

GENERAL DESCRIPTION

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

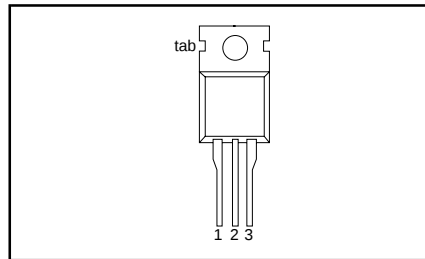
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{DRM} , V_{RRM}	BT145- Repetitive peak off-state voltages	500R 500	600R 600	800R 800	V
$I_{T(AV)}$	Average on-state current	16	16	16	A
$I_{T(RMS)}$	RMS on-state current	25	25	25	A
I_{TSM}	Non-repetitive peak on-state current	300	300	300	A

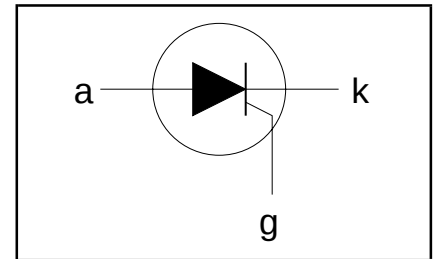
PINNING - TO220AB

PIN	DESCRIPTION
1	cathode
2	anode
3	gate
tab	anode

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
V_{DRM} , V_{RRM}	Repetitive peak off-state voltages		-	-500R 500 ¹	-600R 600 ¹	-800R 800	V
$I_{T(AV)}$	Average on-state current	half sine wave; $T_{mb} \leq 101^\circ\text{C}$	-	16			A
$I_{T(RMS)}$	RMS on-state current	all conduction angles	-	25			A
I_{TSM}	Non-repetitive peak on-state current	half sine wave; $T_j = 25^\circ\text{C}$ prior to surge $t = 10\text{ ms}$	-	300			A
		$t = 8.3\text{ ms}$	-	330			A
I^2t	I^2t for fusing	$t = 10\text{ ms}$	-	450			A ² s
di_T/dt	Repetitive rate of rise of on-state current after triggering	$I_{TM} = 50\text{ A}$; $I_G = 0.2\text{ A}$; $di_G/dt = 0.2\text{ A}/\mu\text{s}$	-	200			A/ μs
I_{GM}	Peak gate current		-	5			A
V_{GM}	Peak gate voltage		-	5			V
V_{RGM}	Peak reverse gate voltage		-	5			V
P_{GM}	Peak gate power		-	20			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			$^\circ\text{C}$

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	in free air	-	-	1.0	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient		-	60	-	K/W

STATIC CHARACTERISTICS

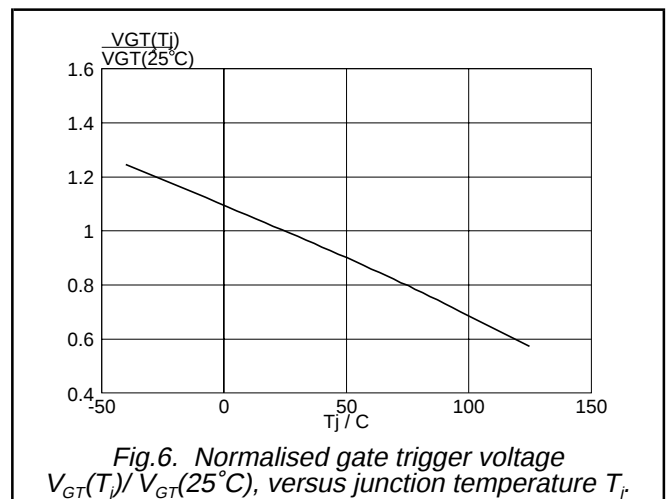
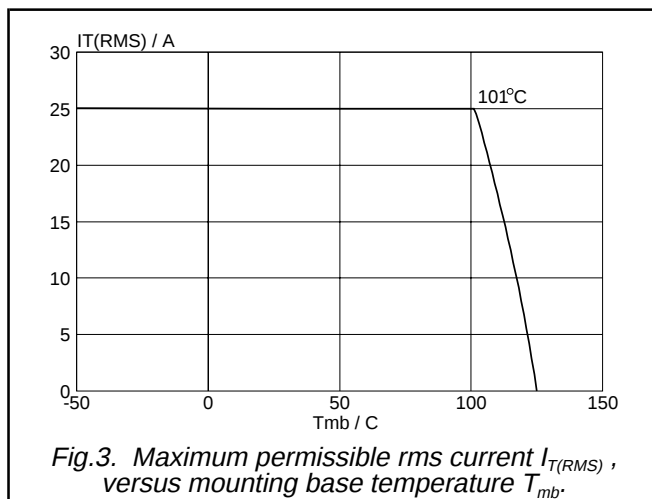
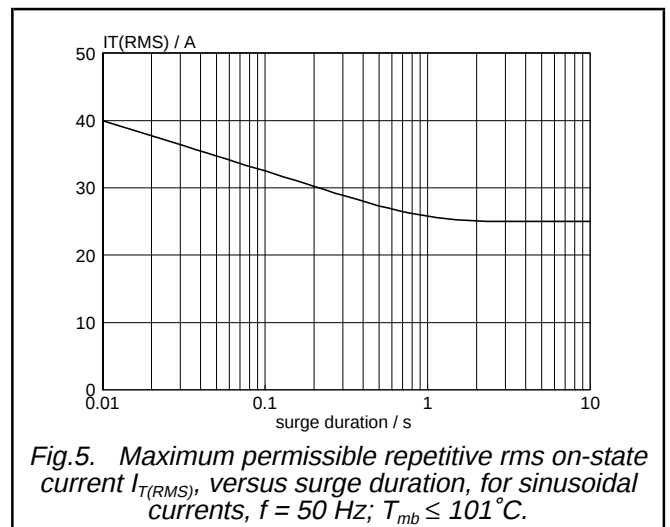
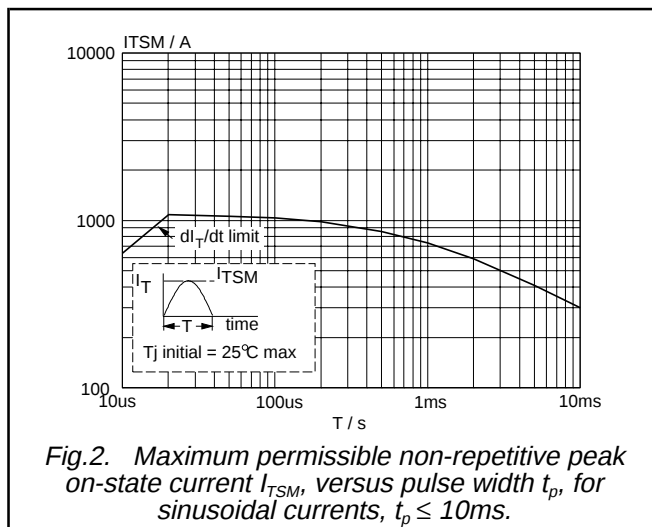
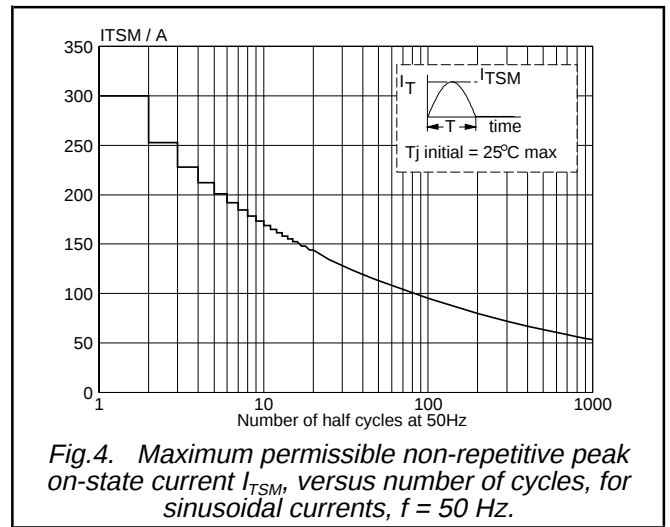
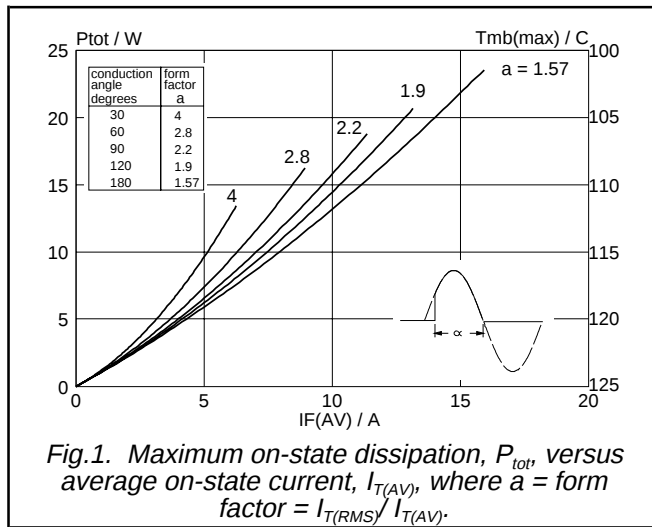
$T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise stated

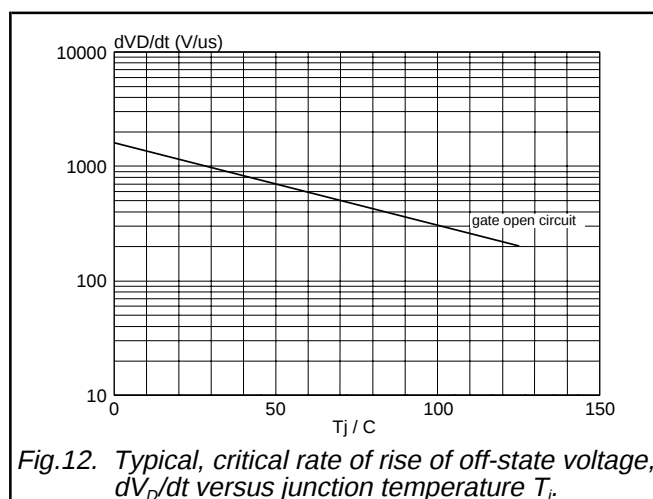
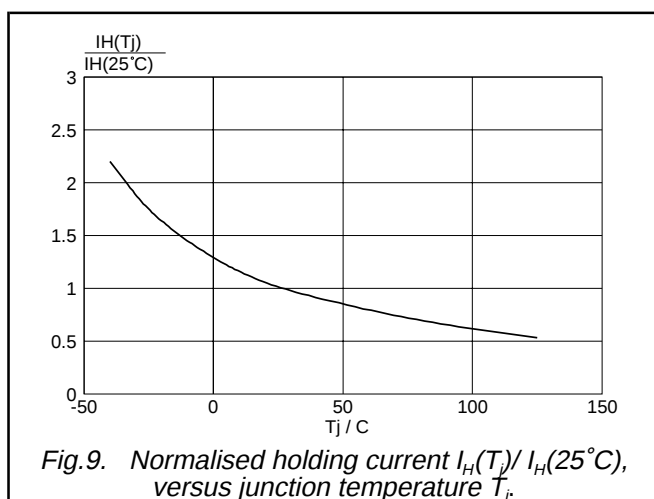
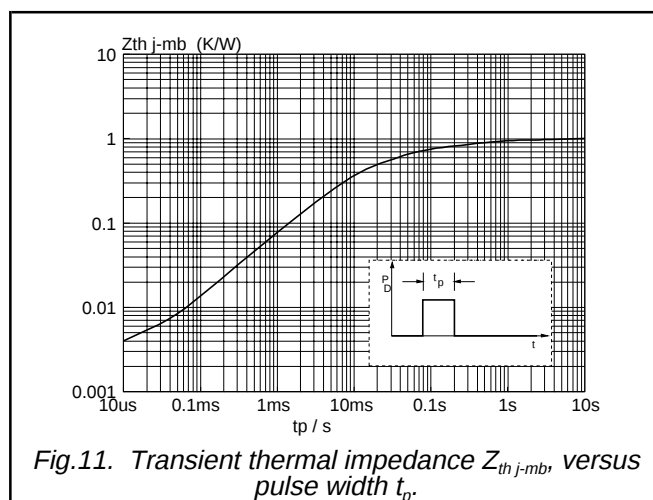
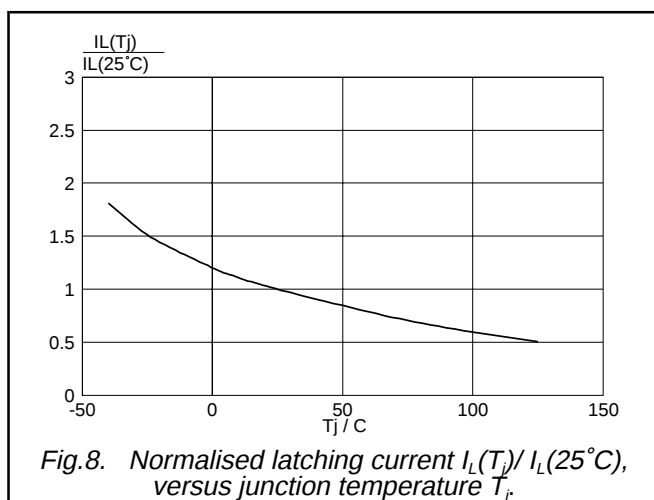
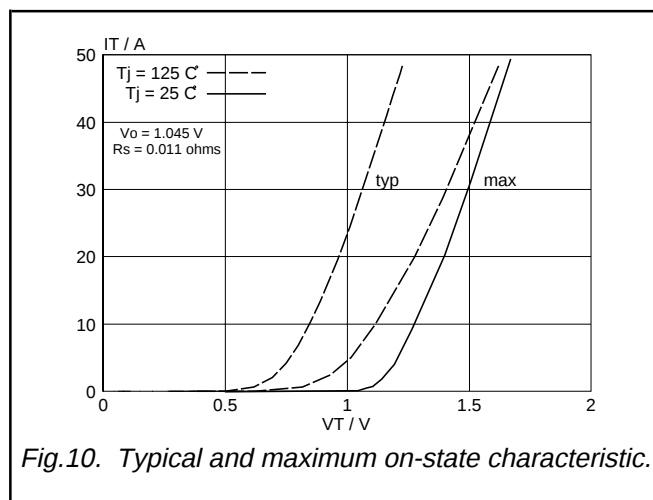
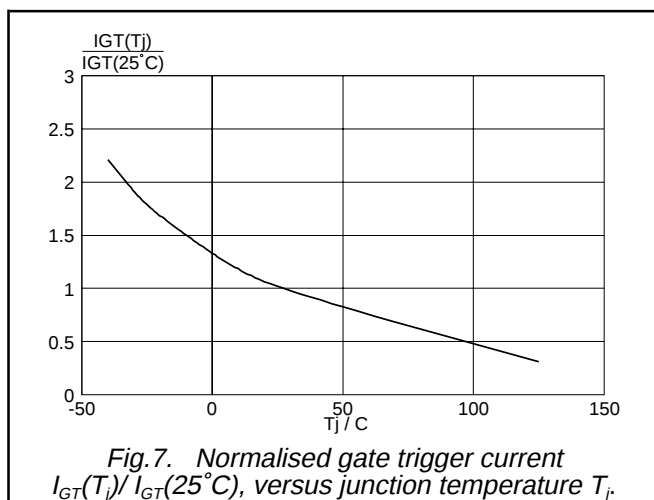
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{GT}	Gate trigger current	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	5	35	mA
I_L	Latching current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	25	80	mA
I_H	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	20	60	mA
V_T	On-state voltage	$I_T = 30\text{ A}$	-	1.1	1.5	V
V_{GT}	Gate trigger voltage	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	0.6	1.0	V
I_D, I_R	Off-state leakage current	$V_D = V_{DRM(max)}; I_T = 0.1\text{ A}; T_j = 125\text{ }^{\circ}\text{C}$	0.25	0.4	-	V
		$V_D = V_{DRM(max)}; V_R = V_{RRM(max)}; T_j = 125\text{ }^{\circ}\text{C}$	-	0.2	1.0	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	200	500	-	V/ μs
t_{gt}	Gate controlled turn-on time	$I_{TM} = 40\text{ A}; V_D = V_{DRM(max)}; I_G = 0.1\text{ A};$ $dI_G/dt = 5\text{ A}/\mu\text{s}$	-	2	-	μs
t_q	Circuit commutated turn-off time	$V_D = 67\% V_{DRM(max)}; T_j = 125\text{ }^{\circ}\text{C};$ $I_{TM} = 50\text{ A}; V_R = 25\text{ V}; dI_{TM}/dt = 30\text{ A}/\mu\text{s};$ $dV_D/dt = 50\text{ V}/\mu\text{s}$	-	70	-	μs





MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

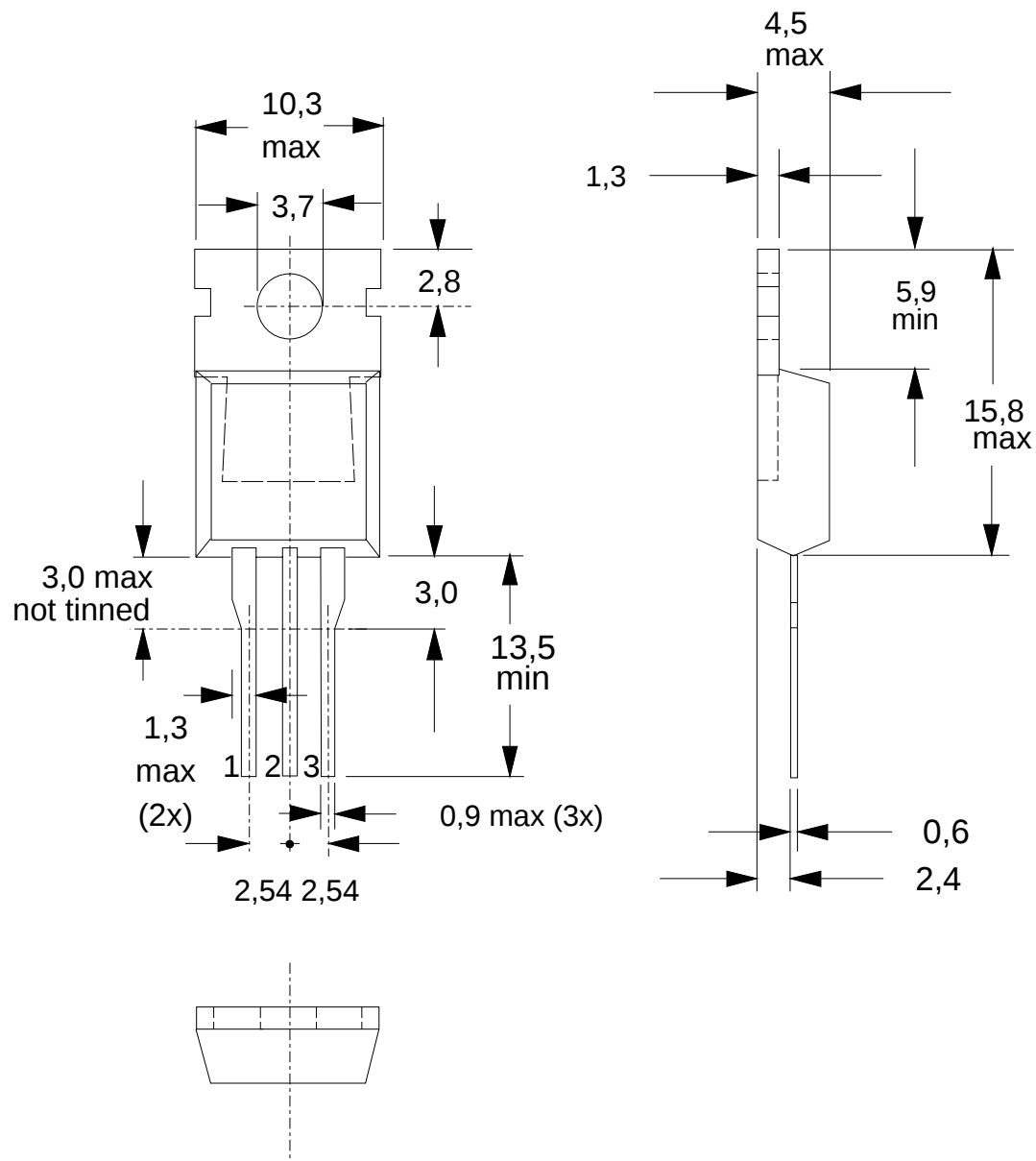


Fig.13. TO220AB; pin 2 connected to mounting base.

Notes

1. Refer to mounting instructions for TO220 envelopes.
2. Epoxy meets UL94 V0 at 1/8".