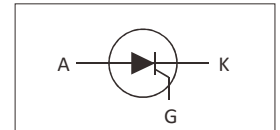


DESCRIPTION

The BT151-650R of silicon controlled rectifier , with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

MAIN FEATURES

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


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SCHEMATIC SYMBOL

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{DRM}	Repetitive peak off-state voltage	$T_J=25^\circ\text{C}$	650	V
V_{RRM}	Repetitive peak reverse voltage	$T_J=25^\circ\text{C}$	650	V
$I_{T(RMS)}$	RMS on-state current(360° conduction angle)	$T_C=100^\circ\text{C}$	12	A
I_{TSM}	Non repetitive surge peak on-state current	$T_P=10\text{ms}$	120	A
I^2t	I^2t value for fusing	$T_P=10\text{ms}$	72	A^2s
di_T/dt	Repetitive rate of rise of on-state current	$I_G=2I_{GT}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$T_J=25^\circ\text{C}$	2	A
P_{GM}	Peak gate power	$T_J=25^\circ\text{C}$	5	W
$P_{G(AV)}$	Average gate power dissipation	$T_J=25^\circ\text{C}$	0.5	W
T_{stg}	Storage temperature range		$-40\sim+150$	$^\circ\text{C}$
T_J	Operating junction temperature range		$-40\sim+125$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS($T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	4	15	V
V_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	0.75	1.5	V
V_{GD}	$V_D=V_{DRM} R_L=33\text{K}\Omega T_J=125^\circ\text{C}$	0.2	-	-	V
I_H	$I_T=500\text{mA}$	-	12	30	mA
I_L	$I_G=1.2I_{GT}$	-	12	40	mA
	$V_D=2/3V_{DRM}$ Gate Open $T_J=125^\circ\text{C}$	200	400	-	$\text{V}/\mu\text{s}$

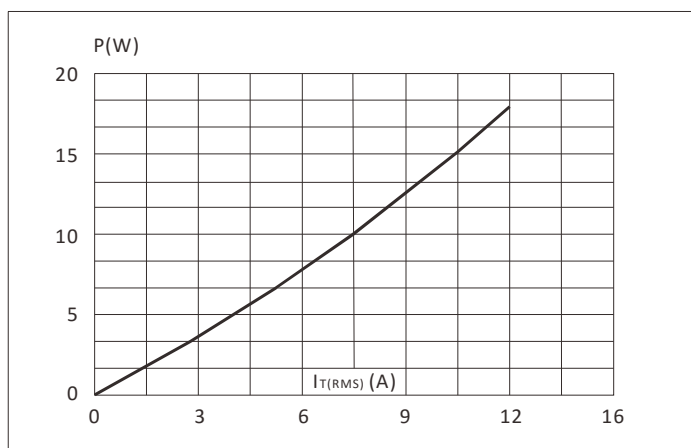
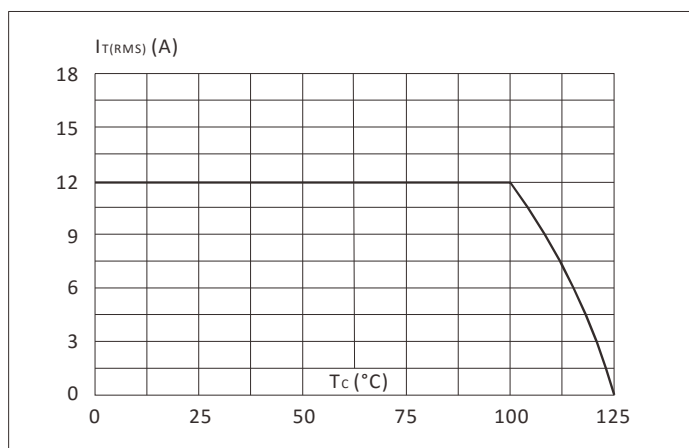
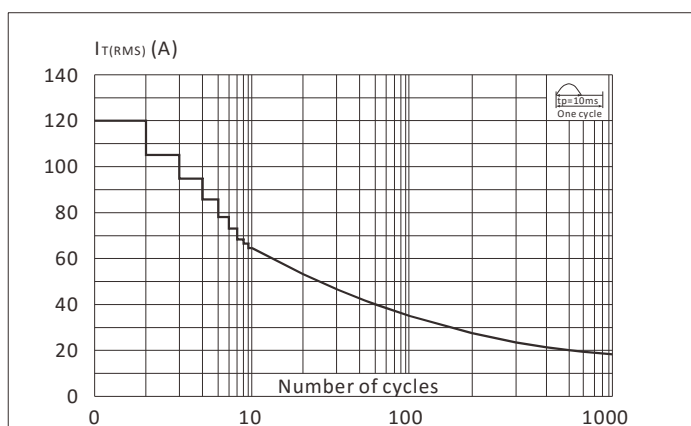
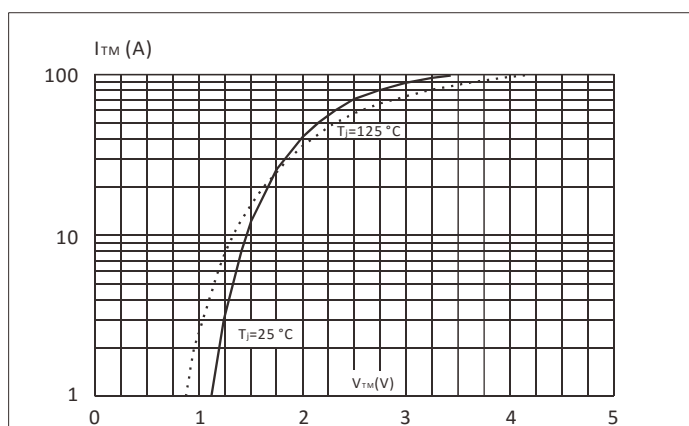


STATIC CHARACTERISTICS

Symbol	Parameter	Value	Unit
V_{TM}	$I_{TM}=23A$ $t_p=380\mu s$	$T_j=25^\circ C$	≤ 1.7 V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	≤ 10 uA
I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=125^\circ C$	≤ 1.0 mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-mb)}$	Junction to mounting base	1.7	$^\circ C/W$

RATINGS AND CHARACTERISTIC CURVES ($T_A=25^\circ C$ unless otherwise noted)

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)

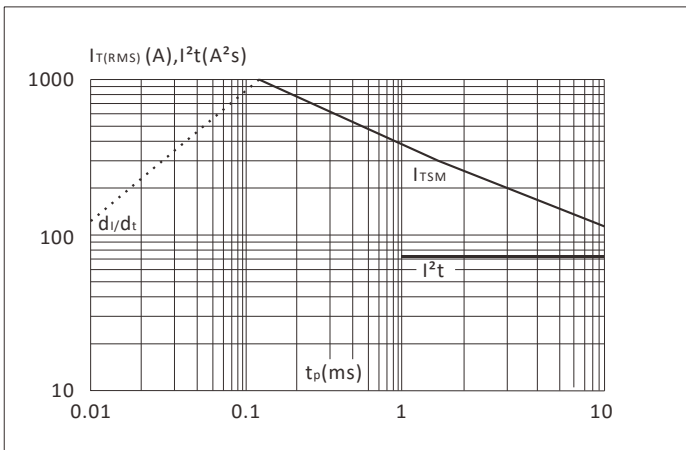



FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I_t(dI/dt < 50\text{A}/\mu\text{s})$

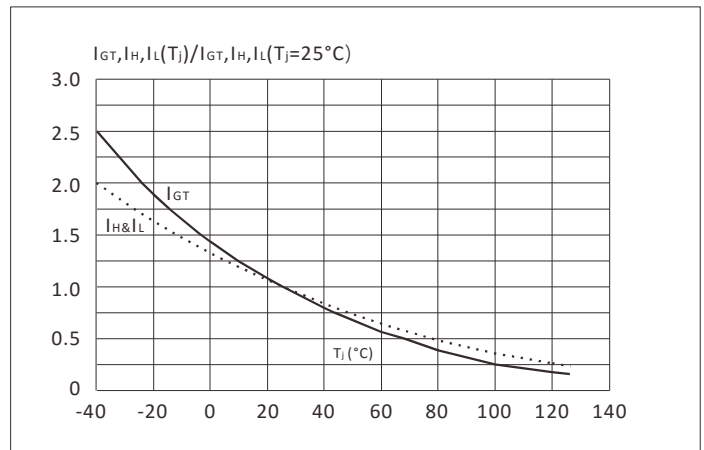
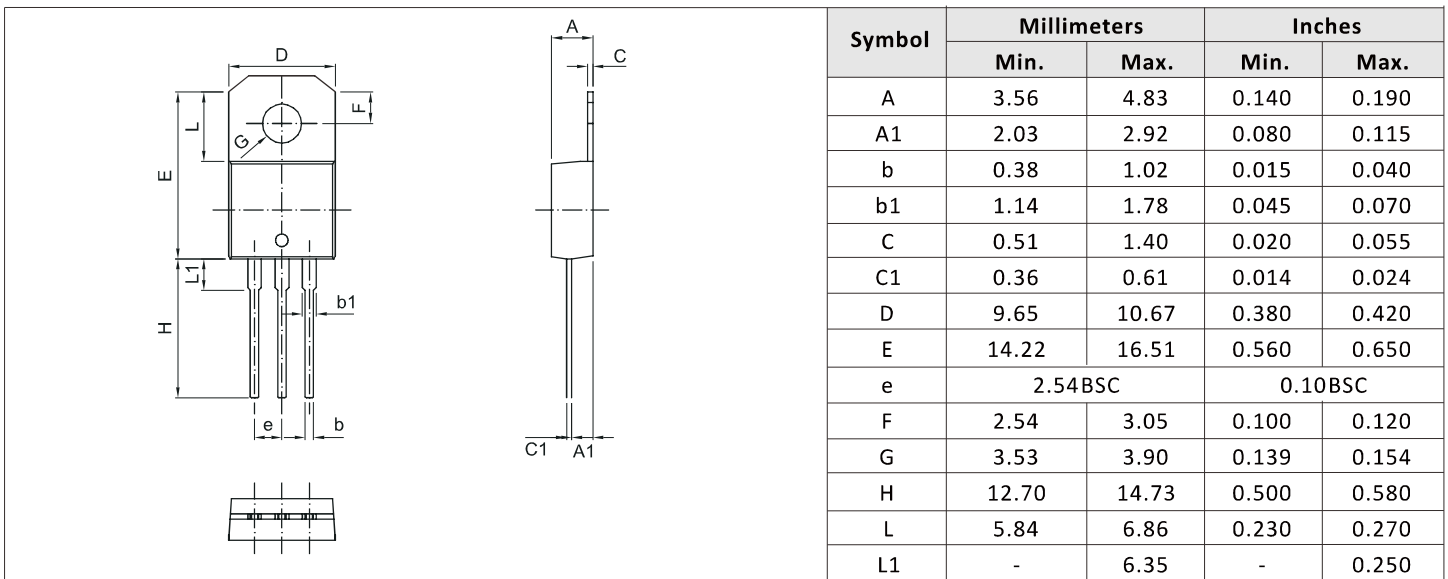


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

TO-220 PACKAGE INFORMATION



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