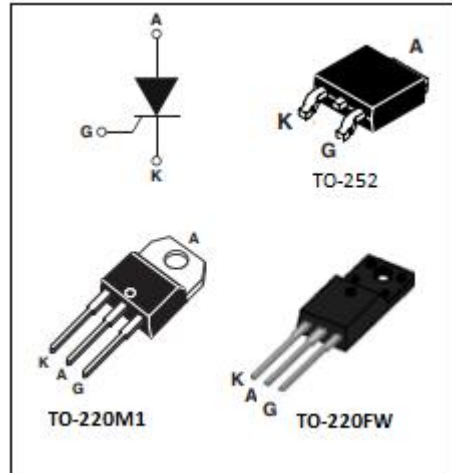


BT151 Series 12A SCRs

Rev: 1.0

DESCRIPTION:

Glasspassivated thyristors in a plastic envelope, The BT151 SCRs series is suitable to fit all modes of control, found in applications such as overvoltage crowbar protection, motor control circuits in power tools and kitchen aids, inrush current limiting circuits, capacitive discharge ignition and voltage regulation circuits



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM} V_{RRM}$	650	V
I_{GT}	15	mA

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40 ~ 150	°C
Operating junction temperature range	T_j	-40 ~ 125	°C
Repetitive peak off-state voltage (T = 25°C)	V_{DRM}	650	V
Repetitive peak reverse voltage (T = 25°C)	V_{RRM}	650	V
RMS on-state current (T = 105°C)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (180° conduction angle, F=50Hz)	I_{TSM}	100	A
Average on-state current (180° conduction angle)	$I_{T(AV)}$	8	A
I^2t value for fusing (tp=10ms)	I^2t	45	A ² S
Critical rate of rise of on-state current (I = 2×IGT, tr ≤ 100 ns)	di/dt	50	A/μS
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W

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

Symbol	Test Condition		Value	Unit
I _{GT}	V =12V R =140Ω	MAX.	15	mA
V _{GT}		MAX.	1.3	V
V _{GD}	V _D =V _{DRM} T _j =125°C R=1KΩ	MIN.	0.2	V
I _L	I _G =1.2I _{GT}	MAX.	50	mA
I _H	I _T =50mA	MAX.	30	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	MIN.	400	V/μs

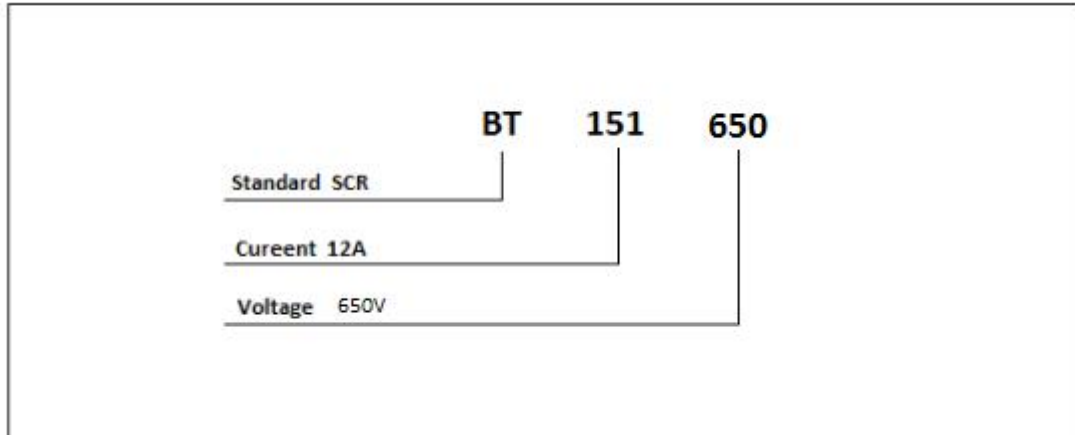
STATIC CHARACTERISTICS

Symbol	Parameter		Value (MAX.)	Unit
V _{TM}	I _{TM} =23A tp=380μs	T _j =25°C	1.6	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	5	μA
I _{RRM}		T _j =125°C	2	mA

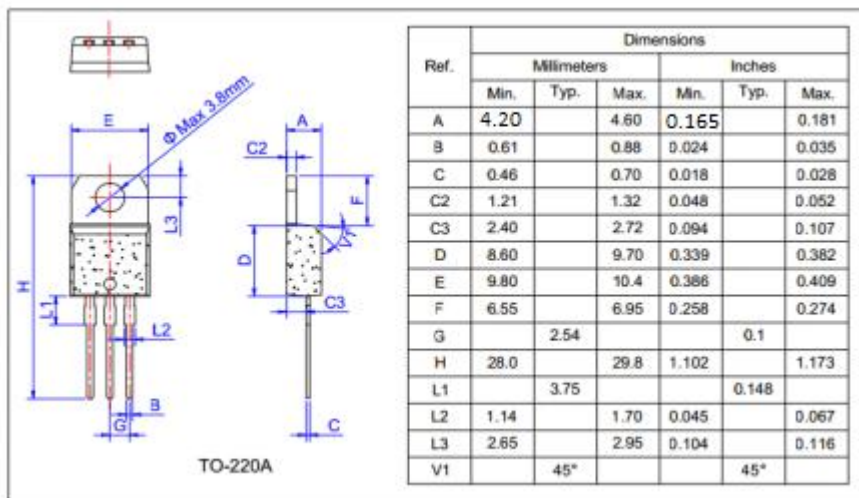
Thermal Resistances

Symbol	Parameter		Value	Unit
R _{th(j-a)}	junction to ambient	TO-220M1	60	°C/W
		TO-220FW	50	
		TO-252	70	
R _{th(j-c)}	Junction to case	TO-220M1	1.5	
		TO-220FW	4.5	
		TO-252	2.0	

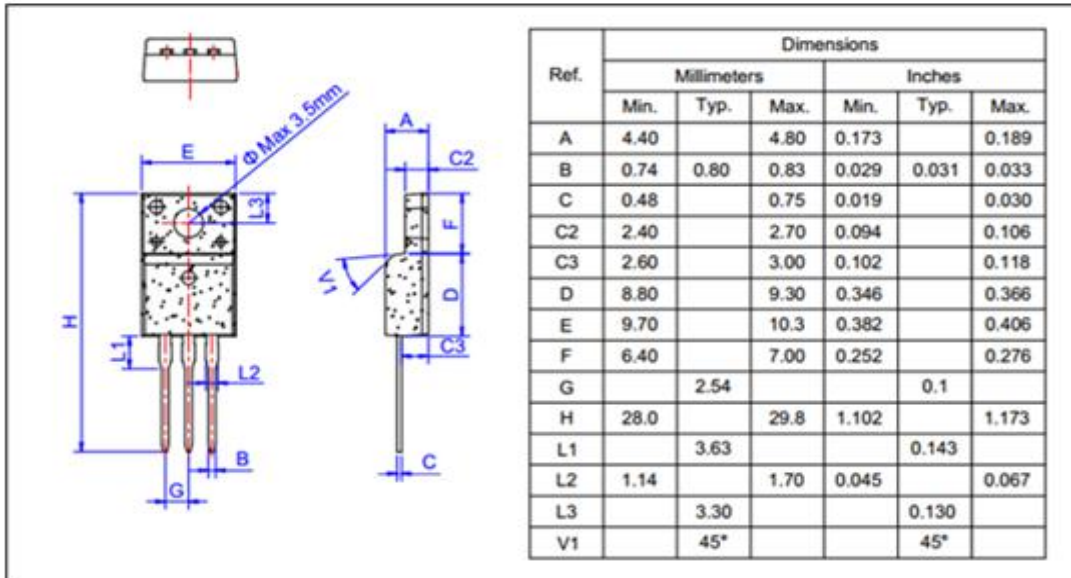
Ordering information scheme



TO-220M1 Package Mechanical Data



TO-220FW Package Mechanical Data



TO-252 Package Mechanical Data

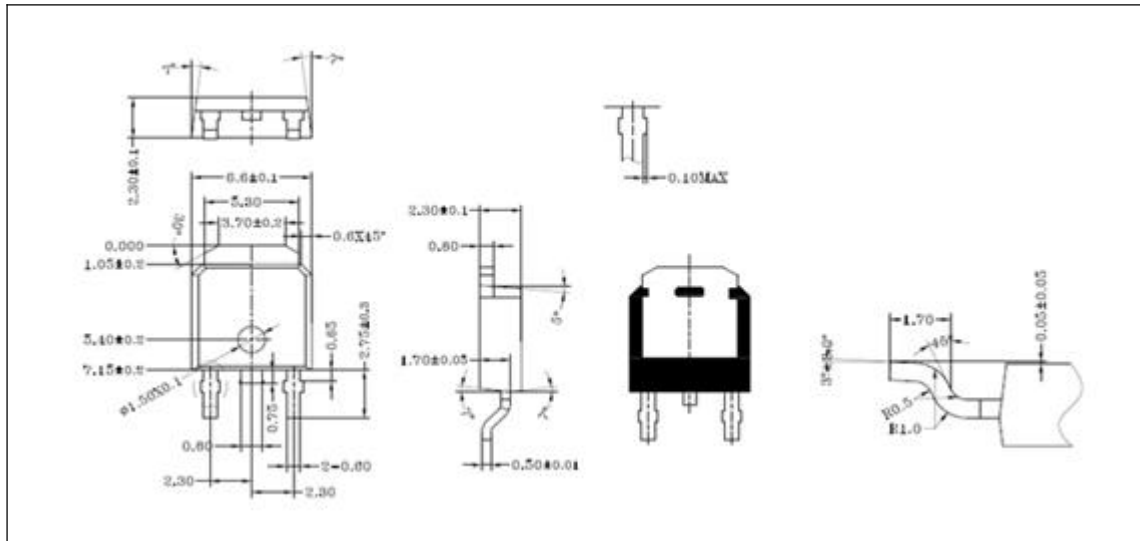


FIG.1 Maximum power dissipation versus Average on-state current

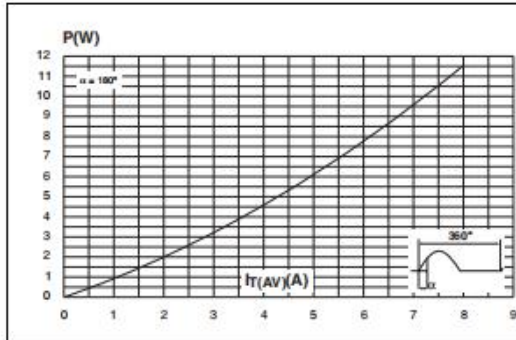


FIG.2: on-state current versus tmb temperature

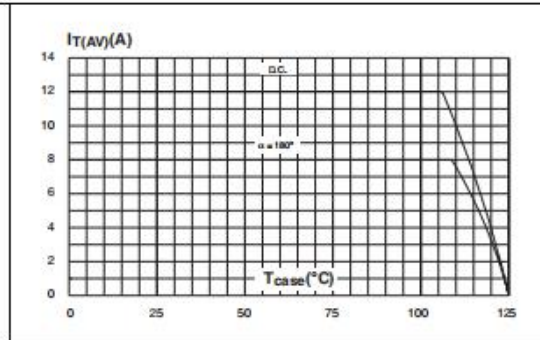


FIG.3: Surge peak on-state current versus number of cycles

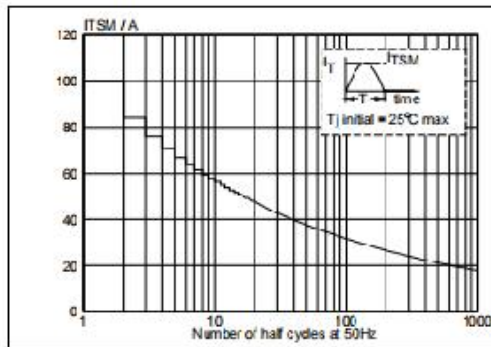


FIG.4: On-state characteristics (maximum values)

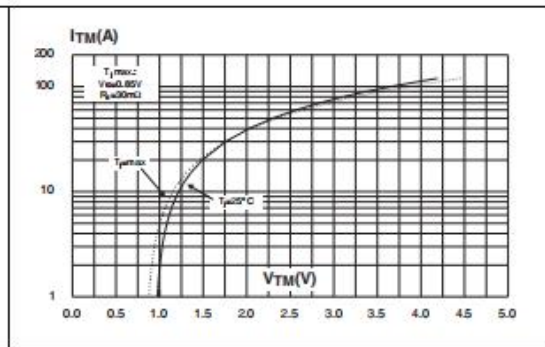


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I^2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

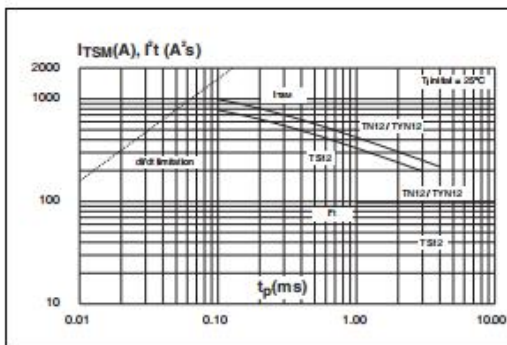


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

