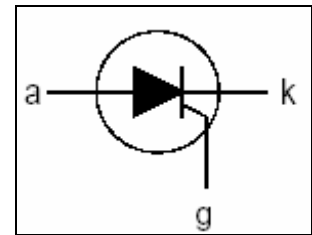


## BT151 Series

# THYRISTORS

### FEATURE

Glass passivated thyristors in a plastic TO220 package. They are intended for use in applications requiring high bidirectional 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
		BT151-500R	BT151-650R	BT151-800R	
$V_{DRM}$	Repetitive peak off-state voltage	500	650	800	V
$V_{RRM}$	Repetitive peak reverse voltage	500	650	800	
$I_{T(RMS)}$	RMS on-state current	12			A
$I_{T(AV)}$	Average on-state current	7.5			A
$I_{TSM}$	Non-repetitive peak on-state current	100			A
$P_{GM}$	Peak gate power	5			W
$P_{G(AV)}$	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	≤ 1.3	°C/W
$R_{\theta JA}$	Thermal resistance junction to ambient	≤ 60	

## BT151 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	BT151-500R	500	-	-	V
		BT151-650R	650	-	-	
		BT151-800R	800	-	-	
$V_{RRM}$	Repetitive peak reverse voltage	BT151-500R	500	-	-	
		BT151-650R	650	-	-	
		BT151-800R	800	-	-	
$I_{GT}$	Gate trigger current	$V_D = 12\text{ V}; I_T = 100\text{ mA}$	-	-	15	mA
$V_{GT}$	Gate trigger voltage	$V_D = 12\text{ V}; I_T = 100\text{ mA}$	-	-	1.5	V
$I_L$	Latching current	$V_D = 12\text{ V}; I_{GT} = 100\text{ mA}$	-	-	40	mA
$I_H$	Holding current	$V_D = 12\text{ V}; I_{GT} = 100\text{ mA}$	-	-	20	mA
$I_D$	Off-state current	$V_D = V_{DRM\text{max}}; T_j = 125^\circ\text{C}$	-	-	0.5	mA
$I_R$	Reverse current	$V_R = V_{RRM\text{max}}; T_j = 125^\circ\text{C}$	-	-	0.5	mA
$V_T$	On-state voltage	$I_T = 23\text{ A}$	-	-	1.75	V

### DYNAMIC CHARACTERISTICS

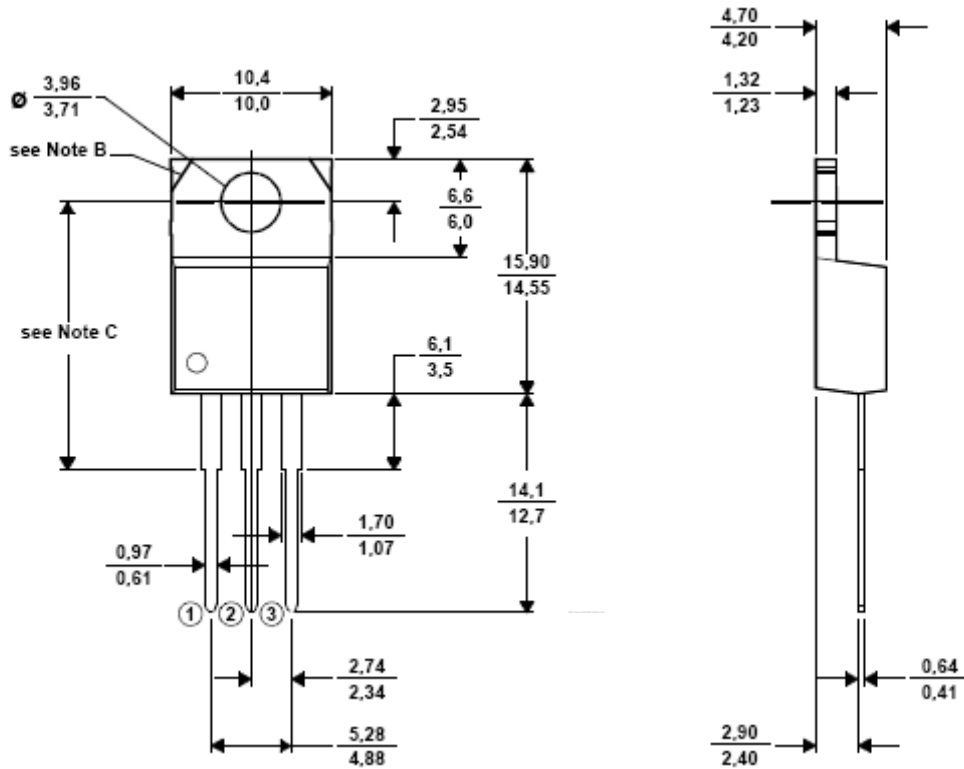
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$dV_D/dt$	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	50	130	-	V/ $\mu\text{s}$
		$V_{DM} = 67\% V_{DRM\text{max}}; T_j = 125^\circ\text{C}$ Exponential waveform $R_{GK} = 100\ \Omega$	200	1000	-	V/ $\mu\text{s}$
$t_{gt}$	Gate controlled turn-on time	$I_{TM} = 40\text{ A}; V_D = V_{DRM\text{max}}$ $I_G = 0.1\text{ A}; dI_G/dt = 5\text{ A}/\mu\text{s}$	-	2	-	$\mu\text{s}$
$t_q$	Circuit commutated Turn-off time	$V_{DM} = 67\% V_{DRM\text{max}}; T_j = 125^\circ\text{C}$ $I_{TM} = 20\text{ A}; V_R = 25\text{ V}$ $R_{GK} = 100\ \Omega$ $dI_{TM}/dt = 30\text{ A}/\mu\text{s}$ $dV_D/dt = 50\text{ V}/\mu\text{s}$	-	70	-	$\mu\text{s}$

## BT151 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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