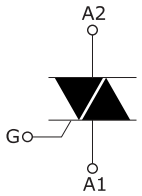
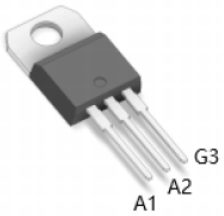
Product features and main applications:

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.



Mainly used in:

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



TO-220A/B

Characteristics

Table 1. Absolute maximum ratings (Tj = 25 ° C unless otherwise stated)

Symbol	Parameter name			value	Unit
$I_{T(RMS)}$	RMS on-statecurrent(full sine wave)	BTA BTA	Tc=80℃	12	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial = 25 ° C)	F=50HZ tp=20ms		120	A
I^2t	I2t value for fusing	tp=10ms		72	A^2S
di/dt	Critical rate of rise of on-state current IG = 2 x IGT, tr ≤ 100 ns	Tj=125		50	A/us

V_{DRM}/V_{RRM}	Off state repetitive peak voltage Reverse repetitive peak voltage	Tj=25℃		600/800	V
I_{GM}	Peak gate current	tp=20us	Tj=150℃	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj=150℃	1	W
Tstg Tj	Storage junction temperature range Operating junction temperature range			−40 to+150 −40 to+125	℃

Table 2. Electrical characteristics (Tj = 25 °C, unless otherwise specified) --3 quadrants

Symbol	Name and test conditions	Quadrant	Range	value				Unit
I_{GT}	V_D=12V R_L=100Ω	I II III	MAX	BW 50	CW 35	SW 10	TW 5	mA
V_{GT}	V_D=12V R_L=100Ω	I II III	MAX	1.5				V
V_{GD}	VD = VDRM RL = 3.3 kΩ , Tj = 125 °C	I II III	MIN	0.2				V
I_H	IT = 100 mA		MAX	60	40	20	15	mA
I_L	IG = 1.2 x IGT		MAX	100	60	40	30	mA
dv/dt	VD = 67% VDRM, gate open, Tj = 125 ° C		MIN	500	500	200	100	V/us
(dv/dt)c	Critical rise rate of commutation voltage TJ = 150 ℃		MIN	8				V/us

Table 3 E.lectrical characteristics (Tj = 25 °C u,nless otherwise specified) -Standard Triac (4 quadrants)

Symbol	Name and test conditions	Quadrant	Range	value		Unit
				B	C	
I_{GT}	V_D=12V R_L=100Ω	Ⅰ - Ⅱ -Ⅲ	MAX	50	20	mA
		Ⅳ		100	60	
V_{GT}		ALL	MAX	1.5		V
V_{GD}	VD = VDRM, RL = 3.3 kΩ, Tj = 125 ° C	ALL	MIN	0.2		V
I_H	I_T=500mA		MAX	60	50	mA
I_L	IG = 1.2 x IGT	Ⅰ - Ⅱ -Ⅲ	MAX	60	50	mA
		Ⅳ		100	80	
dv/dt	VD = 67% VDRM, gate open, Tj = 125 ° C		MIN	500		V/us
(dv/dt)c	Critical rise rate of commutation voltage TJ = 150 ℃		MIN	10		V/us

Static parameters

Symbol	Parameter name			value	Unit
V_{TM}	I_{TM}= 24A	Tj=25℃	MAX	1.50	V
V_{T0}	threshold on-state voltage	Tj=150℃	MAX	0.86	V
Rd	Dynamic resistance	Tj=150℃	MAX	36.6	mΩ
I_{DRM} I_{RRM}	VDRM = VRRM	Tj=25 Tj=150	MAX	5 1	uA mA
$R_{th(j-c)}$	Junction to ambient	BTA BTB	MAX	2.05 1.25	℃ W

BTA12 characteristic curve

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

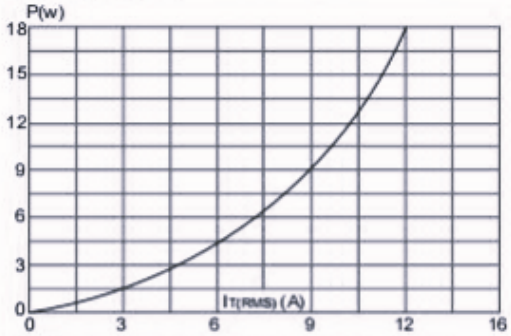


FIG.2: RMS on-state current versus case temperature

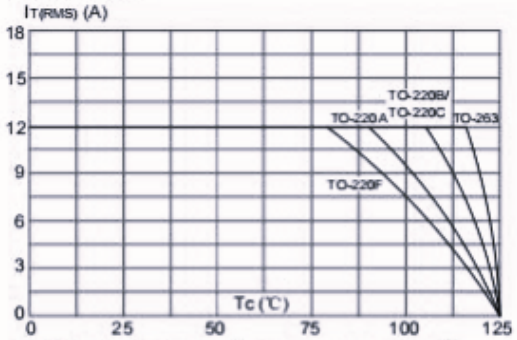


FIG.3: Surge peak on-state current versus number of cycles

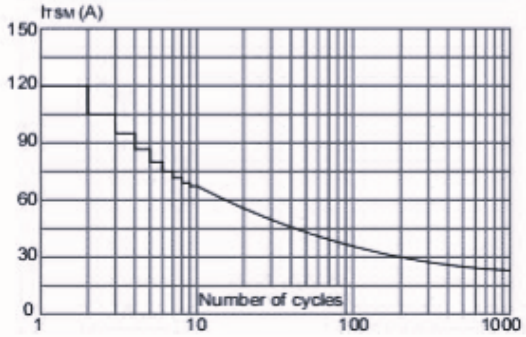


FIG.4: On-state characteristics (maximum values)

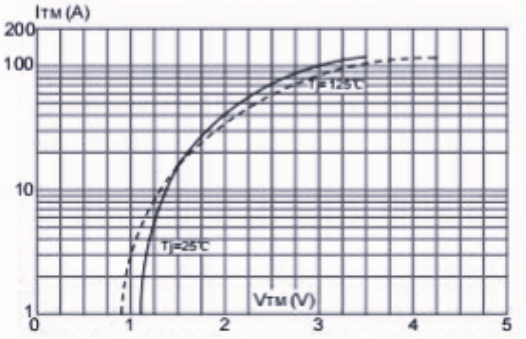


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 50A/μs)

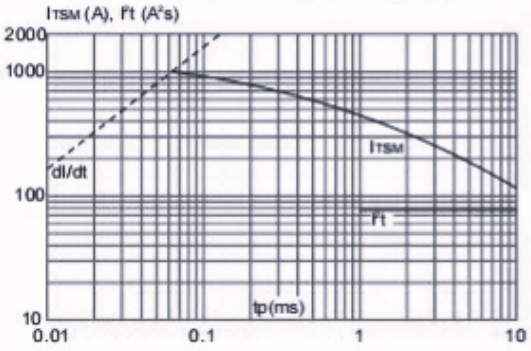
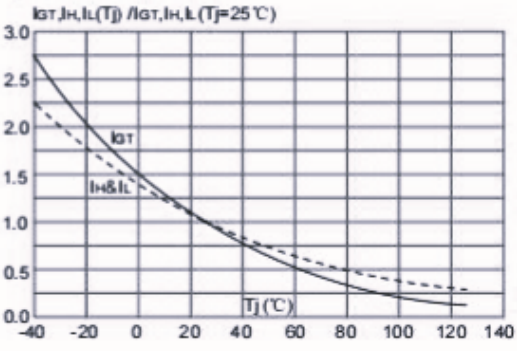
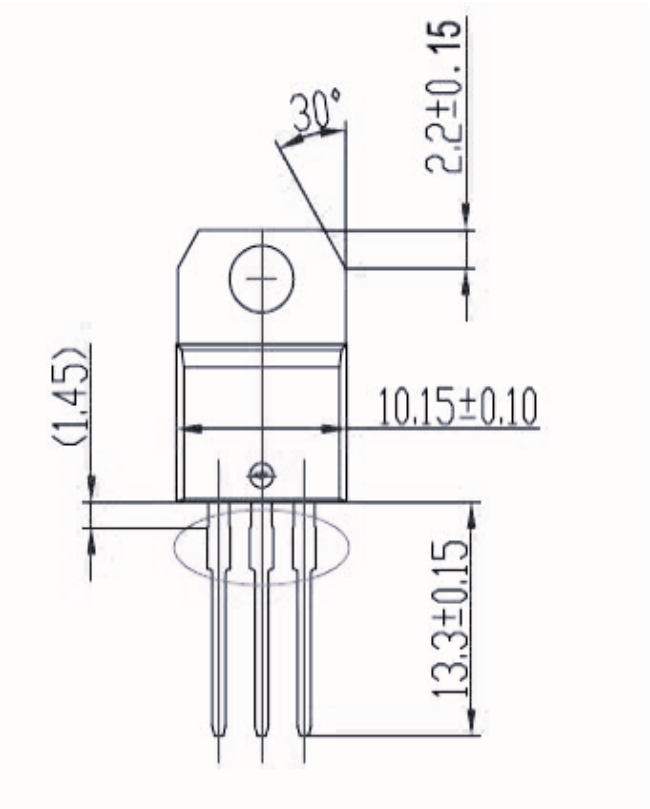


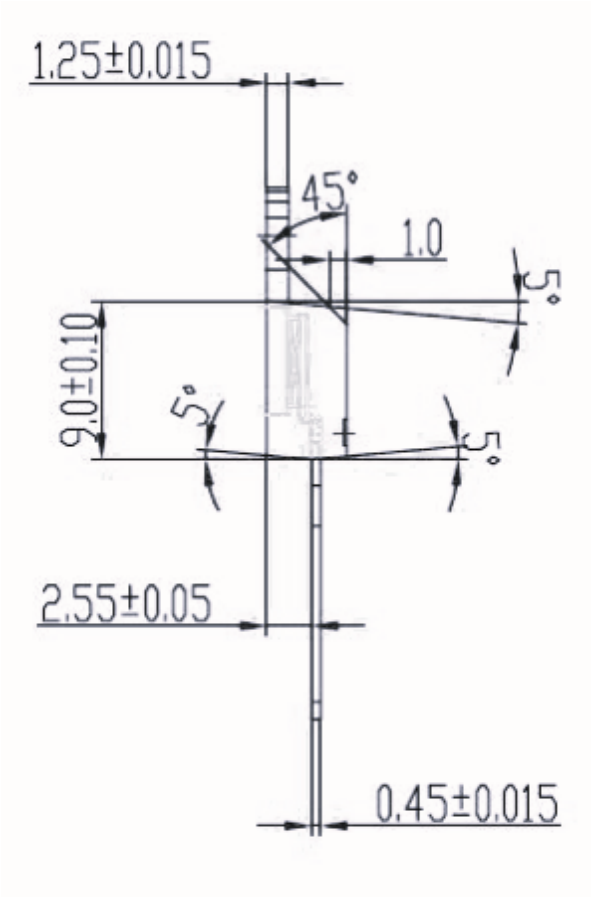
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



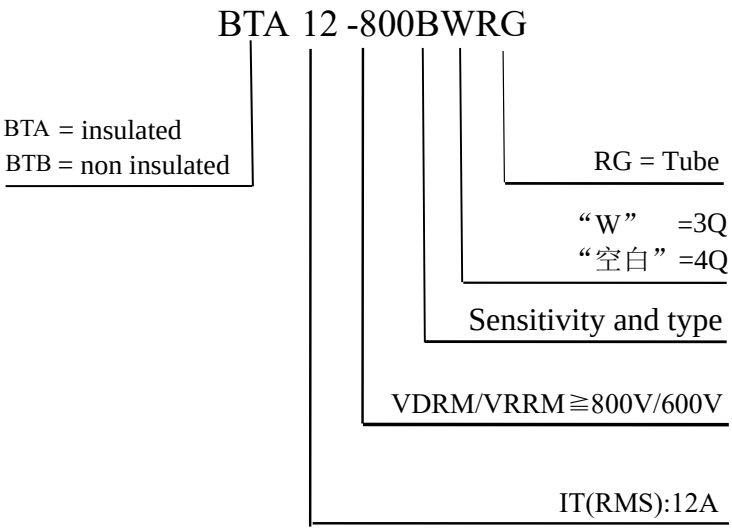
TO-220A/TO-220B Dimensional drawing:

Unit：mm（±0.1）





Productor Naming System



Orderinginformation

Order code	Package	Baseqty	Deliverymode
UMW BTA12-600BRG	TO-220A	1000	Tube and box
UMW BTA12-600CRG	TO-220A	1000	Tube and box
UMW BTA12-800BRG	TO-220A	1000	Tube and box
UMW BTA12-800CRG	TO-220A	1000	Tube and box
UMW BTA12-600BWRG	TO-220A	1000	Tube and box
UMW BTA12-600CWRG	TO-220A	1000	Tube and box
UMW BTA12-800BWRG	TO-220A	1000	Tube and box
UMW BTA12-800CWRG	TO-220A	1000	Tube and box
UMW BTA12-600SWRG	TO-220A	1000	Tube and box
UMW BTA12-600TWRG	TO-220A	1000	Tube and box
UMW BTA12-800SWRG	TO-220A	1000	Tube and box
UMW BTB12-600BRG	TO-220B	1000	Tube and box
UMW BTB12-600CWRG	TO-220B	1000	Tube and box
UMW BTB12-600BWRG	TO-220B	1000	Tube and box
UMW BTB12-800CWRG	TO-220B	1000	Tube and box
UMW BTB12-800BWRG	TO-220B	1000	Tube and box