

DATA SHEET

BT134 series Triacs

Product specification

August 1997



Triacs

BT134 series

GENERAL DESCRIPTION

Glass passivated triacs in a plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.

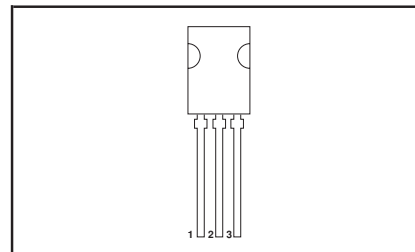
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{DRM}	Repetitive peak off-state voltages	BT134-500F 500	600 600F 600	800 800F 800G 800	V
$I_{T(RMS)}$	RMS on-state current	4	4	4	A
I_{TSM}	Non-repetitive peak on-state current	25	25	25	A

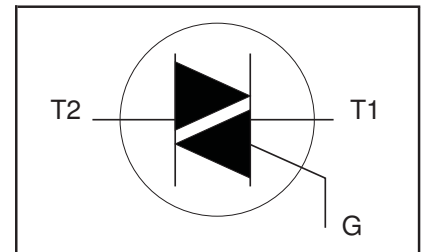
PINNING - SOT82

PIN	DESCRIPTION
1	main terminal 1
2	main terminal 2
3	gate
tab	main terminal 2

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-500 500 ¹	-600 600 ¹	-800 800	
V_{DRM}	Repetitive peak off-state voltages		-				V
$I_{T(RMS)}$	RMS on-state current	full sine wave; $T_{mb} \leq 107^\circ\text{C}$	-	4			A
I_{TSM}	Non-repetitive peak on-state current	full sine wave; $T_j = 25^\circ\text{C}$ prior to surge $t = 20\text{ ms}$	-	25			A
		$t = 16.7\text{ ms}$	-	27			A
I^2t	I^2t for fusing	$t = 10\text{ ms}$	-	3.1			A ² s
dI_T/dt	Repetitive rate of rise of on-state current after triggering	$I_{TM} = 6\text{ A}$; $I_G = 0.2\text{ A}$; $dI_G/dt = 0.2\text{ A}/\mu\text{s}$					
		T2+ G+	-	50			A/ μs
		T2+ G-	-	50			A/ μs
		T2- G-	-	50			A/ μs
		T2- G+	-	10			A/ μs
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			$^\circ\text{C}$
T_j	Operating junction temperature		-	125			$^\circ\text{C}$

¹ 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 RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	full cycle	-	-	3.0	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	half cycle in free air	-	-	3.7	K/W
			-	100	-	K/W

STATIC CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.			UNIT
I_{GT}	Gate trigger current	BT134- $V_D = 12\text{ V}; I_T = 0.1\text{ A}$		F	...G	
		T2+ G+	-	5	35	25	50	mA
		T2+ G-	-	8	35	25	50	mA
		T2- G-	-	11	35	25	50	mA
I_L	Latching current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$						
		T2- G+	-	30	70	70	100	mA
		T2+ G+	-	7	20	20	30	mA
		T2+ G-	-	16	30	30	45	mA
I_H	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$						
		T2- G-	-	5	20	20	30	mA
		T2- G+	-	7	30	30	45	mA
			-	5	15	15	30	mA
V_T	On-state voltage	$I_T = 5\text{ A}$	-	1.4	1.70			V
V_{GT}	Gate trigger voltage	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	0.7	1.5			V
		$V_D = 400\text{ V}; I_T = 0.1\text{ A}; T_j = 125\text{ °C}$	0.25	0.4	-			V
I_D	Off-state leakage current	$V_D = V_{DRM(max)}; T_j = 125\text{ °C}$	-	0.1	0.5			mA

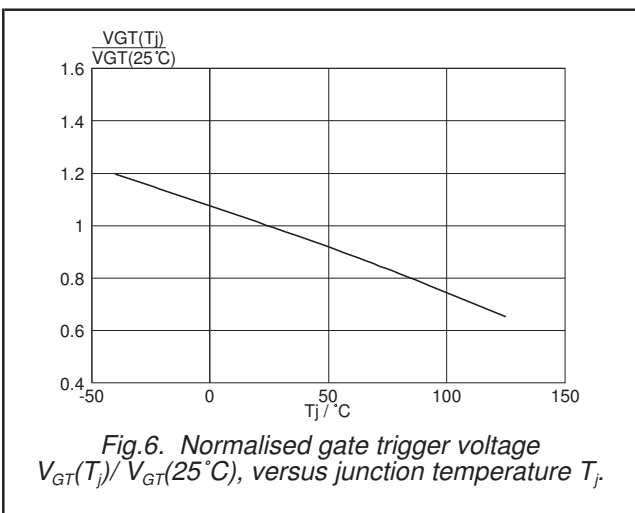
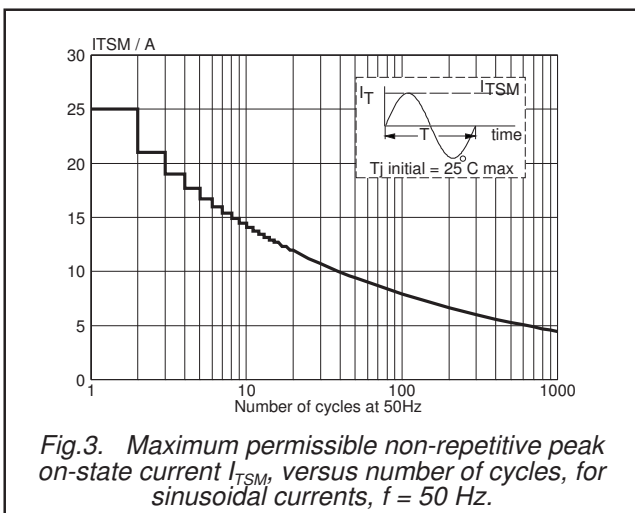
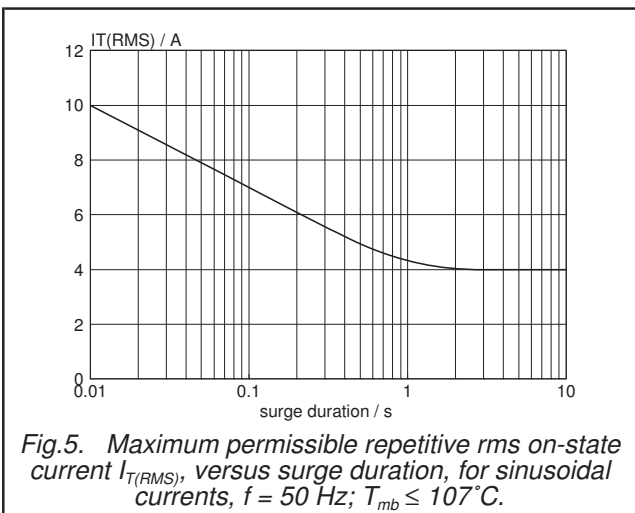
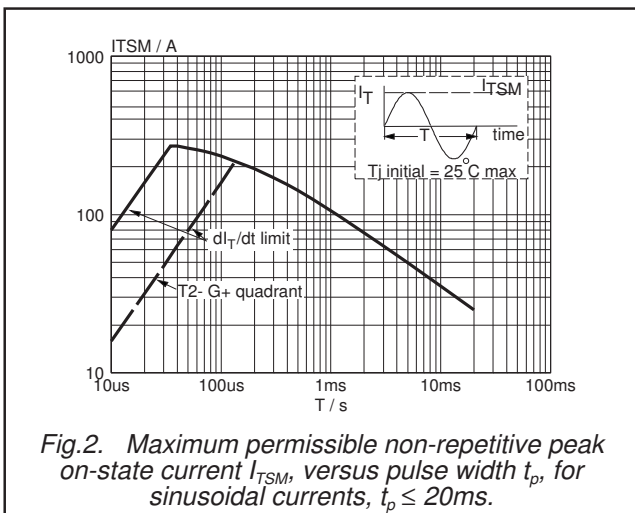
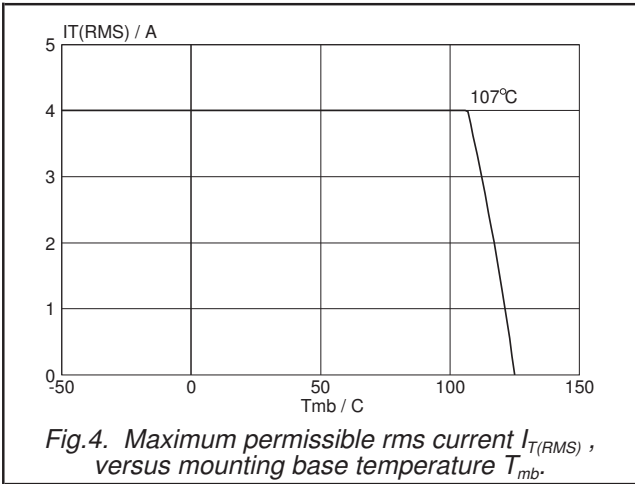
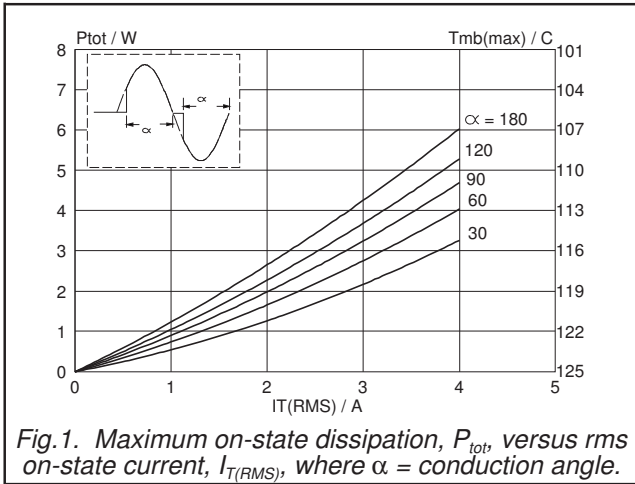
DYNAMIC CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.			TYP.	MAX.	UNIT
dV_D/dt	Critical rate of rise of off-state voltage	BT134- $V_{DM} = 67\% V_{DRM(max)}; T_j = 125\text{ °C};$ exponential waveform; gate open circuit	100	50	200	250	-	V/ μ s
dV_{com}/dt	Critical rate of change of commutating voltage	$V_{DM} = 400\text{ V}; T_j = 95\text{ °C}; I_{T(RMS)} = 4\text{ A}; dI_{com}/dt = 1.8\text{ A/ms};$ gate open circuit	-	-	10	50	-	V/ μ s
t_{gt}	Gate controlled turn-on time	$I_{TM} = 6\text{ A}; V_D = V_{DRM(max)}; I_G = 0.1\text{ A}; dI_G/dt = 5\text{ A}/\mu\text{s};$	-	-	-	2	-	μ s

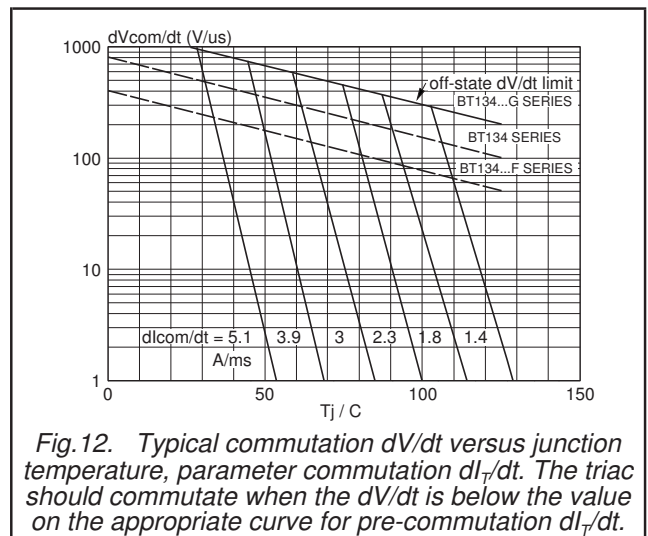
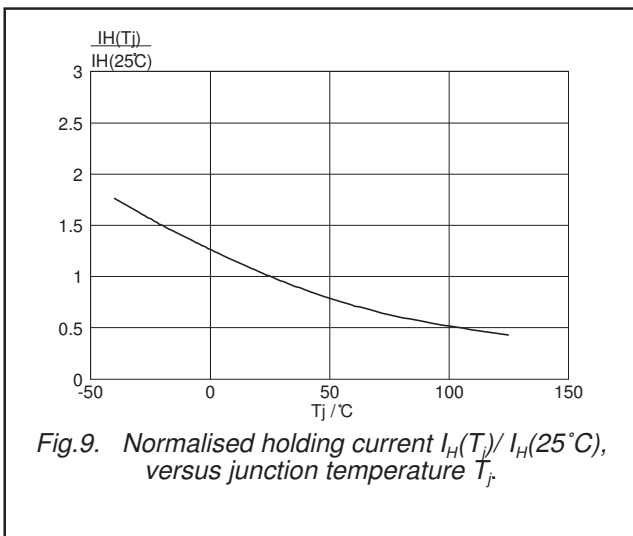
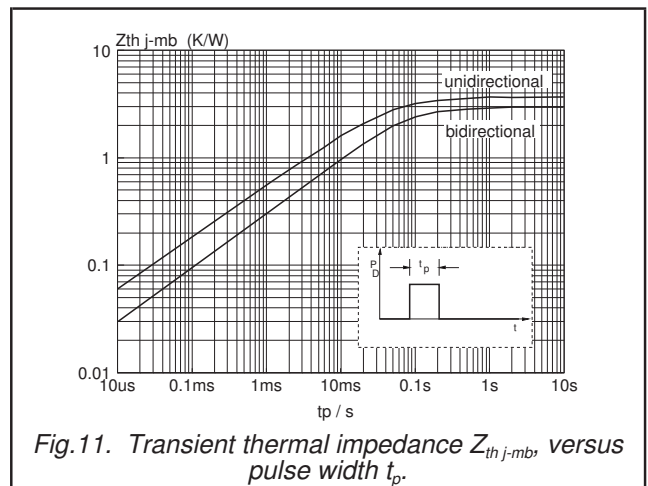
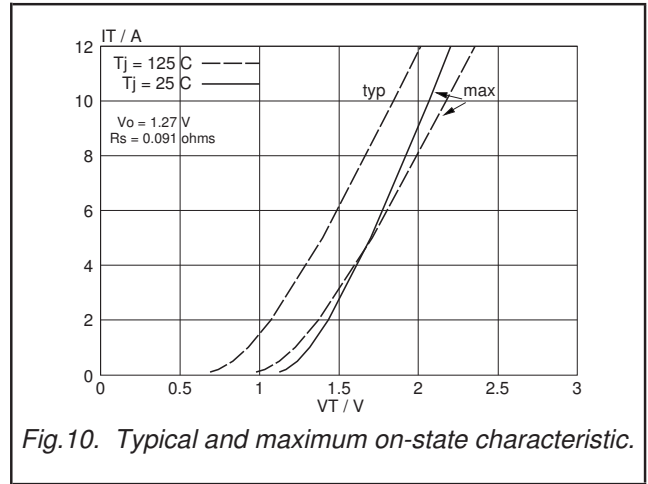
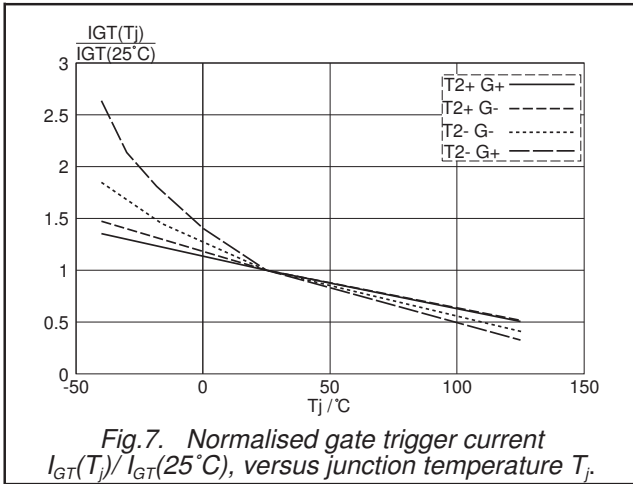
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MECHANICAL DATA

Dimensions in mm

Net Mass: 0.8 g

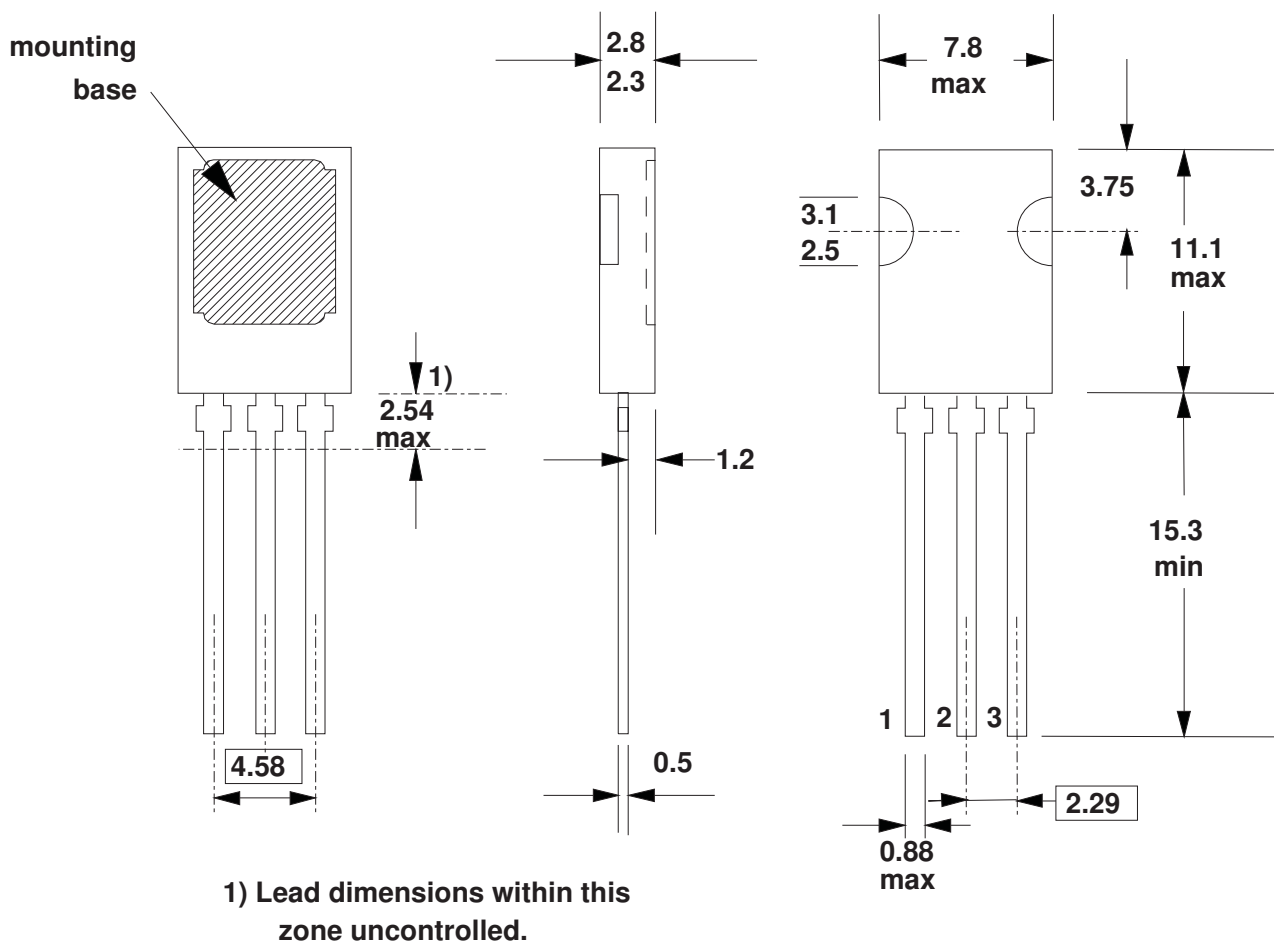


Fig.13. SOT82; pin 2 connected to mounting base.

Notes

1. Refer to mounting instructions for SOT82 envelopes.
2. Epoxy meets UL94 V0 at 1/8".

Legal information

DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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