New Jersey Semi-Conductor Products, Inc.

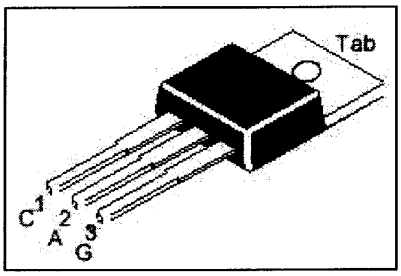
20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

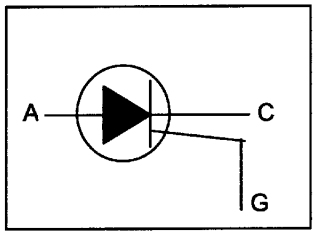
TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

THYRISTORS

BT151

TO-220
Plastic Package





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

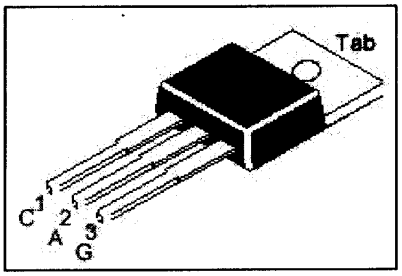
ABSOLUTE MAXIMUM RATINGS

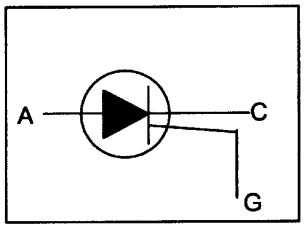
PARAMETER	SYMBOL	TEST CONDITION	VALUE		UNIT
		BT151-	500	650	
Repetitive Peak Off State Voltage	V_{DRM}, V_{RRM}		*500	*650	V
Average On State Current	$I_{T(AV)}$	half sine wave, $T_{mb} \leq 109°C$	7.5		A
RMS On State Current	$I_{T(RMS)}$	all conduction angles	12		A
Non Repetitive Peak On State Current	I_{TSM}	half sine wave, T_J=25°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	dI_T/dt	I_{TM}=20A, I_G=50mA, dI_G/dt=50mA/µs	50		A/µs
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		°C
Operating Junction Temperature	T_j		125		°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/µs**





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

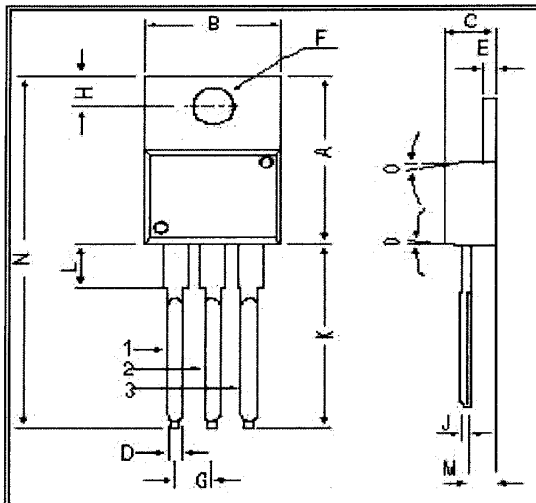
PARAMETER	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Gate Trigger Current	I_{GT}	V_D=12V, I_T=0.1A		15	mA
Latching Current	I_L	V_D=12V, I_{GT}=0.1A		40	mA
Holding Current	I_H	V_D=12V, I_{GT}=0.1A		20	mA
On State Voltage	V_T	I_T=23A		1.75	V
Gate Trigger Voltage	V_{GT}	V_D=12V, I_T=0.1A V_D=V_{DRM} (max), I_T=0.1A,T_J=125°C	 0.25	1.5	V 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

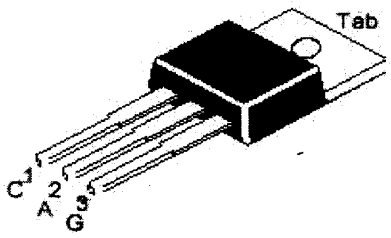
TO-220
Plastic Package

TO-220 Plastic Package



DIN	MIN	MAX
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	—	0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	—	0.56
K	12.70	14.73
L	2.30	4.07
M	2.03	2.92
N	—	31.24
O	7 DEG	

All diminsions in mm.



Pin Configuration
1. Cathode
2. Anode
3. Gate
Tab. Anode