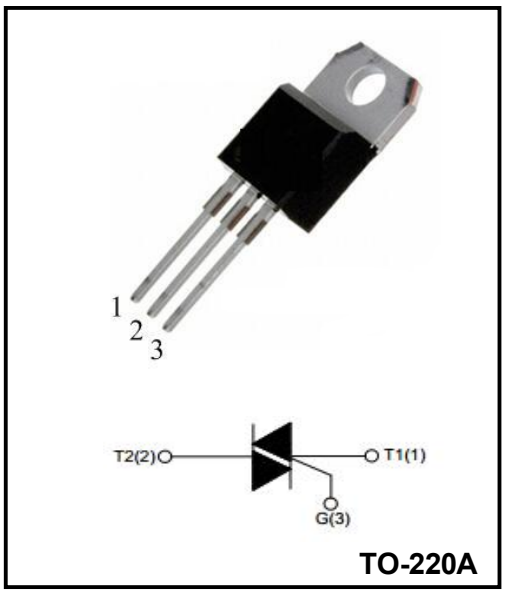
12A 4Quadrants TRIACs

Product Summary

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



Features

NPNPN 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.

Order Information

Part Number	Package	Marking	Packing	Packing Quantity
BTA12	TO-220A	BTA12- 800E XXXX	box	1000PCS/box
BTA12	TO-220A	BTA12- 800C XXXX	box	1000PCS/box
BTA12	TO-220A	BTA12- 800B XXXX	box	1000PCS/box

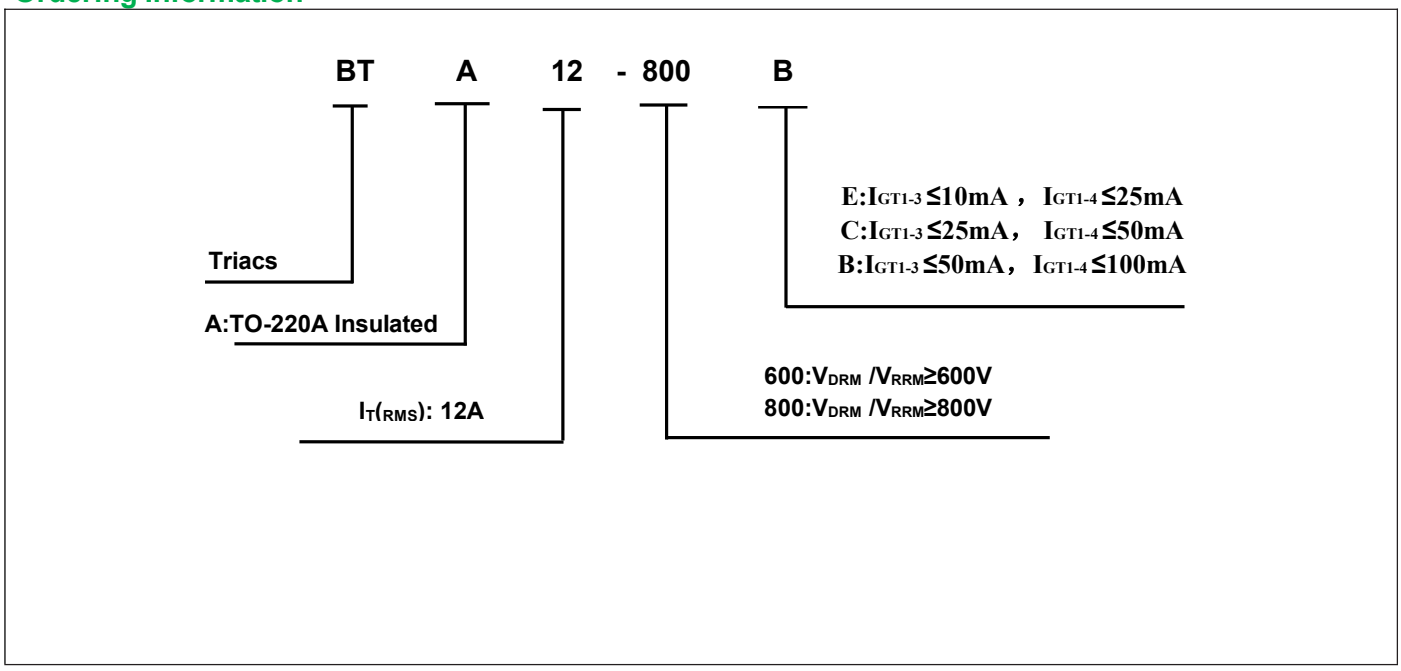
Absolute maximum ratings (Ta=25°C unless otherwise noted)

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
I^2t value for fusing (tp=10ms)	I^2t	78		A^2s
Critical rate of rise of on-state current (I_G =2 x I_{GT})	dI_T/dt	I - II -III	50	A/μs
		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 (T_A=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 TJ=25°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} Tj=125°C		≥0.2			V
Holding current	I_H	V_D=12V I_{GT}=0.1A T_j=25°C	I-II-III-IV	≤25	≤30	≤50	mA
latching current	I_L		I-III-IV	≤30	≤40	≤50	mA
			II	≤40	≤60	≤80	
Critical-rate of rise of commutation voltage	dV_D/dt	V_D=67%V_{DRM}, T_j=125°C		≥100	≥500	≥1000	V/μs
STATIC CHARACTERISTICS							
Forward "on" voltage	V_{TM}	I_{TM} =17A tp=380μs		≤1.55			V
Repetitive Peak Off-State Current	I_{DRM}	V_D=V_{DRM}/V_{RRM}	T_j=25°C	≤5	≤5	≤5	μA
Repetitive Peak Reverse Current	I_{RRM}		T_j=125°C	≤1	≤1	≤1	mA
THERMAL RESISTANCES							
Thermal resistance	Rth(j-c)	Junction to case(AC)		2.1			°C/W
	Rth(j-a)	Junction to ambient		60			°C/W

Ordering Information



Typical Characteristics

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

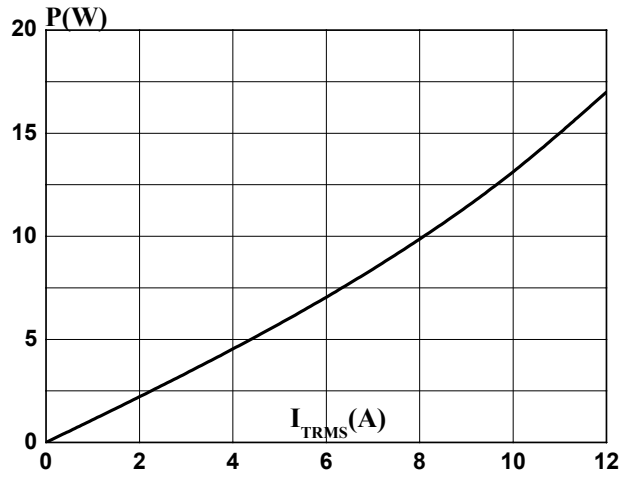


FIG.2: RMS on-state current versus case temperature (full cycle)

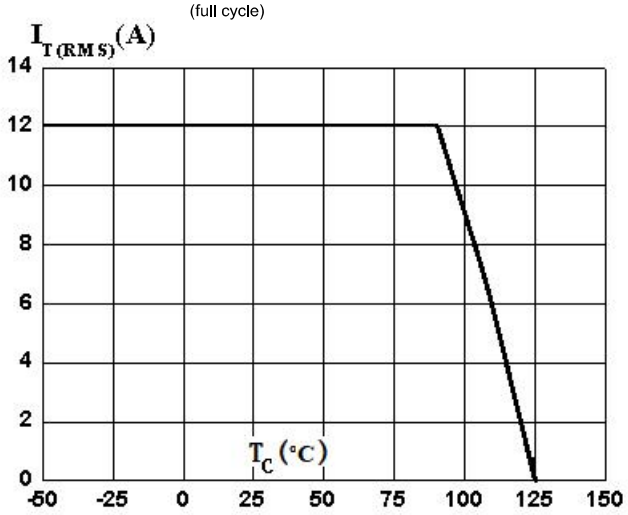


FIG.3: Surge peak on-state current versus number of cycles

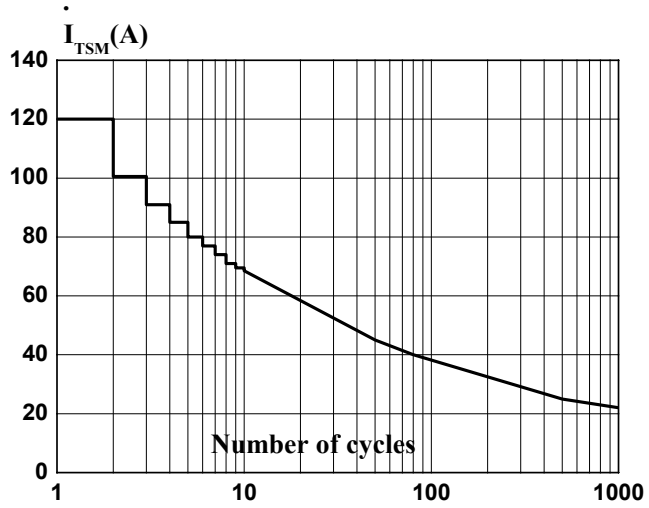


FIG.4: On-state characteristics (maximum values)

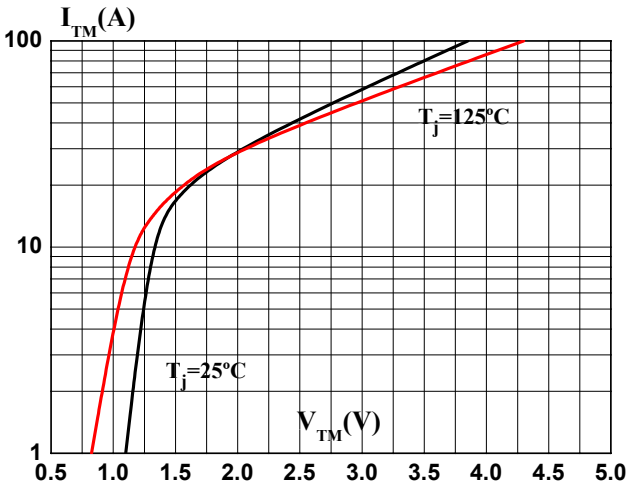


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms

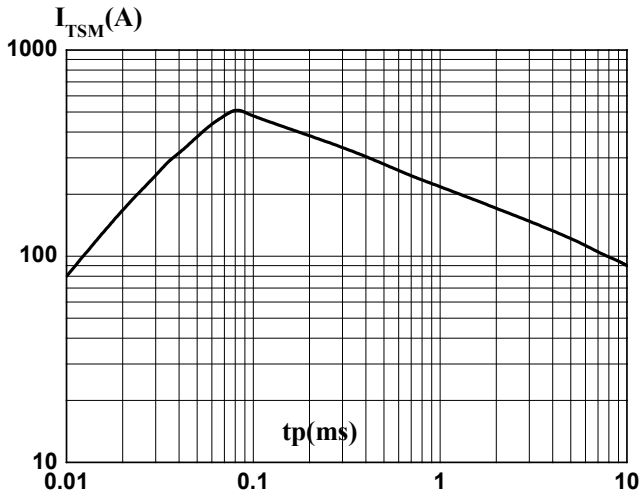
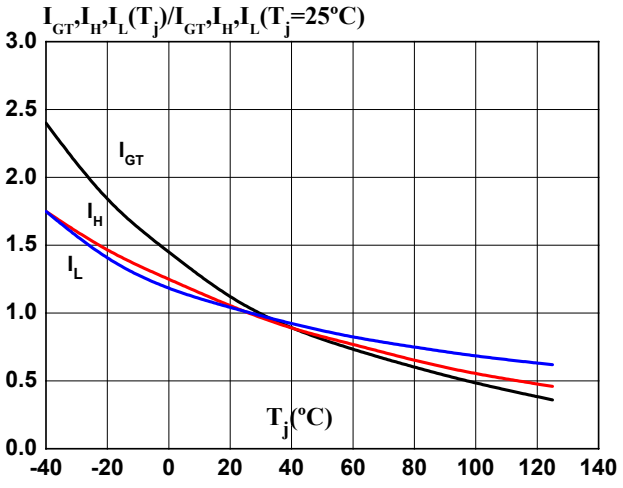
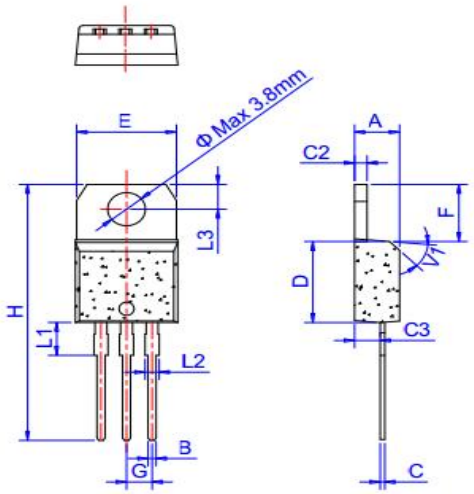


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Package Information

TO-220A



TO-220A

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°	