

## 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.

## Features

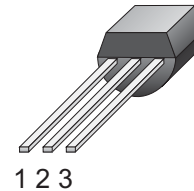
- Blocking voltage to 800 V
- On-state RMS current to 1 A

## Applications

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

## Simplified outline

### TO-92



### Symbol



Pin	Description
1	Main terminal 1 (T1)
2	gate (G)
3	Main terminal 2 (T2)

SYMBOL	PARAMETER	Value	Unit
$V_{DRM}$	Repetitive peak off-state voltages	800	V
$I_T (RMS)$	RMS on-state current	1	A
$I_{TSM}$	Non-repetitive peak on-state current	16	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th j-mb}$	Thermal resistance Junction to mounting base	Full cycle	-	-	60	K/W
		Half cycle	-	-	80	K/W
$R_{th j-a}$	Thermal resistance Junction to ambient	Pcb mounted; lead length=4mm	-	150	-	K/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT	
$V_{DRM}$	Repetitive peak off-state Voltages		-	800	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; $T_j = 25^{\circ}C$	$t = 20ms$	-	16	A
			$t = 16.7ms$	-	17.6	A
$I^2t$	$I^2t$ for fusing	$T = 10ms$	-	1.28	$A^2S$	
$DI_T/dt$	Repetitive rate of rise of on-state current after triggering	$I_{TM} = 1.5A$ ; $I_G = 0.2A$ ; $DI_G/dt = 0.2A/\mu s$				
			T2+G+	-	50	$A/\mu s$
			T2+G-	-	50	$A/\mu s$
			T2-G-	-	50	$A/\mu s$
			T2-G+	-	10	$A/\mu s$
$I_{GM}$	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	
		$V_D = 400V$ ; $I_T = 0.1A$ ; $T_j = 125^{\circ}C$	0.2	0.3	-	V	
$I_D$	Off-state leakage current	$V_D = V_{DRM(max)}$ ; $T_j = 125^{\circ}C$	-	0.1	0.5	mA	

**Dynamic Characteristics**

$D_{VD}/dt$	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	-	$V/\mu s$
$t_{gt}$	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	-	$\mu s$

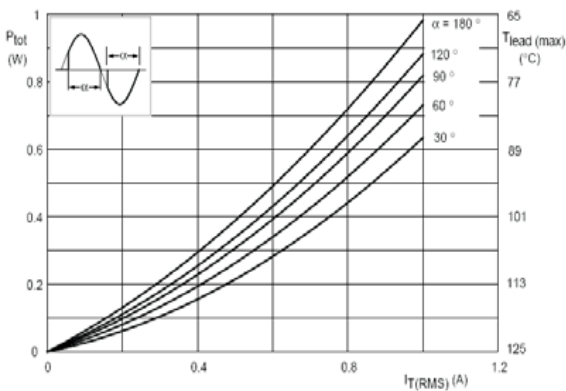
**Description**


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

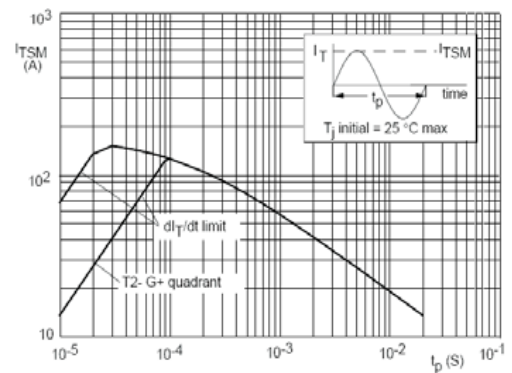


Fig. 2. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus pulse width  $t_p$ , for sinusoidal currents,  $t_p \leq 20ms$ .

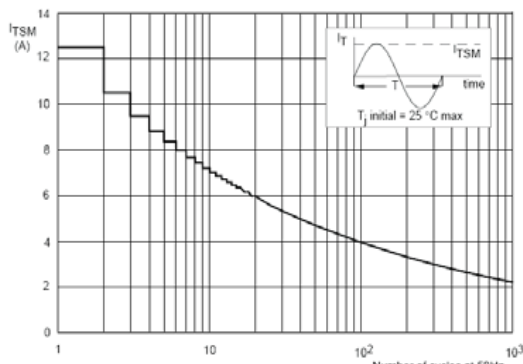


Fig. 3. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50$  Hz.

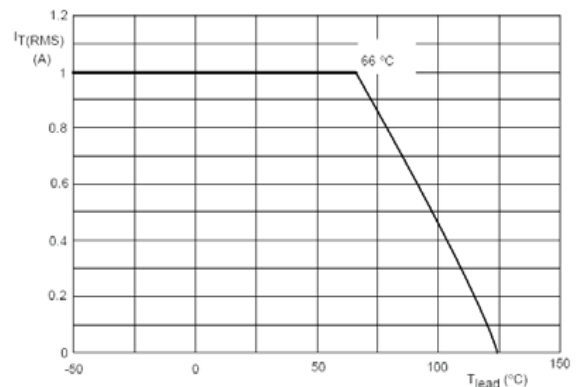


Fig. 4. Maximum permissible rms current  $I_{T(RMS)}$ , versus lead temperature  $T_{lead}$ .

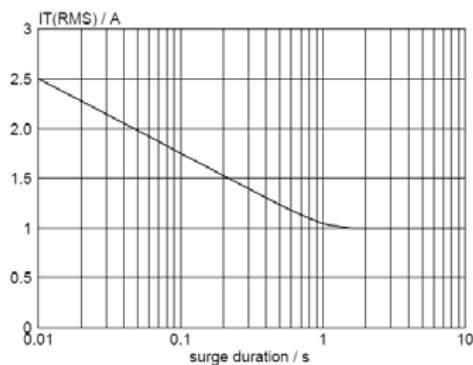


Fig. 5. Maximum permissible repetitive rms on-state current  $I_{T(RMS)}$ , versus surge duration, for sinusoidal currents,  $f = 50$  Hz;  $T_{lead} \leq 66^\circ C$ .

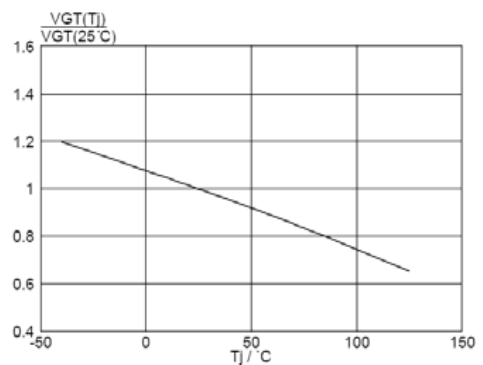


Fig. 6. Normalised gate trigger voltage  $V_{GT}(T)/V_{GT}(25^\circ C)$ , versus junction temperature  $T_J$ .

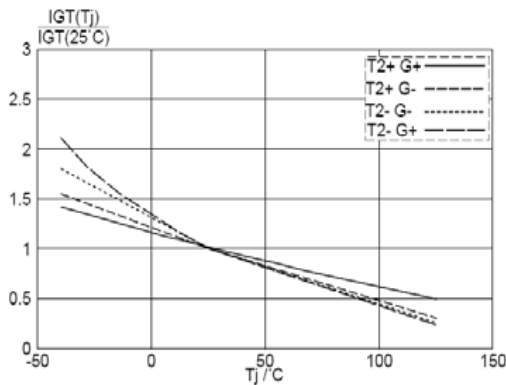
**Description**


Fig. 7. Normalised gate trigger current  $I_{GT}(T_j)/I_{GT}(25^\circ\text{C})$ , versus junction temperature  $T_j$ .

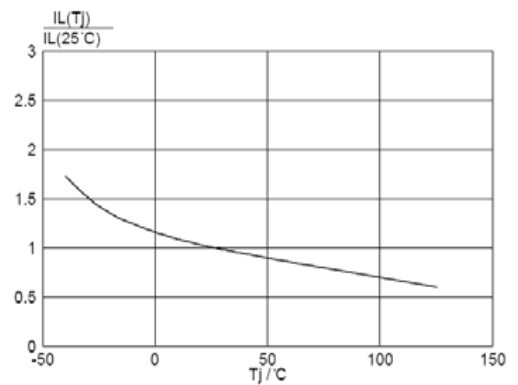


Fig. 8. Normalised latching current  $I_L(T_j)/I_L(25^\circ\text{C})$ , versus junction temperature  $T_j$ .

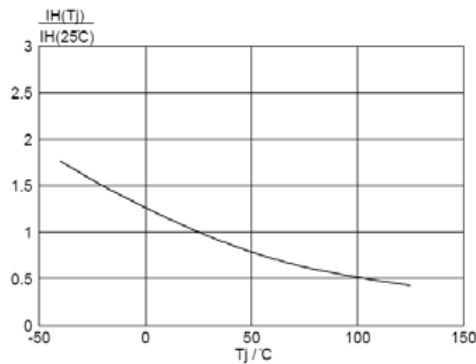


Fig. 9. Normalised holding current  $I_H(T_j)/I_H(25^\circ\text{C})$ , versus junction temperature  $T_j$ .

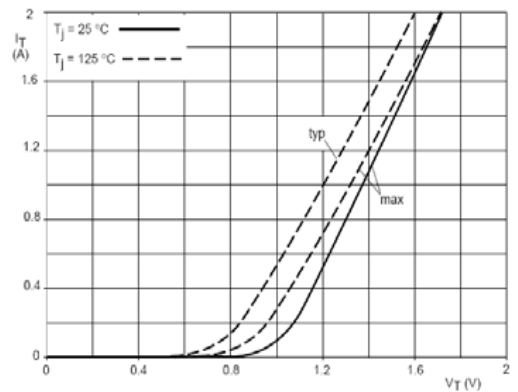


Fig. 10. Typical and maximum on-state characteristic.

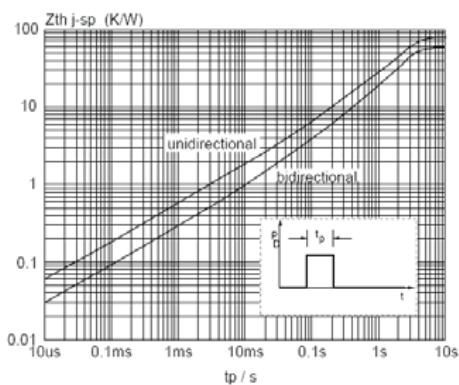


Fig. 11. Transient thermal impedance  $Z_{th(j-sp)}$  versus pulse width  $t_p$ .

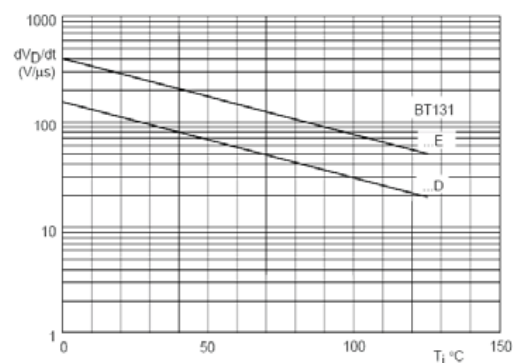
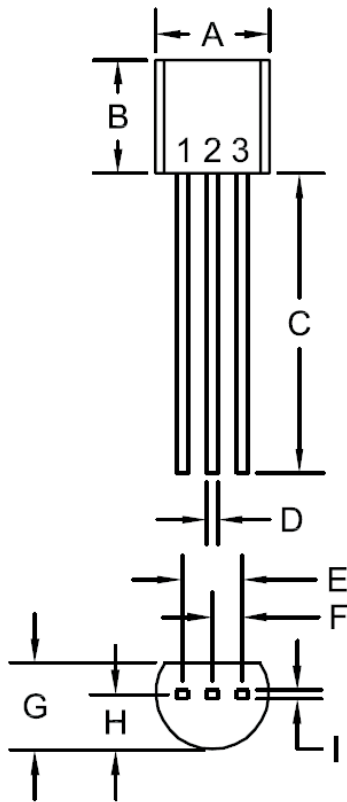


Fig. 12. Minimum, critical rate of rise of off-state voltage,  $dV_D/dt$  versus junction temperature  $T_j$ .

**Mechanical Data**

Dimensions in mm

Net Mass:0.2 g

**TO-92**


DIMENSIONS				
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	