

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

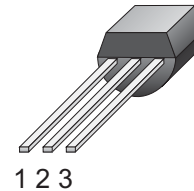
- Blocking voltage to 800 V
- On-state RMS current to 1 A

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	-	μs

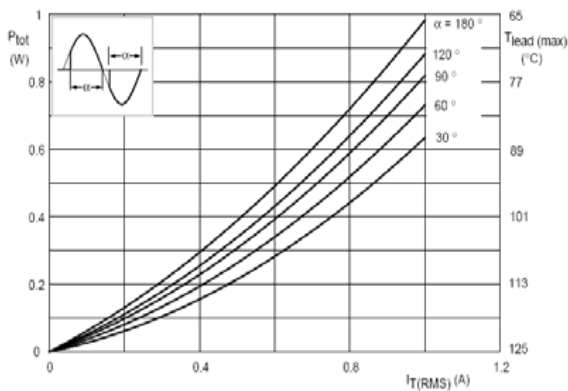
Description


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

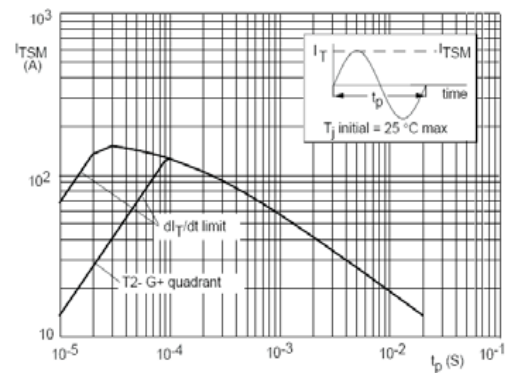


Fig. 2. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus pulse width t_p , for sinusoidal currents, $t_p \leq 20ms$.

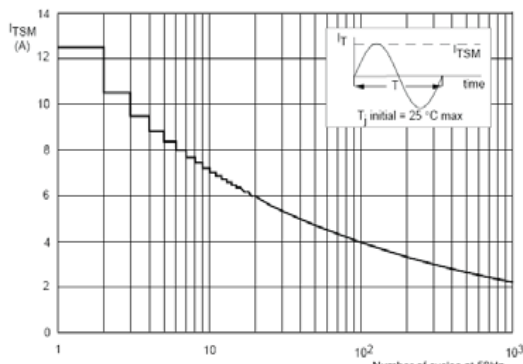


Fig. 3. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f = 50$ Hz.

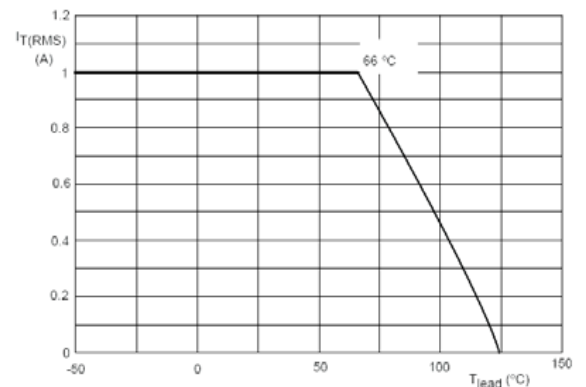


Fig. 4. Maximum permissible rms current $I_{T(RMS)}$, versus lead temperature T_{lead} .

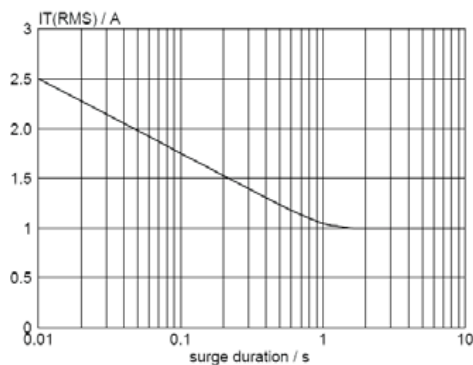


Fig. 5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f = 50$ Hz; $T_{lead} \leq 66^\circ C$.

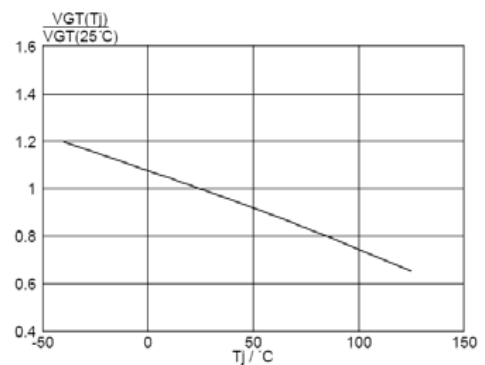


Fig. 6. Normalised gate trigger voltage $V_{GT}(T_J)/V_{GT}(25^\circ C)$, versus junction temperature T_J .

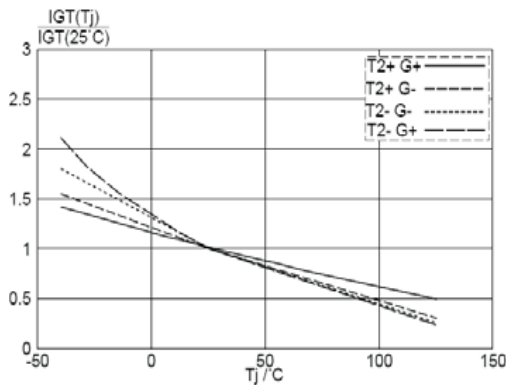
Description


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

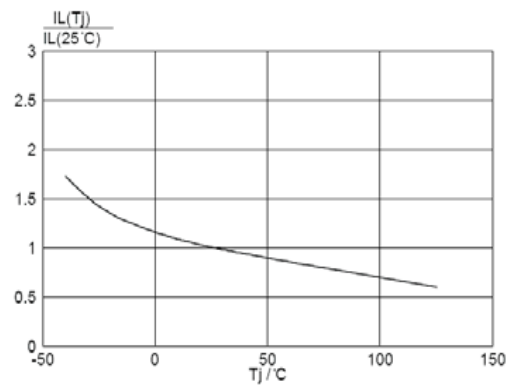


Fig. 8. Normalised latching current $I_L(T_j)/I_L(25^\circ\text{C})$, versus junction temperature T_j .

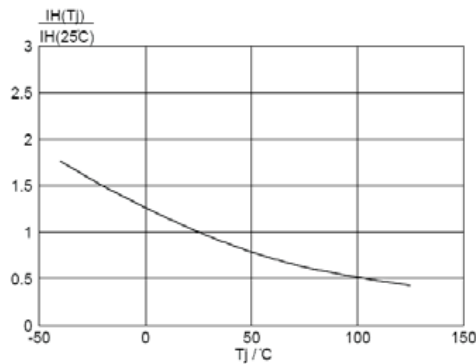


Fig. 9. Normalised holding current $I_H(T_j)/I_H(25^\circ\text{C})$, versus junction temperature T_j .

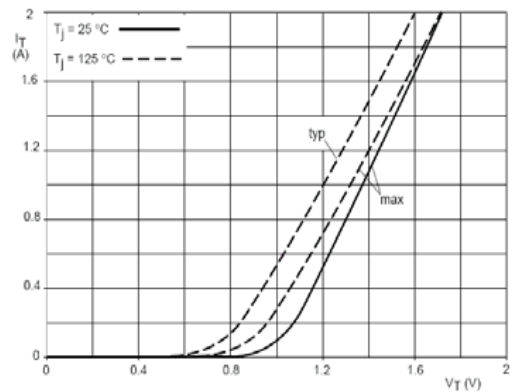


Fig. 10. Typical and maximum on-state characteristic.

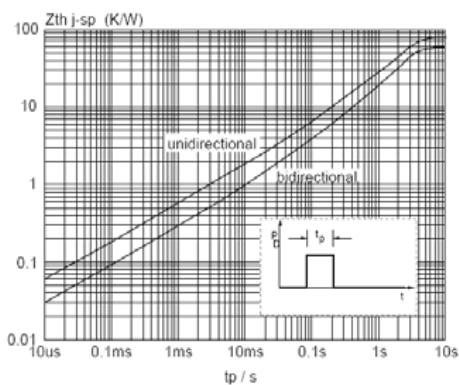


Fig. 11. Transient thermal impedance $Z_{th(j-sp)}$ versus pulse width t_p .

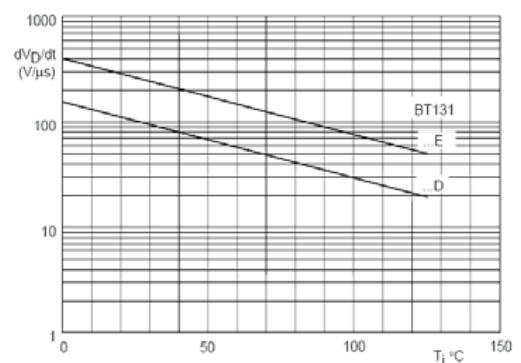
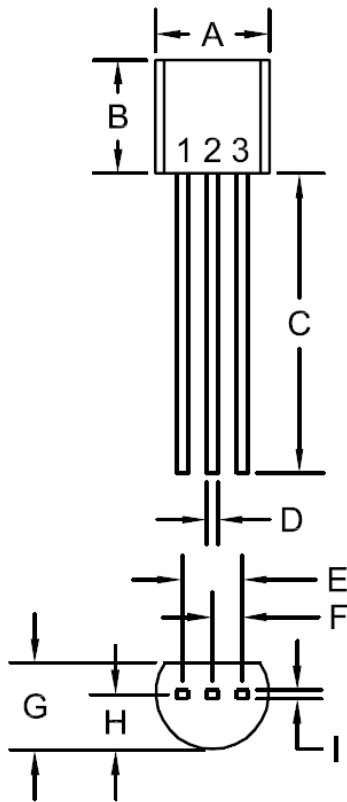


Fig. 12. Minimum, critical rate of rise of off-state voltage, dV_D/dt versus junction temperature T_j .

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	