

12A 3Quadrants TRIACs

Product Summary

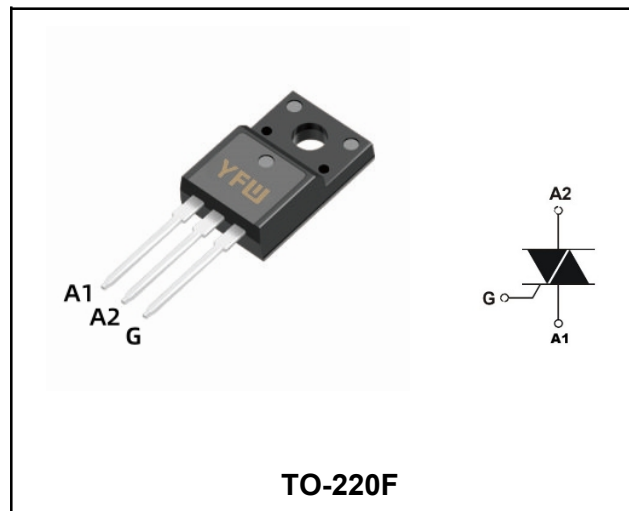
Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM} V_{RRM}$	800	V
V_{TM}	1.55	V

Features

With high ability to withstand the shock loading of large current, With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

Application

Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.



Absolute maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	800	V
Repetitive peak reverse voltage	V_{RRM}	800	V
RMS on-state current	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)	I_{TSM}	120	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	78	A^2S
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	di/dt	I - II - III 50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Junction Temperature	T_J	$-40 \sim +125$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-40 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics (TA=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition		Value			Unit
				TW	SW	CW	
Gate trigger current	I _{GT}	V _D =12V,R _L =30Ω T _j =25℃, Fig.6	I - II -III	≤5	≤10	≤35	mA
Gate trigger voltage	V _{GT}		I - II -III	≤1.3			V
Non-triggering gate voltage	V _{GD}	V _D =V _{DRM} , R _L =3.3kΩ,T _j =125℃		≥0.2			V
Holding current	I _H	I _T =100mA, Fig.6		≤10	≤25	≤50	mA
Latching current	I _L	I _G =1.2I _{GT} , Fig.6	I - III	≤10	≤25	≤50	mA
			II	≤15	≤30	≤70	
Critical-rate of rise of commutation voltage	dV _D /dt	V _D =67%V _{DRM} , T _j =125℃		≥50	≥100	≥500	V/μs

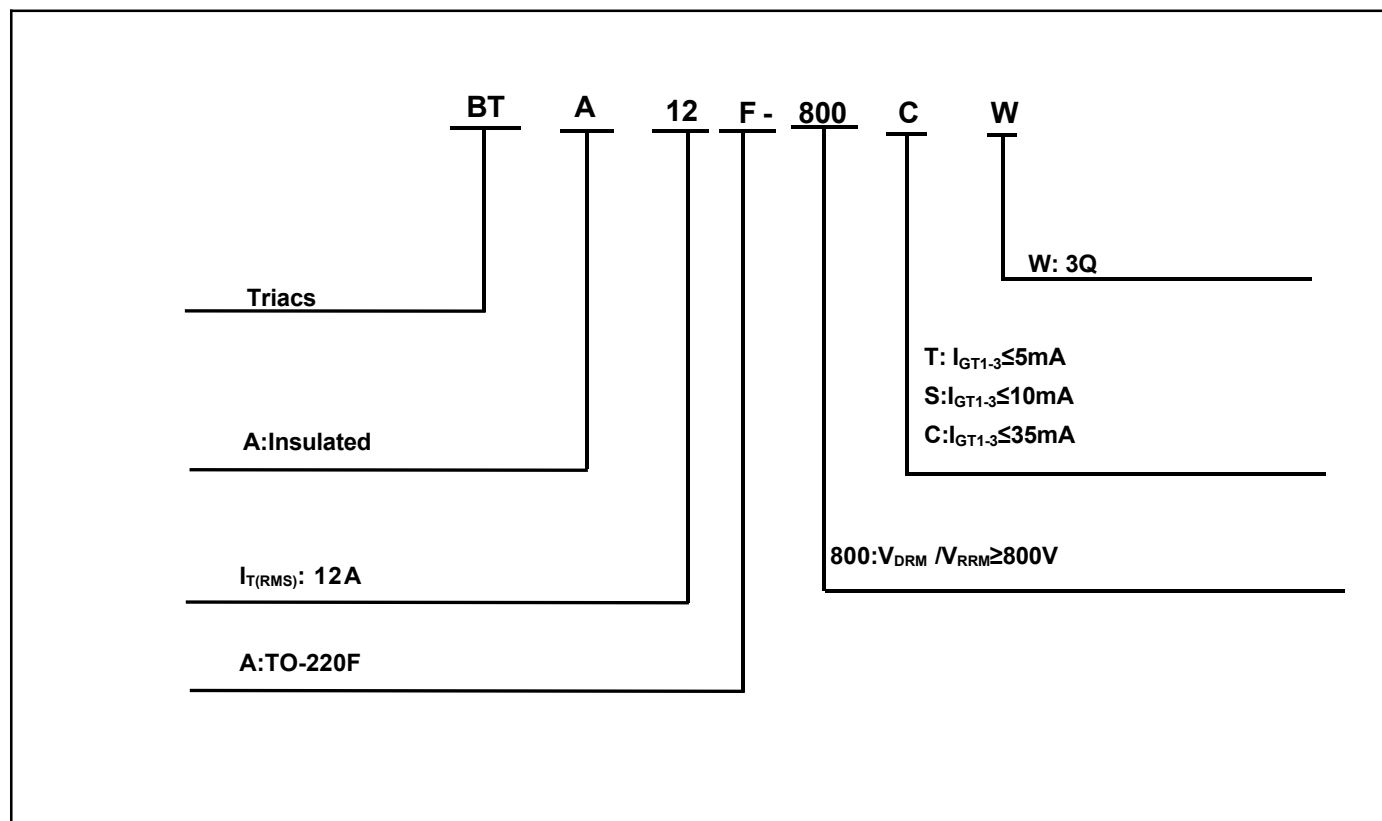
STATIC CHARACTERISTICS

On-state Voltage	V_{TM}	$I_{TM}=17A, t_p=380\mu s$, Fig.4	≤ 1.55			V
Repetitive Peak Off-State Current	I_{DRM}	$V_D=V_{DRM}=V_{RRM}$ $T_J=25^\circ C$	≤ 10	≤ 10	≤ 10	μA
Repetitive Peak Reverse Current	I_{RRM}	$T_J=125^\circ C$	≤ 1	≤ 1	≤ 1	mA

THERMAL RESISTANCES

Thermal resistance	$R_{th(j-c)}$	Junction to case	TYP.	2.3	$^\circ C/W$
	$R_{th(j-a)}$	Junction to ambient	TYP.	60	$^\circ C/W$

Ordering Information



Typical Characteristics

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

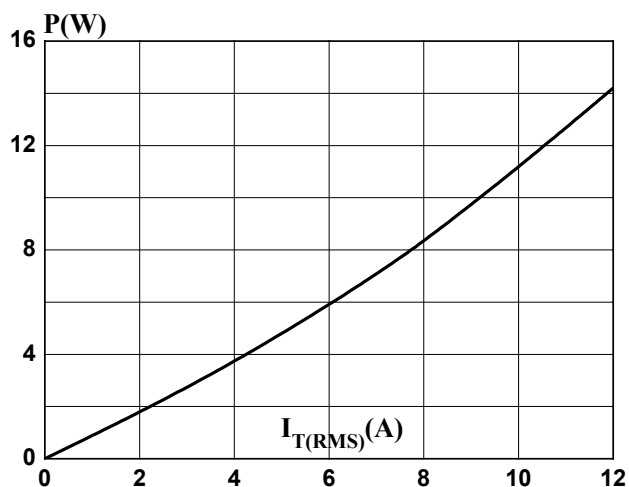


FIG.2: RMS on-state current versus case temperature (full cycle)

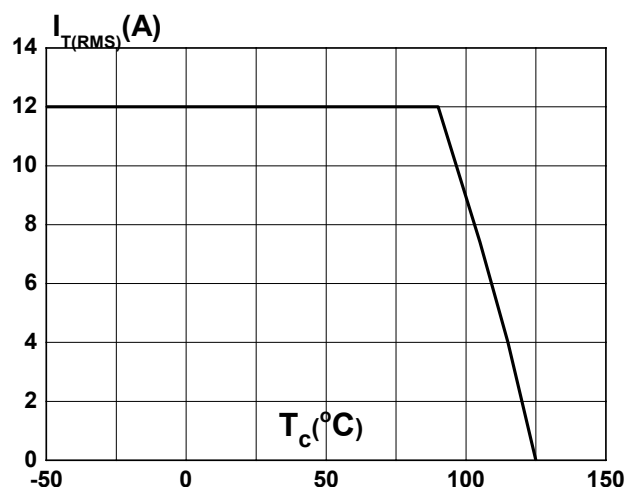


FIG.3: Surge peak on-state current versus number of cycles

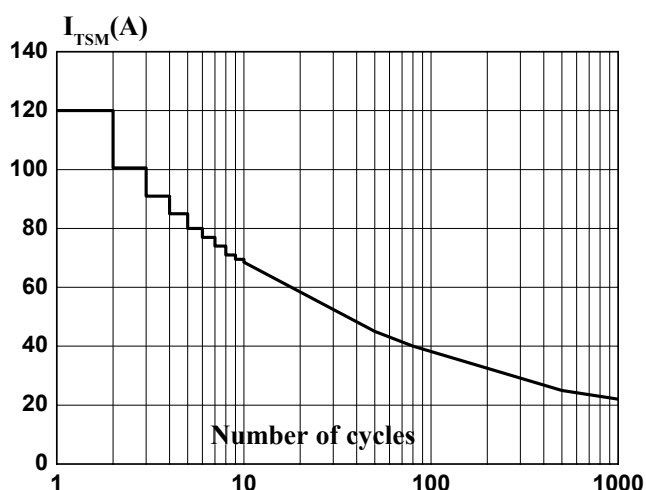


FIG.4: On-state characteristics (maximum values)

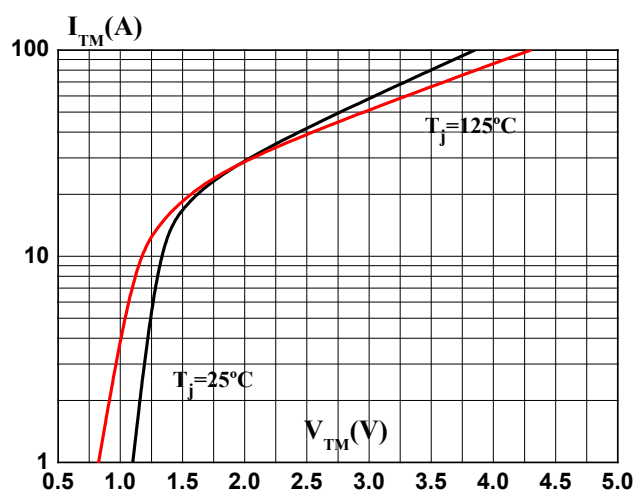


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$

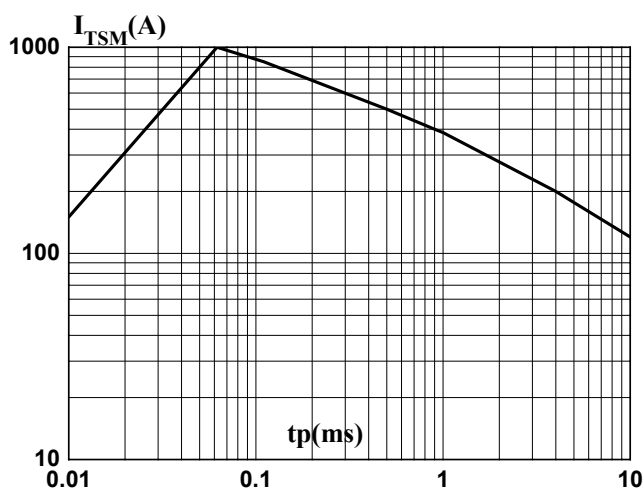
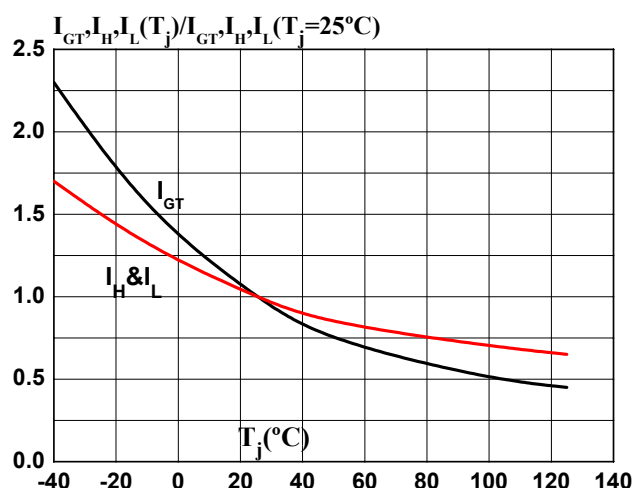
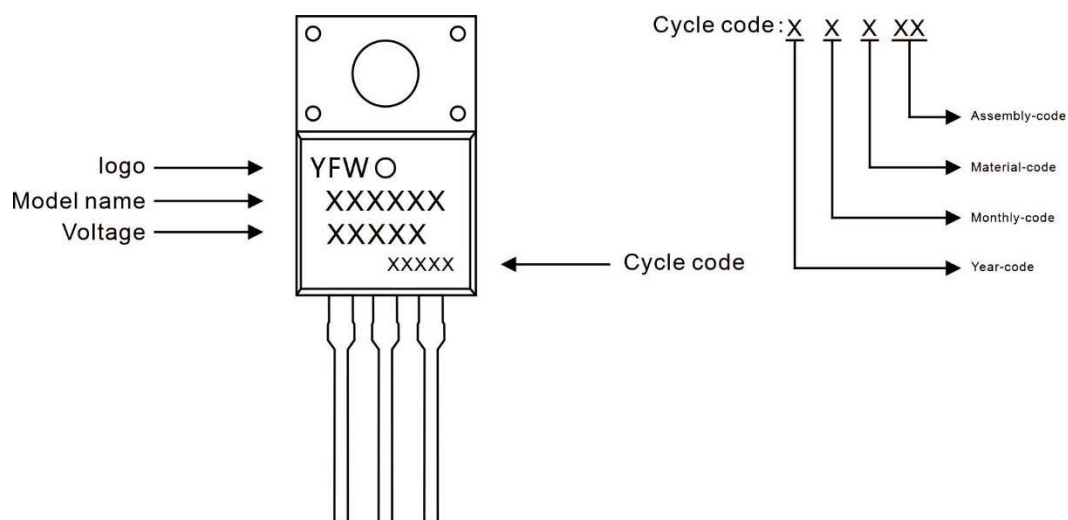


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BTA12F	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220F

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	13.50	13.90	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

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