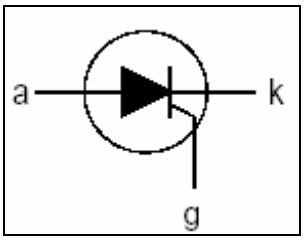
Toohong

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
$PG_{(AV)}$	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
$R_{\partial j\text{-}mb}$	Thermal resistance junction to mounting base	≤ 1.3	°C/W
$R_{\partial JA}$	Thermal resistance junction to ambient	≤ 60	

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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 V; I_T = 100 mA		-	-	15	mA
V_{GT}	Gate trigger voltage	V_D = 12 V; I_T = 100 mA		-	-	1.5	V
I_L	Latching current	V_D = 12 V; I_{GT} = 100 mA		-	-	40	mA
I_H	Holding current	V_D = 12 V; I_{GT} = 100 mA		-	-	20	mA
I_D	Off-state current	$V_D = V_{DRM\ max;}$ T_j = 125°C		-	-	0.5	mA
I_R	Reverse current	$V_R = V_{RRM\ max;}$ T_j = 125°C		-	-	0.5	mA
V_T	On-state voltage	I_T = 23 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_{DRMmax}; T_j = 125°C Exponential waveform; gate open circuit	50	130	-	V/µs
		V_{DM} = 67% V_{DRMmax}; T_j = 125°C Exponential waveform R_{GK} = 100 Ω	200	1000	-	V/µs
t_{gt}	Gate controlled turn-on time	I_{TM} = 40 A; $V_D = V_{DRMmax}$ I_G = 0.1 A; dI_G/dt = 5 A/µs	-	2	-	µs
t_q	Circuit commutated Turn-off time	V_{DM} = 67% V_{DRMmax}; T_j = 125°C I_{TM} = 20 A; V_R = 25 V R_{GK} = 100 Ω dI_{TM}/dt = 30 A/µs dV_D/dt = 50 V/µS	-	70	-	µs

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MECHANICAL DATA CASE TO-220