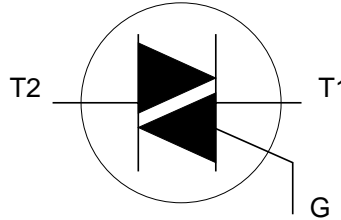


GENERAL DESCRIPTION

Glass passivated triacs in a plastic envelope, suitable for surface mounting, 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.

SYMBOL

SOT428
TO-252

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{DRM}	BT137S (or BT137M)-	500	600	800	V
	BT137S (or BT137M)-	500F	600F	800F	
	BT137S (or BT137M)-	500G	600G	800G	
	Repetitive peak off-state voltages	500	600	800	
$I_{T(RMS)}$	RMS on-state current	8	8	8	A
I_{TSM}	Non-repetitive peak on-state current	65	65	65	A

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-500	-600	-800	
V_{DRM}	Repetitive peak off-state voltages		-	500 ¹	600 ¹	800	V
$I_{T(RMS)}$	RMS on-state current	full sine wave; $T_{mb} \leq 102^\circ\text{C}$	-	8			A
I_{TSM}	Non-repetitive peak on-state current	full sine wave; $T_j = 25^\circ\text{C}$ prior to surge $t = 20\text{ ms}$	-	65			A
		$t = 16.7\text{ ms}$	-	71			A
I^2t	I^2t for fusing	$t = 10\text{ ms}$	-	21			A ² s
di_t/dt	Repetitive rate of rise of on-state current after triggering	$I_{TM} = 12\text{ A}$; $I_G = 0.2\text{ A}$; $di_G/dt = 0.2\text{ A}/\mu\text{s}$					
		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 6 A/ μs .

THERMAL RESISTANCES

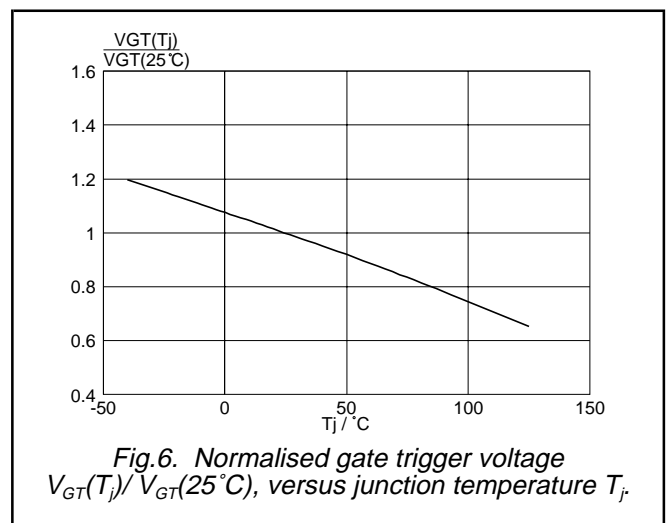
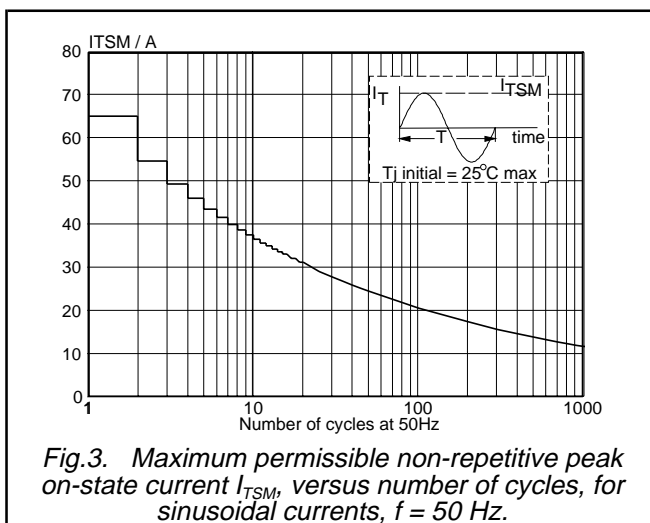
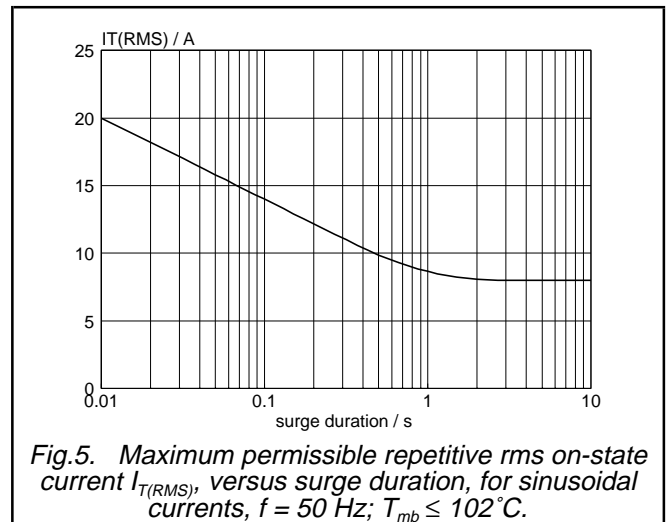
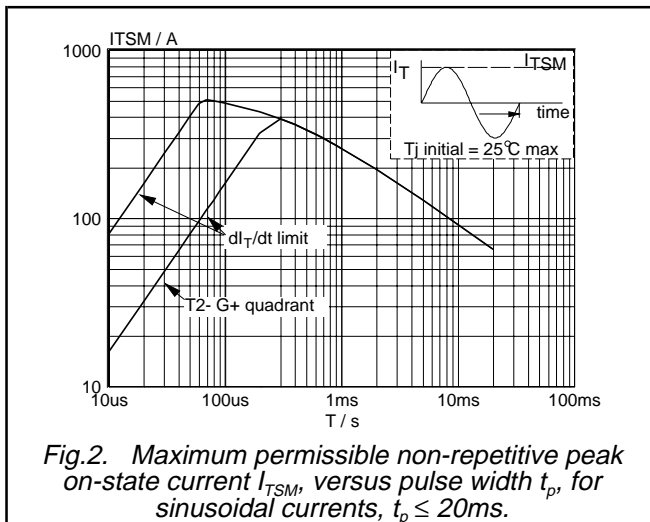
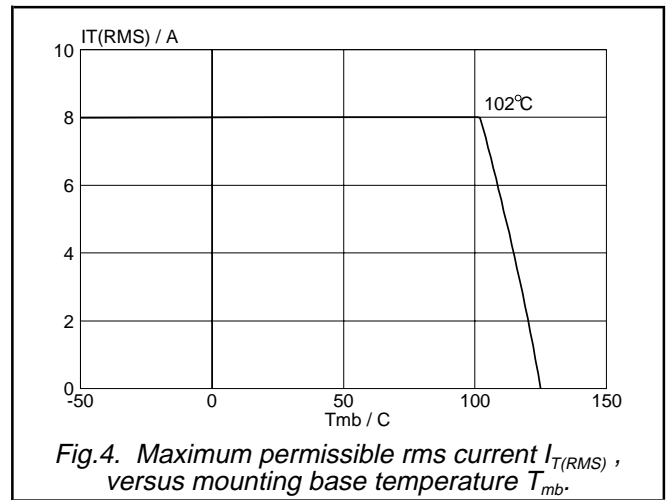
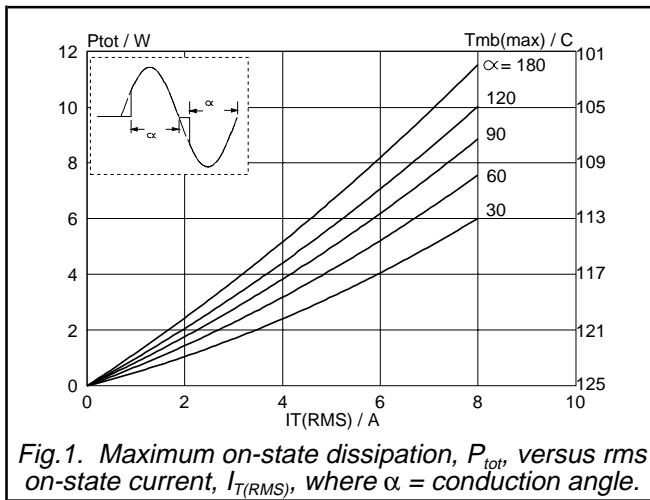
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	full cycle	-	-	2.0	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	half cycle pcb (FR4) mounted; footprint as in Fig.14	-	75	2.4	K/W

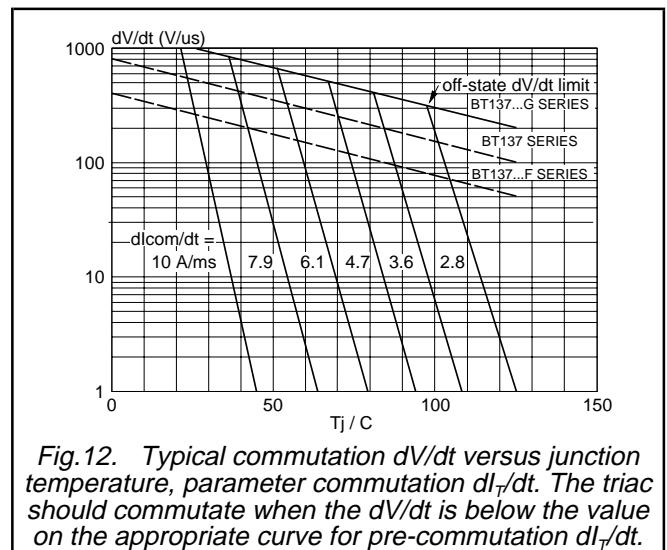
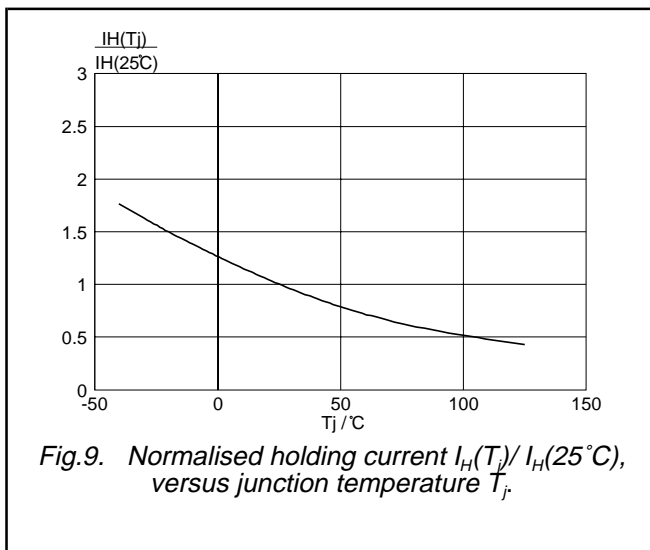
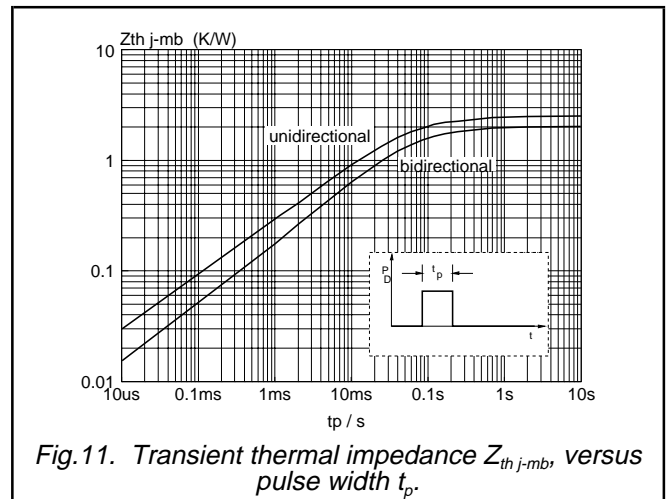
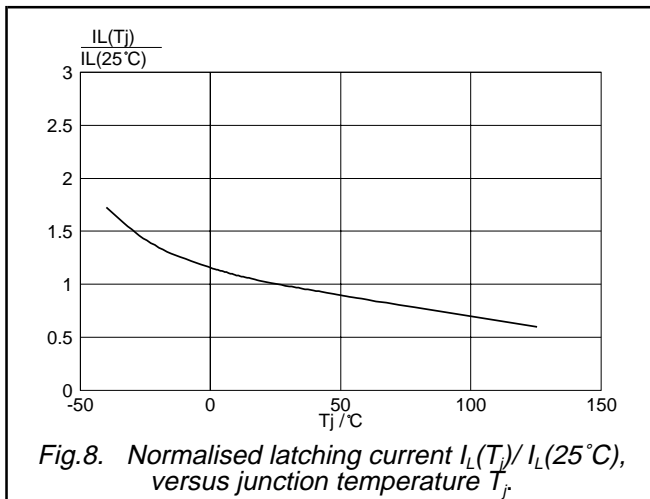
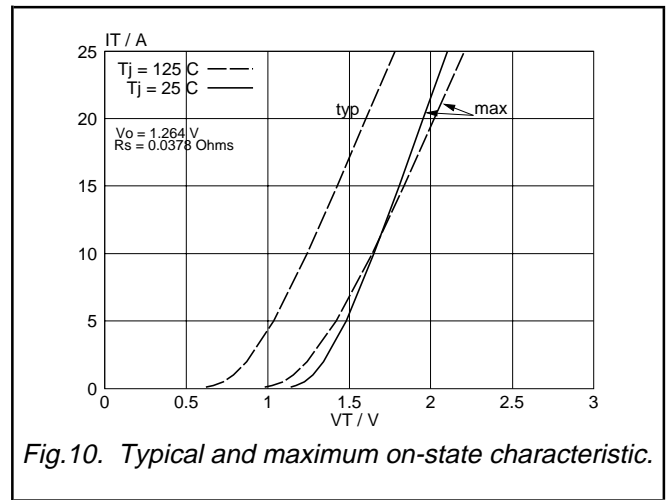
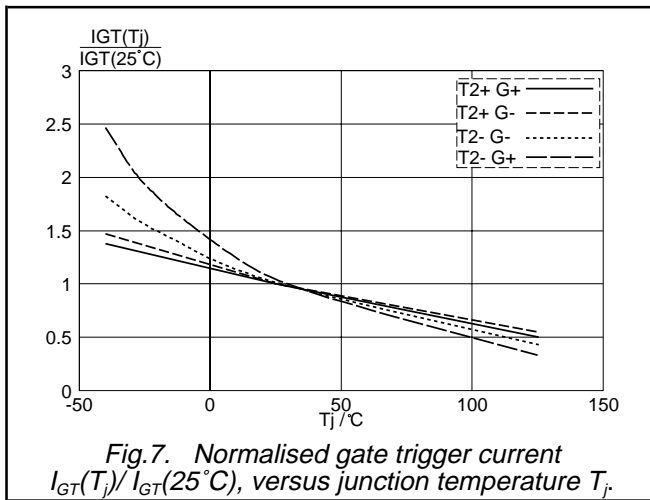
STATIC CHARACTERISTICS
 $T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.			UNIT
I_{GT}	Gate trigger current	BT137S -(or BT137M) $V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	-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	30	30	45	mA
		T2+ G-	-	16	45	45	60	mA
I_H	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	-	-	-	-	
		T2- G-	-	5	30	30	45	mA
		T2- G+	-	7	45	45	60	mA
			-	5	20	20	40	mA
V_T	On-state voltage	$I_T = 10\text{ A}$	-	1.3	1.65			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

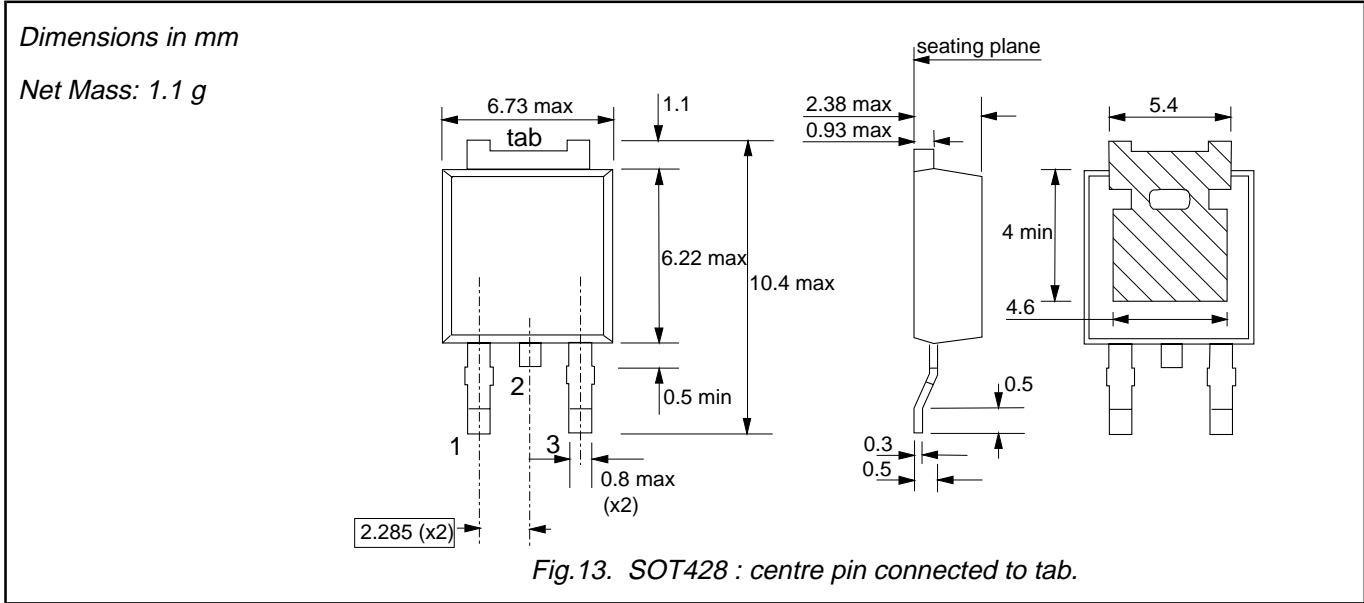
DYNAMIC CHARACTERISTICS
 $T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.			TYP.	MAX.	UNIT
dV_D/dt	Critical rate of rise of off-state voltage	BT137S -(or BT137M) $V_{DM} = 67\% V_{DRM(max)};$ $T_j = 125\text{ }^\circ\text{C};$ exponential waveform; gate open circuitF	...G	250	-	V/ μs
dV_{com}/dt	Critical rate of change of commutating voltage	$V_{DM} = 400\text{ V}; T_j = 95\text{ }^\circ\text{C};$ $I_{T(RMS)} = 8\text{ A};$ $dl_{com}/dt = 3.6\text{ A/ms};$ gate open circuit	-	-	10	20	-	V/ μs
t_{gt}	Gate controlled turn-on time	$I_{TM} = 12\text{ A}; V_D = V_{DRM(max)};$ $I_G = 0.1\text{ A}; dl_G/dt = 5\text{ A}/\mu\text{s}$	-	-	-	2	-	μs

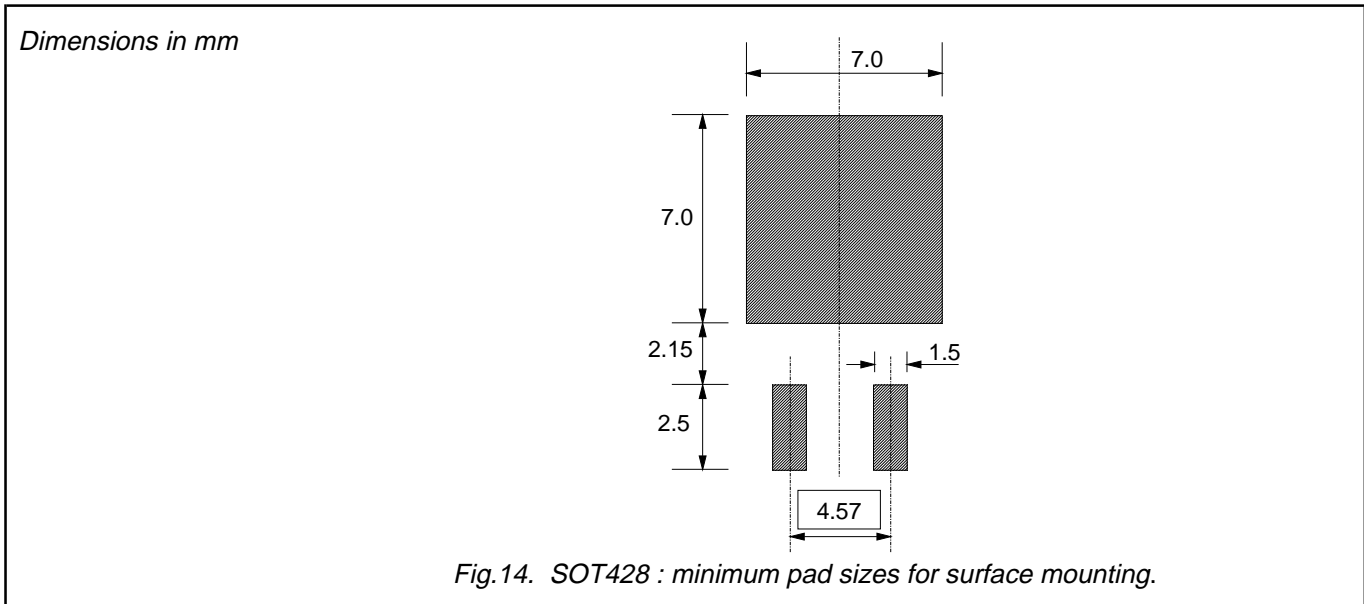




MECHANICAL DATA



MOUNTING INSTRUCTIONS



Notes

1. Plastic meets UL94 V0 at 1/8".