



T20xxH Series 20A TRIACs

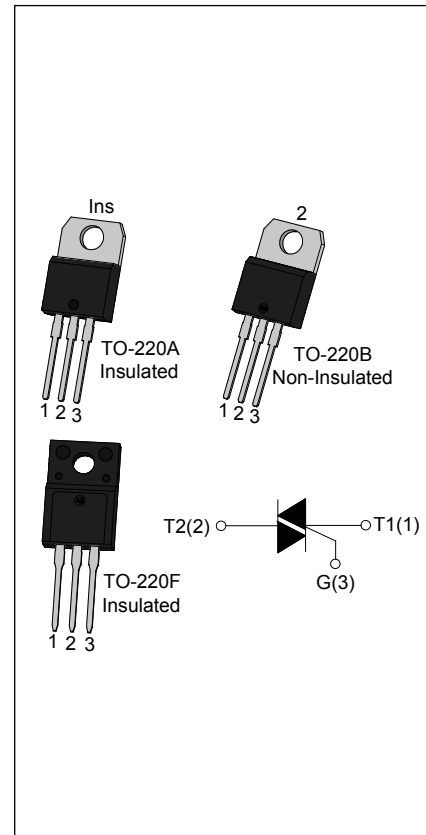
Rev.3.0

DESCRIPTION:

T20xxH triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. With high commutation performances, 3 quadrants products especially recommended for use on inductive load. From all three terminals to external heatsink, T20xxH-xxA provides a rated insulation voltage of 2500 V_{RMS}, and T20xxH-xxF provides a rated insulation voltage of 2000 V_{RMS}, complying with UL standards (File ref: E252906).

MAIN FEATURES

Symbol	Value	Unit
T _j	150	°C
I _{T(RMS)}	20	A
V _{DRM} /V _{RPM}	600/800	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	V _{DRM}	600/800	V
Repetitive peak reverse voltage	V _{DRM}	600/800	V
RMS on-state current	TO-220B(Non-Ins) (T _C =110°C)	20	A
	TO-220A(Ins)/ TO-220F(Ins) (T _C =85°C)		
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I _{TSM}	200	A
I ² t value for fusing (tp=10ms)	I ² t	200	A ² s

Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	di/dt	100	A/ μ s
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	10	W

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

Symbol	Test Condition	Quadrant		Value		Unit
				T2035H	T2050H	
I_{GT}	$V_D = 12\text{V}$ $R_L = 33\Omega$	I - II - III	MAX	35	50	mA
V_{GT}		I - II - III	MAX	1.5		V
V_{GD}	$V_D = V_{DRM}$ $T_j = 150^\circ\text{C}$ $R_L = 3.3\text{K}\Omega$	I - II - III	MIN	0.2		V
I_L	$I_G = 1.2I_{GT}$	I - III	MAX	50	70	mA
		II		60	80	
I_H	$I_T = 100\text{mA}$		MAX	40	60	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 150^\circ\text{C}$		MIN	250	500	V/ μ s
$(dV/dt)_c$	$(di/dt)_c = 8.8\text{A/ms}$ $T_j = 150^\circ\text{C}$		MIN	7	15	V/ μ s

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM} = 28\text{A}$ $t_p = 380\mu\text{s}$	$T_j = 25^\circ\text{C}$	1.55	V
I_{DRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$	5	μA
I_{RRM}		$T_j = 150^\circ\text{C}$	2.5	mA

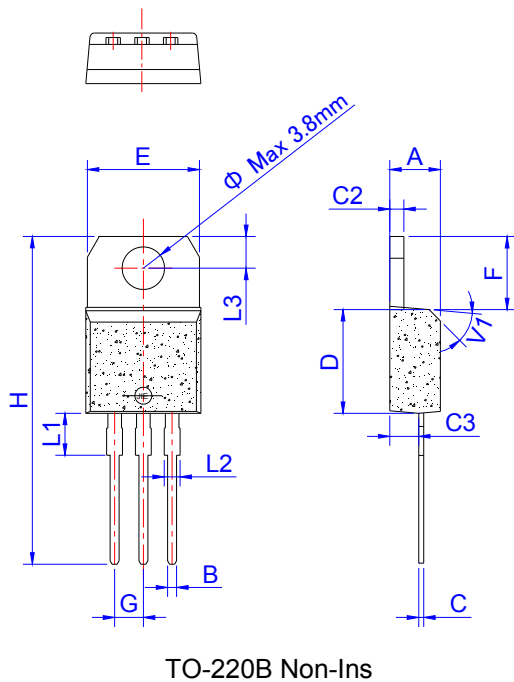
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220B(Non-Ins)	1.1	$^\circ\text{C/W}$
		TO-220A(Ins)	1.9	
		TO-220F(Ins)	2.1	

ORDERING INFORMATION

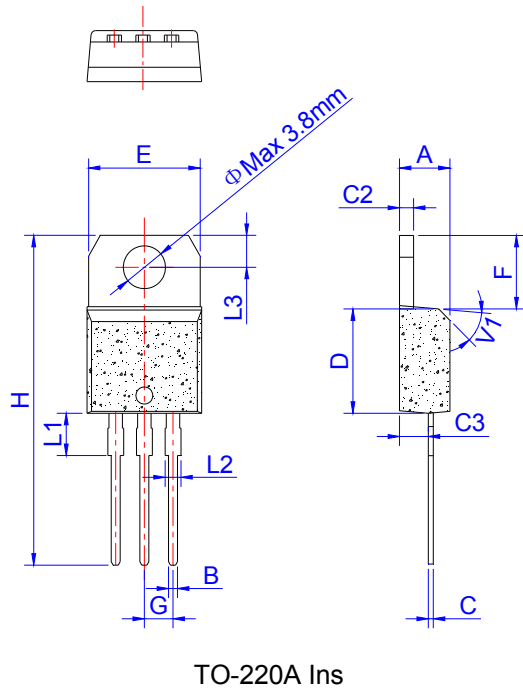
<p>T</p> <p>Triacs</p> <p>20: $I_{T(RMS)}: 20A$</p> <p>35: $I_{GT1-3} \leq 35mA$</p> <p>50: $I_{GT1-3} \leq 50mA$</p>	<p>20</p>	<p>35</p>	<p>H</p> <p>H: $T_j = 150^\circ C$</p>	<p>-6</p> <p>6: $V_{DRM} / V_{RRM} \geq 600V$</p> <p>8: $V_{DRM} / V_{RRM} \geq 800V$</p>	<p>B</p> <p>A: TO-220A(Ins)</p> <p>F: TO-220F(Ins)</p> <p>B: TO-220B(Non-Ins)</p>
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PACKAGE MECHANICAL DATA

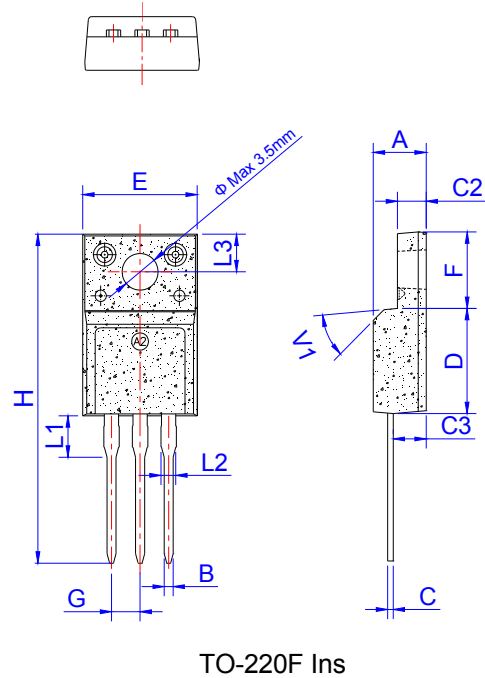


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	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

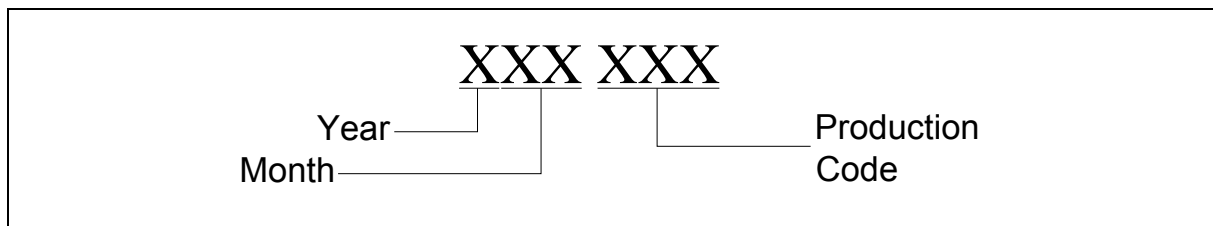
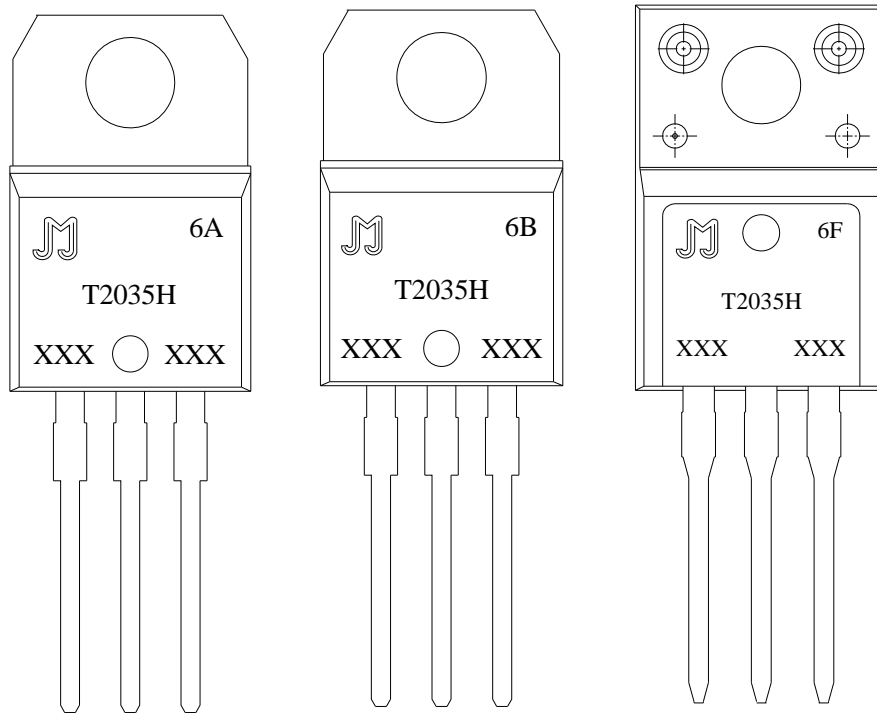


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
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	4.50		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	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	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°	

MARKING



PACKAGE INFORMATION

PACKAGE	WEIGHT (PER PCS)	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	2.308g	TUBE	50	1,000	8,000
TO-220B	1.935g	TUBE	50	1,000	8,000
TO-220F	2.093g	TUBE	50	1,000	8,000

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

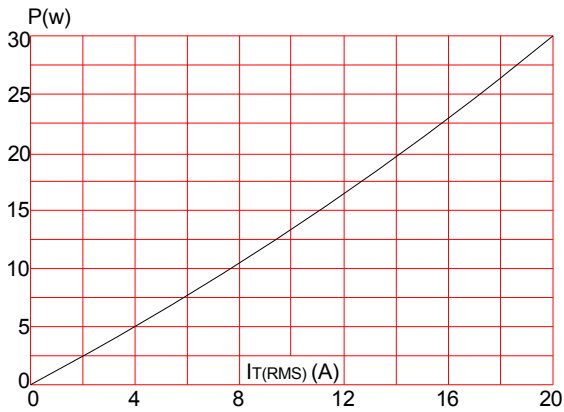


FIG.2: RMS on-state current versus case temperature

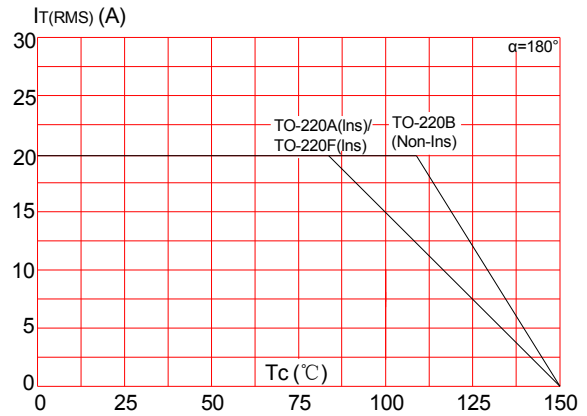


FIG.3: Surge peak on-state current versus number of cycles

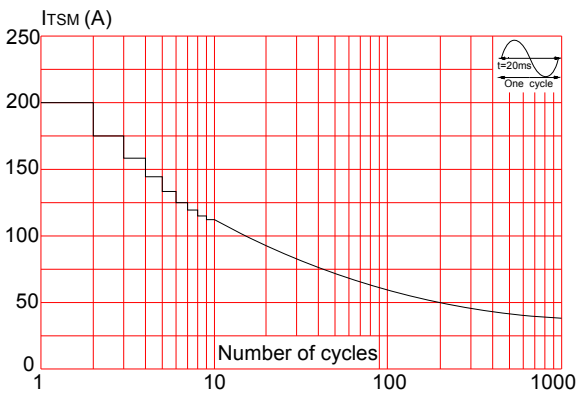


FIG.4: On-state characteristics (maximum values)

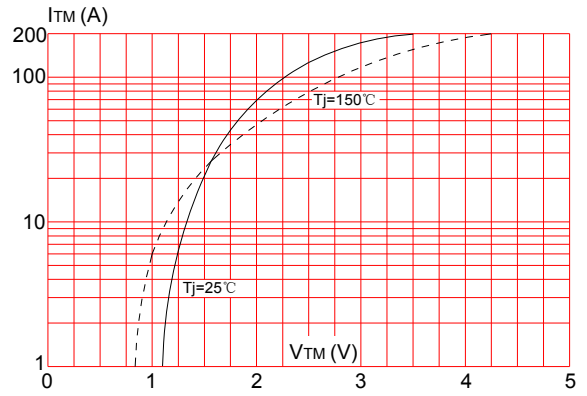


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 100A/\mu s$)

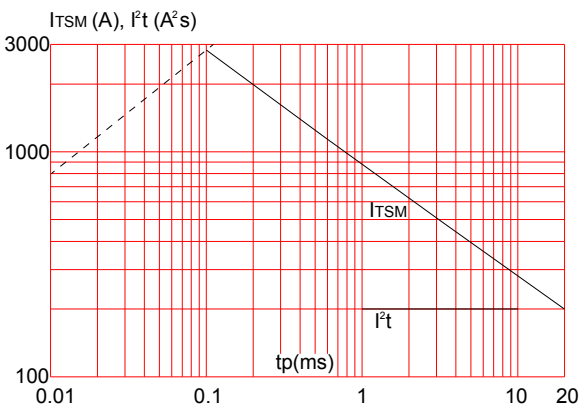
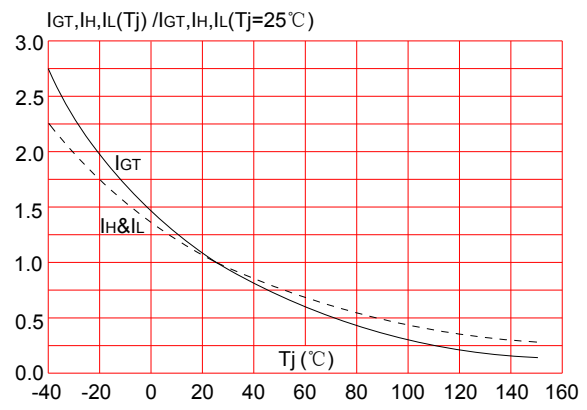



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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