

# BT151 series L and R

## Thyristors

Rev. 04 — 23 October 2006

Product data sheet

## 1. Product profile

### 1.1 General description

Passivated thyristors in a SOT78 plastic package.

### 1.2 Features

- High thermal cycling performance
- High bidirectional blocking voltage

### 1.3 Applications

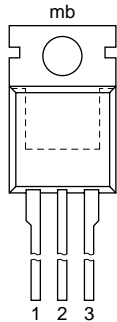

- Motor control
- Ignition circuits
- Static switching
- Protection circuits

### 1.4 Quick reference data

- $V_{DRM} \leq 500$  V (BT151-500L/R)
- $V_{RRM} \leq 500$  V (BT151-500L/R)
- $V_{DRM} \leq 650$  V (BT151-650L/R)
- $V_{RRM} \leq 650$  V (BT151-650L/R)
- $V_{DRM} \leq 800$  V (BT151-800R)
- $V_{RRM} \leq 800$  V (BT151-800R)
- $I_{TSM} \leq 120$  A ( $t = 10$  ms)
- $I_{T(RMS)} \leq 12$  A
- $I_{T(AV)} \leq 7.5$  A
- $I_{GT} \leq 5$  mA (BT151 series L)
- $I_{GT} \leq 15$  mA (BT151 series R)

## 2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Symbol
1	cathode (K)		
2	anode (A)		
3	gate (G)		
mb	mounting base; connected to anode		

SOT78 (3-lead TO-220AB)

### 3. Ordering information

**Table 2. Ordering information**

Type number	Package		Version
	Name	Description	
BT151-500L	SC-46	plastic single-ended package; heatsink mounted; 1 mounting hole; 3-lead TO-220AB	SOT78
BT151-500R			
BT151-650L			
BT151-650R			
BT151-800R			
BT151-800R			

### 4. Limiting values

**Table 3. Limiting values**

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DRM}$	repetitive peak off-state voltage	BT151-500L; BT151-500R	[1] -	500	V
		BT151-650L; BT151-650R	[1] -	650	V
		BT151-800R	-	800	V
$V_{RRM}$	repetitive peak reverse voltage	BT151-500L; BT151-500R	[1] -	500	V
		BT151-650L; BT151-650R	[1] -	650	V
		BT151-800R	-	800	V
$I_{T(AV)}$	average on-state current	half sine wave; $T_{mb} \leq 109\text{ °C}$ ; see <a href="#">Figure 1</a>	-	7.5	A
$I_{T(RMS)}$	RMS on-state current	all conduction angles; see <a href="#">Figure 4</a> and <a href="#">5</a>	-	12	A
$I_{TSM}$	non-repetitive peak on-state current	half sine wave; $T_j = 25\text{ °C}$ prior to surge; see <a href="#">Figure 2</a> and <a href="#">3</a>			
		$t = 10\text{ ms}$	-	120	A
		$t = 8.3\text{ ms}$	-	132	A
$I^2t$	$I^2t$ for fusing	$t = 10\text{ ms}$	-	72	A <sup>2</sup> s
$di_T/dt$	rate of rise of on-state current	$I_{TM} = 20\text{ A}$ ; $I_G = 50\text{ mA}$ ; $di_G/dt = 50\text{ mA}/\mu\text{s}$	-	50	A/ $\mu\text{s}$
$I_{GM}$	peak gate current		-	2	A
$V_{RGM}$	peak reverse gate voltage		-	5	V
$P_{GM}$	peak gate power		-	5	W
$P_{G(AV)}$	average gate power	over any 20 ms period	-	0.5	W
$T_{stg}$	storage temperature		-40	+150	°C
$T_j$	junction temperature		-	125	°C

[1] Although not recommended, off-state voltages up to 800 V may be applied without damage, but the thyristor may switch to the on-state. The rate of rise of current should not exceed 15 A/ $\mu\text{s}$ .