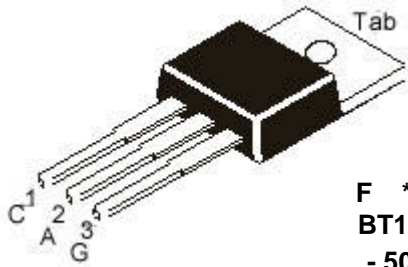


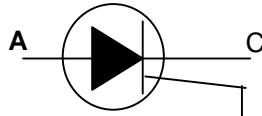
BT151-500~650

Description



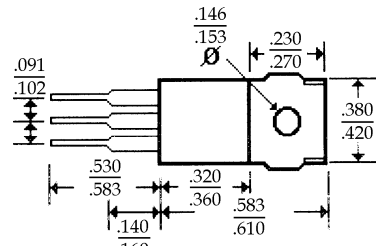
TO-220AB

Mechanical Dimensions



Marking

F	***	F	***
BT151		BT151	
- 500		- 650	
***=Date Code			



(Dimensions in inches)

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

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITION	VALUE		UNIT
			BT151-500	650	
Repetitive Peak Off State Voltage	V_{DRM}, V_{RRM}		*500	*650	V
Average On State Current	$I_{T(AV)}$	half sine wave, $T_{mb} \leq 109^{\circ}C$	7.5		A
RMS On State Current	$I_{T(RMS)}$	all conduction angles	12		A
Non Repetitive Peak On State Current	I_{TSM}	half sine wave, $T_J=25^{\circ}C$ prior to surge $t=10ms$	100		A
		$t=8.3ms$	110		A
I^2t for Fusing	I^2t	$t=10ms$	50		A^2s
Repetitive Rate of Rise of On State Current After Triggering	dl_T/dt	$I_{TM}=20A, I_G=50mA,$ $dl_G/dt=50mA/\mu s$	50		$A/\mu s$
Peak Gate Current	I_{GM}		2.0		A
Peak Gate Voltage	V_{GM}		5.0		V
Peak Reverse Gate Voltage	V_{RGM}		5.0		V
Peak Gate Power	P_{GM}		5.0		W
Average Gate Power	$P_{G(AV)}$	Over any 20ms period	0.5		W
Storage Temperature	T_{stg}		- 40 to +150		$^{\circ}C$
Operating Junction Temperature	T_j		125		$^{\circ}C$

THERMAL RESISTANCE

Junction to Mounting Base	$R_{th(j-mb)}$		1.3 max	K/W
Junction to Ambient	$R_{th(j-a)}$	in free air	60 typ	K/W

*Although not recommended, off state voltage upto 800V may be applied without damage, but the thyristor may switch to the on state. The rate of rise of current should not exceed 15A/ms



ELECTRICAL CHARACTERISTICS (T_J=25°C unless specified otherwise)

PARAMETER	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Gate Trigger Current	I _{GT}	V _D =12V, I _T =0.1A		15	mA
Latching Current	I _L	V _D =12V, I _{GT} =0.1A		40	mA
Holding Current	I _H	V _D =12V, I _{GT} =0.1A		20	mA
On State Voltage	V _T	I _T =23A		1.75	V
Gate Trigger Voltage	V _{GT}	V _D =12V, I _T =0.1A V _D =V _{DRM} (max), I _T =0.1A, T _J =125°C	0.25	1.5	V
Off State Leakage Current	I _D , I _R	V _D = V _{DRM} (max), V _R =V _{RRM} (max) T _J =125°C		0.5	mA

DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Critical Rate of Rise of Off State Voltage	dV _D /dt	V _{DM} =67% V _{DRM} (max), T _J =125°C, exponential waveform gate open circuit R _{GK} =100Ω	50 200			V/μs V/μs
Gate Controlled Turn On time	t _{gt}	I _{TM} =40A, V _D =V _{DRM} (max), I _G =0.1A, dI _G /dt=5A/μs		2.0		μs
Circuit Commutated Turn Off time	t _q	V _D =67% V _{DRM} (max), T _J =125°C, I _{TM} =20A, V _R =25V, dI _{TM} /dt=30A/μs, dV _D /dt=50V/μs, R _{GK} =100Ω		70		μs