

Triac

BT139 series H

GENERAL DESCRIPTION

Glass passivated 16 A triacs intended for use in applications requiring high noise immunity, high bidirectional blocking voltage capability and high thermal cycling performance with very low thermal resistances. E.g. AC power control applications such as motor, industrial lighting, industrial and domestic heating control and static switching systems.

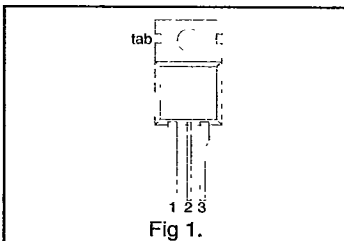
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	MAX.	UNIT
	BT139-	500H	600H	700H	800H	
V_{DRM}	Repetitive peak voltages	500	600	700	800	V
$I_{TR(RMS)}$	R.M.S. on state current	16	16	16	16	A
I_{TSM}	Non-repetitive on-state current	140	140	140	140	A

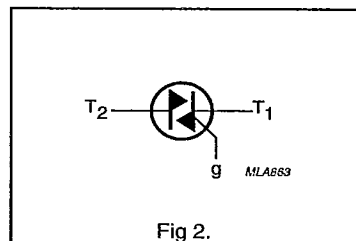
PINNING - TO220AB

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
				500H	600H	700H	800H	
V_{DSM}	Voltages (in either direction) Non-repetitive peak off-state voltage.	$t \leq 10$ ms	-	500	600	700	800	V
V_{DRM}	Repetitive peak off-state voltage	$\delta \leq 0.01$	-	500	600	700	800	V
V_{DWM}	Crest working off-state voltage		-	400	400	400	400	V
$I_{TR(RMS)}$	Currents (in either direction) R.M.S. on-state current	Conduction angle = 360°; $T_{mb} = 93$ °C	-		16			A
I_{TRM}	Repetitive peak on-state current		-		140			A
I_{TSM}	Non-repetitive peak on-state current	$t = 20$ ms; full sine-wave; $T_i = 125$ °C prior to surge.	-		140			A
$I_t^2 t$	$I_t^2 t$ for fusing	$t = 10$ ms	-		95			A ² s
di_t/dt	Rate of rise of on-state current after triggering	$I_G = 200$ mA to $I_T = 20$ A; $di_G/dt = 0.2$ A/ μ s	-		30			A/ μ s
$P_{G(AV)}$	Power dissipation Average power dissipation	over any 20 ms period	-		0.5			W
P_{GM}	Peak power dissipation		-		5			W
T_{stg}	Temperatures Storage temperature		-40		125			°C
T_j	Junction temperature	Full cycle operation	-		125			°C

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THERMAL RESISTANCES

From junction to mounting base	full cycle operation half cycle operation	$R_{th\ j-mb} = 1.2\ K/W$ $R_{th\ j-mb} = 1.7\ K/W$
Transient thermal impedance	$t = 1\ ms$	$Z_{th\ j-mb} = 0.1\ K/W$
From junction to ambient		$R_{th\ j-a} = 60\ K/W$

STATIC CHARACTERISTICS

$T_{mb} = 25\ ^\circ C$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_T	Voltagages and Currents (in either direction) On-state voltage	$I_T = 21\ A$	-	-	1.5	V
dV_D/dt	Rate of rise of off-state voltage (exponential method)	$T_j = 125\ ^\circ C$; $V_D = 0.67\ V_{DWM}$; gate o/c	100	500	-	V/ μs
dV_{com}/dt	Rate of change of commutating voltage	$-di_{com}/dt = 7.2\ A/ms$; $I_{T(RMS)} = 16\ A$; $T_{mb} = 70\ ^\circ C$; gate o/c; $V_D = V_{DWM,max}$	10	-	-	V/ μs
I_D	Off-state current	$V_D = V_{DWM,max}$; $T_j = 125\ ^\circ C$	-	-	0.5	mA
I_H	Holding current		-	-	60	mA
I_L	Latching current		-	-	60	mA
		1+/3-	-	-	90	mA
		1-/3+	-	-	90	mA
V_{GT}	Gate trigger voltage	$V_D = 12\ V$ $V_D = 12\ V$; $T_j = -40\ ^\circ C$	0.25	-	1.5	V
			-	-	2.3	V
I_{GT}	Gate trigger current	$V_D = 12\ V$;	10	-	50	mA
		1+/1-/3-	10	-	100	mA
		3+	10	-	100	mA

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MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

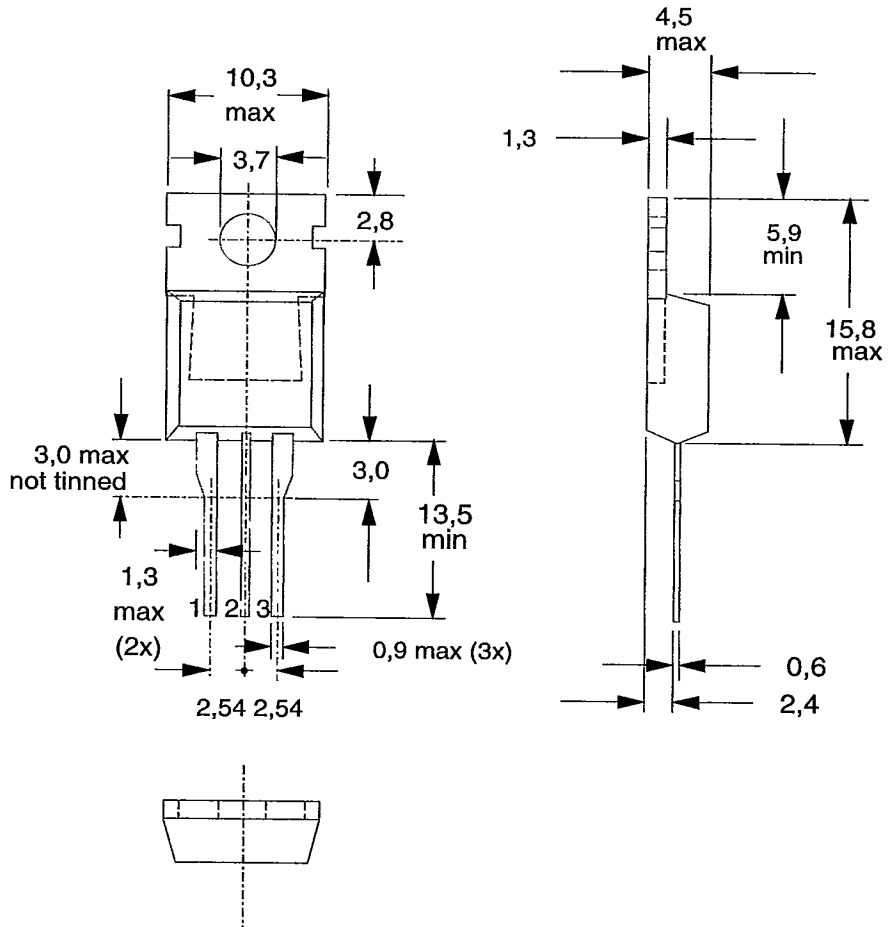


Fig.3. TO220AB; pin 2 connected to mounting base.

Notes

- Accessories supplied on request: refer to mounting instructions for TO220 envelopes.