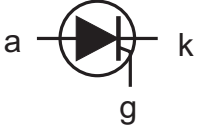
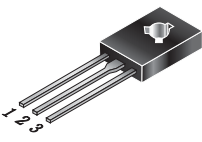


### HAOPIN MICROELECTRONICS CO.,LTD.

#### Description

Standard gate triggering SCR is fully isolated package suitable for the application where requiring high bidirectional blocking voltage capability and also suitable for over voltage protection ,motor control circuit in power tool, inrush current limit circuit and heating control system.

<p>Symbol</p> 		<p>Simplified outline</p>  <p>TO-126</p>	
Pin	Description		
1	cathode		
2	anode		
3	gate		
TAB	anode		

#### Applications:

- ◆ Motor control
- ◆ Industrial and domestic lighting
- ◆ Heating
- ◆ Static switching

#### Features

- ◆ Blocking voltage to 650 V
- ◆ On-state RMS current to 12 A

SYMBOL	PARAMETER	Value	Unit
$V_{DRM}$	Repetitive peak off-state voltages	650	V
$I_{T(RMS)}$	RMS on-state current (full sine wave)	12	A
$I_{TSM}$	Non-repetitive peak on-state current	100	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Rth j-mb	Thermal resistance Junction to mounting base		-	-	1.3	K/W
Rth j-a	Thermal resistance Junction to ambient	In free air	-	60	-	K/W



# BTA151-650R

## SCRs

HAOPIN MICROELECTRONICS CO.,LTD.

Limiting values in accordance with the Maximum system(IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{DRM}, V_{RRM}$	Repetitive peak off-state Voltages		650	-	V
$I_{T(RMS)}$	RMS on-state current	all conduction angles	-	12	A
$I_{TSM}$	Non-repetitive peak On-state current	half sine wave; $T_j = 25^\circ\text{C}$ prior to surge		-	-
		T=10ms	-	100	A
		T=8.3ms	-	110	A
$I^2t$	$I^2t$ for fusing	T=10ms	-	50	A <sup>2</sup> S
$di_T/dt$	Repetitive rate of rise of on-state current after triggering	$I_{TM}=20\text{A}; I_G=50\text{mA};$ $D_{IG}/dt=50\text{mA}/\mu\text{s}$	-	50	A/ $\mu\text{s}$
$I_{T(AV)}$	Average on-state current	half sine wave; $T_{mb} \leq 109^\circ\text{C}$	-	7.5	A
$V_{GM}$	Peak gate voltage		-	5	V
$I_{GM}$	Peak gate current		-	2	A
$V_{RGM}$	Peak reverse gate voltage		-	12	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	$^\circ\text{C}$
$T_j$	Operating junction Temperature		-	125	$^\circ\text{C}$

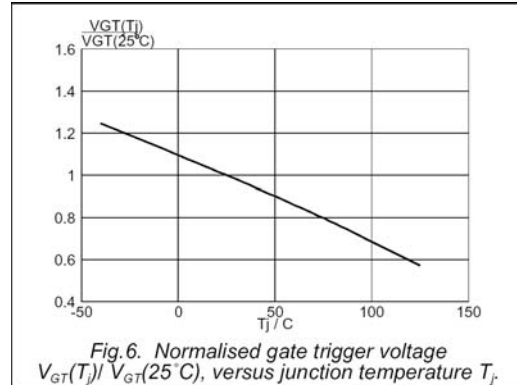
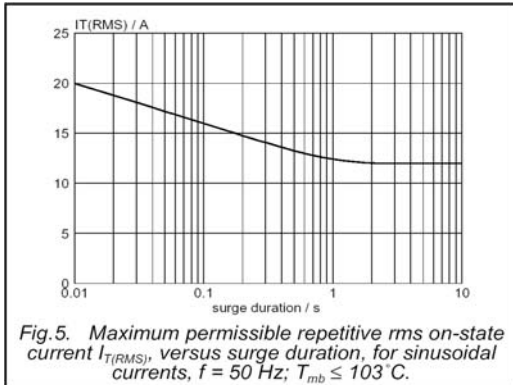
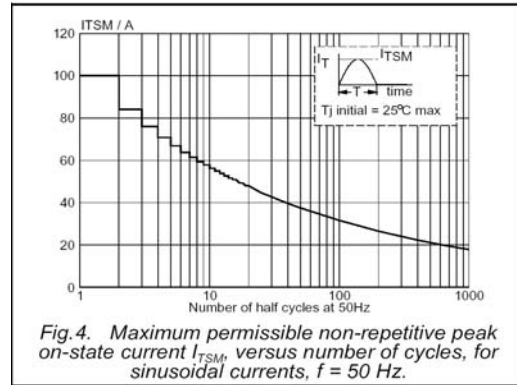
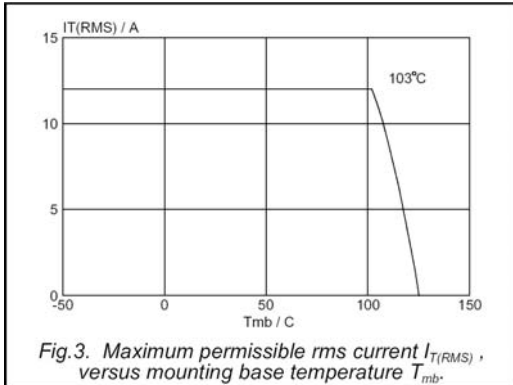
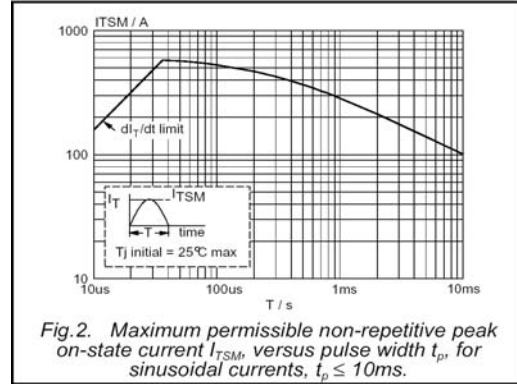
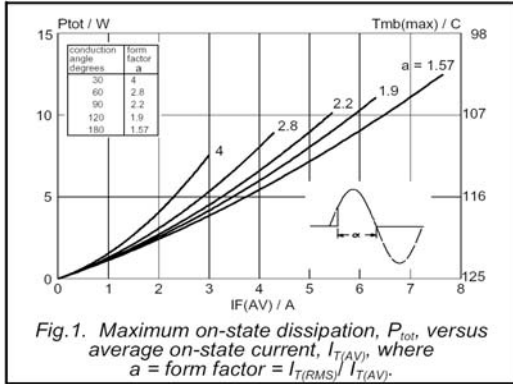
$T_j=25^\circ\text{C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
$I_{GT}$	Gate trigger current	$V_D=12\text{V}; I_T=0.1\text{A}$	-	2	4	mA
$I_L$	Latching current	$V_D=12\text{V}; I_{GT}=0.1\text{A}$	-	10	40	mA
$I_H$	Holding current	$V_D=12\text{V}; I_{GT}=0.1\text{A}$	-	7	16	mA
$V_T$	On-state voltage	$I_T=23\text{A}$	-	1.4	1.75	V
$V_{GT}$	Gate trigger voltage	$V_D=12\text{V}; I_T=0.1\text{A}$ $V_D=V_{DRM(max)}; I_T=0.1\text{A}; T_j=125^\circ\text{C}$	- 0.25	0.6 0.4	1.5 -	V V
$I_D, I_R$	Off-state leakage current	$V_D=V_{DRM(max)}; V_R=V_{RRM(max)}; T_j=125^\circ\text{C}$	-	0.1	0.5	mA

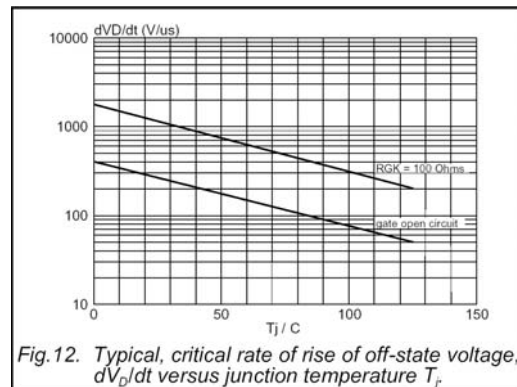
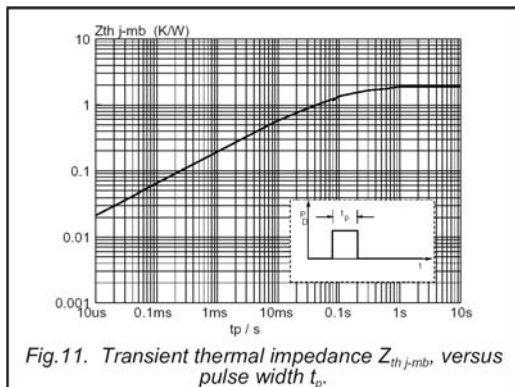
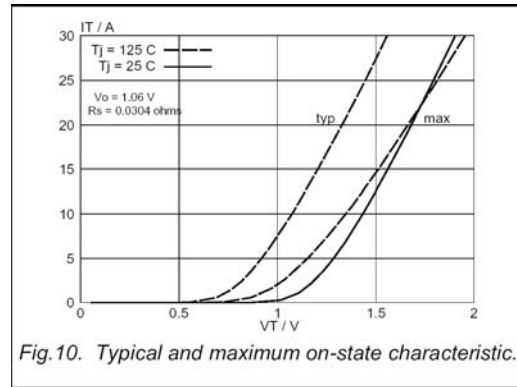
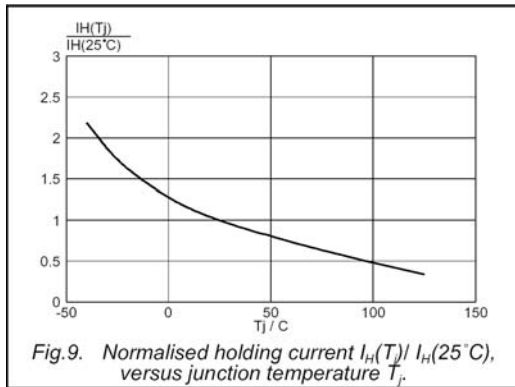
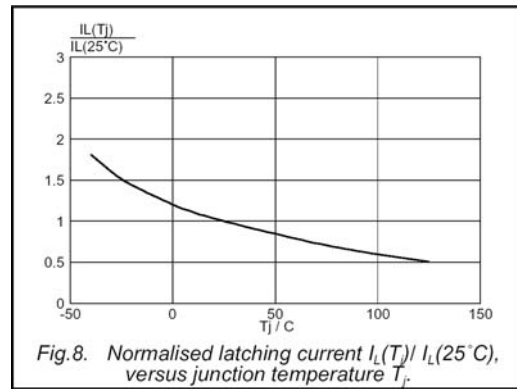
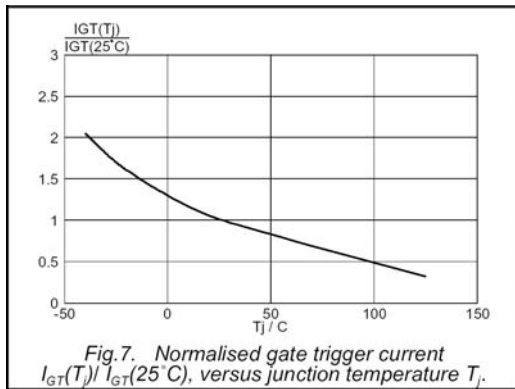
### Dynamic Characteristics

$dV_D/dt$	Critical rate of rise of Off-state voltage	$V_D=67\% V_{DRM(max)}; T_j=125^\circ\text{C};$ exponential wave form;	Gate open circuit $R_{GK}=100\Omega$	50 200	130 1000	-	V/ $\mu\text{s}$
$t_{gt}$	Gate controlled turn-on time	$I_{TM}=40\text{A}; V_D=V_{DRM}; I_G=0.1\text{A};$ $dI_G/dt=5\text{A}/\mu\text{s}$		-	2	-	$\mu\text{s}$
$t_q$	Circuit commutated turn-off time	$V_D=67\% V_{DRM(max)}; I_{TM}=20\text{A}$ $V_R=25\text{V}; dI_{TM}/dt=30\text{A}/\mu\text{s}$	$DV_D/dt=50\text{V}/\mu\text{s};$ $R_{GK}=100\Omega$	-	70	-	$\mu\text{s}$

### Description

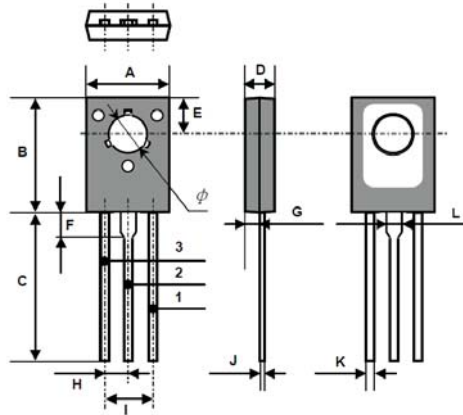


Description



### MECHANICAL DATA

Dimensions in mm  
 Net Mass: 0.7 g  
 TO-126



TO-126 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.5		7.9	0.295		0.311
B	10.8		11.2	0.425		0.441
C	14.2		14.7	0.559		0.579
D	2.7		2.9	0.106		0.114
E		3.8			0.150	
F		2.5			0.098	
G	1.2		1.5	0.047		0.059
H		2.3			0.091	
I		4.6			0.181	
J	0.48		0.62	0.019		0.024
K	0.7		0.86	0.028		0.034
L		1.4			0.055	
$\phi$		3.2			0.126	