

12A Standard SCRs

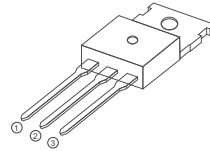
FEATURES

- > $I_T(RMS)$:12A
- > VGT: 1V
- > VDRM VRRM:600Vand800V

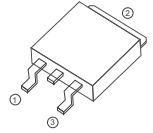
APPLICATIONS

Washing machine,vacuums, massager,solid state relay,

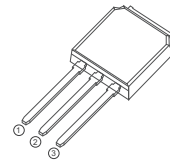
AC Motor speed regulation and so on.



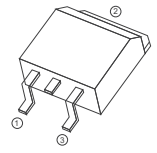
BT151 TO-220C



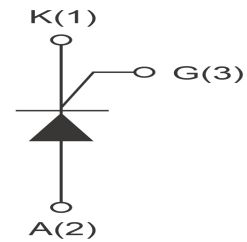
BT151D TO-252



BT151I TO-251



BT151K TO-263



Absolute Maximum Ratings (T_j=25°C unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BT151	600	V
$I_T(RMS)$	R.M.S On-State Current	T _c =105°C	12	A
$I_T(AV)$	On-state average current	T _C =105°C	7.5	A
ITSM	Surge On-State Current	T _p =10ms/t _p =8.3ms	120/132	A
I ² t	I ² t for fusing	T _p =10ms	75	A ² s
PGM	Peak Gate Power Dissipation	T _j =125°C	2	W
PG(AV)	Average Gate Power Dissipation	T _j =125°C	0.5	W
T _j	Operating Junction Temperature		~40~125	°C
TSTG	Storage Temperature		~40~150	°C

Electrical Characteristics (Tj=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Value	Unit
IDRM	Repetitive Peak Off-State Current	Tc=25°C	≤10	uA
		Tc=125°C	≤1	mA
IRRM	Repetitive Peak Reverse Current	Tc=25°C	≤10	uA
		Tc=125°C	≤1	mA
VTM	Forward "on" voltage	IT=23A, tp=380us	≤1.7	V
VGT	Gate trigger voltage	VD=12V, RL=30Ω	≤1.0	V
di/dt	Critical rate of rise of on-state current	Tj=125°C, IG=2xIGT, tr≤100ns	≥50	A/us
IGT	Gate trigger current	VD=12V, IT=0.1A	≤20	mA
IL	Latching current	IG=1.2IGT	≤40	mA
IH	Holding current	IT=0.1A	≤30	mA
VGD	Gate non-trigger voltage	VD=VDRM, TJ=125°C, RL=3.3KΩ, RGK=1KΩ	≥0.25	V
dv/dt	Critical-rate of rise of commutation voltage	TJ=125°C, VD=2/3VDRM, Gate open circuit	≥200	V/us
Rth(j-c)	Thermal resistance	Junction to case	1	°C/W
Rth(j-a)	Thermal resistance	Junction to ambient	50	°C/W

FIG1

Maximum power dissipation versus RMS on-state current

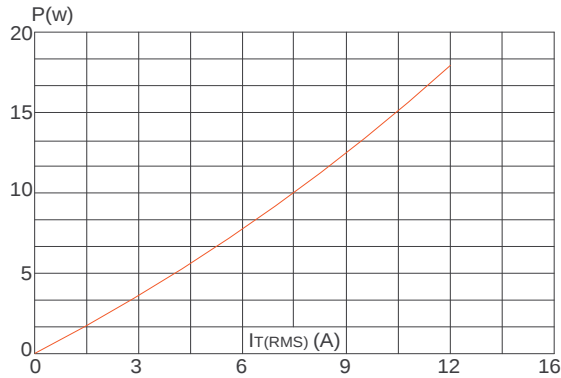


FIG2

RMS on-state current versus case temperature

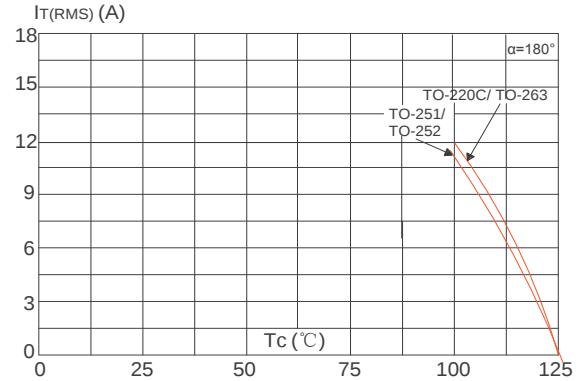


FIG3

Surge peak on-state current versus number of cycles

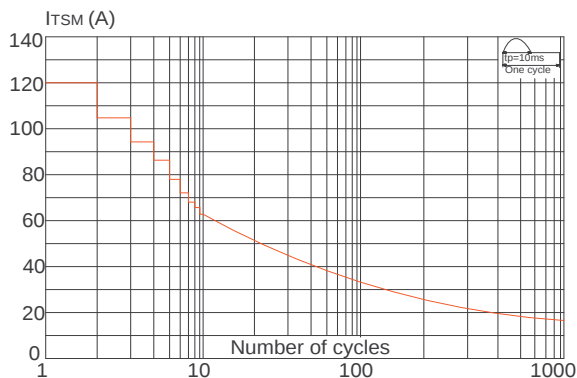


FIG4

On-state characteristics (maximum values)

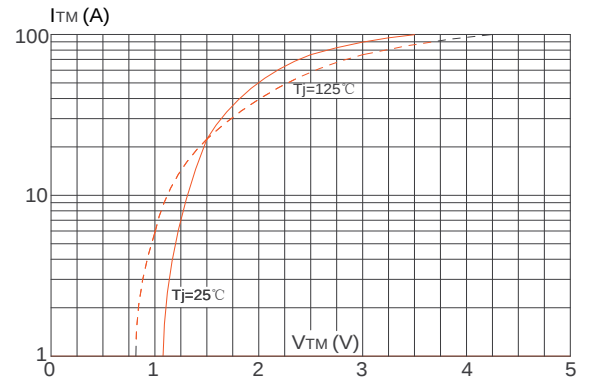


FIG5

Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

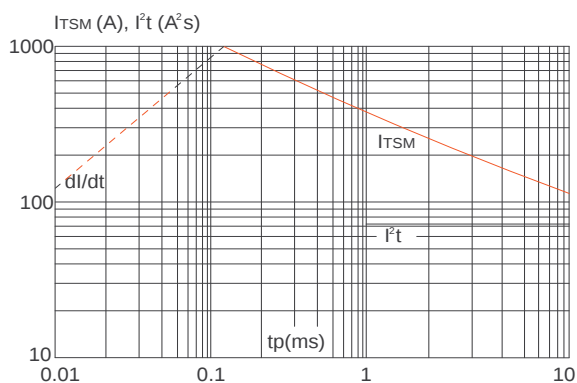
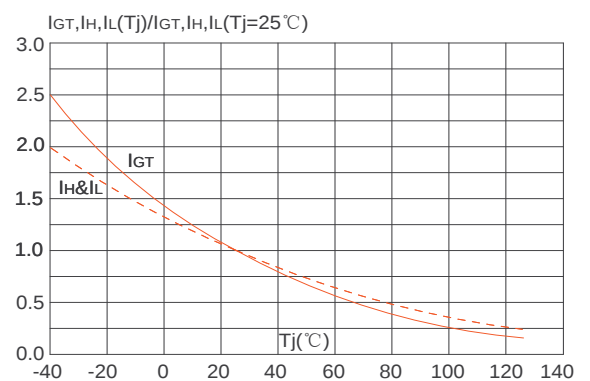
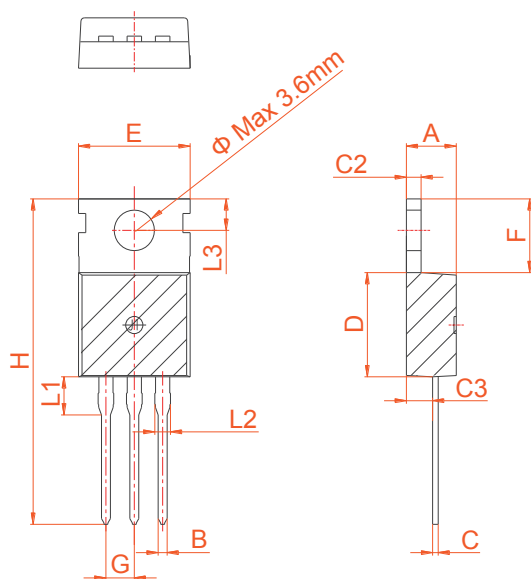


FIG6

FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



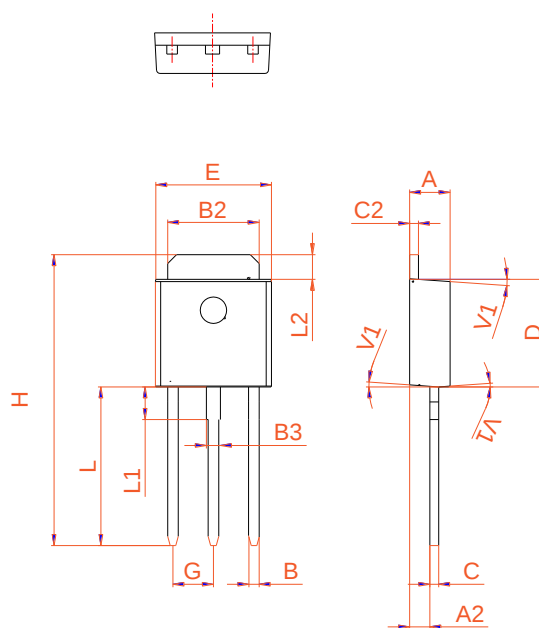
PACKAGE MECHANICAL DATA



TO-220C

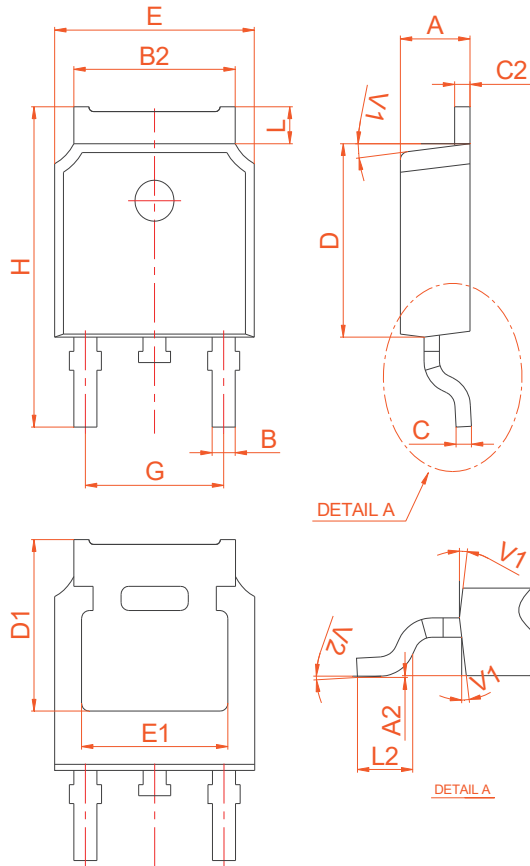
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	



TO-251

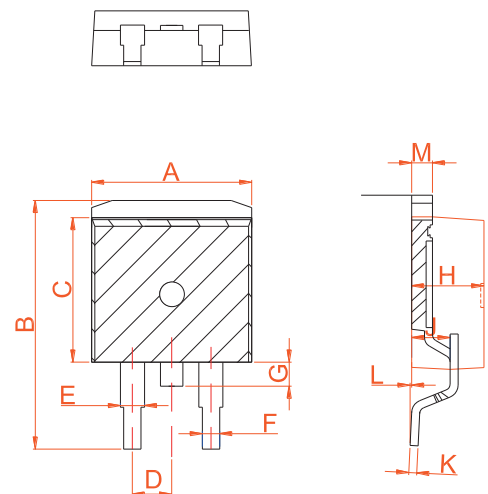
PACKAGE MECHANICAL DATA



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.55	0.018		0.022
C2	2.70		2.90	0.106		0.114
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
L3		0.8			0.031	
L4		0.8			0.031	
V1		4°			4°	
V2	0°		8°	0°		8°

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053



TO-263