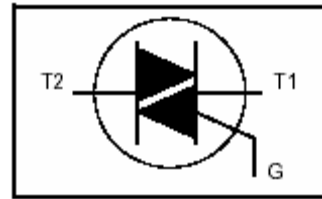


## BT138 Series

### TRIACS

#### FEATURE

Glass passivated triacs in a plastic TO220 package. They are intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching. Compliance to RoHS.



#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value			Unit
		BT138-500	BT138-600	BT138-800	
$V_{DRM}$	Repetitive peak off-state voltage	500	600	800	V
$V_{RRM}$	Repetitive peak reverse voltage	500	600	800	
$I_{T(RMS)}$	RMS on-state current	12			A
$I_{TSM}$	Non-repetitive peak on-state current	95			A
$P_{GM}$	Peak gate power	5			W
$PG_{(AV)}$	Average gate power	0.5			W
$T_{stg}$	Storage temperature range	-45 to +150			°C
$T_j$	Operating junction temperature	110			°C

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{\theta j-mb}$	Thermal resistance junction to mounting base	$\leq 1.5$	°C/W
$R_{\theta JA}$	Thermal resistance junction to ambient	$\leq 60$	

## BT138 Series

### ELECTRICAL CHARACTERISTICS

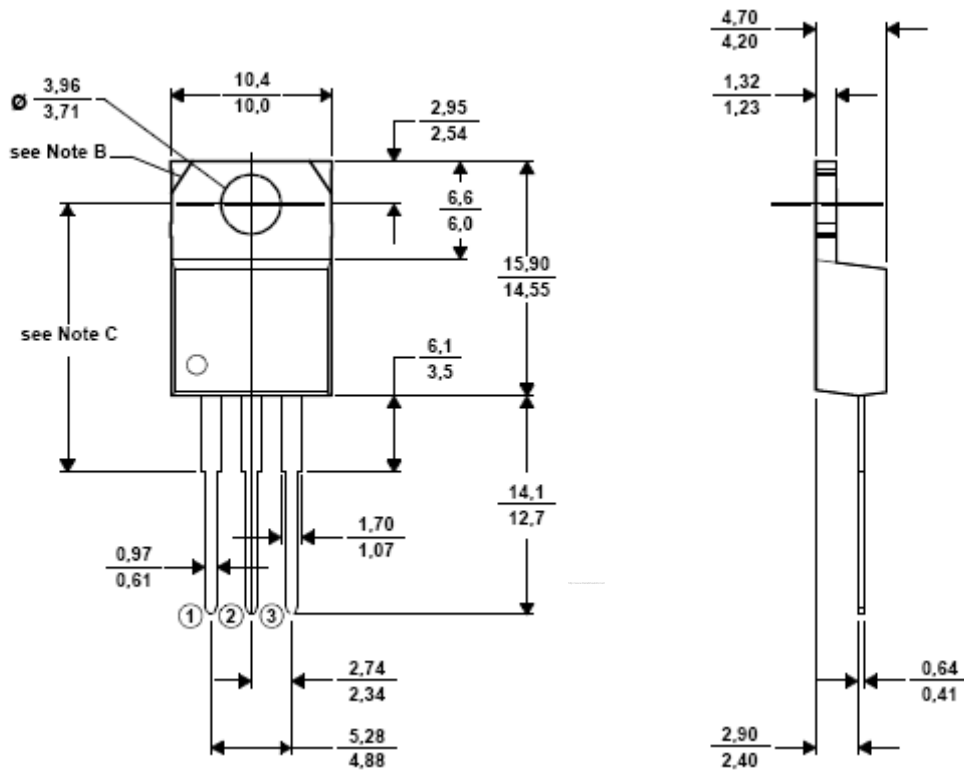
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$V_{DRM}$	Repetitive peak off-state voltage	$I_D = 0.1 \text{ mA}$	BT137-500	500	-	-	V
			BT137-600	600	-	-	
			BT137-800	800	-	-	
$V_{RRM}$	Repetitive peak reverse voltage	$I_D = 0.5 \text{ mA}$	BT137-500	500	-	-	V
			BT137-600	600	-	-	
			BT137-800	800	-	-	
$I_{GT}$	Gate trigger current	$V_D = 12 \text{ V}$ $R_L = 100 \Omega$	T2+ G+	-	-	30	mA
			T2+ G-	-	-	30	
			T2- G-	-	-	30	
			T2- G+	-	-	100	
$V_{GT}$	Gate trigger voltage	$V_D = 12 \text{ V}$ $R_L = 100 \Omega$	T2+ G+	-	-	1.5	V
			T2+ G-	-	-	1.5	
			T2- G-	-	-	1.5	
			T2- G+	-	-	1.8	
$I_L$	Latching current	$V_D = 12 \text{ V}$ $I_{GT} = 100 \text{ mA}$	T2+ G+	-	-	60	mA
			T2+ G-	-	-	90	
			T2- G-	-	-	60	
			T2- G+	-	-	90	
$I_H$	Holding current	$I_T = 200 \text{ mA}, I_{GT} = 50 \text{ mA}$	-	-	50	mA	
$I_D$	Off-state leakage current	$V_D = V_{DRM \text{ max}}$ $T_j = 125^\circ\text{C}$	-	-	0.5	mA	
$V_T$	On-state voltage	$I_T = 15 \text{ A}$	-	-	1.7	V	
$dV_D/dt$	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM \text{ max}}$ $T_j = 125^\circ\text{C}$ Exponential waveform; gate open circuit	100	250	-	V/ $\mu\text{s}$	
$dV_{COM}/dt$	Critical rate of rise of change commutating current	$V_D = 400 \text{ V}; T_j = 95^\circ\text{C}$ $di_{com}/dt = 5.4 \text{ A/ms}; I_T = 12 \text{ A}$ gate open circuit	-	20	-	V/ $\mu\text{s}$	
$t_{gt}$	Gate controlled turn-on time	$I_{TM} = 16 \text{ A}; V_D = V_{DRM \text{ max}}$ $I_G = 0.1 \text{ A}; di_G/dt = 5 \text{ A}/\mu\text{s}$	-	2	-	$\mu\text{s}$	

## BT138 Series

### MECHANICAL DATA CASE TO-220

TO220



Pin 1 :	Main Terminal 1
Pin 2 :	Main Terminal 2
Pin 3 :	Gate
Case :	Main Terminal 2

Revised August 2012

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