

GENERAL DESCRIPTION

Passivated guaranteed commutation triacs in a plastic envelope intended for use in motor control circuits or with other highly inductive loads. These devices balance the requirements of commutation performance and gate sensitivity. The "sensitive gate" E series and "logic level" D series are intended for interfacing with low power drivers, including micro controllers.

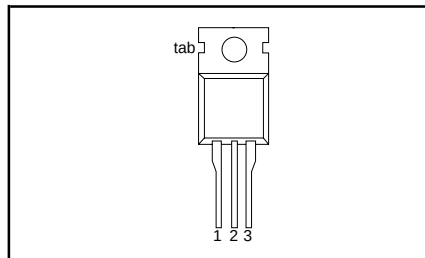
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	UNIT
V_{DRM}	BTA216- BTA216- BTA216- Repetitive peak off-state voltages	600D 600E 600F 600	- 800E 800F 800	V
$I_{T(RMS)}$	RMS on-state current	16	16	A
I_{TSM}	Non-repetitive peak on-state current	140	140	A

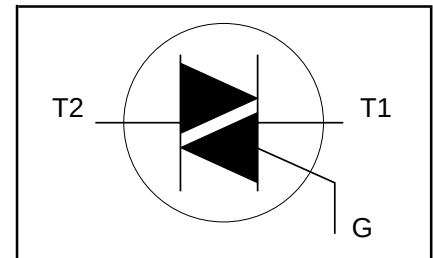
PINNING - TO220AB

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
V_{DRM}	Repetitive peak off-state voltages		-	-600 600¹	-800 800	V
$I_{T(RMS)}$	RMS on-state current	full sine wave; $T_{mb} \leq 99^\circ\text{C}$	-	16		A
I_{TSM}	Non-repetitive peak on-state current	full sine wave; $T_j = 25^\circ\text{C}$ prior to surge $t = 20\text{ ms}$	-	140		A
I^2t	I^2t for fusing	$t = 16.7\text{ ms}$	-	150		A
di_T/dt	Repetitive rate of rise of on-state current after triggering	$t = 10\text{ ms}$	-	98		A ² s
I_{GM}	Peak gate current	$I_{TM} = 20\text{ A}; I_G = 0.2\text{ A}; di_G/dt = 0.2\text{ A}/\mu\text{s}$	-	100		A/ μs
V_{GM}	Peak gate voltage		-	2		A
P_{GM}	Peak gate power		-	5		V
$P_{G(AV)}$	Average gate power	over any 20 ms period	-	5		W
T_{stg}	Storage temperature		-40	150		°C
T_j	Operating junction temperature		-	125		°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 15 A/ μs .

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	full cycle	-	-	1.2	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	half cycle in free air	-	-	1.7	K/W
			-	60	-	K/W

STATIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.			UNIT
		BTA216-			...D	...E	...F	
I_{GT}	Gate trigger current ²	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$ T2+ G+ T2+ G- T2- G-	-	-	5	10	25	mA
			-	-	5	10	25	mA
			-	-	5	10	25	mA
I_L	Latching current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$ T2+ G+ T2+ G- T2- G-	-	-	15	20	25	mA
			-	-	25	30	40	mA
			-	-	25	30	40	mA
I_H	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	-	15	25	30	mA
V_T	On-state voltage	$I_T = 20\text{ A}$	-	1.2	1.5			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
		BTA216-	...D	...E	...F			
dV_D/dt	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM(max)};$ $T_j = 110\text{ °C};$ exponential waveform; gate open circuit	30	60	70	-	-	V/ μ s
dI_{com}/dt	Critical rate of change of commutating current	$V_{DM} = 400\text{ V}; T_j = 110\text{ °C};$ $I_{T(RMS)} = 16\text{ A};$ $dV_{com}/dt = 20\text{ V}/\mu\text{s};$ gate open circuit	1.8	3.5	4.5	-	-	A/ms
dI_{com}/dt	Critical rate of change of commutating current	$V_{DM} = 400\text{ V}; T_j = 110\text{ °C};$ $I_{T(RMS)} = 16\text{ A};$ $dV_{com}/dt = 0.1\text{ V}/\mu\text{s};$ gate open circuit	4.3	5.3	6.3	-	-	A/ms
t_{gt}	Gate controlled turn-on time	$I_{TM} = 20\text{ A}; V_D = V_{DRM(max)};$ $I_G = 0.1\text{ A}; dI_G/dt = 5\text{ A}/\mu\text{s}$	-	-	-	2	-	μ s

² Device does not trigger in the T2-, G+ quadrant.

MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

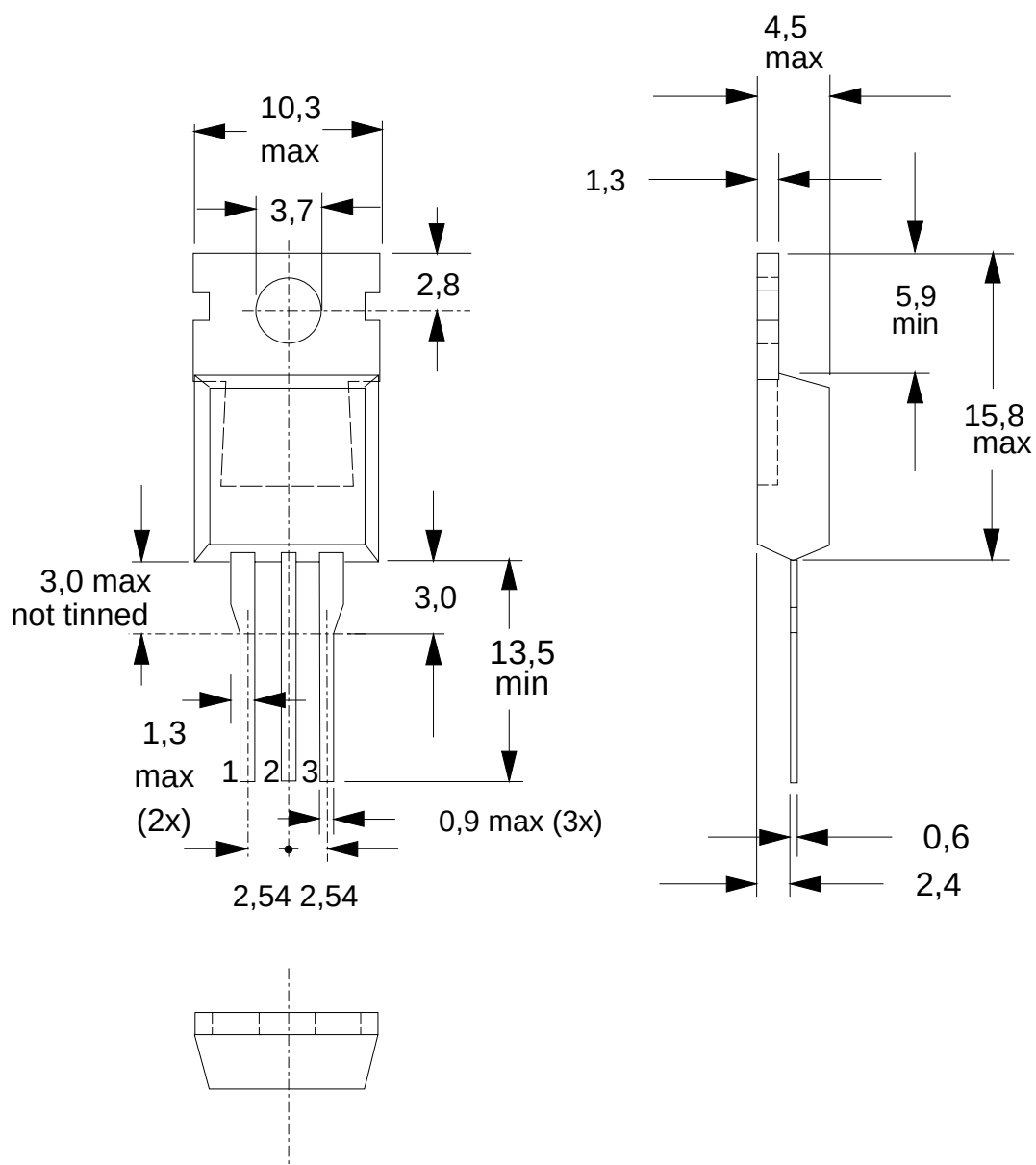


Fig.1. SOT78 (TO220AB). pin 2 connected to mounting base.

Notes

1. Refer to mounting instructions for SOT78 (TO220) envelopes.
2. Epoxy meets UL94 V0 at 1/8".