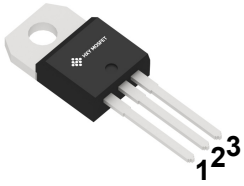
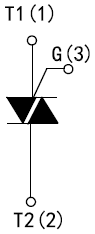
Description

Available either in through-hole or surface-mount packages, the BTA12-800BWRG is suitable for general purpose AC switching.They can be used as an ON/OFF function in application such as static relays, heating regulation, Induction motor starting circuits or for phase control Operation in light dimmers, motor speed controllers.



TO-220A



Absolute Maximum Ratings (T_a=25°C unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit
V_{DSM}/ V_{RSM}	Non repetitive surge peak off-state voltage	Tp=10ms, Tc=25°C	V_{DRM}/ V_{RRM} +100V	V
$I_{T(RMS)}$	RMS on-state current	Tc=110°C Tc=90°C (Insulated)	12	A
I_{TSM}	Non repetitive surge peak on-state current	F=60Hz, t=16.7ms	126	A
		F=50Hz, t=20ms	120	
I^2t	I^2t value	tp=10ms	78	A^2s
dI/dt	Critical rate of rise of on-state current	I_G=2*I_{GT}, tr≤100ns, F=120Hz, T_j=125°C	50	A/μs
I_{GM}	Peak gate current	tp=20μs, T_j=125°C	4	A
$P_{G(AV)}$	Average gate power	T_j=125°C	1	W
T_{STG}	Storage temperature		-40~+150	°C
T_j	Operating junction temperature		-40~+125	

Electrical Characteristics (T_j =25°C unless otherwise specified)

Snubberless ™ and Logic Level (3 quadrants)

Symbol	Parameter	Test condition			Value	Unit
I_{GT} (1)	Gate trigger current	V_D=12V, R_L=30Ω,	Ⅰ - Ⅱ -Ⅲ	Max	50	mA
V_{GT}	Gate trigger voltage		Ⅰ - Ⅱ -Ⅲ	Max	1.3	V
V_{GD}	Non-triggering gate voltage	V_D =V_{DRW}, T_j=125°C R_L=3.3KΩ	Ⅰ - Ⅱ -Ⅲ	Min	0.2	V
I_H(2)	Holding current	I_T=100mA		Max	50	mA
I_L	Latching current	I_G=1.2I_{GT},	Ⅰ -Ⅲ	Max	70	
			Ⅱ	Max	80	
D_V/dt(2)	Critical rate of rise of off-state	V_D=67%V_{DRM}, Gate Open T_j=125°C		Min	1000	V/μs
(Dl/dt)c(2)	Critical rate of rise of off-state	(dl/dt)c=0.1V/us, T_j=125°C		Min	-	V/μs
		(dl/dt)c=10V/us, T_j=125°C			-	
		Without snubber, T_j=125°C			12	

Standard (4 quadrants)

Symbol	Parameter	Test condition			Value	Unit
I_{GT} (1)	Gate trigger current	V_D=12V, R_L=30Ω,	Ⅰ - Ⅱ -Ⅲ Ⅳ	Max	50 100	mA
V_{GT}	Gate trigger voltage		ALL	Max	1.3	V
V_{GD}	Non-triggering gate voltage	V_D =V_{DRW}, T_j=125°C R_L=3.3KΩ	ALL	Min	0.2	V
I_H(2)	Holding current	I_T=500mA		Max	50	mA
I_L	Latching current	I_G=1.2I_{GT},	Ⅰ -Ⅲ-Ⅳ	Max	50	
			Ⅱ	Max	100	
D_V/dt(2)	Critical rate of rise of off-state	V_D=67%V_{DRM}, Gate Open T_j=125°C		Min	400	V/μs
(Dl/dt)c(2)	Critical rate of rise of off-state	(D_V/dt)c=3.5A/ms, T_j=125°C		Min	10	V/μs

Static Characteristics

Symbol	Test Conditions			Value	Unit
V_{TM} (2)	I_{TM} = 11 A, t_p = 380 µs	T_j = 25°C	MAX.	1.55	V
V_{to} (2)	Threshold voltage	T_j = 125°C	MAX.	0.85	V
R_d (2)	Dynamic resistance	T_j = 125°C	MAX.	35	mΩ
I_{DRM} I_{RRM}	V_{DRM} = V_{RRM}	T_j = 25°C	MAX.	5	µA
		T_j = 125°C		1	mA
V_{DRM} /V_{RRM}	Voltage	T_j = 25°C		600/800	mA

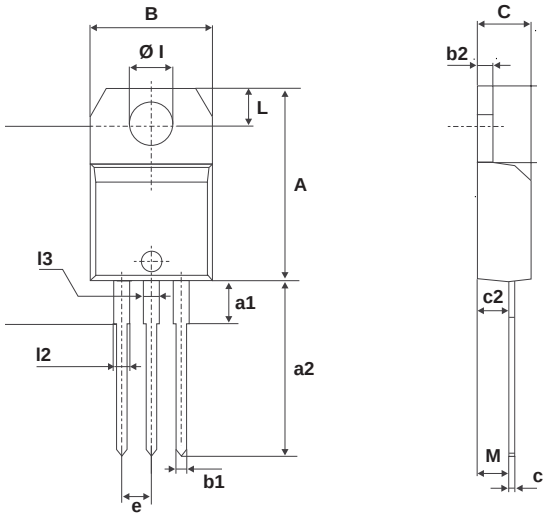
Note 1: minimum IGT is guaranted at 5% of IGT max

Note 2: for both polarities of A2 referenced to A1

Thermal Resistances

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case (AC)	2.3	°C/W
Rth (j-a)	Junction to ambient	60	°C/W

Package Information
TO-220A



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
ØI	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

Attention

■ Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.

■ HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.

■ Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could
give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.