



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



BTB08-600CW3G, BTB08-800CW3G



Expertise Applied | Answers Delivered

Triacs Silicon Bidirectional Thyristors

Designed for high performance full-wave ac control applications where high noise immunity and high commutating di/dt are required.

Features

- Blocking Voltage to 800 V
- On-State Current Rating of 8 A RMS at 25°C
- Uniform Gate Trigger Currents in Three Quadrants
- High Immunity to dV/dt - 1500 V/μs minimum at 125°C
- Minimizes Snubber Networks for Protection
- Industry Standard TO-220AB Package
- High Commutating dI/dt - 3.0 A/ms minimum at 125°C
- These are Pb-Free Devices

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

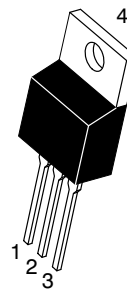
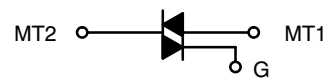
Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (Note 1) (T _J = -40 to 125°C, Sine Wave, 50 to 60 Hz, Gate Open)	V _{DRM} , V _{RRM}	600 800	V
On-State RMS Current (Full Cycle Sine Wave, 60 Hz, T _C = 80°C)	I _{T(RMS)}	8.0	A
Peak Non-Repetitive Surge Current (One Full Cycle Sine Wave, 60 Hz, T _C = 25°C)	I _{TSM}	90	A
Circuit Fusing Consideration (t = 10 ms)	I ² t	36	A ² sec
Non-Repetitive Surge Peak Off-State Voltage (T _J = 25°C, t = 10ms)	V _{DSM} / V _{RSM}	V _{DSM} /V _{RSM} +100	V
Peak Gate Current (T _J = 125°C, t = 20ms)	I _{GM}	4.0	A
Peak Gate Power (Pulse Width ≤ 1.0 μs, T _C = 80°C)	P _{GM}	20	W
Average Gate Power (T _J = 125°C)	P _{G(AV)}	1.0	W
Operating Junction Temperature Range	T _J	-40 to +125	°C
Storage Temperature Range	T _{stg}	-40 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

Littelfuse.com

TRIACS 8 AMPERES RMS 600 thru 800 VOLTS



TO-220AB
CASE 221A
STYLE 4

- x = 6 or 8
- A = Assembly Location
- Y = Year
- WW = Work Week
- G = Pb-Free Package

MARKING DIAGRAM



PIN ASSIGNMENT

1	Main Terminal 1
2	Main Terminal 2
3	Gate
4	Main Terminal 2

ORDERING INFORMATION

Device	Package	Shipping
BTB08-600CW3G	TO-220AB (Pb-Free)	50 Units / Rail
BTB08-800CW3G	TO-220AB (Pb-Free)	50 Units / Rail

BTB08-600CW3G, BTB08-800CW3G

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.5	$^{\circ}\text{C}/\text{W}$
Junction-to-Ambient	$R_{\theta JA}$	60	
Maximum Lead Temperature for Soldering Purposes 1/8" from Case for 10 seconds	T_L	260	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted; Electricals apply in both directions)

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

OFF CHARACTERISTICS

Peak Repetitive Blocking Current ($V_D = \text{Rated } V_{DRM}, V_{RRM}; \text{ Gate Open}$)	$I_{DRM}/$ I_{RRM}	-	-	0.005	mA
		-	-	1.0	

ON CHARACTERISTICS

Peak On-State Voltage (Note 2) ($I_{TM} = \pm 11 \text{ A Peak}$)	V_{TM}	-	-	1.55	V
Gate Trigger Current (Continuous dc) ($V_D = 12 \text{ V}, R_L = 30 \Omega$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-)	I_{GT}	2.5 2.5 2.5	- - -	35 35 35	mA
Holding Current ($V_D = 12 \text{ V}, \text{ Gate Open}, \text{ Initiating Current} = \pm 100 \text{ mA}$)	I_H	-	-	45	mA
Latching Current ($V_D = 24 \text{ V}, I_G = 42 \text{ mA}$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-)	I_L	- - -	- - -	50 80 50	mA
Gate Trigger Voltage ($V_D = 12 \text{ V}, R_L = 30 \Omega$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-)	V_{GT}	0.5 0.5 0.5	- - -	1.7 1.1 1.1	V
Gate Non-Trigger Voltage ($T_J = 125^{\circ}\text{C}$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-)	V_{GD}	0.2 0.2 0.2	- - -	- - -	V

DYNAMIC CHARACTERISTICS

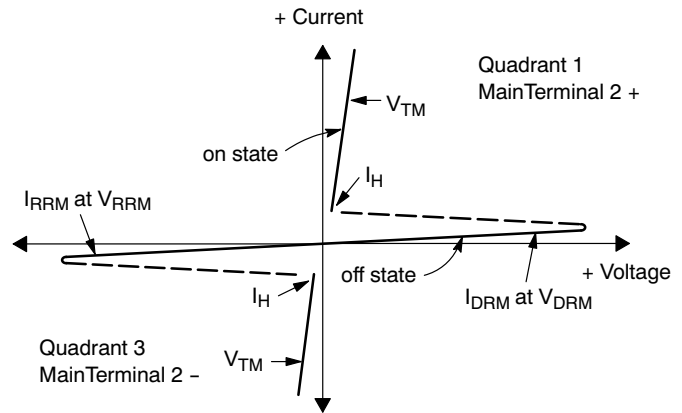
Rate of Change of Commutating Current, See Figure 10. (Gate Open, $T_J = 125^{\circ}\text{C}$, No Snubber)	$(di/dt)_c$	3.0	-	-	A/ms
Critical Rate of Rise of On-State Current ($T_J = 125^{\circ}\text{C}, f = 120 \text{ Hz}, I_G = 2 \times I_{GT}, tr \leq 100 \text{ ns}$)	di/dt	-	-	50	A/ μs
Critical Rate of Rise of Off-State Voltage ($V_D = 0.66 \times V_{DRM}$, Exponential Waveform, Gate Open, $T_J = 125^{\circ}\text{C}$)	dV/dt	1500	-	-	V/ μs

2. Indicates Pulse Test: Pulse Width $\leq 2.0 \text{ ms}$, Duty Cycle $\leq 2\%$.

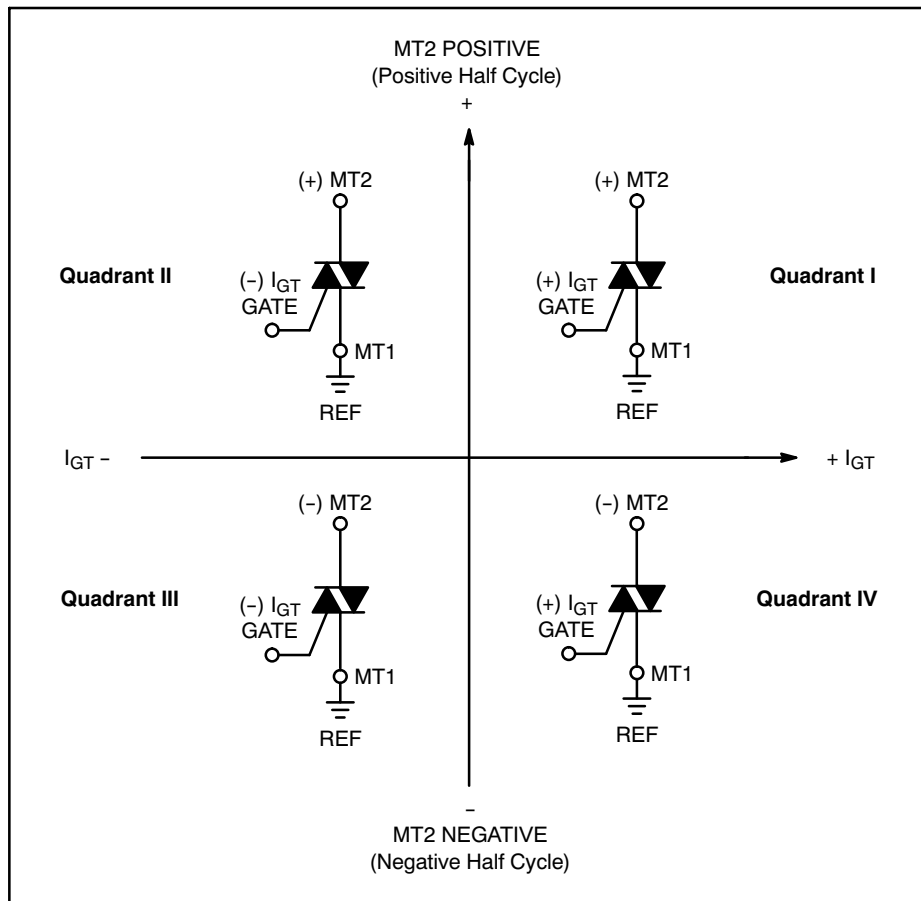
BTB08-600CW3G, BTB08-800CW3G

Voltage Current Characteristic of Triacs (Bidirectional Device)

Symbol	Parameter
V_{DRM}	Peak Repetitive Forward Off State Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Reverse Off State Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Maximum On State Voltage
I_H	Holding Current



Quadrant Definitions for a Triac



All polarities are referenced to MT1.
With in-phase signals (using standard AC lines) quadrants I and III are used.

BTB08-600CW3G, BTB08-800CW3G

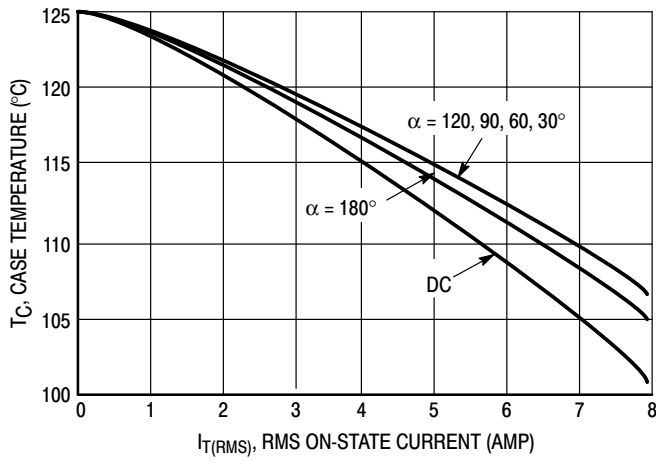


Figure 1. RMS Current Derating

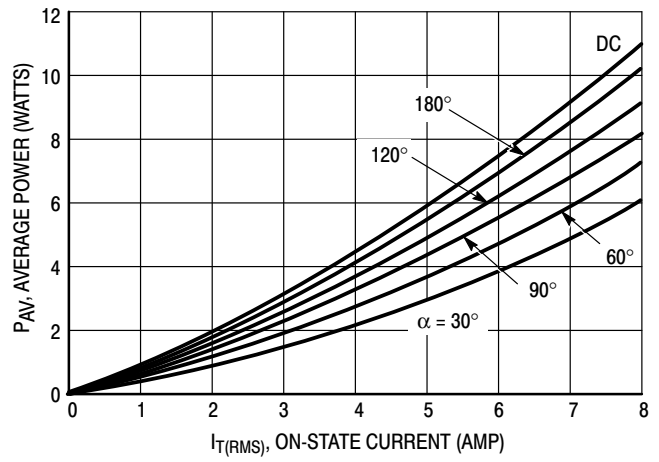


Figure 2. On-State Power Dissipation

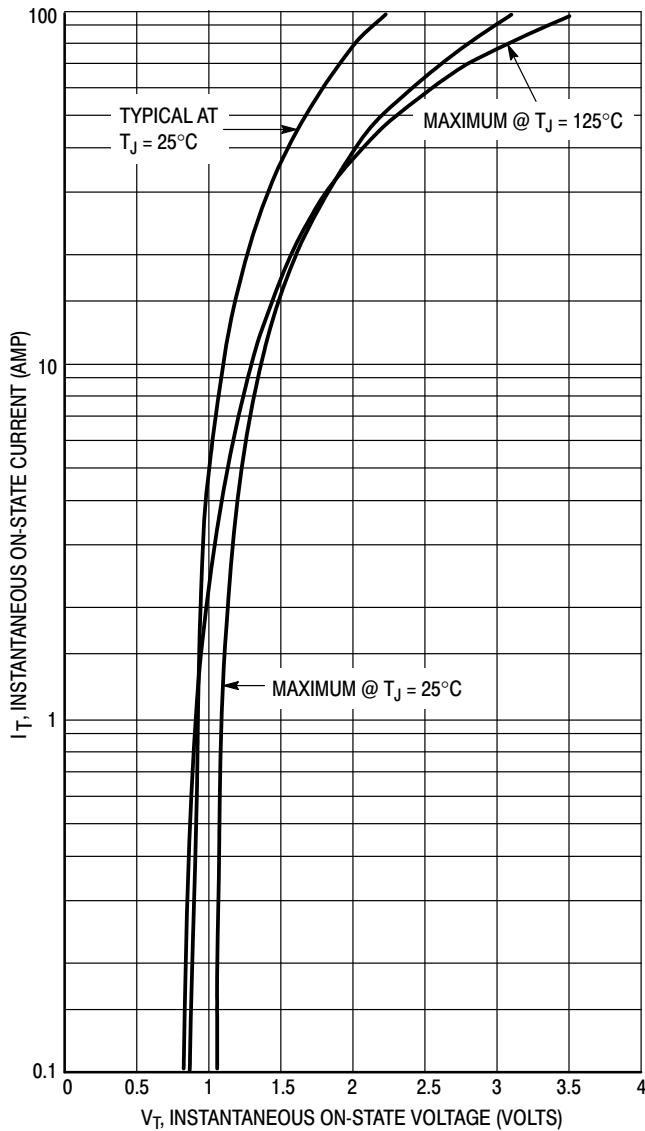


Figure 3. On-State Characteristics

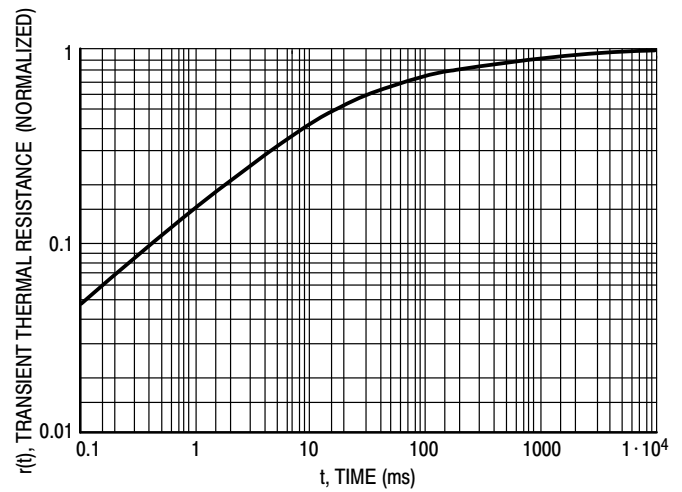


Figure 4. Thermal Response

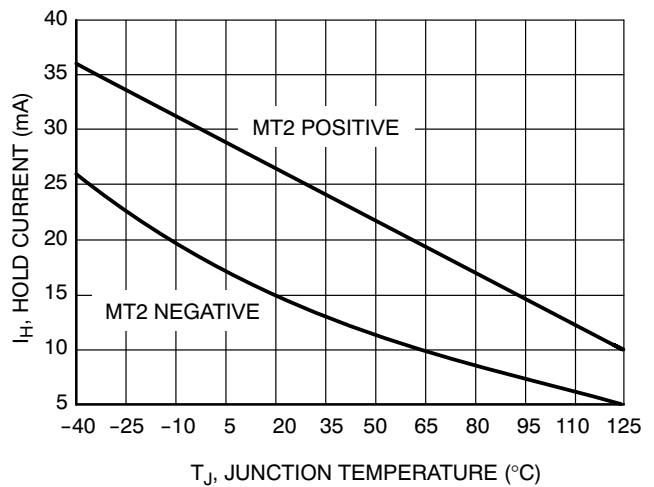


Figure 5. Typical Hold Current Variation

BTB08-600CW3G, BTB08-800CW3G

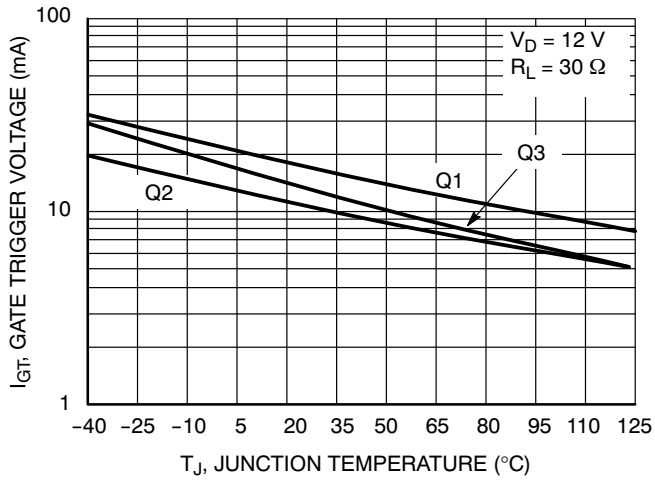


Figure 6. Typical Gate Trigger Current Variation

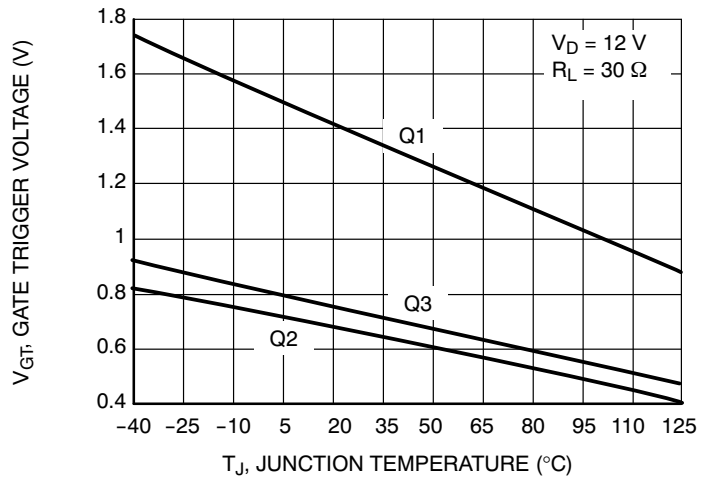


Figure 7. Typical Gate Trigger Voltage Variation

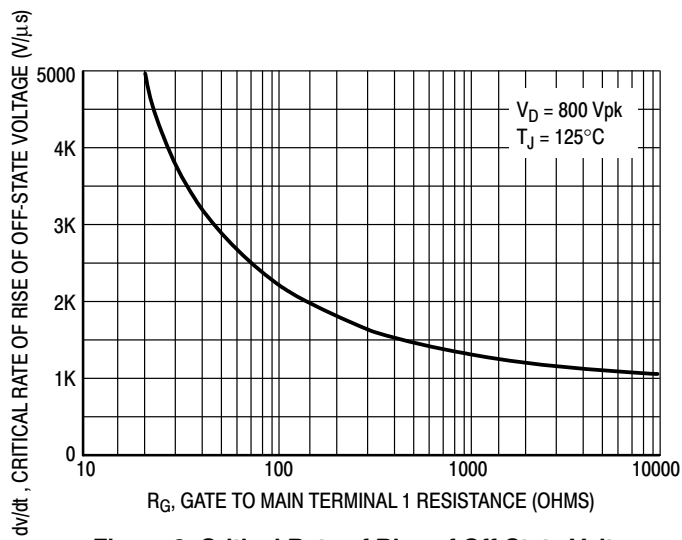
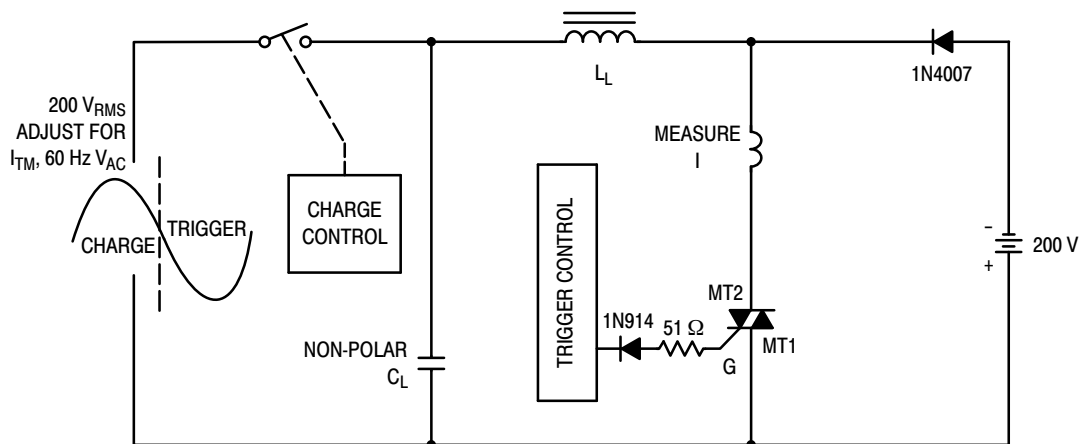


Figure 8. Critical Rate of Rise of Off-State Voltage (Exponential Waveform)



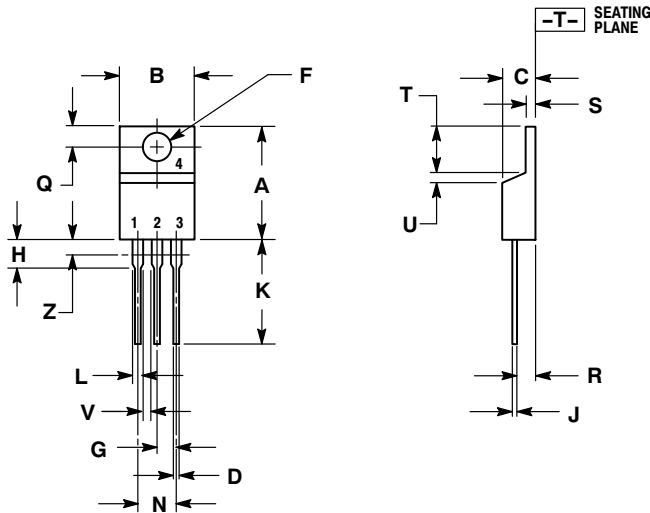
Note: Component values are for verification of rated $(di/dt)_c$. See AN1048 for additional information.

Figure 9. Simplified Test Circuit to Measure the Critical Rate of Rise of Commutating Current $(di/dt)_c$

BTB08-600CW3G, BTB08-800CW3G

PACKAGE DIMENSIONS

TO-220
CASE 221A-07
ISSUE AA



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

- STYLE 4:
- PIN 1. MAIN TERMINAL 1
 2. MAIN TERMINAL 2
 3. GATE
 4. MAIN TERMINAL 2

Littelfuse products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable Littelfuse product documentation. Warranties granted by Littelfuse shall be deemed void for products used for any purpose not expressly set forth in applicable Littelfuse documentation. Littelfuse shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Littelfuse as set forth in applicable Littelfuse documentation. The sale and use of Littelfuse products is subject to Littelfuse Terms and Conditions of Sale, unless otherwise agreed by Littelfuse.

Littelfuse.com