

BT131

TRIAC

GENERAL DESCRIPTION

Passivated, sensitive gate triac in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers. Logic integrated circuits and other low power gate trigger circuits.

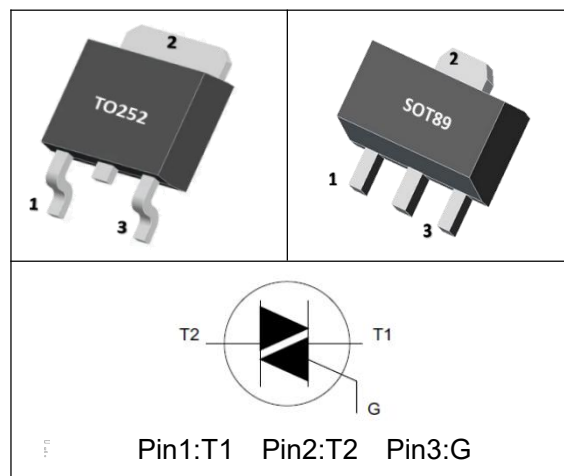
MARKING



BT131=Device Code

XXXX=Date Code

Solid Dot=Green molding compound



ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

SYMBOL	PARAMETER		VALUE	UNIT
VDRM	Repetitive Peak off-state voltage	BT131-600	600	V
		BT131-800	800	
IT(RMS)	Forward Current RMS (All Conduction Angles, TL=50°C)		1	A
ITSM	Non-repetitive peak on-state current(Full sine wave;Tj=25°C prior to surge)		16	A
dIT/dt	Critical rate of rise of on-state current	T2+ G+	50	A/μS
		T2+ G-	50	
		T2- G-	50	
		T2- G+	10	
VGM	Peak gate voltage		5	V
IGM	Peak gate current		2	A
I ² t	Circuit fusing	t=10ms	1.28	A ² S
PG(AV)	Average gate Power		0.5	W
PGM	Peak gate Power		5	W
Tj	Operating Junction Temperature		+150	°C
Tstg	Storage Temperature		-40 to +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolutemaximum ratings are stress ratings only and functional device operation is not implied.

2. Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed 3 A/μs.

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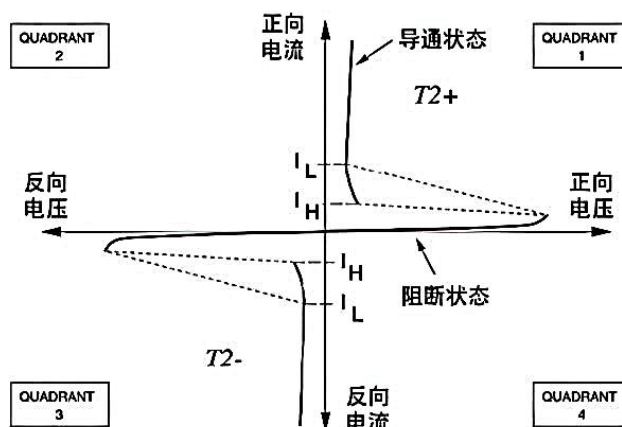
THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Lead	Full Cycle	θ_{JLEAD}	60	K/W
	Half Cycle		80	K/W
Junction to Ambient (Note)	TO-252	θ_{JA}	120	K/W
	SOT-89		200	K/W

ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

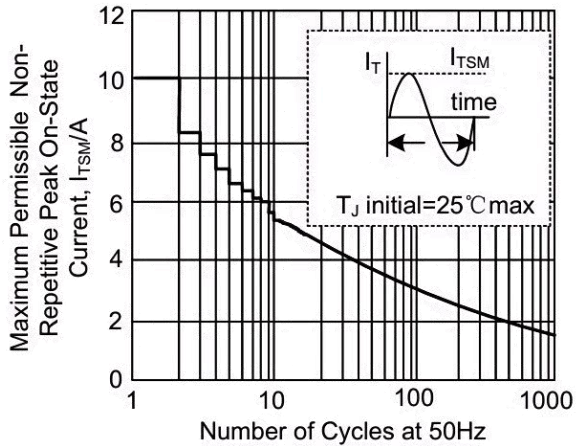
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	IGT	V _D =12V, I _T =0.1A		0.4	3	mA
				1.3	3	
				1.4	3	
				3.8	7	
Latching Current	IL	V _D =12V, IGT=0.1A		1.2	5.0	mA
				4.0	8.0	
				1.0	5.0	
				2.5	8.0	
Gate trigger voltage	VGT	V _D =12V, IGT=0.1A		0.7	1.5	V
		V _D =400V, T _J =125°C, I _T =0.1A	0.2	0.3		
On-State Voltage	V _T	I _T =2.0A		1.2	1.5	V
Holding current	I _H	V _D =12V, I _T =0.1A		1.3	5	mA
Off-state Leakage Current	I _D	V _D =V _{DRM} (max), T _J =125°C		0.1	0.5	mA
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of off-state Voltage	dV _D /dt	V _{DM} =67% V _{DRM} (MAX), T _J =125°C Exponential waveform, RGK=1kΩ	5	15		V/μs
Gate Controlled Turn-on Time	t _{GT}	I _{TM} =1.5A, V _D =V _{DRM} (MAX), IG=0.1A dIG/dt=5A/μs		2		μs

VI Curve of Triac

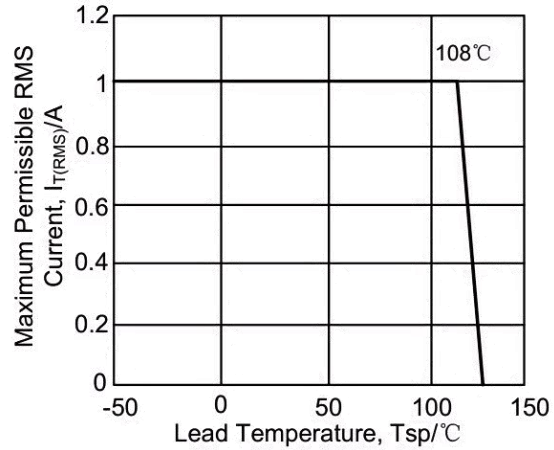


■ TYPICAL CHARACTERISTICS (1)

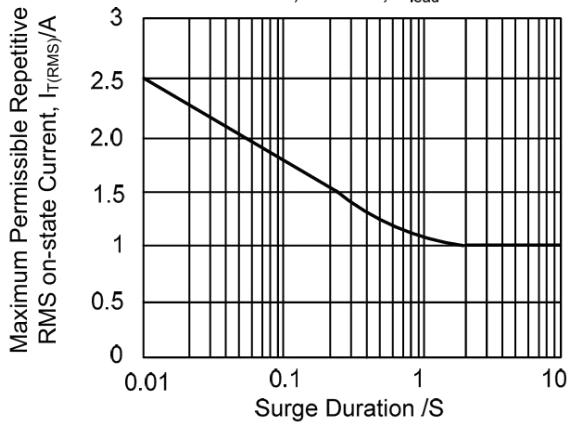
Maximum Permissible Non-Repetitive Peak On-State Current vs. Number of Cycles, for Sinusoidal Currents



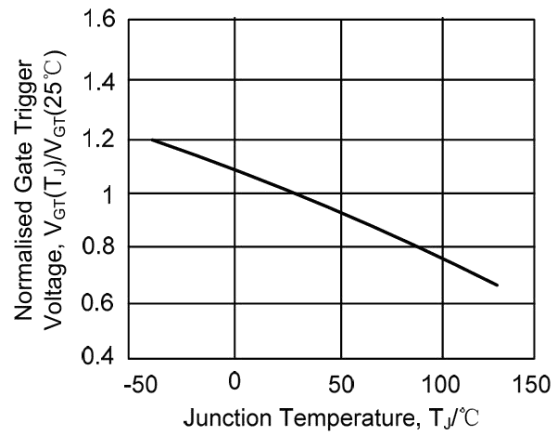
Maximum Permissible RMS Current $I_{T(RMS)}$ vs. Lead Temperature



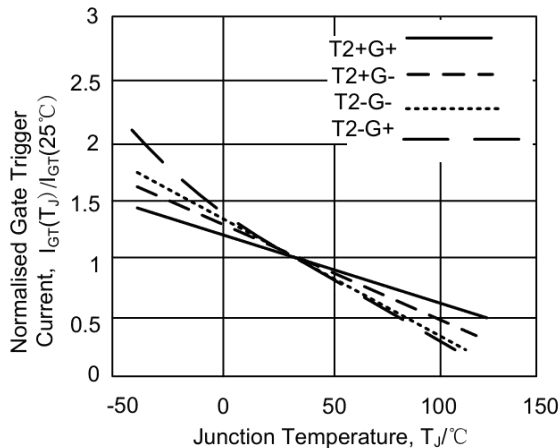
Maximum Permissible Repetitive RMS on-state Current vs. Surge Duration, for Sinusoidal Currents, $f=50\text{Hz}$; $T_{lead} \leq 51^\circ\text{C}$



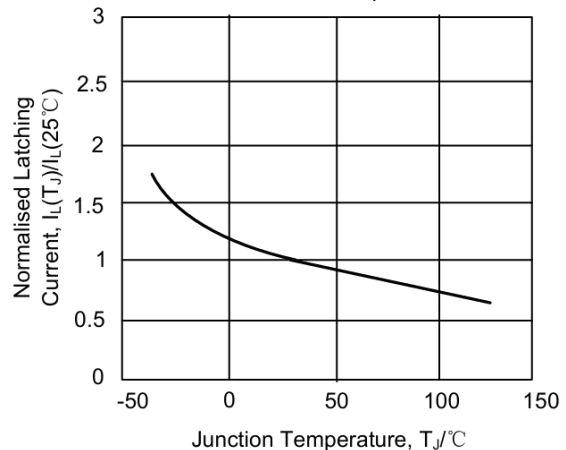
Normalised Gate Trigger Voltage vs. Junction Temperature



Normalised Gate Trigger Current vs. Junction Temperature



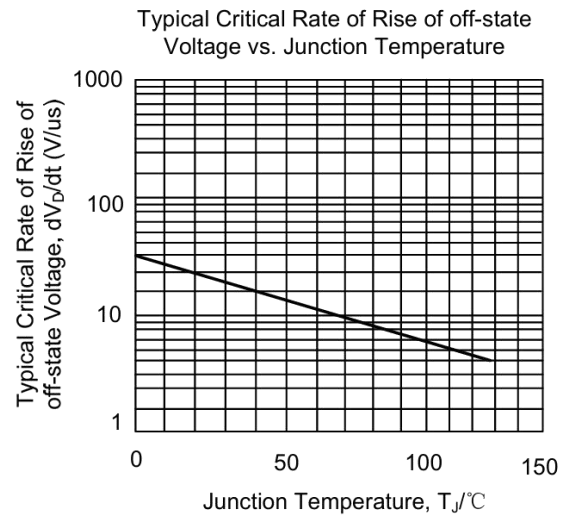
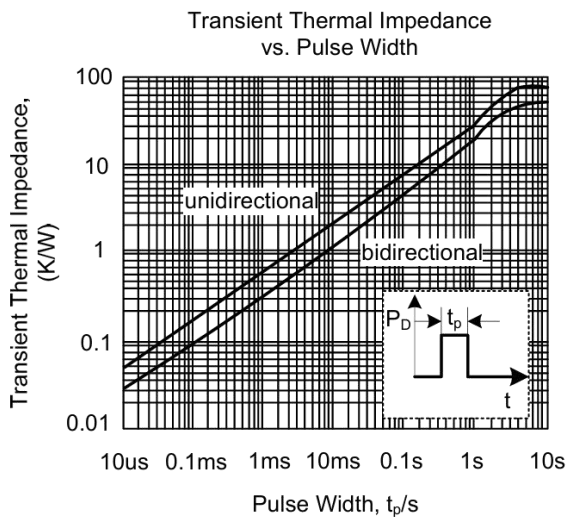
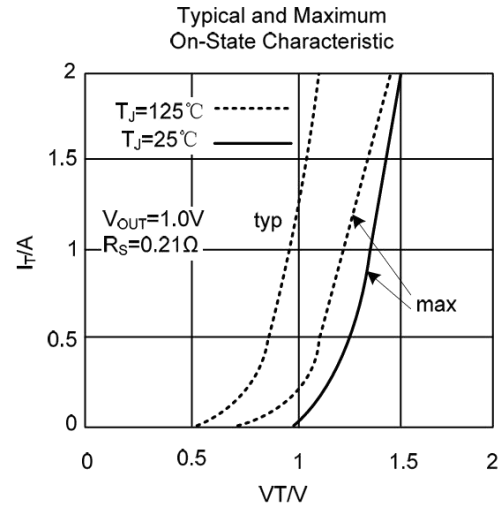
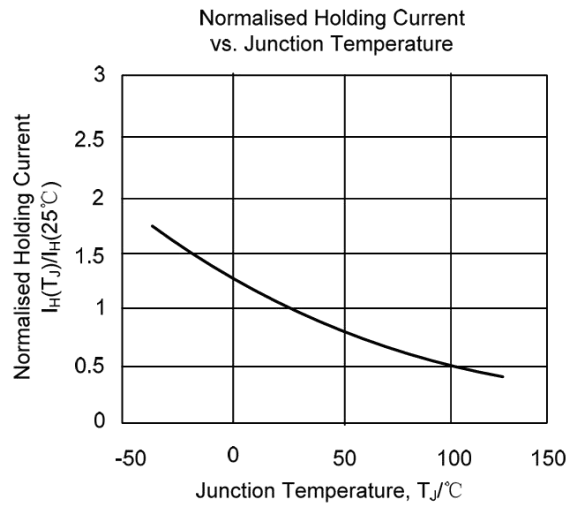
Normalised Latching Current vs. Junction Temperature



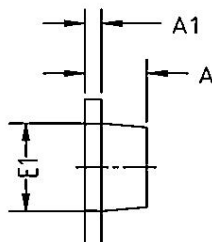
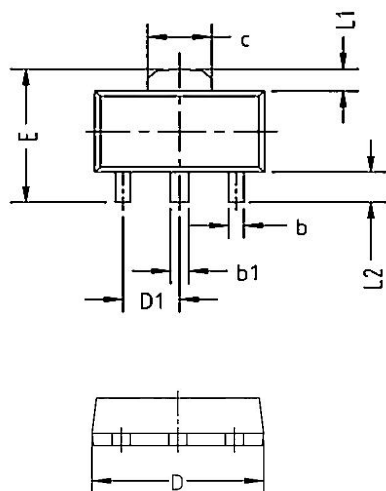
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■ TYPICAL CHARACTERISTICS (Con.t)



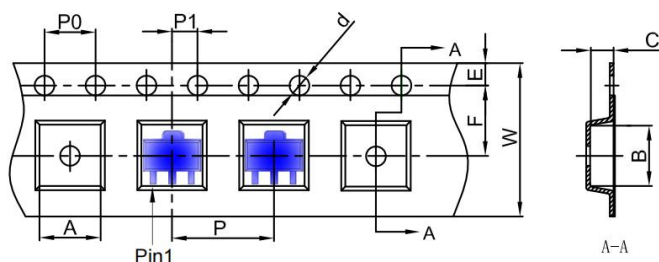
SOT - 89 PACKAGE OUTLINE DIMENSIONS



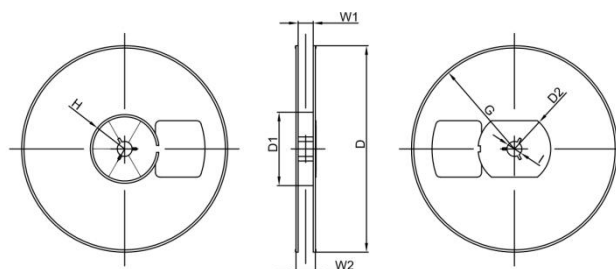
COMMON DIMENSION(MM)			
PKG	SOT-89		
Symbol	MIN	MON	MAX
A	1.450	1.500	1.550
A1	0.350	0.400	0.450
b	0.350	0.400	0.48
b1	0.430	0.480	0.550
C	1.500	1.550	1.650
D	4.450	4.550	4.700
D1	1.470	1.500	1.550
E	4.100	4.200	4.300
E1	2.500	2.550	2.650
L1	0.650	0.700	0.750
L2	0.900	0.950	1.000

SOT89 PACKAGING INFORMATION

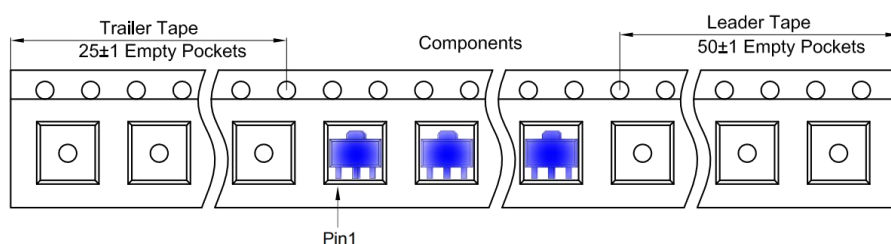
SOT-89 Embossed Carrier Tape



SOT-89 Reel



SOT-89 Tape Leader and Trailer



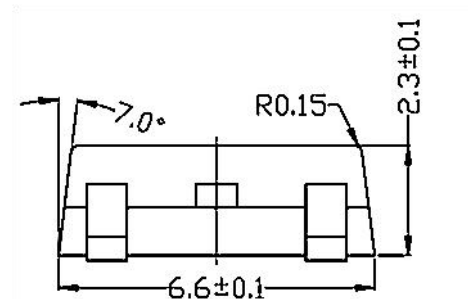
REEL	Reel Size
1000 pcs	7 inch

Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50

Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00



Package version	Reel dimensions $\phi \times H$ (mm)	Per Reel (pcs)	Reels per box	Inner box dimensions $L \times W \times H$ (mm)	Outer box (pcs)	Outer box dimensions $L \times W \times H$ (mm)
T0-252	$\phi 330 \times 20$	2500	2	360*340*50	25000	375*375*280