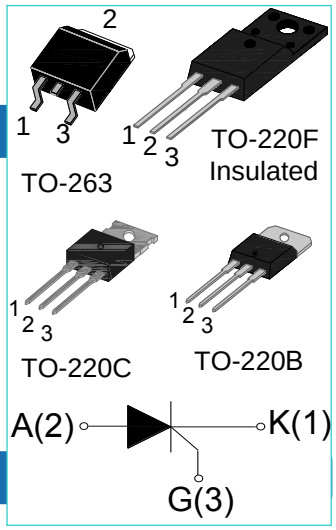
16A SCRs

BT152 Serial



Main Features:

IT(RMS)	VDRM/VRRM	VTM
16 A	600V and 800 V	≤1.75 V

Description:

High current density due to sing mesa technology.BT152 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications. BT152 series are suitable for general purpose applications.a high gate sensitivity is required .

Absolute Ratings(limiting values) :

Symbol	Parameter		value	Unit
$I_{T(RMS)}$	on-state RMS current(180°C conduction angle)	TO-220B/C Tc=110℃ TO-220F Tc=90℃ TO-263 Tc=85℃	16	A
I_{TSM}	Non repetitive surge peak on-state current (Tj= 25 ˚C)	tp= 8.3 ms	200	A
		tp = 10 ms	190	
V_{DRM}	Repetitive peak off-state voltage(Tj =25℃)		600 and 800	V
V_{RRM}	Repetitive peak reverse voltage(Tj =25℃)		600 and 800	V
Tstg Tj	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
I^2t	I^2t value for fusing T_j = 125°C	tp = 10 ms	180	A^2s
dI/dt	Critical rate of rise of on-state current I_G=2xI_{GT}, tr≤100ns		50	A/μs
IGM	Peak gate current tp=20us Tj=125℃		4	A
PGM	Peak gate power tp=20us Tj=125℃		5	W
PG(av)	Average gate power dissipation Tj=125℃		1	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 dIG/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	1.75	V
I_{DRM} I_{RRM}	V_D=V_{DRM} ,V_R=V_{RRM}	T_j=125°C	TYP	5	μA
		T_j=125°C	MAX	2	mA
dV/dt	V_D=67%V_{DR} exponential waveform; R_{GK} = 100 Ω	T_j=125°C	TYP	500	V/μs

Thermal Resistances :

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	junction to mounting base	TO-220B/C	1.05	°C/W
		TO-220F	2.2	
		TO-263	2.5	

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

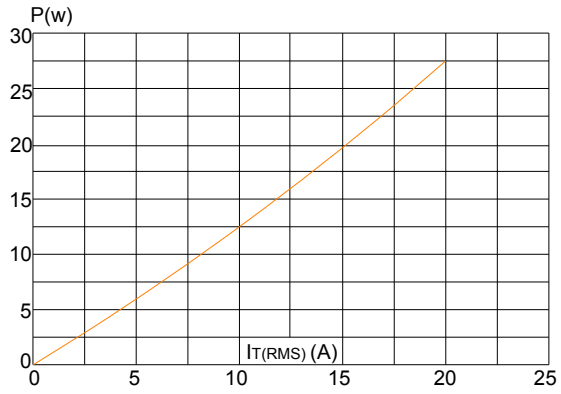


FIG.2: RMS on-state current versus case temperature

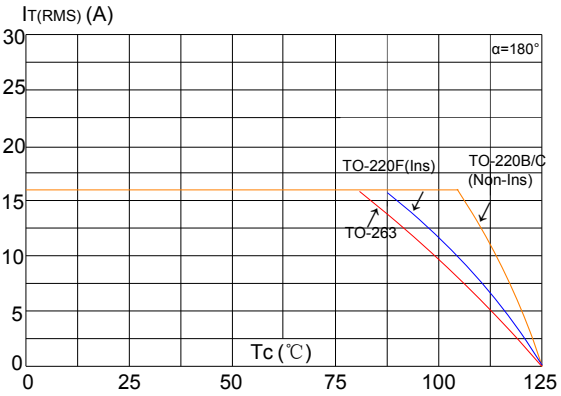


FIG.3: Surge peak on-state current versus number of cycles

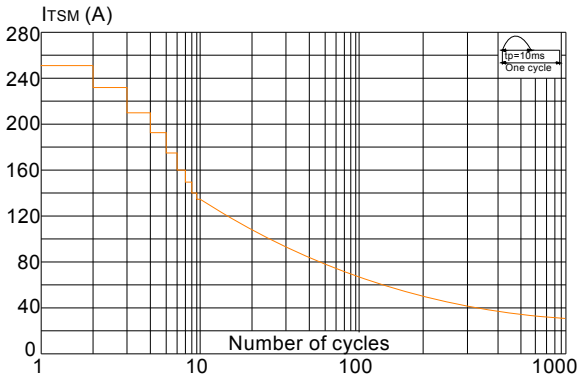


FIG.4: On-state characteristics (maximum values)

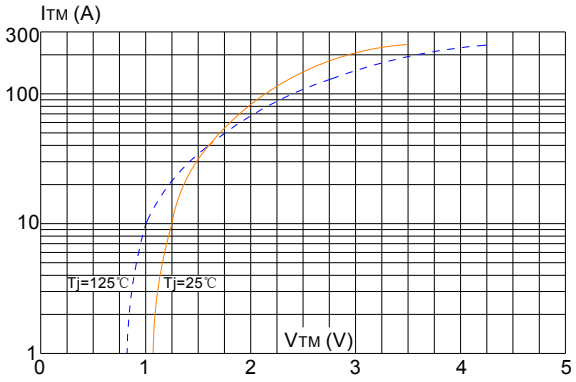


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t

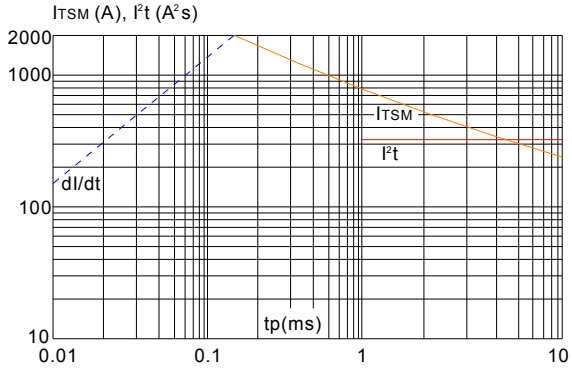
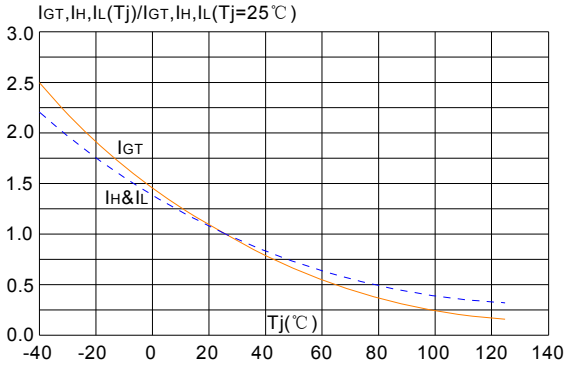
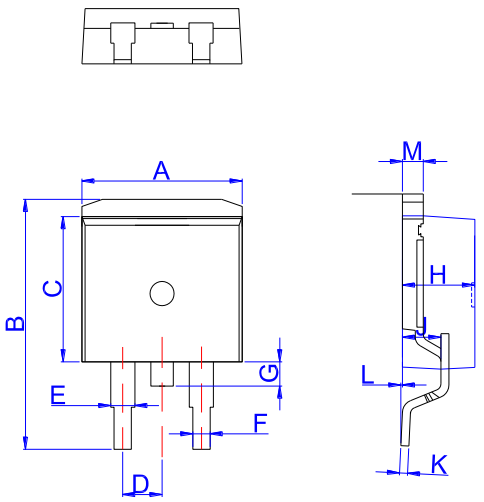


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

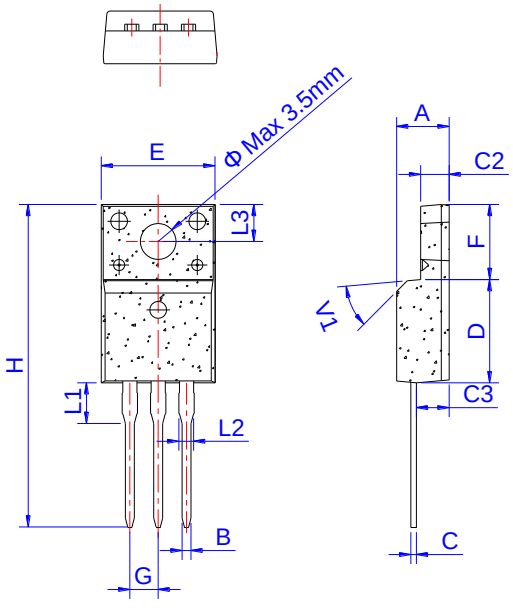


Package Mechanical Data :



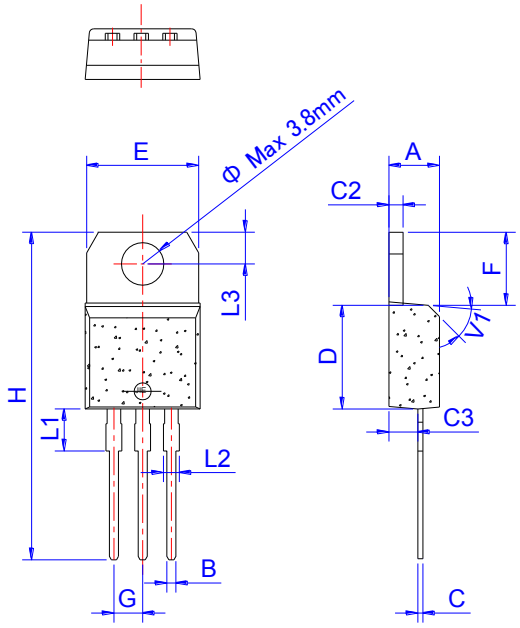
TO-263

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



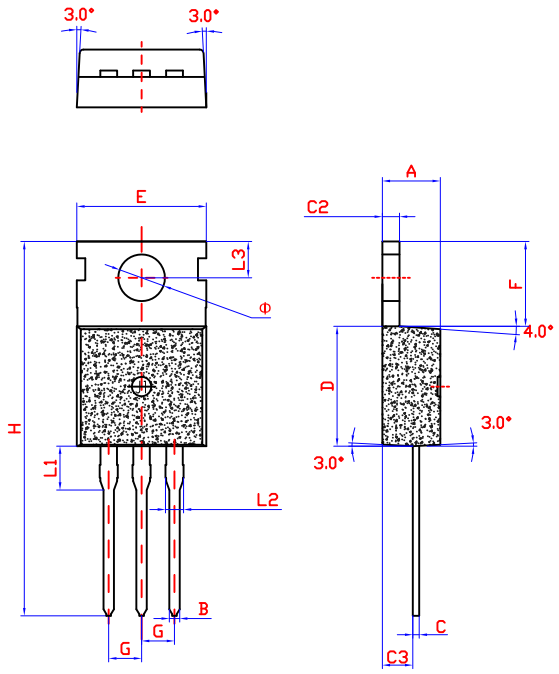
TO-220F Ins

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°	



TO-220B

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°	



TO-220C

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	