



Triacs  
logic level

## BT131W series

**THERMAL RESISTANCES**

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-sp}$	Thermal resistance junction to solder point	full or half cycle	-	-	15	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	pcb mounted; minimum footprint pcb mounted; pad area as in fig:14	-	156 70	-	K/W K/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{GT}$	Gate trigger current	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	0.4	3	mA
		T2+ G+	-	1.3	3	mA
		T2+ G-	-	1.4	3	mA
		T2- G-	-	3.8	7	mA
		T2- G+	-			mA
$I_L$	Latching current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	1.2	5	mA
		T2+ G+	-	4.0	8	mA
		T2+ G-	-	1.0	5	mA
		T2- G-	-	2.5	8	mA
		T2- G+	-	1.3	5	mA
$I_H$	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	1.2	1.5	V
$V_T$	On-state voltage	$I_T = 2\text{ A}$	-	0.7	1.5	V
$V_{GT}$	Gate trigger voltage	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	0.3	-	V
$I_D$	Off-state leakage current	$V_D = 400\text{ V}; I_T = 0.1\text{ A}; T_j = 125\text{ }^\circ\text{C}$ $V_D = V_{DRM(max)}; T_j = 125\text{ }^\circ\text{C}$	0.2	0.1	0.5	mA

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$dV_D/dt$	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM(max)}; T_j = 125\text{ }^\circ\text{C};$ exponential waveform; $R_{GK} = 1\text{ k}\Omega$	5	15	-	V/ $\mu\text{s}$
$t_{gt}$	Gate controlled turn-on time	$I_{TM} = 1.5\text{ A}; V_D = V_{DRM(max)}; I_G = 0.1\text{ A};$ $di_G/dt = 5\text{ A}/\mu\text{s}$	-	2	-	$\mu\text{s}$

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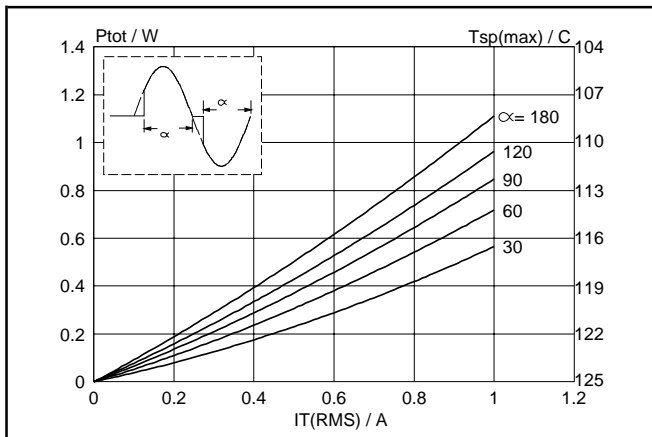


Fig.1. Maximum on-state dissipation,  $P_{tot}$ , versus rms on-state current,  $I_{T(RMS)}$ , where  $\alpha =$  conduction angle.

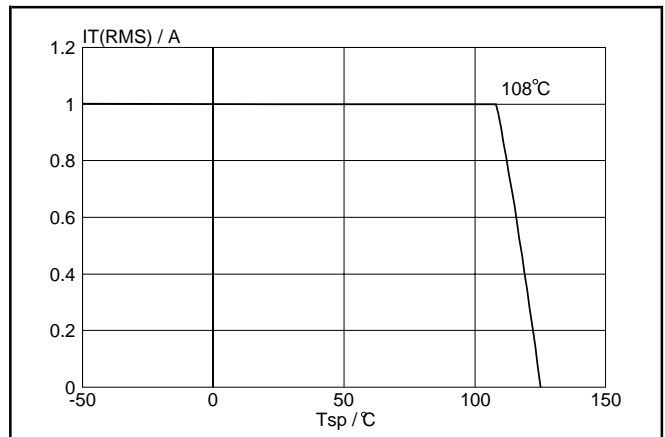


Fig.4. Maximum permissible rms current  $I_{T(RMS)}$ , versus lead temperature  $T_{lead}$ .

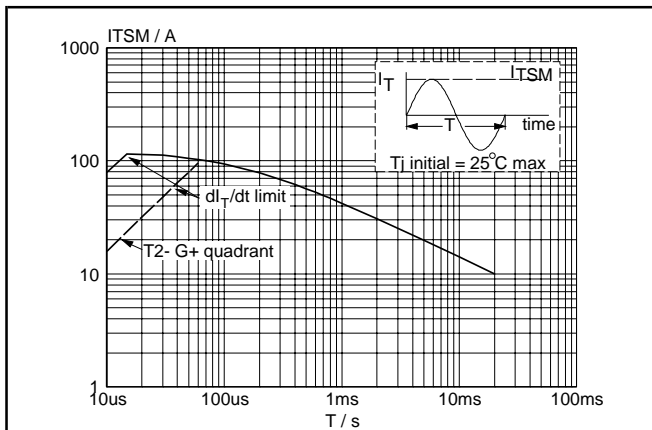


Fig.2. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus pulse width  $t_p$ , for sinusoidal currents,  $t_p \leq 20$ ms.

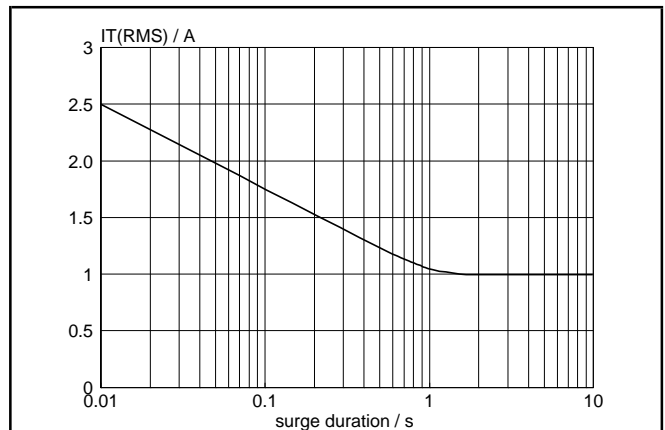


Fig.5. Maximum permissible repetitive rms on-state current  $I_{T(RMS)}$ , versus surge duration, for sinusoidal currents,  $f = 50$  Hz;  $T_{lead} \leq 108^\circ C$ .

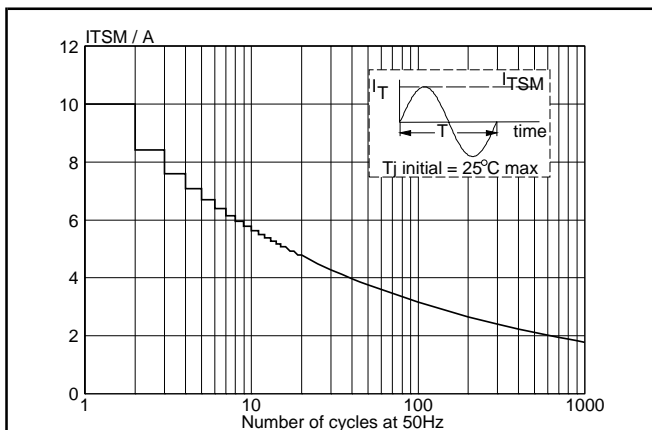


Fig.3. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50$  Hz.

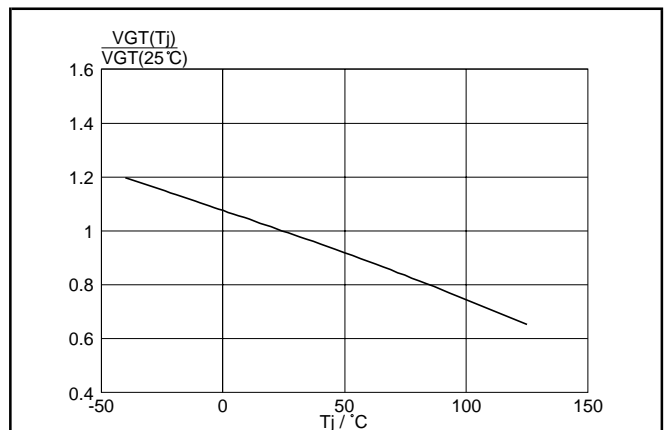
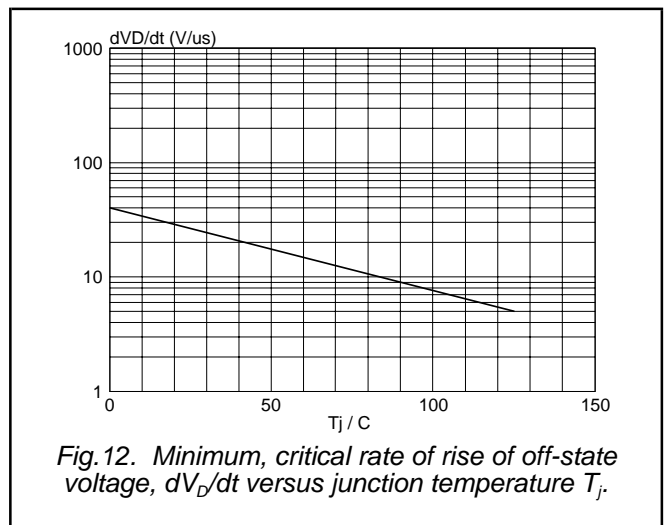
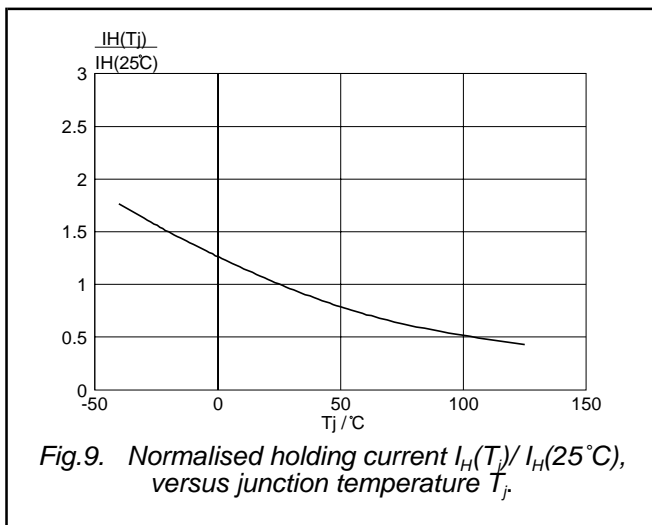
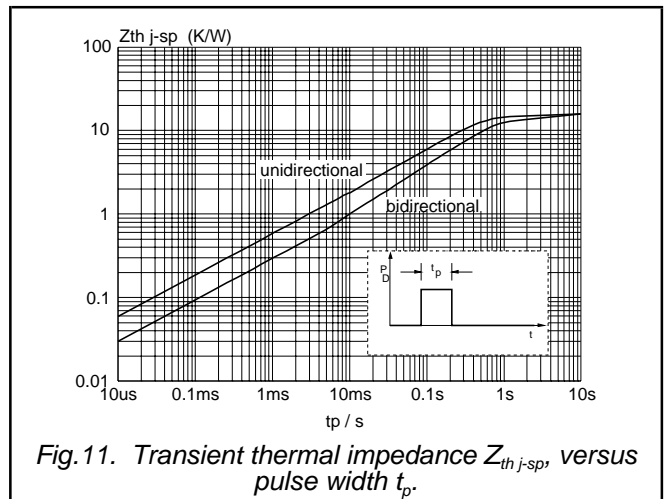
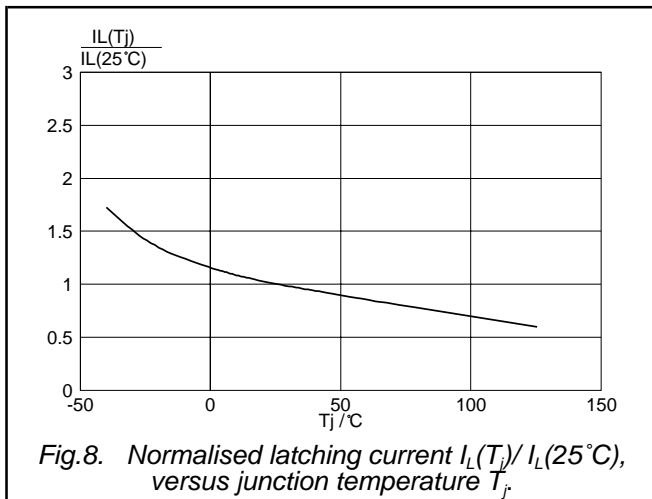
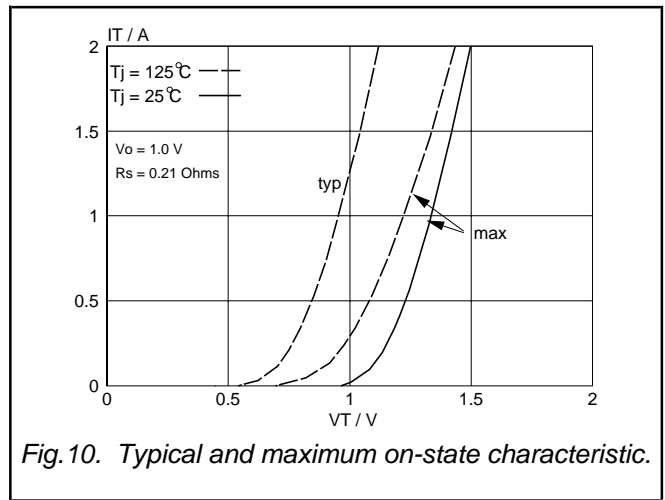
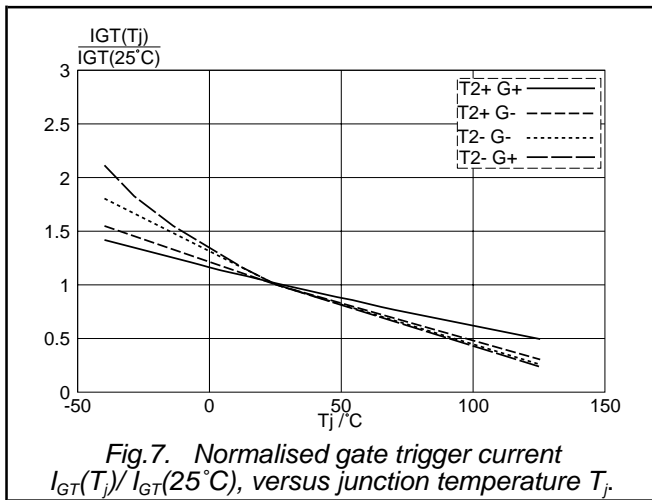


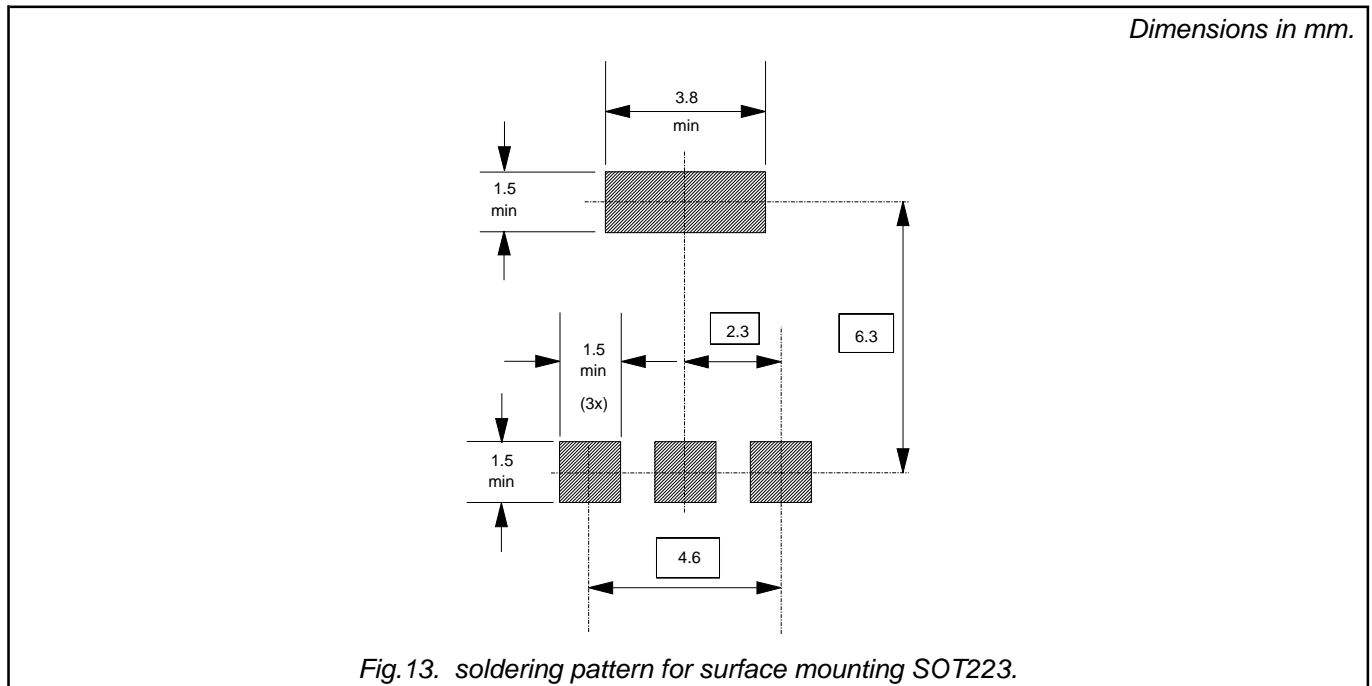
Fig.6. Normalised gate trigger voltage  $V_{GT}(T_j) / V_{GT}(25^\circ C)$ , versus junction temperature  $T_j$ .

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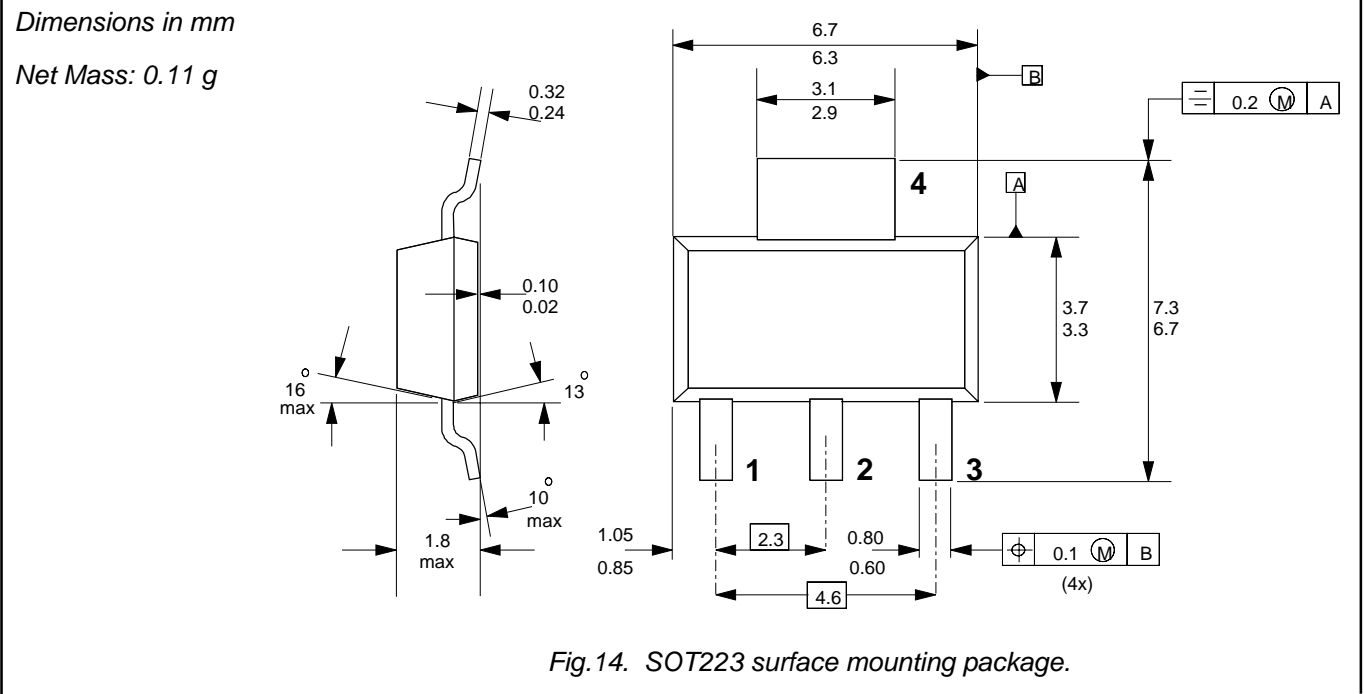
**MOUNTING INSTRUCTIONS**



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**MECHANICAL DATA**



**Notes**

1. For further information, refer to Philips publication SC18 " SMD Footprint Design and Soldering Guidelines".  
Order code: 9397 750 00505.
2. Epoxy meets UL94 V0 at 1/8".

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### DEFINITIONS

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	
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