

BT131 1A TRIAC

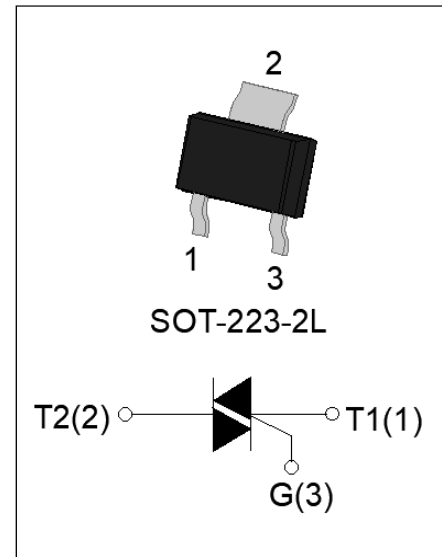
Rev.A.2.0

DESCRIPTION

The BT131 triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Package SOT-223-2L is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I/II/III/IV}$	5/5/5/10	μA



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40~150	℃
Operating junction temperature range		T _j	-40~125	℃
Repetitive peak off-state voltage (T _j =25℃)		V _{DRM}	800	V
Repetitive peak reverse voltage (T _j =25℃)		V _{RRM}	800	V
RMS on-state current (T _c ≤98℃)		I _{T(RMS)}	1	A
Non repetitive surge peak on-state current (t _p =20ms, T _j =25℃)		I _{TSM}	16.5	A
Non repetitive surge peak on-state current (t _p =16.6ms, T _j =25℃)			18	A
I ² t value for fusing (t _p =10ms, T _j =25℃)		I ² t	1.36	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT} , f=100Hz, T _j =125℃)	I - II -III	dI/dt	50	A/μs
	IV		30	
Peak gate current (t _p =20μs, T _j =125℃)		I _{GM}	2	A
Average gate power dissipation (T _j =125℃)		P _{G(AV)}	0.5	W
Peak gate power		P _{GM}	5	W
Peak pulse voltage (T _j =25℃, non-repetitive, off-state)		V _{PP}	3.5	kV

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ELECTRICAL CHARACTERISTICS (T_j=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I _{GT}	V _D =12V R _L =33Ω	I - II -III	MAX.	5	mA
		IV		10	
V _{GT}		ALL	MAX.	1.3	V
V _{GD}	V _D =V _{DRM} T _j =125°C R _L =3.3KΩ	ALL	MIN.	0.2	V
I _L	I _G =1.2I _{GT}	I -III-IV	MAX.	5	mA
		II		20	
I _H	I _T =50mA		MAX.	7	mA
dV/dt	V _D =540V Gate Open T _j =110°C		MIN.	100	V/μs
(dV/dt) _c	(dI/dt) _c =0.44A/ms, T _j =110°C		MIN.	3	V/μs
t _{on}	I _G =20mA I _A =200mA I _R =20mA T _j =25°C		TYP.	2.5	μs
t _{off}				25	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V _{TM}	I _{TM} =1.4A t _p =380μs	T _j =25°C	1.45	V
V _{TO}	Threshold voltage	T _j =125°C	0.96	V
R _D	Dynamic resistance	T _j =125°C	225	mΩ
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	5	μA
I _{RRM}		T _j =125°C	0.25	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	junction to case (DC)	20	°C/W
R _{th(j-a)}	junction to ambient (DC)	130	°C/W

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FIG.1 Maximum power dissipation versus RMS on-state current

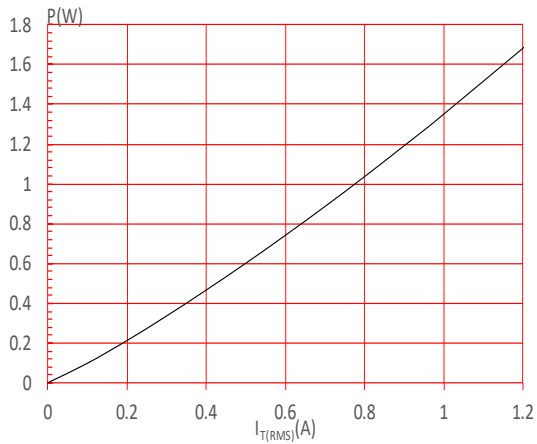


FIG.3: Surge peak on-state current versus number of cycles

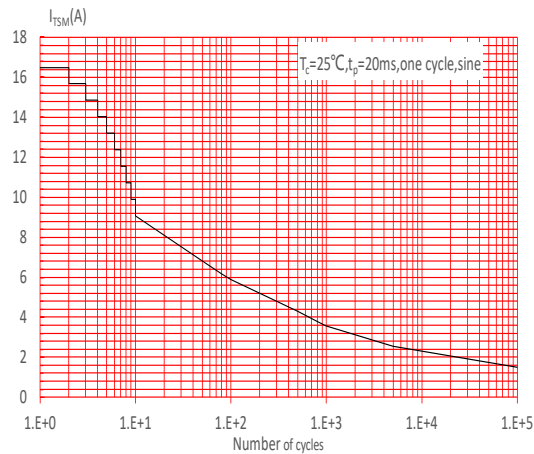


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I_{2t} (I - II - III : $di/dt < 50\text{A}/\mu\text{s}$; IV : $di/dt < 30\text{A}/\mu\text{s}$)

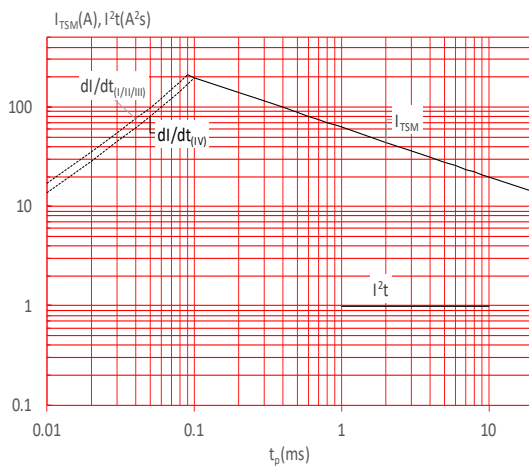


FIG.2: RMS on-state current versus case temperature

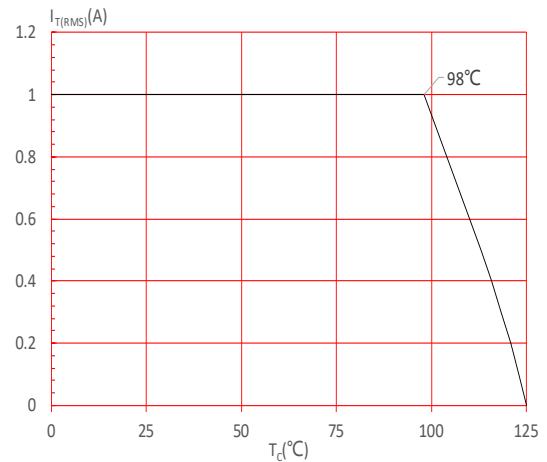


FIG.4: On-state characteristics

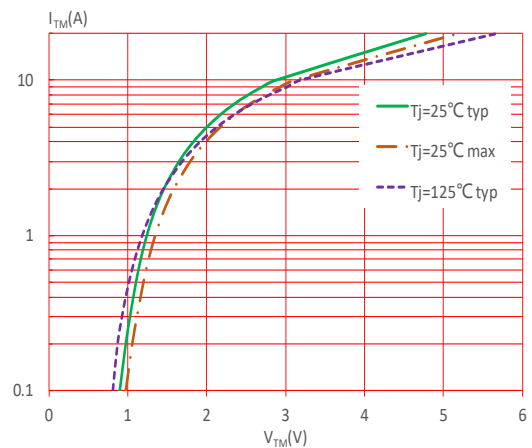
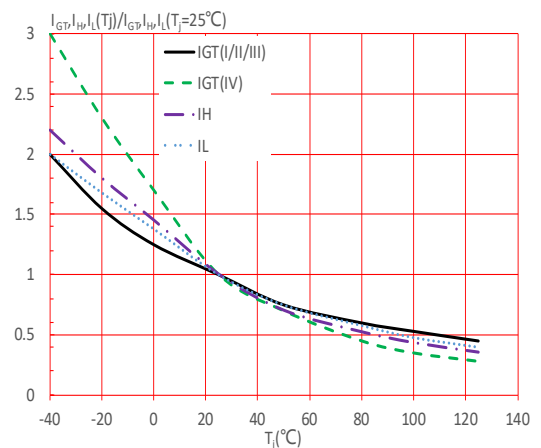


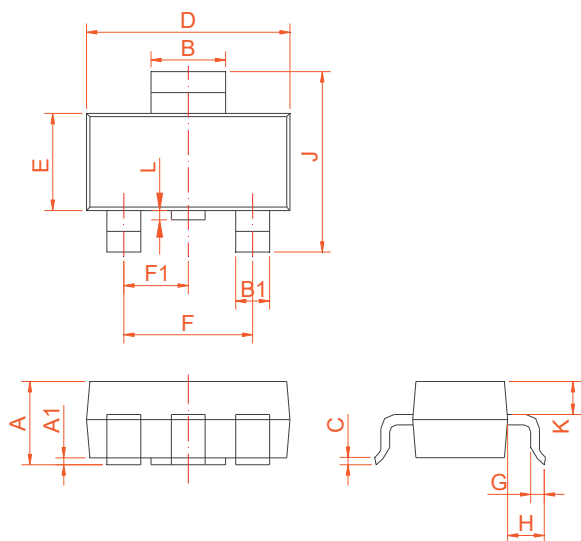
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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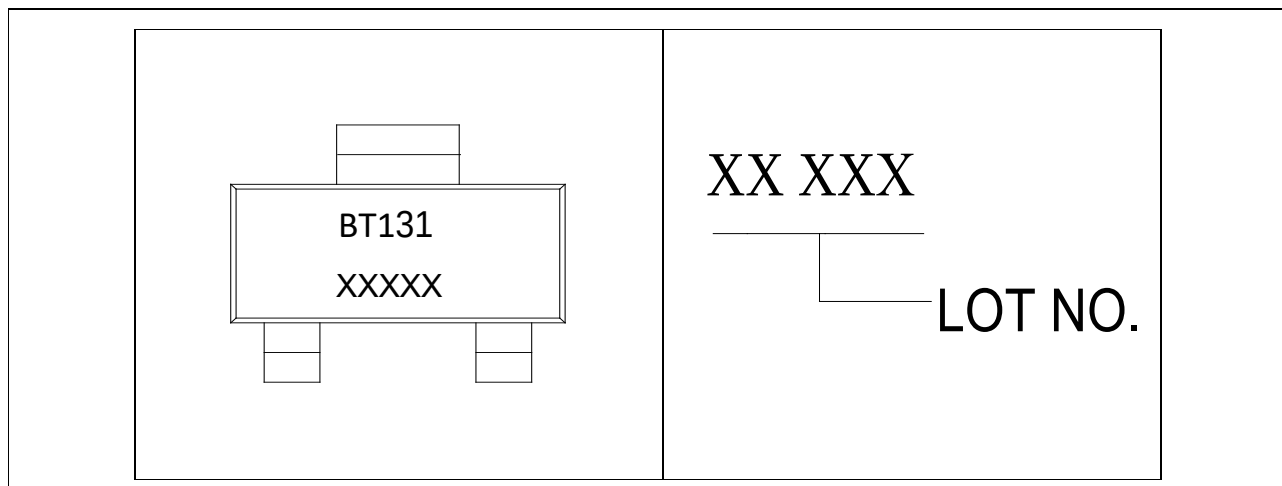
PACKAGE MECHANICAL DATA



SOT-223-2L

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50	1.60	1.80	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.90	3.00	3.10	0.114	0.118	0.122
B1	0.60	0.70	0.80	0.024	0.028	0.031
C	0.22	0.254	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
E	3.30	3.50	3.70	0.130	0.138	0.146
F		4.60			0.181	
F1		2.30			0.091	
G	0.70	0.90	1.10	0.028	0.035	0.043
H	1.50	1.75	2.00	0.059	0.069	0.079
J	6.70	7.00	7.30	0.264	0.276	0.287
K		0.90			0.035	
L	0	0.10	0.20	0	0.004	0.008

MARKING



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PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
SOT-223-2L	TAPING	4,000	40,000	13 inch

Document Revision History

Date	Revision	Changes
Jun.21, 2025	A.2.0	Last updated

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