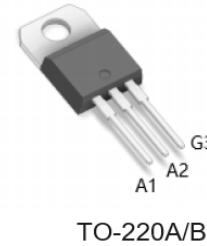
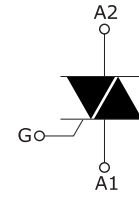


Product features and main applications:

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.

Mainly used in:

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



Characteristics

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

Symbol	Parameter name		value	Unit	
I _{T(RMS)}	RMS on-state current (full sine wave)	BTA	T _c =80 °C	16	A
		BTB	T _c =90 °C		
I _{TSM}	Non repetitive surge peak on-state current (full cycle, T _j initial = 25 ° C)	F=50HZ t _p =20ms		160	A
I ² t	I ² t value for fusing	t _p =10ms		144	A ² S
di/dt	Critical rate of rise of on-state current I _G = 2 x I _{GT} , t _r ≤ 100 ns	T _j =125		50	A/us

V_{DRM}/V_{RRM}	Off state repetitive peak voltage Reverse repetitive peak voltage	$T_j=25^{\circ}\text{C}$		600/800	V
I_{GM}	Peak gate current	$t_p=20\mu\text{s}$	$T_j=150^{\circ}\text{C}$	4	A
$P_{G(AV)}$	Average gate power dissipation		$T_j=150^{\circ}\text{C}$	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			-40 to+150 -40 to+150	$^{\circ}\text{C}$

Table 2. Electrical characteristics ($T_j = 25^{\circ}\text{C}$, unless otherwise specified) -- 3 quadrants

Symbol	Name and test conditions	Quadrant	Range	value			Unit
				Min	Typ	Max	
I_{GT}	$V_D=12\text{V}$ $R_L=100\Omega$	I II III	MAX	15	25	35	mA
V_{GT}				1.5			
V_{GD}	V_D V_{DRM} R $3.3\text{ k}\Omega$, T_j		MIN	0.2			V
I_H	$I_T = 100\text{ mA}$		MAX	60			mA
I_L	$I_G = 1.2 \times I_{GT}$		MAX	I - III		60	mA
				II		100	
dv/dt	$V_D = 67\% V_{DRM}$, gate open, $T_j = 125^{\circ}\text{C}$		MIN	500			V/ μs
(dv/dt)c	Critical rise rate of commutation voltage $T_j = 150^{\circ}\text{C}$		MIN	10			V/ μs

Table 3. Electrical characteristics (T_j = 25 °C, unless otherwise specified) -Standard Triac (4 quadrants)

Symbol	Name and test conditions	Quadrant	Range	value				Unit
I _{GT}	V _D =12V R _L =100Ω	I - II -III	MAX	I	II	III	IV	mA
				≅ 25	≅ 35	≅ 35	≅ 120	
V _{GT}	V _D = V _{DRM} , R _L = 3.3 kΩ, T _j = 125 ° C	IV	MAX	1.5				V
V _{GD}			MIN	0.2				V
I _H	I _T =500mA		MAX	60				mA
I _L	I _G = 1.2 x I _{GT}		MAX	60				mA
				100				
dv/dt	V _D = 67% V _{DRM} , gate open, T _j = 125 ° C		MIN	500				V/us
(dv/dt) _c	Critical rise rate of commutation voltage T _J = 150 ° C		MIN	10				V/us

Static parameters

Symbol	Parameter name			value	Unit
V _{TM}	I _{TM} = 32A	T _j =25°C	MAX	1.50	V
V _{T0}	threshold on-state voltage	T _j =150°C	MAX	0.87	V
R _d	Dynamic resistance	T _j =150°C	MAX	14.6	mΩ
I _{DRM} I _{RPM}	V _{DRM} = V _{RPM}	T _j =25°C	MAX	5	uA
		T _j =150°C		1	mA
R _{th(j-c)}	Junction to ambient	BTA	MAX	2.10	°C/W
		BTB		1.3	

BTA16 characteristic curve

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

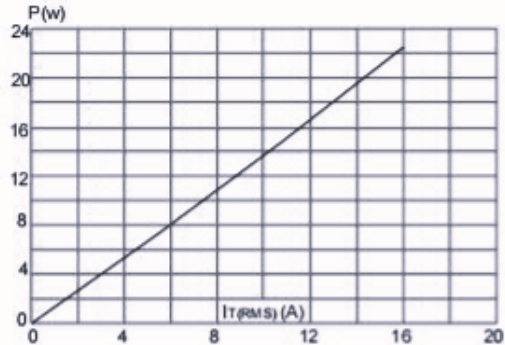
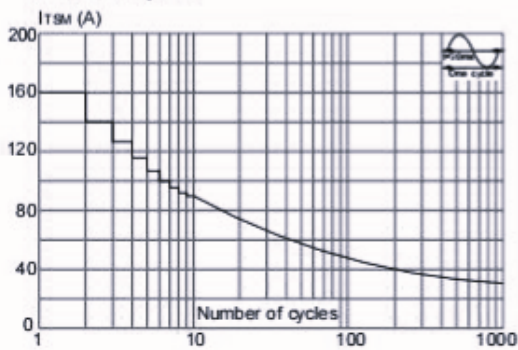


FIG.3: Surge peak on-state current versus number of cycles



sinusoidal pulse with width $t_p < 20\text{ms}$, and
 average value of $I^2 t$ ($dI/dt < 50\text{A}/\mu\text{s}$)
 $I^2 t$ (A^2s)

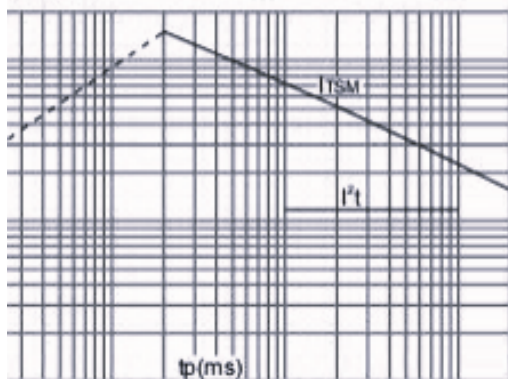


FIG.2: RMS on-state current versus case temperature

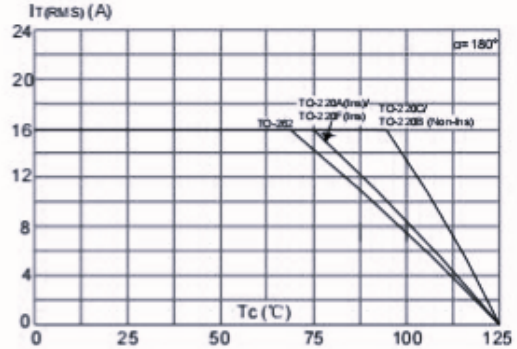
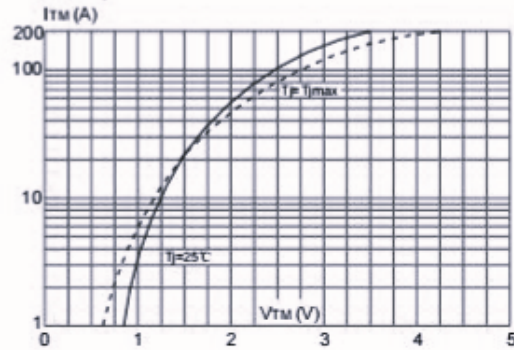
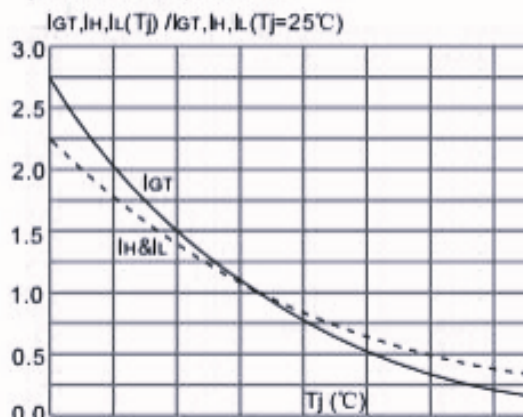


FIG.4: On-state characteristics (maximum values)



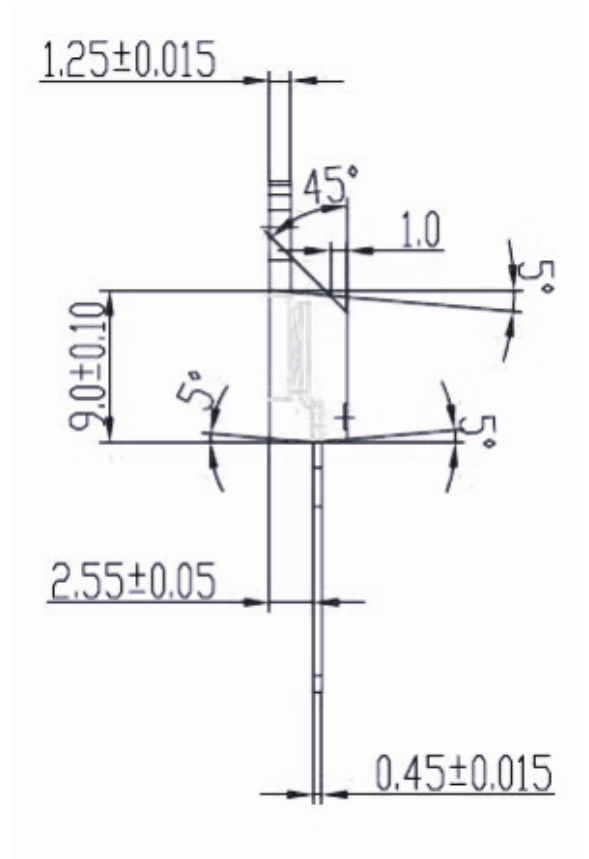
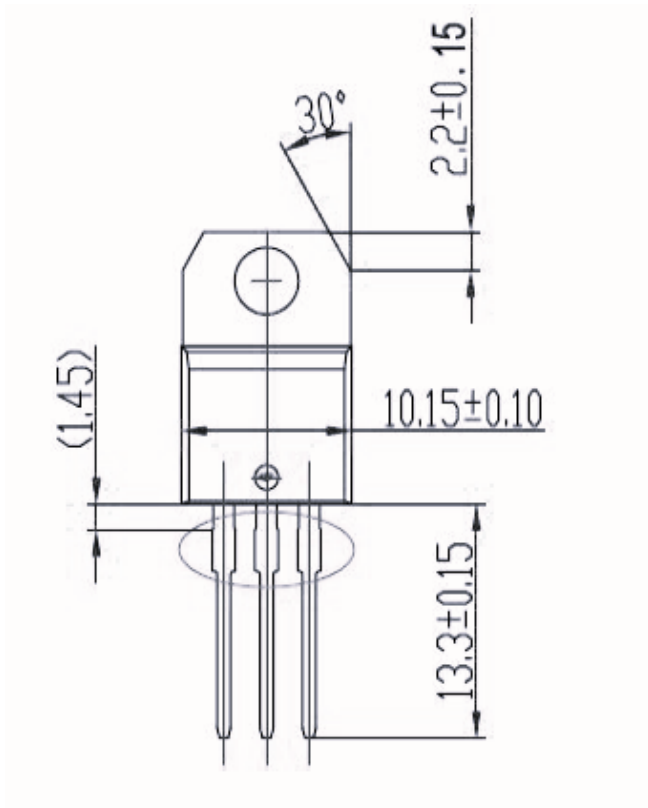
holding current and latching current versus
 junction temperature



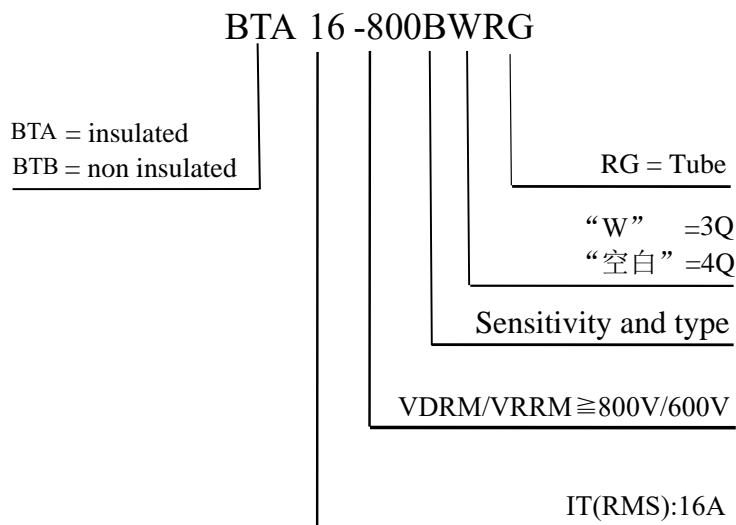
TO-220A/TO-220B

Dimensional drawing: Unit:

mm (± 0.1)



Product Naming System



Ordering information

Order code	Package	Baseqty	Deliverymode
UMW BTA16-600BRG	TO-220A	1000	Tube and box
UMW BTA16-600CRG	TO-220A	1000	Tube and box
UMW BTA16-800BRG	TO-220A	1000	Tube and box
UMW BTA16-600BWRG	TO-220A	1000	Tube and box
UMW BTA16-600CWRG	TO-220A	1000	Tube and box
UMW BTA16-800BWRG	TO-220A	1000	Tube and box
UMW BTA16-800CWRG	TO-220A	1000	Tube and box
UMW BTA16-600SWRG	TO-220A	1000	Tube and box
UMW BTA16-800SWRG	TO-220A	1000	Tube and box
UMW BTB16-600BRG	TO-220B	1000	Tube and box
UMW BTB16-600CRG	TO-220B	1000	Tube and box
UMW BTB16-800BRG	TO-220B	1000	Tube and box
UMW BTB16-600SWRG	TO-220B	1000	Tube and box
UMW BTB16-600CWRG	TO-220B	1000	Tube and box
UMW BTB16-600BWRG	TO-220B	1000	Tube and box
UMW BTB16-800CWRG	TO-220B	1000	Tube and box
UMW BTB16-800BWRG	TO-220B	1000	Tube and box