
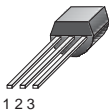


BT131-600

Sensitive Gate Triacs

Description

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

Symbol		Simplified outline	
		 TO-92	
Pin	Description		
1	Main terminal 1 (T1)		
2	gate (G)		
3	Main terminal 2 (T2)		

Applications:

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

Features

- ◆ Blocking voltage to 600 V
- ◆ On-state RMS current to 1 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_{T\ RMS}$	RMS on-state current	1	A
I_{TSM}	Non-repetitive peak on-state current	16	A

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT	
V_{DRM}	Repetitive peak off-state Voltages		-	600	V	
$I_{T(RMS)}$	RMS on-state current	Full sine wave; $T_{lead} \leq 51^\circ C$	-	1	A	
	Non-repetitive peak On-state current	full sine wave; $T_j = 25^\circ C$ prior to surge	$t=20ms$	-	16	A
			$t=16.7ms$	-	17.6	A
I^2t	I^2t for fusing	$T=10ms$	-	1.28	A ² S	
DI_T/dt	Repetitive rate of rise of on-state current after trigering	$I_{TM}=1.5A$; $IG=0.2A$; $DIG/dt=0.2A/\mu s$	T2+G+	-	50	A/ μs
			T2+G-	-	50	A/ μs
			T2-G-	-	50	A/ μs
			T2-G+	-	10	A/ μs
I_{GM}	Peak gate current		-	2	A	
V_{GM}	Peak 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	$^\circ C$	
T_j	Operating junction Temperature		-	125	$^\circ C$	

$T_j=25^\circ C$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT	
Static characteristics							
I_{GT}	Gate trigger current	$V_D=12V$; $I_T=0.1A$	T2+G+	-	0.4	3	mA
			T2+G-	-	1.3	3	mA
			T2-G-	-	1.4	3	mA
			T2-G+	-	3.8	7	mA
I_L	Latching current	$V_D=12V$; $I_{GT}=0.1A$	T2+G+	-	1.2	5	mA
			T2+G-	-	4.0	8	mA
			T2-G-	-	1.0	5	mA
			T2-G+	-	2.5	8	mA
I_H		$V_D=12V$; $I_{GT}=0.1A$	-	1.3	5	mA	
V_T	On-state voltage	$I_T=2.0A$	-	1.2	1.5	V	
V_{GT}	Gate trigger voltage	$V_D=12V$; $I_T=0.1A$	-	0.7	1.5	V	
		$V_D=400V$; $I_T=0.1A$; $T_j=125$	0.2	0.3	-	V	
I_D	Off-state leakage current	$V_D=V_{DRM(max)}$; $T_j=125$	-	0.1	0.5	mA	

Dynamic Characteristics

D_{V_D}/dt	Critical rate of rise of Off-state voltage	$V_{DM}=67\% V_{DRM(max)}$; $T_j=125^\circ C$; Exponential wave form; $R_{GK}=1k \Omega$	5	15	-	V/ μs
t_{gt}	Gate controlled turn-on time	$I_{TM}=1.5A$; $V_D=V_{DRM(max)}$; $I_G=0.1A$; $DI_G/dt=5A/\mu s$	-	2	-	μs

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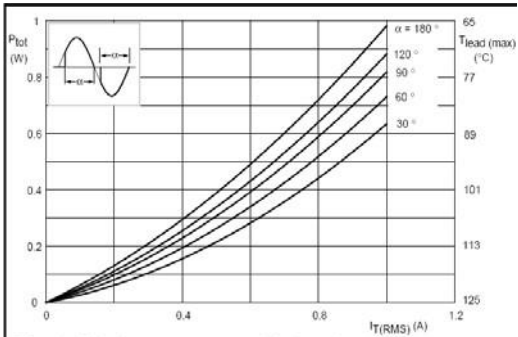


Fig.1. Maximum on-state dissipation, P_{Tot} , versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

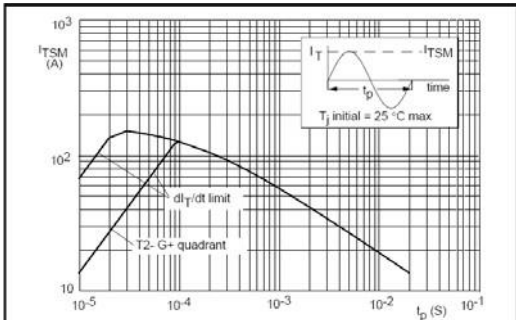


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus pulse width t_p , for sinusoidal currents, $t_p \leq 20\text{ms}$.

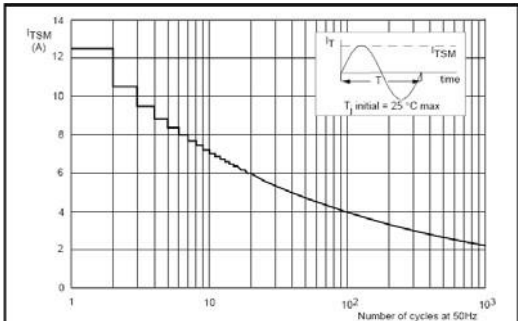


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f = 50\text{ Hz}$.

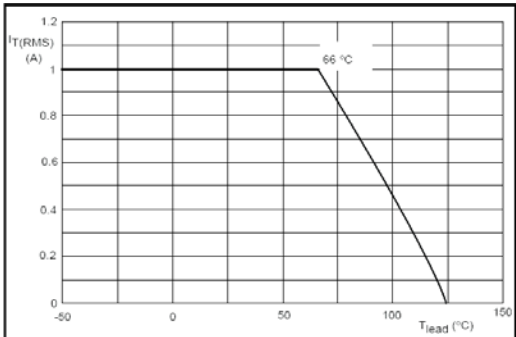


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus lead temperature T_{lead} .

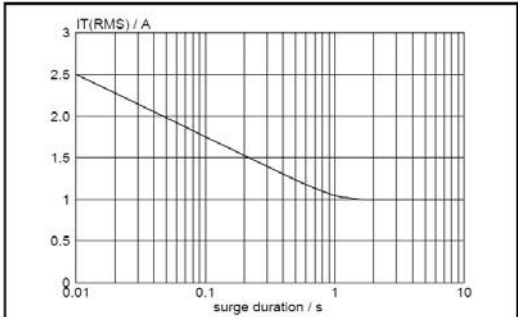


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f = 50\text{ Hz}$; $T_{lead} \leq 66^\circ\text{C}$.

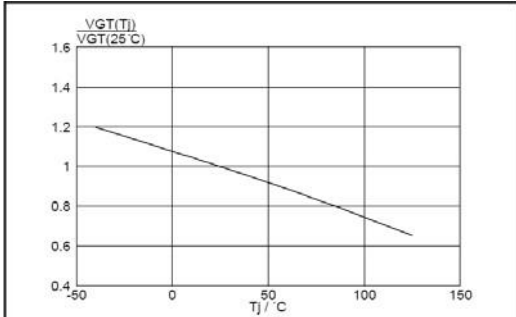
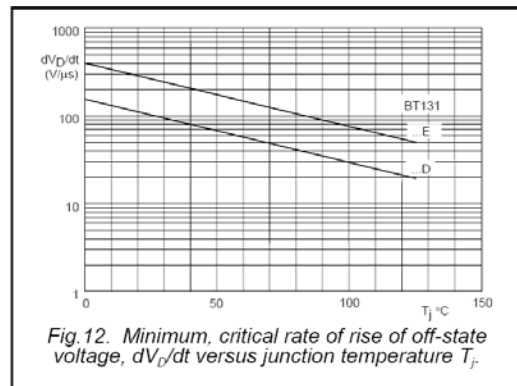
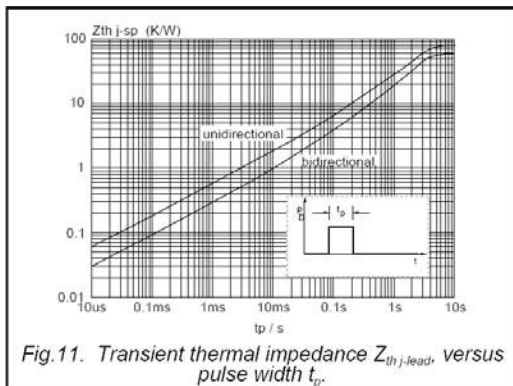
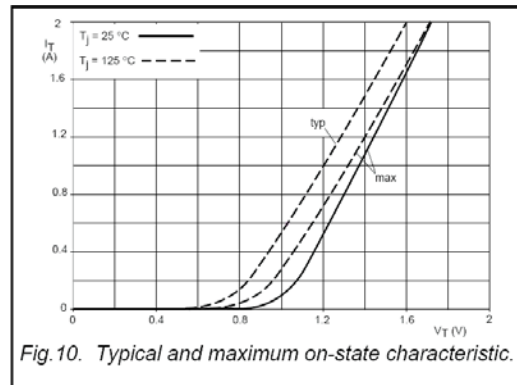
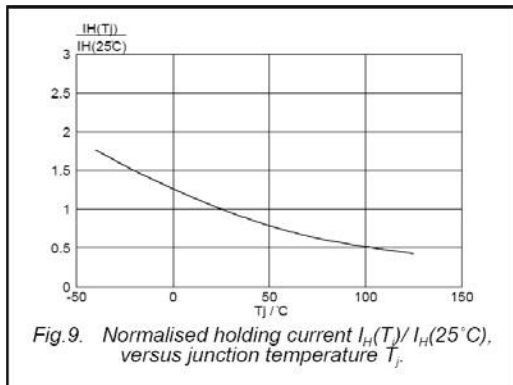
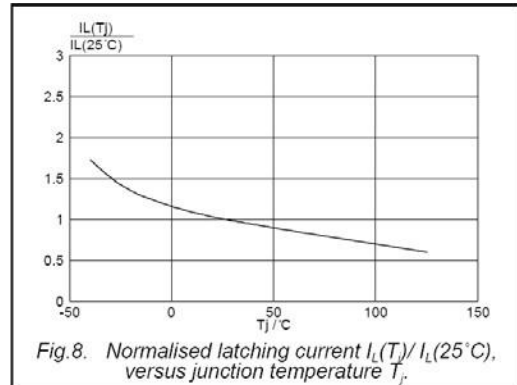
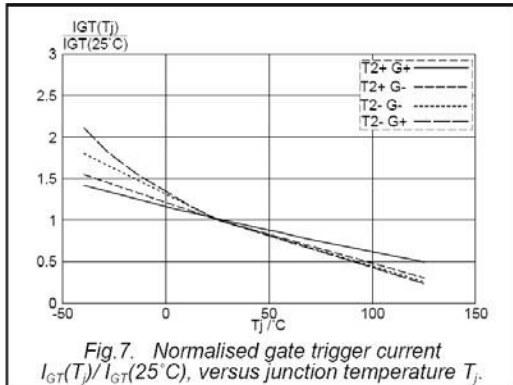


Fig.6. Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25^\circ\text{C})$, versus junction temperature T_j .

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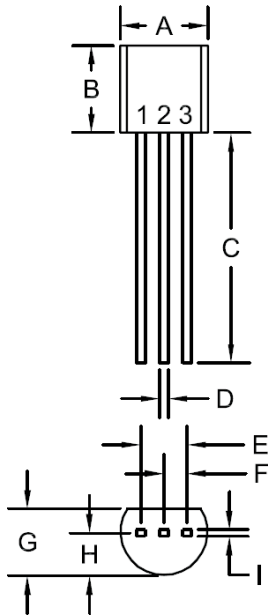
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MECHANICAL DATA

Dimensions in mm

Net Mass: 0.2 g

TO-92



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.500	-	12.70	-
D	0.016	0.022	0.41	0.56
E	0.100		2.54	
F	0.050		1.27	
G	0.125	0.165	3.18	4.19
H	0.080	0.105	2.03	2.67
I	0.015		0.38	

TO-92 (REV: R1)

R1