



## T12xxHxF Series 12A TRIACs

### DESCRIPTION:

High current density due to single mesa technology ; Glass Passivation ; guaranteed maximum junction temperature 150°C.

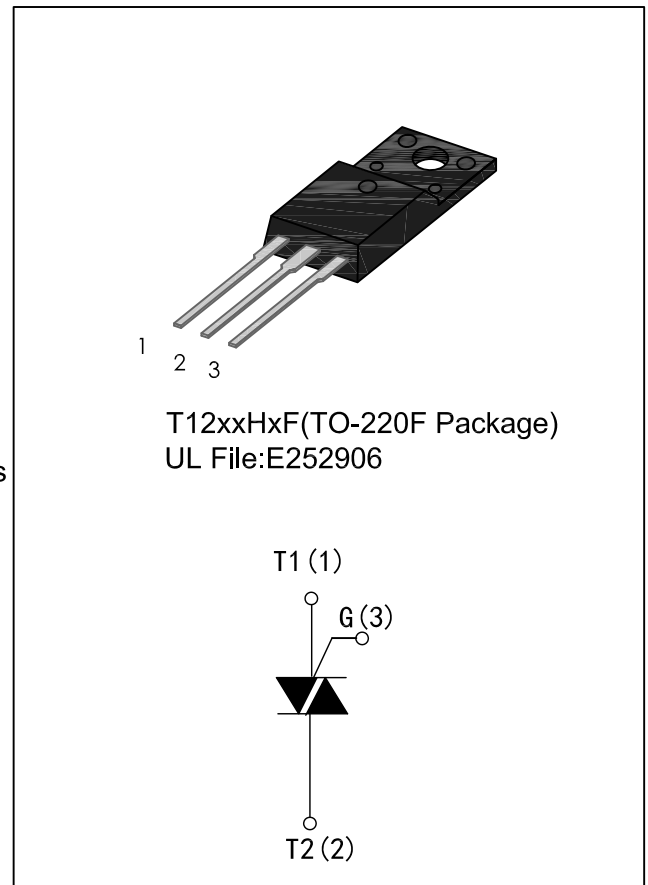
T12xxH series triacs is suitable for general purpose AC switching.They can be used as an ON/OFF Function in applications such as static relays,washing machine,soymilk maker,flush toilet,heating regulation, induction motor starting circuits... or for phase control operation light dimmers,motorspeed controllers.

T12xxH are 3 Quadrants triacs,They are specially recommended for use on inductive loads.

T12xxHxF are full pack plastic package,they provides a 2000V RMS isolation voltage from all three terminals to external heatsink complying with UL standards (File ref.:E252906).

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	600 and 800	V
$V_{TM}$	$\leq 1.55$	V



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 to +150	°C
Operating junction temperature range	Tj	-40 to +150	°C
Repetitive Peak Off-state Voltage	Tj=25°C	VDRM	600and800
Repetitive Peak Reverse Voltage	Tj=25°C	VRRM	600and800
Non repetitive Surge Peak Off-state Voltage	tp=10ms,Tj=25°C	VDSM	700and900
Non repetitive Peak Reverse Voltage		VRSM	700and900
RMS on-state current (full sine wave)	TO-220F Tc=97°C	IT(RMS)	12
Non repetitive surge peak on-state current (full cycle,Tj=25°C)	f = 60 Hz t=16.7ms	ITSM	126
	f = 50 Hz t=20ms		120
I²t Value for fusing	tp=10ms	I²t	78
Critical rate of rise of on-state current IG=2×IGT, tr≤100 ns, f=120Hz, Tj=150°C	di /dt	50	A/μs
Peak gate current tp=20us,Tj=150°C	IGM	2	A
Peak gate power tp=20us,Tj=150°C	PGM	5	W
Average gate power dissipation Tj=150°C	PG(AV)	1	W

ELECTRICAL CHARACTERISTICS(T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant		Limits				Unit
				T1210H	T1220H	T1235H	T1250H	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III	MAX.	10	20	35	50	mA
V <sub>GT</sub>		I-II-III	MAX.	1.5				V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3KΩ T <sub>j</sub> =150°C	I-II-III	MIN.	0.2				V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I-III	MAX.	20	40	50	70	mA
		II	MAX.	35	55	70	100	mA
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX.	20	30	45	60	mA
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> gate open T <sub>j</sub> =150°C		MIN.	200	500	1000	1500	V/μs
(dV/dt) <sub>c</sub>	V <sub>D</sub> =400V (dI/dt) <sub>c</sub> =-5.3A/ms T <sub>j</sub> =150°C		MIN.	1	5	15	20	V/μs

## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V <sub>TM</sub>	I <sub>TM</sub> =17A, t <sub>p</sub> =380μs	T <sub>j</sub> =25°C	1.55	V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	5	μA
		T <sub>j</sub> =150°C	3.0	mA

## THERMAL RESISTANCES

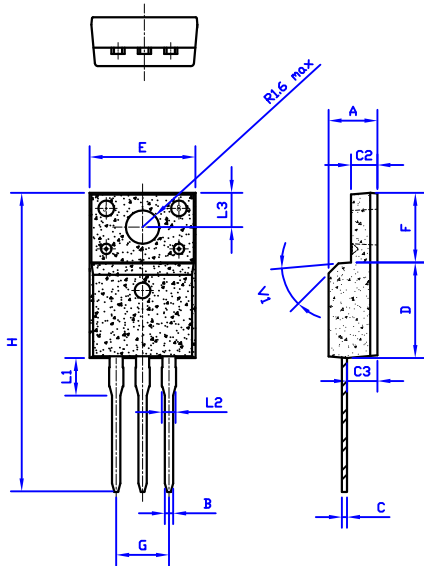
Symbol	Parameter		Value	Unit
R <sub>th(J-C)</sub>	Junction to Case(AC)	TO-220F	2.3	°C/W

## ORDERING INFORMATION

<p><b>T 12 xx H x F</b></p> <p>TRIAK SERIES</p> <p>I<sub>T(RMS)</sub>: 12A</p> <p>10: I<sub>GT1</sub>/I<sub>GT2</sub>/I<sub>GT3</sub> ≤ 10mA</p> <p>20: I<sub>GT1</sub>/I<sub>GT2</sub>/I<sub>GT3</sub> ≤ 20mA</p> <p>35: I<sub>GT1</sub>/I<sub>GT2</sub>/I<sub>GT3</sub> ≤ 35mA</p> <p>50: I<sub>GT1</sub>/I<sub>GT2</sub>/I<sub>GT3</sub> ≤ 50mA</p>	<p>TO-220F</p> <p>6: V<sub>DRM</sub>/V<sub>RRM</sub> ≥ 600V</p> <p>8: V<sub>DRM</sub>/V<sub>RRM</sub> ≥ 800V</p> <p>High junction temperature</p>
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PACKAGE MECHANICAL DATA

TO-220F



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.8	0.173		0.189
B	0.74	0.8	0.83	0.029	0.031	0.033
C	0.5		0.75	0.020		0.030
C2	2.4		2.7	0.094		0.106
C3	2.6		3.0	0.102		0.118
D	8.8		9.3	0.346		0.367
E	9.7		10.3	0.382		0.406
F	6.4		6.8	0.252		0.268
G	5.0		5.2	0.197		0.205
H	28.0		29.8	11.0		11.7
L1		3.63			0.143	
L2	1.14		1.7	0.044		0.067
L3		3.3			0.130	
V1		40°			40°	

Marking:

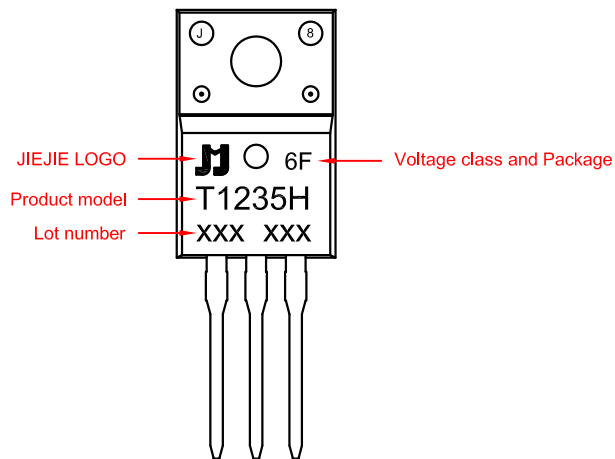


FIG.1:Maximum power dissipation versus RMS on-state current(full cycle)

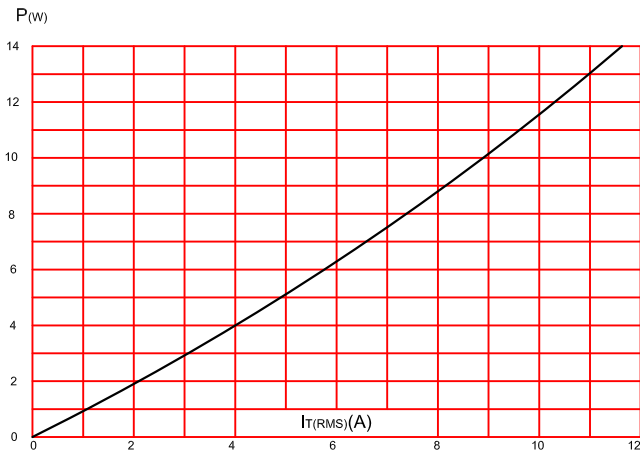


FIG.2:RMS on-state current versus case temperature(full cycle)

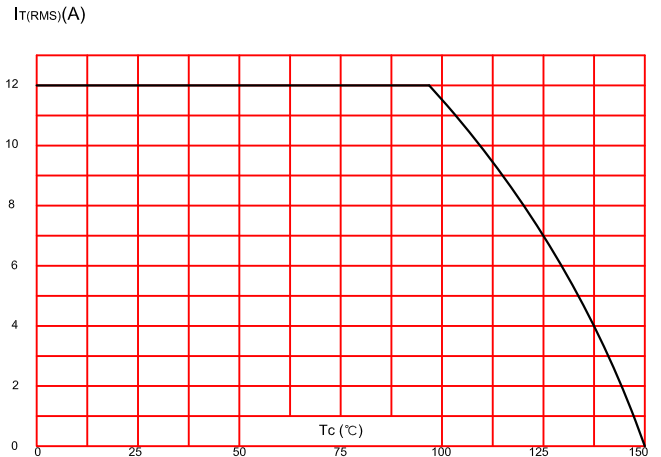


FIG.3:On-state characteristics (maximum values).

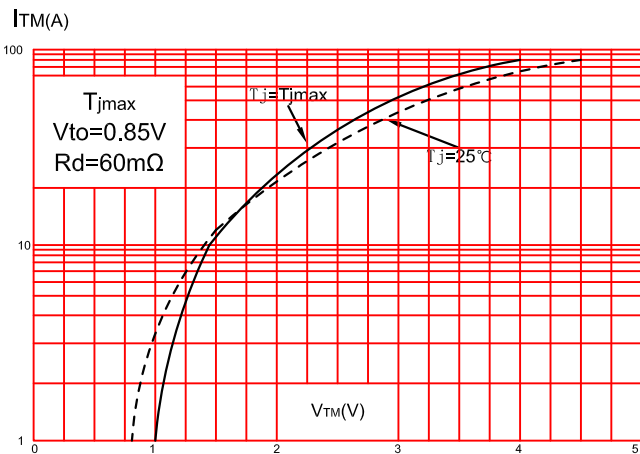


FIG.4:Surge peak on-state current versus number of cycles.

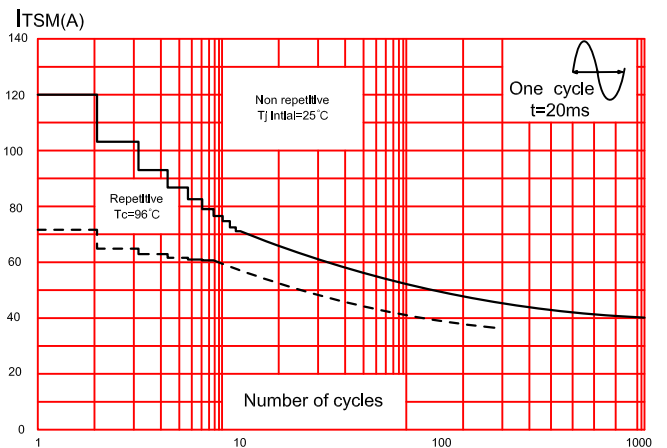


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$ .

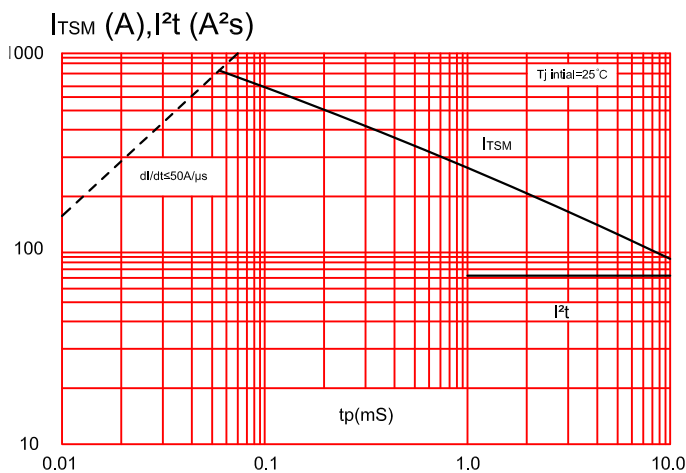


FIG.6:Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)

