

12A 4Quadrants TRIACs

Product Summary

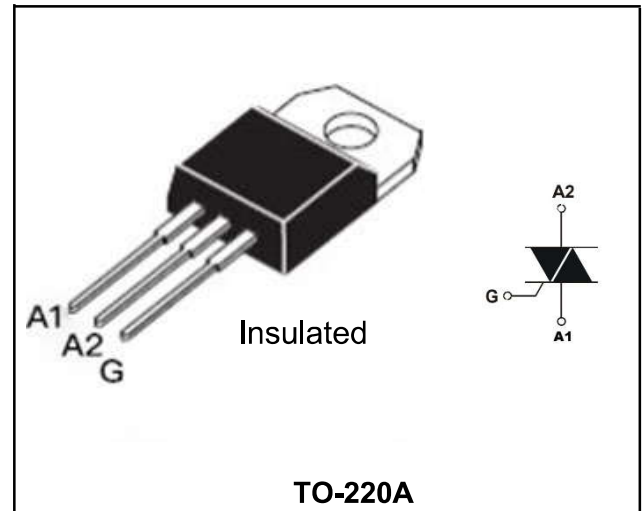
Symbol	Value	Unit
$I_{T(AV)}$	12	A
$V_{DRM} V_{RRM}$	600/800	V
V_{TM}	1.55	V

Features

NPNP five-layer structure of silicon bidirectional devices; with independent intellectual property rights of single-sided digging technology, table Glass passivation process; multi-layer metallized electrodes on the back; with high blocking voltage and high temperature stability.

Application

vacuum cleaners, power tools and other motor speed controllers; solid state relays; heating controllers (temperature regulation); other phase control circuits.



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	600/800	V
Repetitive peak reverse voltage	V_{RRM}	600/800	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
Pt value for fusing (tp=10ms)	Pt	78	A ² s
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	dh/dt	I - II - III	50
		IV	10
Peak gate current	I_{GM}	2	A
Average gate power dissipation	$P_G (AV)$	0.5	W
Junction Temperature	T_J	-40 ~+125	°C
Storage Temperature	T_{STG}	-40 ~+150	°C

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

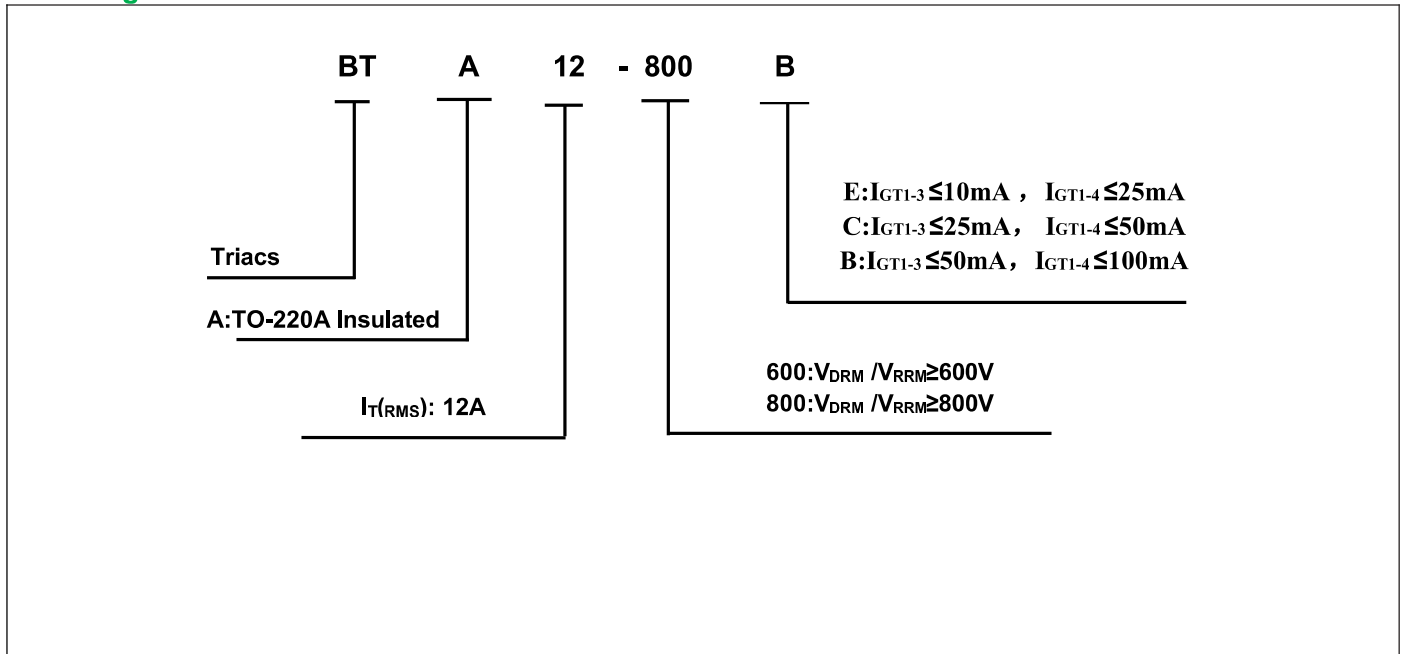
Parameter	Symbol	Test Condition	Value			Unit	
			E	C	B		
Gate trigger current	I_{GT}	$V_D=12V$ $I_T=0.1A$ $T_J=25^\circ C$	I-II-III	≤ 10	≤ 25	≤ 50	mA
			IV	≤ 25	≤ 50	≤ 100	
Gate trigger voltage	V_{GT}		I-II-III-IV	≤ 1.3			V
Gate non-trigger voltage	V_{GD}	$V_D = V_{DRM} T_J = 125^\circ C$		≥ 0.2			V
Holding current	I_H	$V_D=12V$ $I_{GT}=0.1A$ $T_J=25^\circ C$	I-II-III-IV	≤ 25	≤ 30	≤ 50	mA
latching current	I_L		I-III-IV	≤ 30	≤ 40	≤ 50	
			II	≤ 40	≤ 60	≤ 80	
Critical-rate of rise of commutation voltage	dV_D/dt	$V_D=67\%V_{DRM}, T_J=125^\circ C$		≥ 100	≥ 500	≥ 1000	V/ μs

STATIC CHARACTERISTICS

Forward "on" voltage	V_{TM}	$I_{TM} = 17A$ $t_p=380\mu s$		≤ 1.55			V
Repetitive Peak Off-State Current	I_{DRM}	$V_D=V_{DRM}/V_{RRM}$	$T_J=25^\circ C$	≤ 5	≤ 5	≤ 5	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(AC)	2.1	$^\circ C/W$
	$R_{th(j-a)}$	Junction to ambient	60	$^\circ C/W$

Ordering Information


Typical Characteristics

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

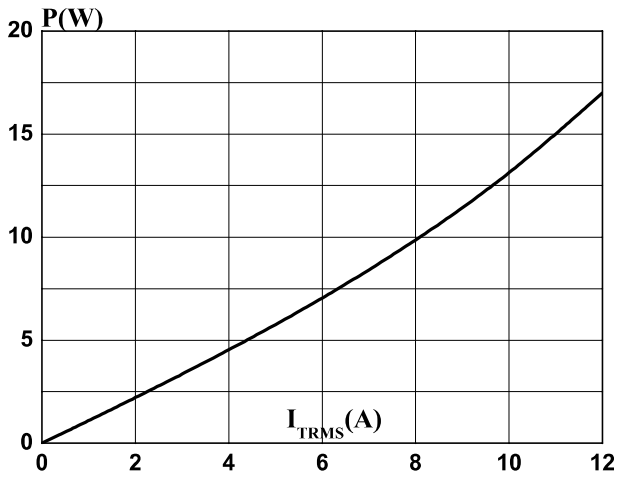


FIG.3: Surge peak on-state current versus number of cycles

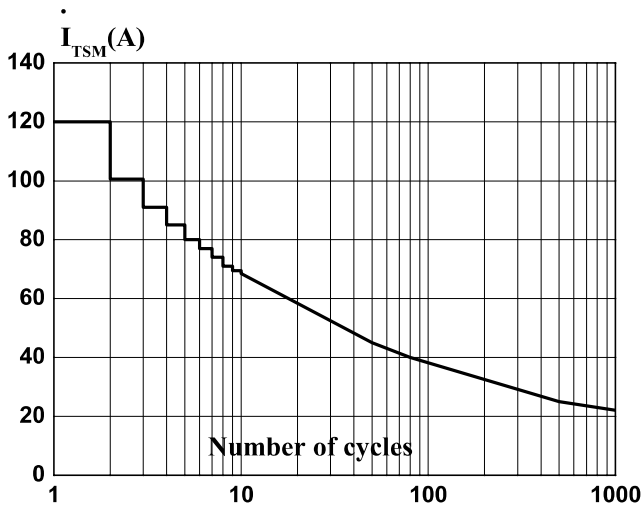


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

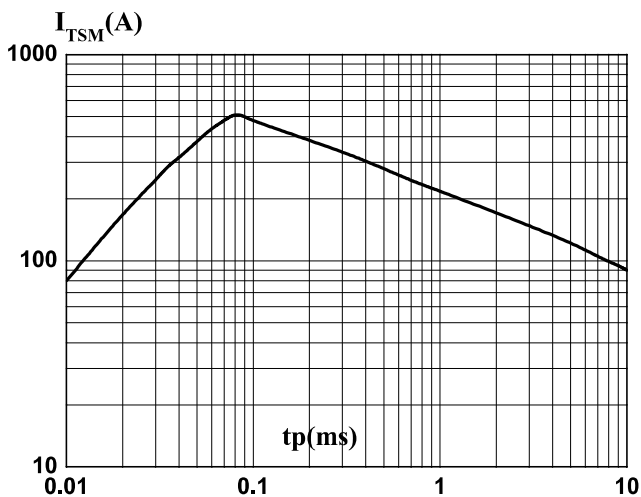


FIG.2: RMS on-state current versus case temperature (full cycle)

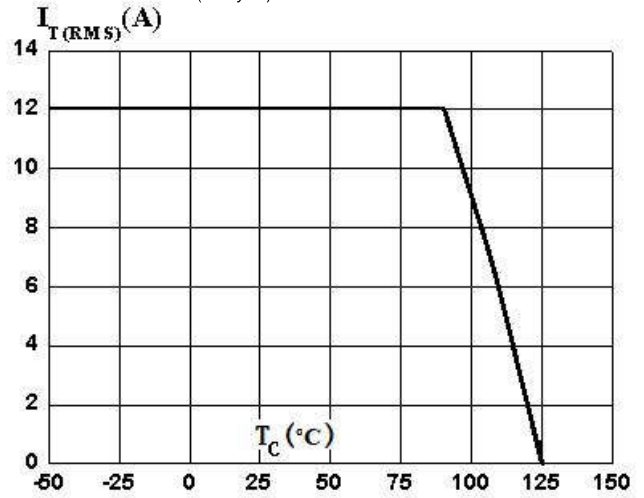


FIG.4: On-state characteristics (maximum values)

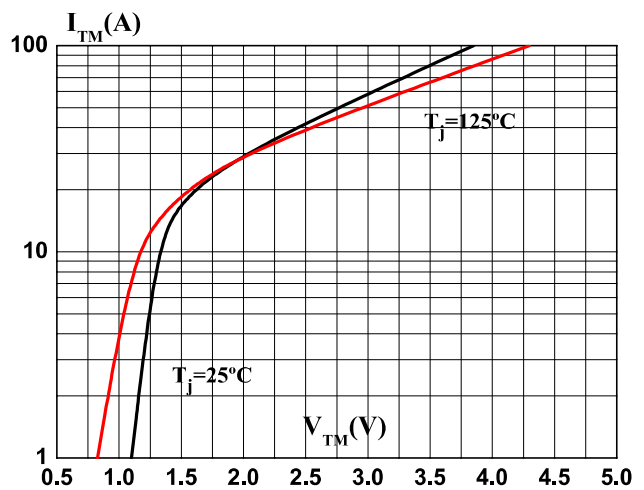
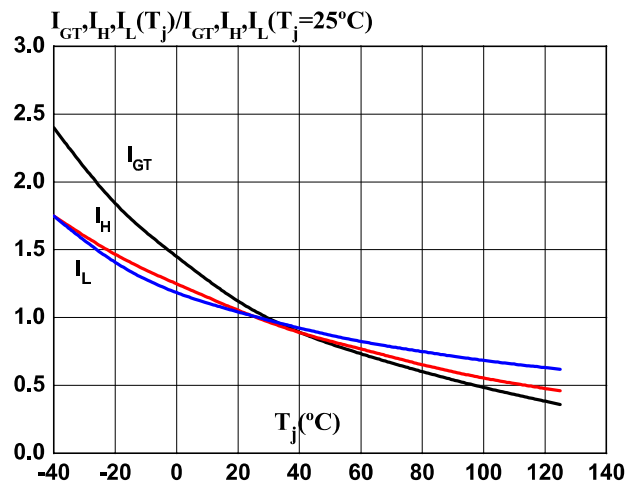
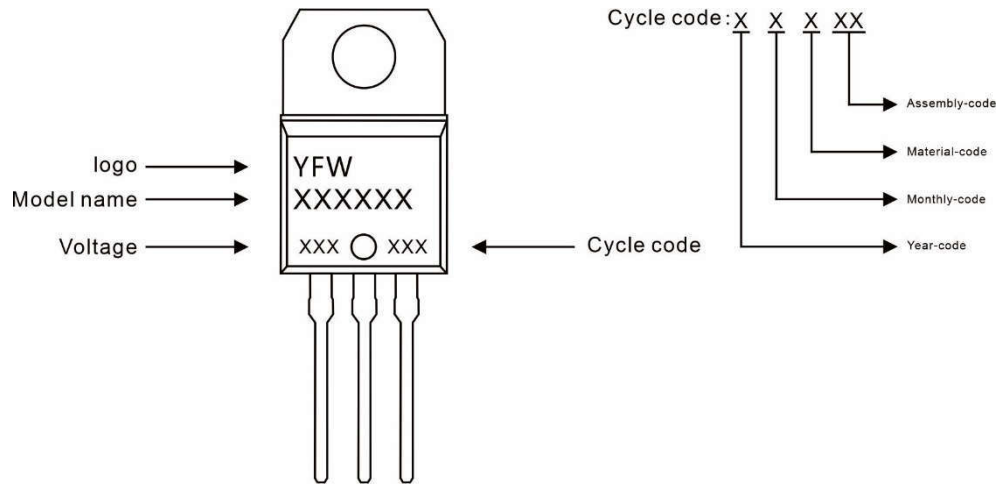


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BTA12	TO-220A	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220A(Insulated)

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	9.80	10.40	0.386	0.409
B	2.65	3.10	0.104	0.122
C	14.80	16.10	0.583	0.634
D	0.70	0.92	0.028	0.036
D1	1.18	1.42	0.047	0.056
E	2.40	2.70	0.095	0.106
L	2.80	4.20	0.11	0.17
L1	13.05	13.60	0.514	0.535
H	5.85	6.82	0.23	0.27
K	2.35	2.75	0.093	0.108
T	4.38	4.61	0.172	0.181
T1	1.15	1.36	0.045	0.054
T2	0.35	0.65	0.014	0.026
ΦR	3.75	3.95	0.148	0.156

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