

# Triacs sensitive gate

## BT134 series E

### GENERAL DESCRIPTION

Glass 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.

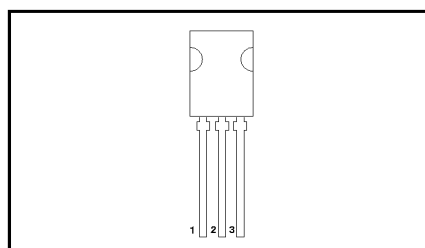
### QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
$V_{DRM}$	Repetitive peak off-state voltages	500E 500	600E 600	800E 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

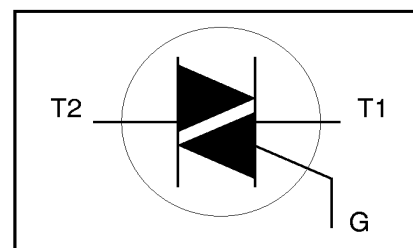
### PINNING - SOT82

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 <sup>1</sup>	-600 600 <sup>1</sup>	-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 <sup>2</sup> 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/ $\mu\text{s}$
		T2+ G-	-	50			A/ $\mu\text{s}$
		T2- G-	-	50			A/ $\mu\text{s}$
		T2- G+	-	10			A/ $\mu\text{s}$
$I_{GM}$	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			$^\circ\text{C}$
$T_j$	Operating junction temperature		-	125			$^\circ\text{C}$

<sup>1</sup> 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/ $\mu\text{s}$ .

Triacs  
sensitive gate

BT134 series E

**THERMAL RESISTANCES**

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\text{-}j\text{-}mb}$	Thermal resistance junction to mounting base	full cycle	-	-	3.0	K/W
$R_{th\text{-}j\text{-}a}$	Thermal resistance junction to ambient	half cycle in free air	-	100	3.7	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	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	2.5	10	mA
		T2+ G+	-	4.0	10	mA
		T2+ G-	-	5.0	10	mA
		T2- G-	-	11	25	mA
		T2- G+	-			
$I_L$	Latching current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	3.0	15	mA
		T2+ G+	-	10	20	mA
		T2+ G-	-	2.5	15	mA
		T2- G-	-	4.0	20	mA
		T2- G+	-			
$I_H$	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	2.2	15	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
		$V_D = 400\text{ V}; I_T = 0.1\text{ A}; T_j = 125\text{ }^\circ\text{C}$	0.25	0.4	-	V
$I_D$	Off-state leakage current	$V_D = V_{DRM(max)}; T_j = 125\text{ }^\circ\text{C}$	-	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; gate open circuit	-	50	-	V/ $\mu\text{s}$
$t_{gt}$	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	-	$\mu\text{s}$

Triacs  
sensitive gate

BT134 series E

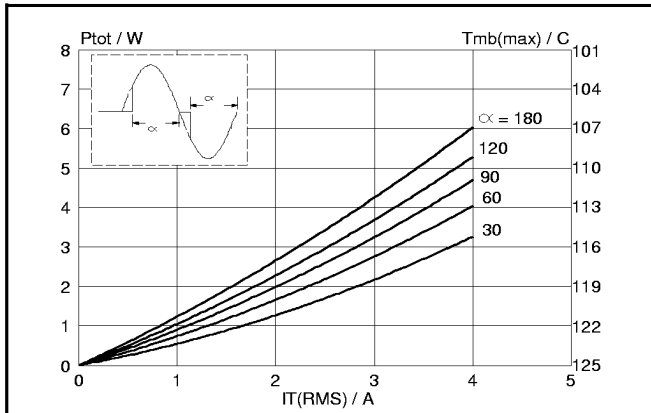


Fig.1. Maximum on-state dissipation,  $P_{tot}$  versus rms on-state current,  $I_{T(RMS)}$ , where  $\alpha$  = conduction angle.

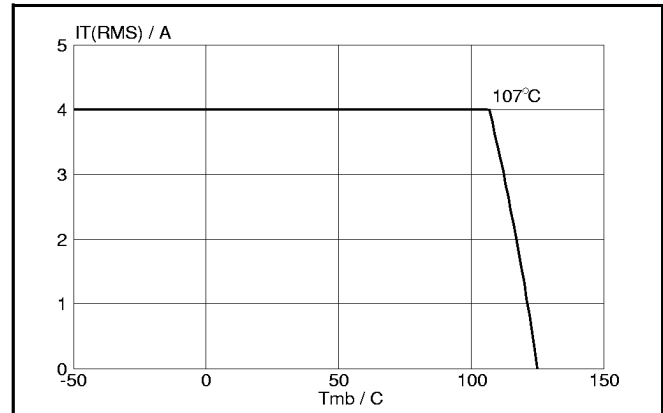


Fig.4. Maximum permissible rms current  $I_{T(RMS)}$ , versus mounting base temperature  $T_{mb}$ .

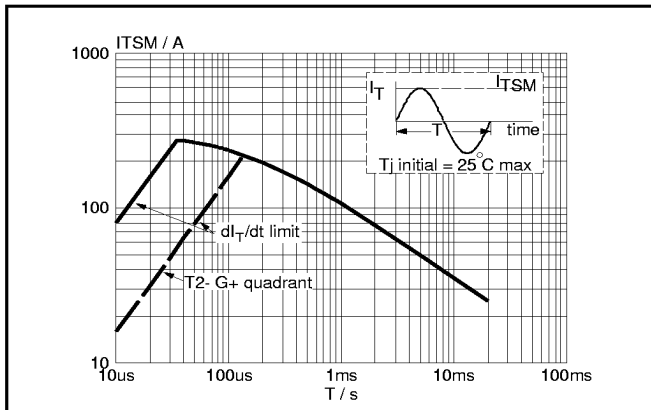


Fig.2. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus pulse width  $t_p$ , for sinusoidal currents,  $t_p \leq 20ms$ .

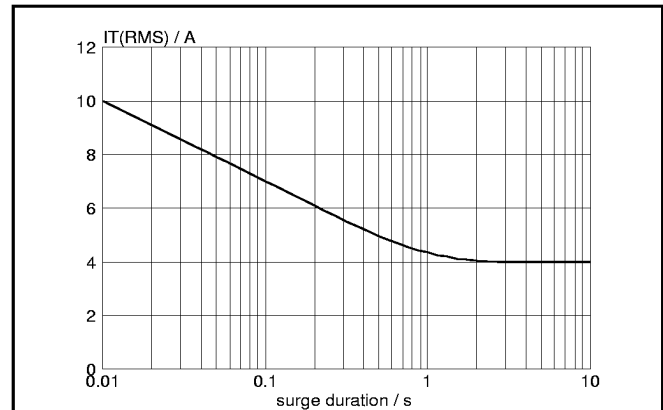


Fig.5. Maximum permissible repetitive rms on-state current  $I_{T(RMS)}$ , versus surge duration, for sinusoidal currents,  $f = 50$  Hz;  $T_{mb} \leq 107^\circ\text{C}$ .

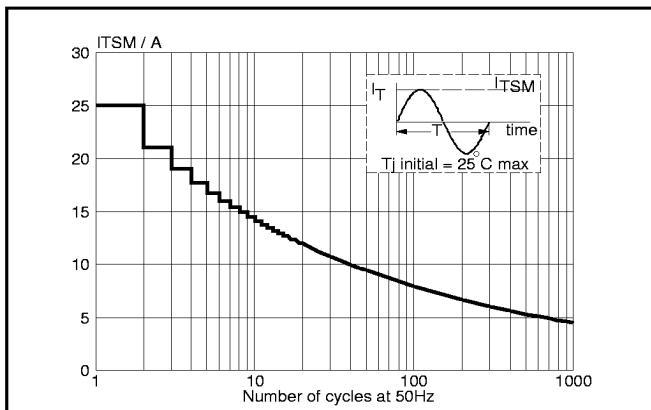


Fig.3. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50$  Hz.

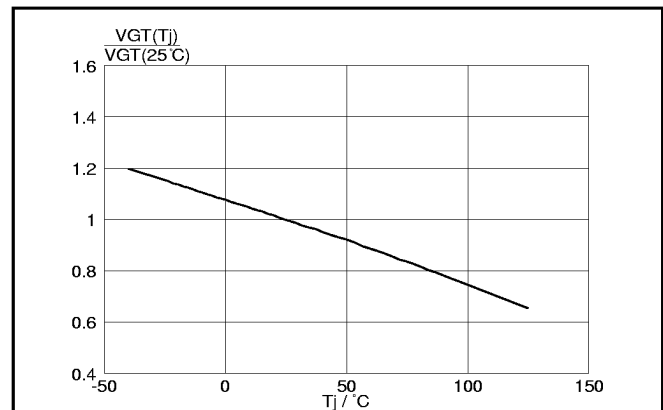
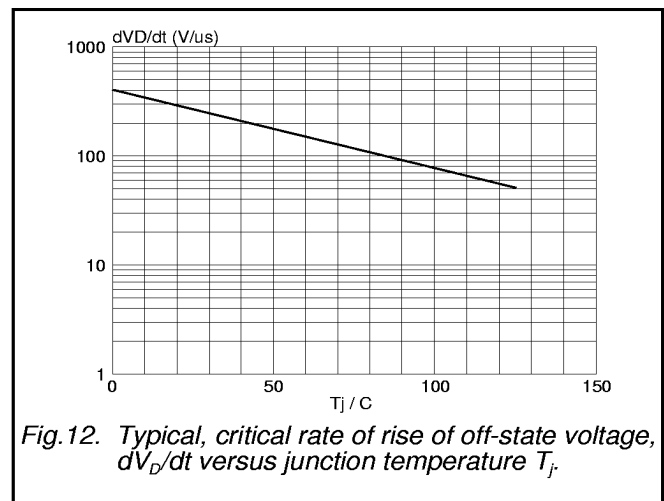
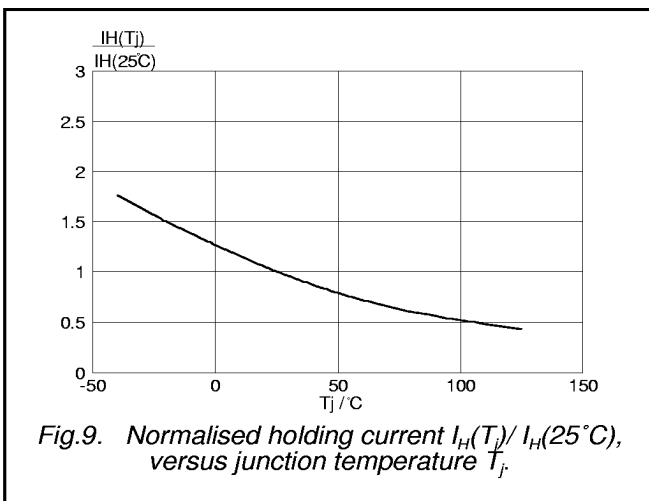
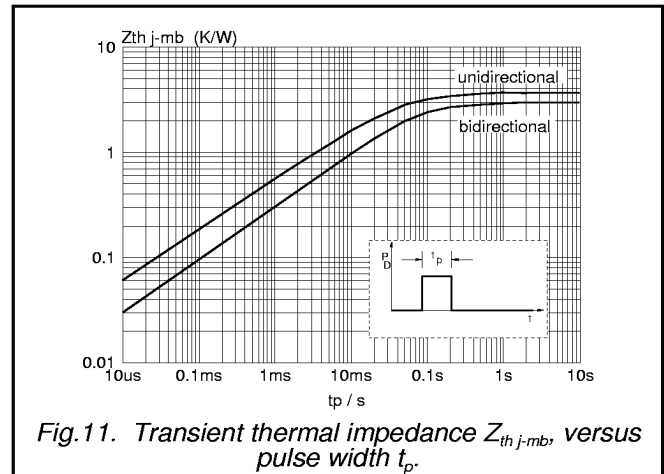
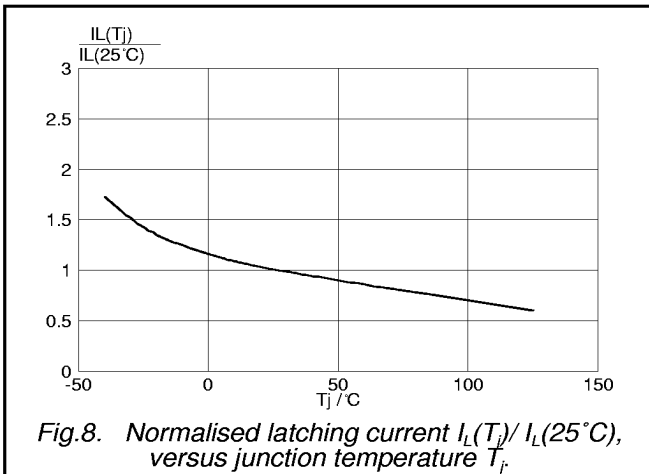
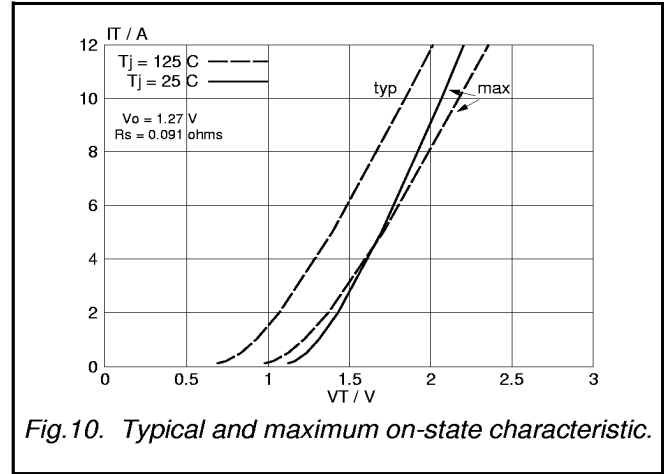
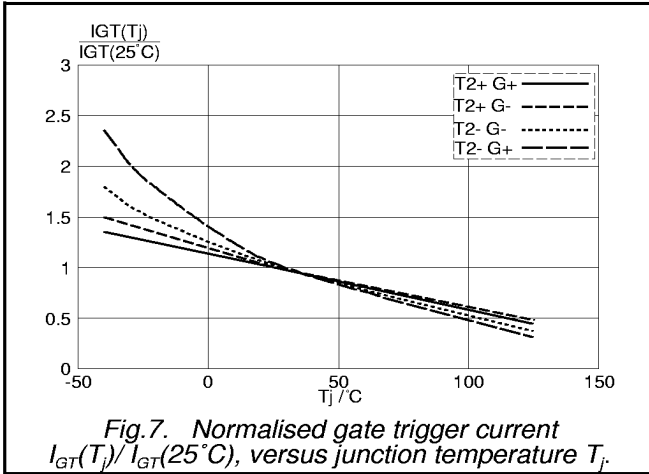


Fig.6. Normalised gate trigger voltage  $V_{GT}(T_j) / V_{GT}(25^\circ\text{C})$ , versus junction temperature  $T_j$ .

Triacs  
sensitive gate

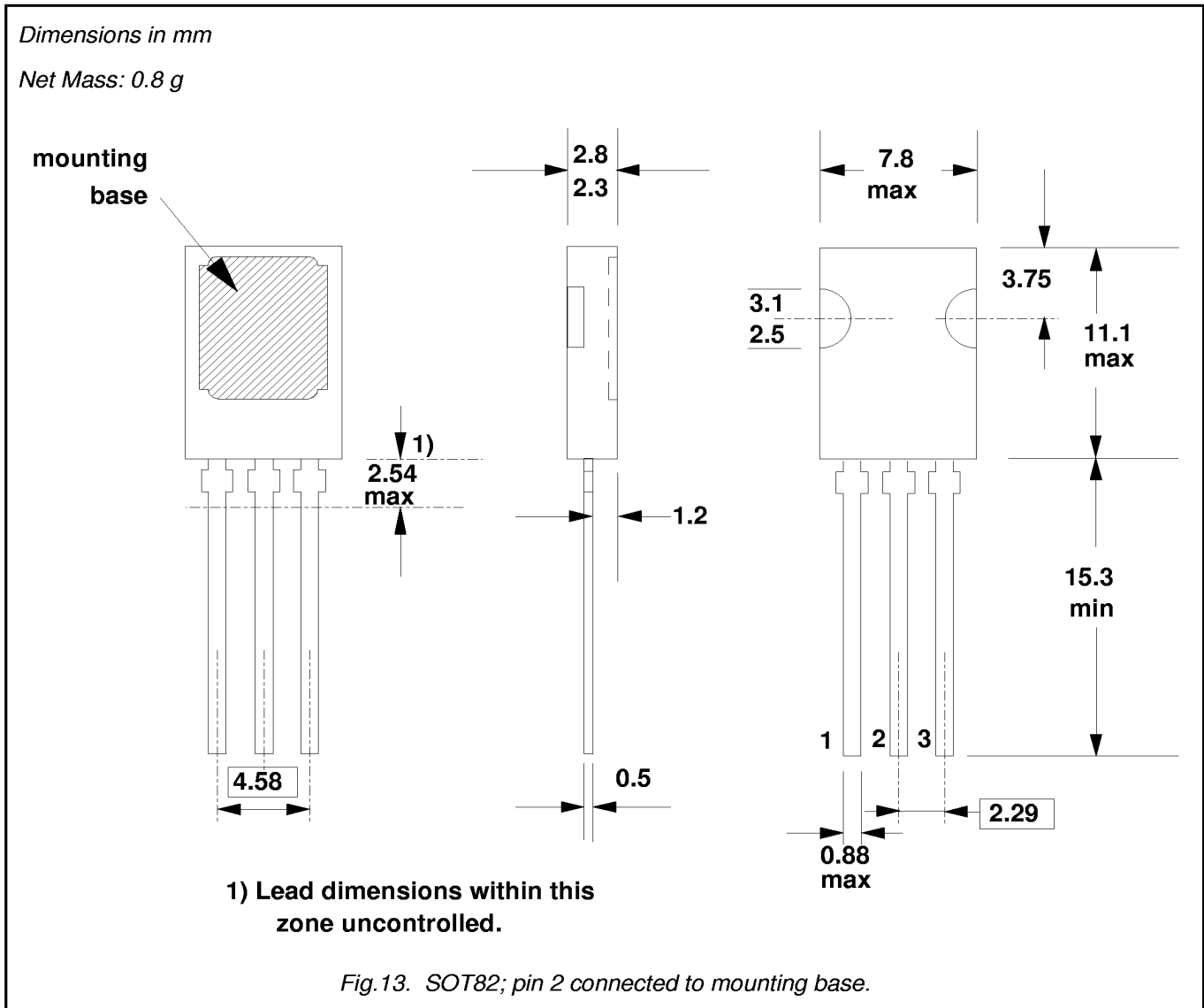
BT134 series E



Triacs  
sensitive gate

BT134 series E

**MECHANICAL DATA**



**Notes**

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