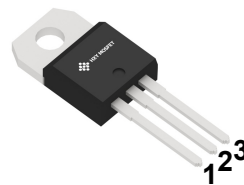


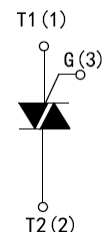


Description

Available either in through-hole or surface-mount packages, the BTA16-600BRG 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 ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	$T_p=10\text{ms}, T_c=25^{\circ}\text{C}$	$V_{DRM}/V_{RRM}+100\text{V}$	V
$I_{T(RMS)}$	RMS on-state current	$T_c=110^{\circ}\text{C}$ $T_c=85^{\circ}\text{C}$ (Insulated)	16	A
I_{TSM}	Non repetitive surge peak on-state current	$F=60\text{Hz}, t=16.7\text{ms}$	168	A
		$F=50\text{Hz}, t=20\text{ms}$	160	
I^2t	I^2t value	$t_p=10\text{ms}$	144	A^2s
di/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}, t_r \leq 100\text{ns},$ $F=120\text{Hz}, T_j=125^{\circ}\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p=20\mu\text{s}, T_j=125^{\circ}\text{C}$	4	A
$P_{G(AV)}$	Average gate power	$T_j=125^{\circ}\text{C}$	1	W
T_{STG}	Storage temperature		-40~+150	$^{\circ}\text{C}$
T_j	Operating junction temperature		-40~+125	



Electrical Characteristics ($T_j = 25^\circ\text{C}$ 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 =3.3K	I - II -III	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	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
(DI /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			14	

Standard (4 quadrants)

Symbol	Parameter	Test condition			Value	Unit
$I_{GT}(1)$	Gate trigger current	$V_D = 12\text{V}$, $R_L = 30\Omega$,	I - II - III IV	Max	50 100	mA
V_{GT}	Gate trigger voltage		ALL	Max	1.3	V
V_{GD}	Non-triggering gate voltage	$V_D = V_{DRW}$, $T_j = 125^\circ\text{C}$ $R_L = 3.3\text{K}$	ALL	Min	0.2	V
$I_H(2)$	Holding current	$I_T = 500\text{mA}$		Max	50	mA
I_L	Latching current	$I_G = 1.2I_{GT}$,	I - III - IV	Max	60	
			II	Max	120	
$D_V/dt(2)$	Critical rate of rise of off-state	$V_D = 67\%V_{DRM}$, Gate Open $T_j = 125^\circ\text{C}$		Min	400	V/ μs
$(DI/dt)_c(2)$	Critical rate of rise of off-state	$(D_V/dt)_c = 3.5\text{A}/\text{ms}$, $T_j = 125^\circ\text{C}$		Min	10	V/ μs



Static Characteristics

Symbol	Test Conditions			Value	Unit
$V_{TM}(2)$	$I_{TM} = 11\text{ A}$, $t_p = 380\text{ }\mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.55	V
$V_{to}(2)$	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	0.85	V
$R_d(2)$	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	25	$\text{m}\Omega$
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	5	μA
		$T_j = 125^\circ\text{C}$		1	mA
V_{DRM}/V_{RRM}	Voltage	$T_j = 25^\circ\text{C}$		600/800	mA

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

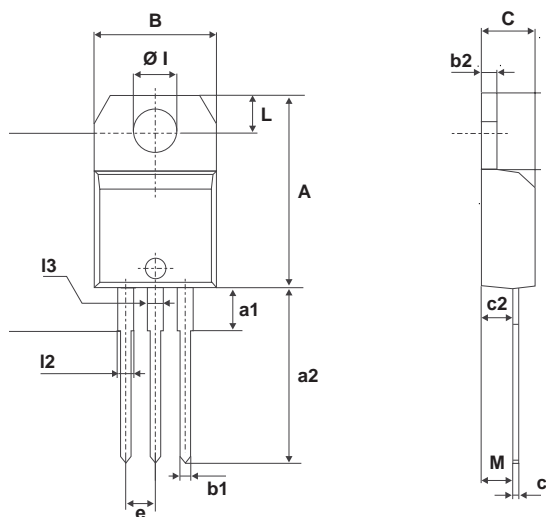
Note 2: for both polarities of A2 referenced to A1

Thermal Resistances

Symbol	Parameter	Value	Unit
$R_{th}(j-c)$	Junction to case (AC)	2.1	$^\circ\text{C}/\text{W}$
$R_{th}(j-a)$	Junction to ambient	60	$^\circ\text{C}/\text{W}$



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
$\varnothing I$	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	



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