

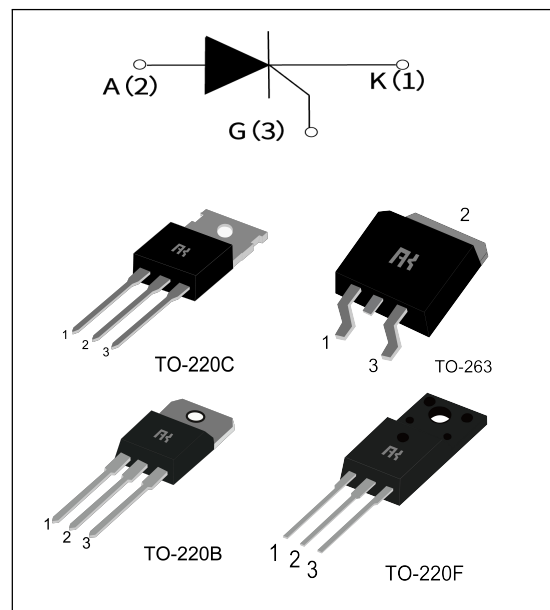
BT151 Serial 12A SCRs

GENERAL DESCRIPTION :

High current density due to singel mesa technology.
BT151 series of silicon controlledrectifiers are specificly y designed for medium power switching and phase controlapplications.BT151 series are suitable for general purpose applications.a high gate sensitivity is required.

Main Features:

IT(RMS)	VDRM/VRRM	VTM
12 A	600V and 800 V	≤1.7 V



Absolute Ratings(limiting values) :

Symbol	Parameter		value	Unit
$I_{T(RMS)}$	on-state RMS current(180°C conduction angle)	TO-220B/C TO-263 (Tc=100°C)	12	A
		TO-220F(Tc=85°C)		
I_{TSM}	Non repetitive surge peak on-state current (Tj= 25 °C)	tp= 8.3 ms	110	A
		tp = 10 ms	100	
V_{DRM}	Repetitive peak off-state voltage(Tj =25°C)		600 and 800	V
V_{RRM}	Repetitive peak reverse voltage(Tj =25°C)		600 and 800	V
T_{stg} T_j	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
I^2t	I ² t value for fusing Tj = 125°C	tp = 10 ms	50	A ² s
dI/dt	Critical rate of rise of on-state current I _G =2xI _{GT} , tr≤100ns		50	A/μs
I_{GM}	Peak gate current tp=20us Tj=125°C		2	A
P_{GM}	Peak gate power tp=20us Tj=125°C		5	W
$P_{G(av)}$	Average gate power dissipation Tj=125°C		0.5	W

Electrical Characteristics :

Symbol	Test Condition	range	Value	Unit	
I_{GT}	V _D =12V R _L =3.3kΩ	T _j =25°C	MAX	15	mA
V_{GT}		T _j =25°C	MAX	1.5	V
V_{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j =125°C	MIN	0.2	V
t_{gt}	V _D =V _{DRM} I _G = 500mA dI _G /dt = 0.2A/μs	T _j =25°C	TYP	2	μs
I_L	V _D =12V I _{GT} = 0.1 A	T _j =25°C	TYP	40	mA
I_H	I _T = 500mA gate open	T _j =25°C	MAX	30	mA
V_{TM}	I _{TM} = 2*I _{T (RMS)} tp=380μs	T _j =25°C	MAX	1.7	V
I_{DRM} I_{RRM}	V _D =V _{DRM} , V _R =V _{RRM}	T _j =125°C	TYP	10	μA
		T _j =125°C	MAX	0.5	mA
dV_D/dt	V _D =67%V _{DR} exponential waveform; R _{GK} = 100 Ω	T _j =125°C	TYP	200	V/μs

Thermal Resistances :

Symbol	Parameter	Value	Unit
R_{th (j-mb)}	Thermal resistance from junction to mounting case	TO-220F	4.5
		TO-220B/C TO-263	2.4

FIG.1: Maximum power dissipation versus RMS on-state current

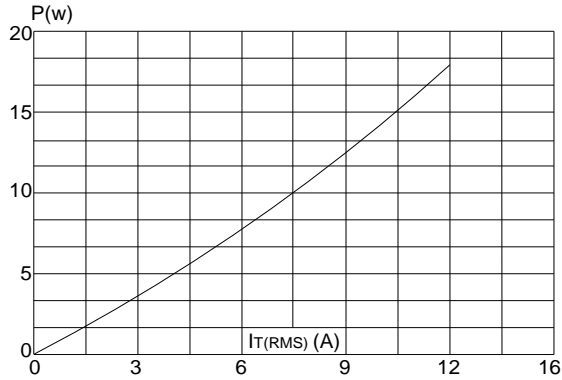


FIG.2: RMS on-state current versus case temperature

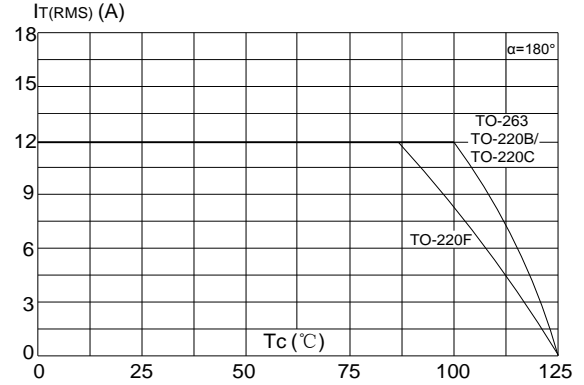


FIG.3: Surge peak on-state current versus number of cycles

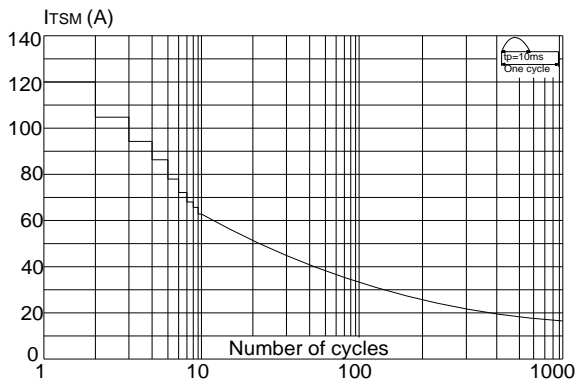


FIG.4: On-state characteristics (maximum values)

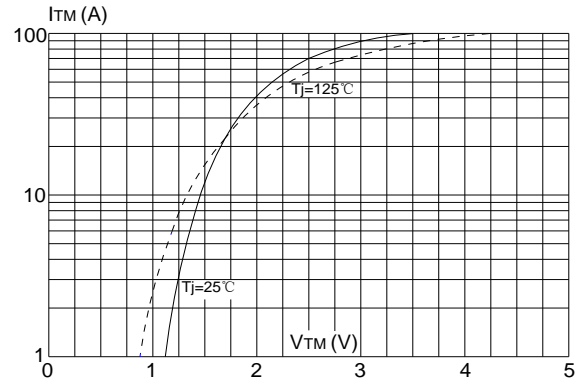


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

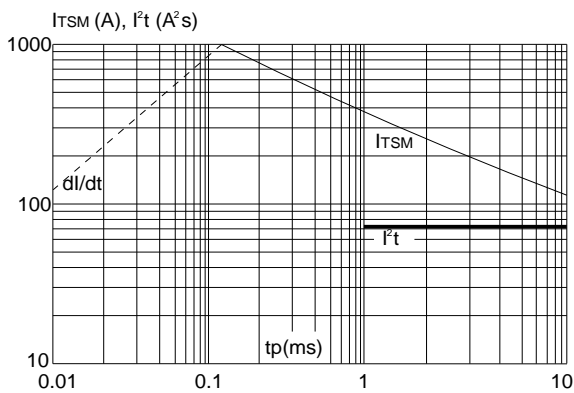
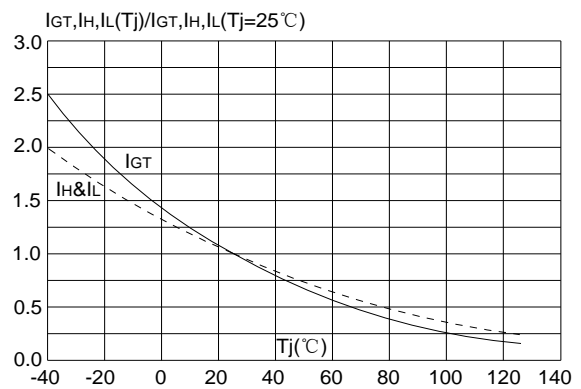
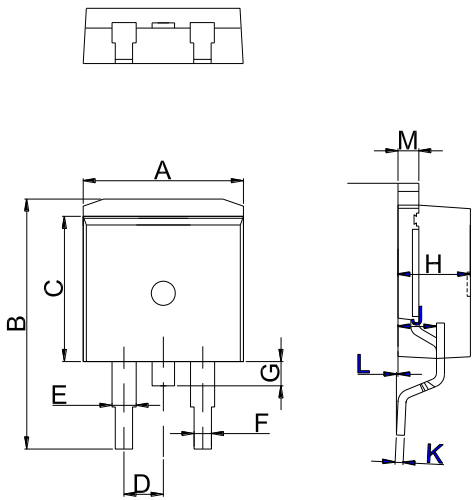


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

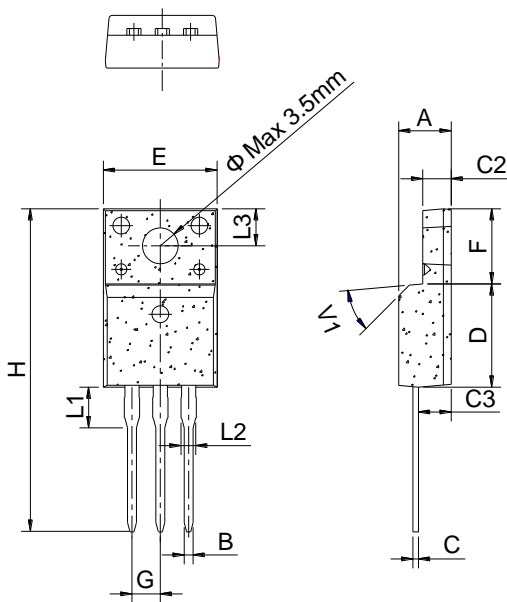


Package Mechanical Data :



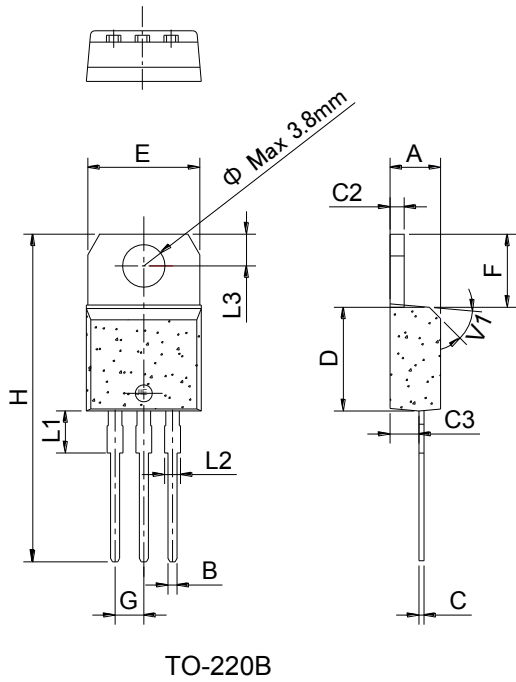
TO-263

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

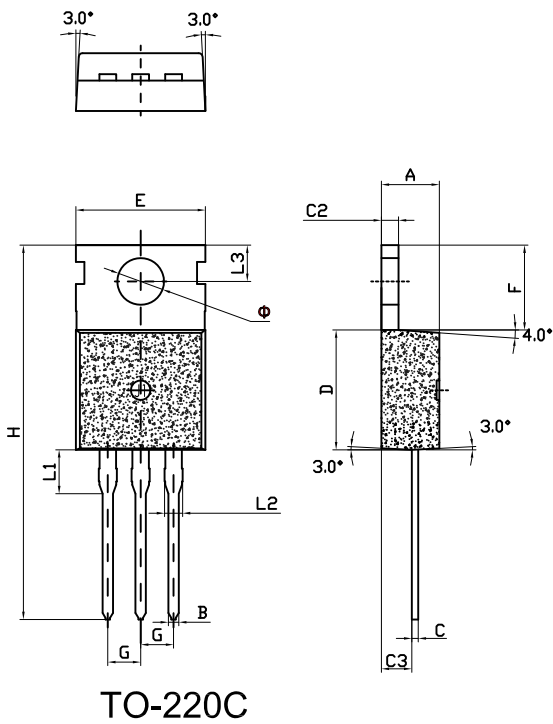


TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.7		0.9	0.027		0.035
C	0.45		0.6	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.2		2.6	0.086		0.102
D	8.9		9.9	0.350		0.390
E	9.9		10.3	0.390		0.406
F	6.3		6.9	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	11.0		11.7
L1		3.2			0.126	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	