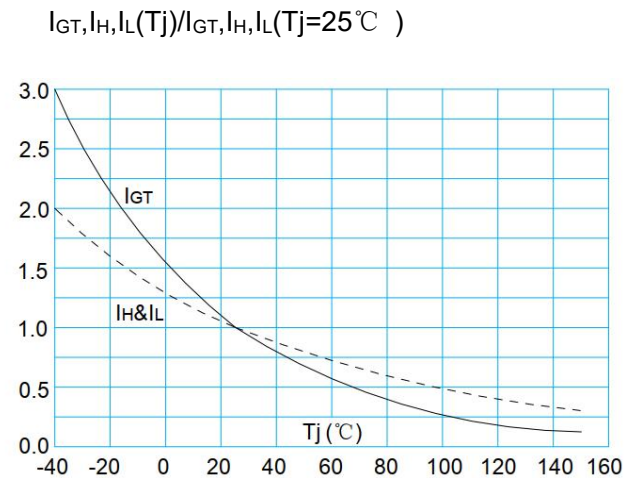


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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