

GENERAL DESCRIPTION

Sensitive triggering SCR is suitable for the application where gate current limited such as small motor control, gate driver for large SCR, sensing and detecting circuits.

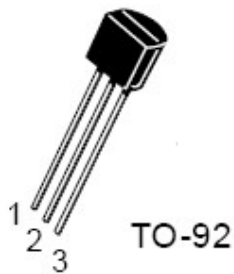
FEATURES

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$)= 1A)
- ◆ Low On-State Voltage (1.5V(Typ.)@ I_{TM})
- ◆ Available with tape & reel

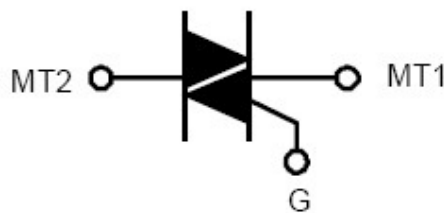
MAIN CHARACTERISTICS

V_{DRM}, V_{RRM}	Repetitive peak off-state voltages	500/600/800	V
$I_{T(RMS)}$	R.M.S on-state current	1	A
I_{TSM}	Surge On-State Current	16	A

PIN CONFIGURATION



SYMBOL



Absolute Maximum Ratings ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Condition		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	-		500/600/800	V
$I_{T(RMS)}$	R.M.S On-State Current	All Conduction Angle		1	A
I_{TSM}	Surge On-State Current	$t=20\text{ms}$ $t=16.7\text{ms}$		16 17.6	A
I^2t	I^2t for Fusing	$t = 10\text{ms}$		1.28	A^2s
di/dt	Repetitive Rate of Rise of On-State Current after Triggering	$I_{TM}=1.5\text{A}, I_G=0.2\text{A}, diG/dt=0.2\text{A}/\mu\text{s}$	I II III IV	50 50 50 10	$\text{A}/\mu\text{s}$
P_{GM}	Forward Peak Gate Power Dissipation	-		5	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	-		0.5	W
T_J	Operating Junction Temperature	-		- 40 ~ 125	$^\circ\text{C}$
T_{STG}	Storage Temperature	-		- 40 ~ 150	$^\circ\text{C}$

Electrical Characteristics (T_c = 25 °C unless otherwise noted)

Symbol	Items	Conditions	Ratings	Unit
I _D	Repetitive Peak Off-State Current	V _D = V _{DRM} Single Phase, Half Wave T _J =125°C	0.5	mA
V _{TM}	Peak On-State Voltage (1)	I _T =1.1A, Inst. Measurement	≤1.5	V
I _{GT}	Gate Trigger Current (2)	V _D = 12 V(DC), I _T = 0.1A	I I II III ≤4 IV ≤9	mA
V _{GT}	Gate Trigger Voltage (2)	V _D = 12V(DC)	≤1.3	V
V _{GD}	Non-Trigger Gate Voltage (1)	V _D = 2/3V _{DRM} , T _J = 125 °C	≥0.2	V
dv/dt	Critical Rate of Rise Off-State Voltage	V _D = 2/3V _{DRM} , T _J = 125 °C, RGK = 1000 Ω	≥5	V/uS
I _H	Holding Current	V _D = 12 V(DC), I _T = 0.2A	≤5	mA
R _{th(j-c)}	Thermal Impedance	Junction to case	60	°C/W
R _{th(j-a)}	Thermal Impedance	Junction to Ambient	150	°C/W

Notes :

1. Pulse Width ≤ 1.0 ms , Duty cycle ≤ 1%
2. Does not include RGK in measurement.

BT131 series

Figure 1. Maximum on -state Dissipation. P_{tot} vs RMS On-state Current, I_T(RMS), Where α = conduction Angle.

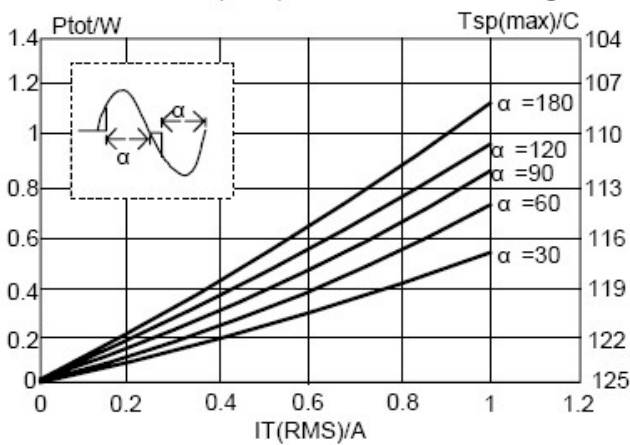
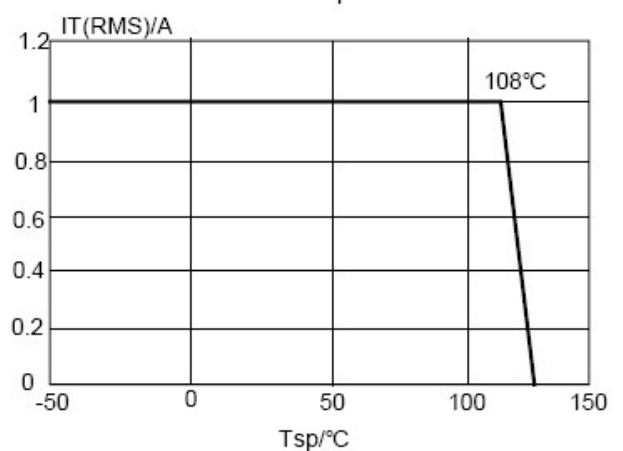


Figure 4. Maximum Permissible RMS Current I_T(RMS) vs Lead Temperature T_{lead}



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Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} , vs Pulse Width t_p , for Sinusoidal Currents, $t_p \leq 20ms$

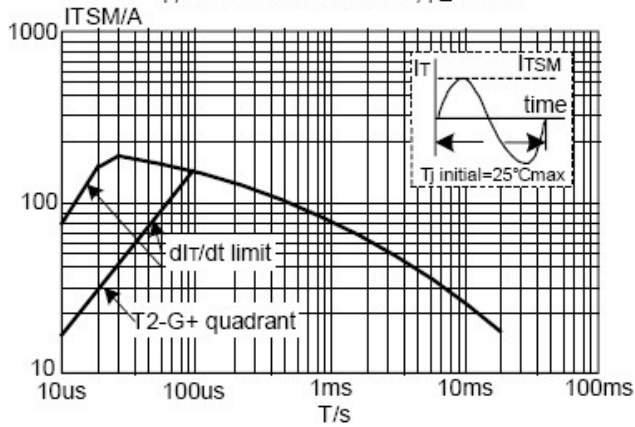


Figure 5. Maximum Permissible Repetitive RMS on-state Current I_T (RMS), vs Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{lead} \leq 51^\circ C$

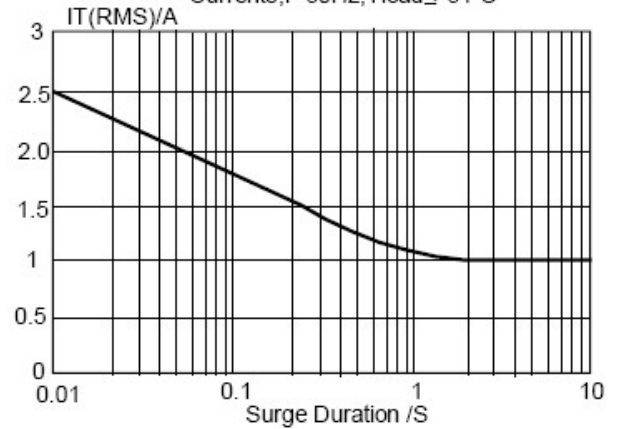


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current I_{TSM} , vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$

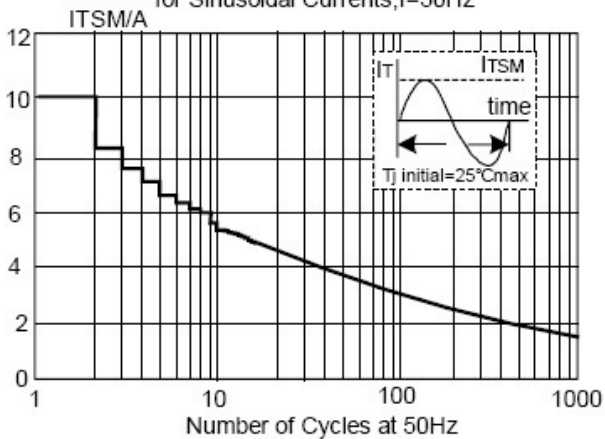


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j)/V_{GT}(25^\circ C)$, vs Junction Temperature T_j

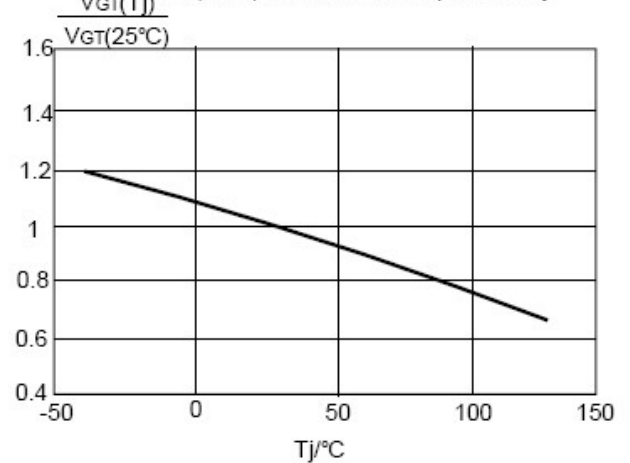


Figure 7. Normalised Gate Trigger current $I_{GT}(T_j)/I_{GT}(25^\circ C)$, vs Junction Temperature T_j

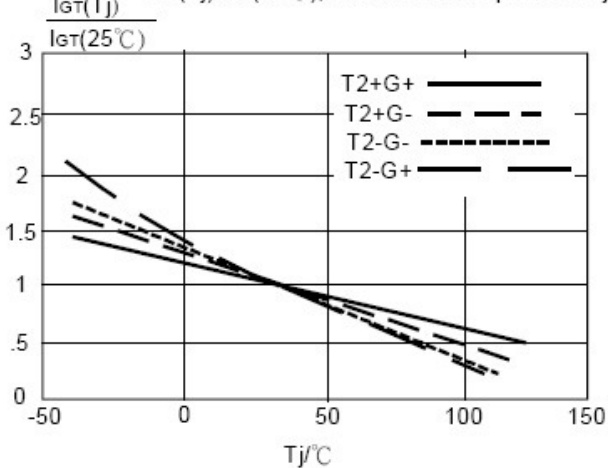
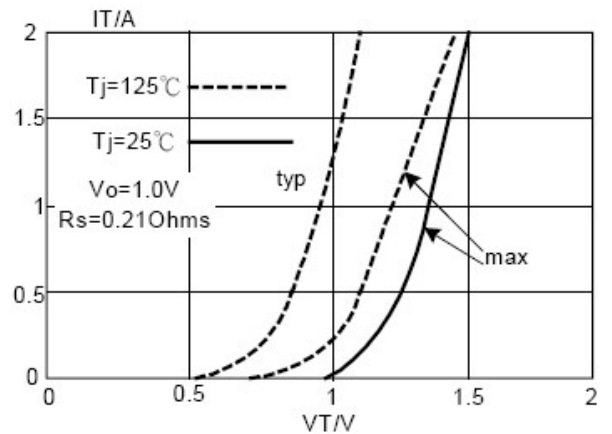


Figure 10. Typical and Maximum On-state Characteristic



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Figure 8. Normalised Latching Current $I_L(T_j)/I_L(25^\circ\text{C})$, vs Junction Temperature T_j

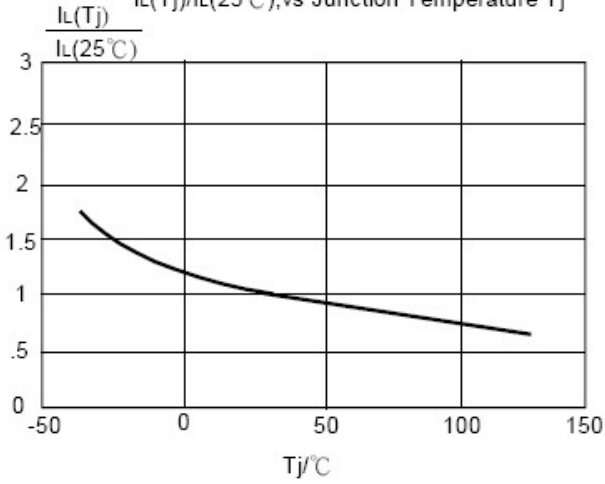


Figure 9. Normalised Holding Current $I_H(T_j)/I_H(25^\circ\text{C})$, vs Junction Temperature T_j

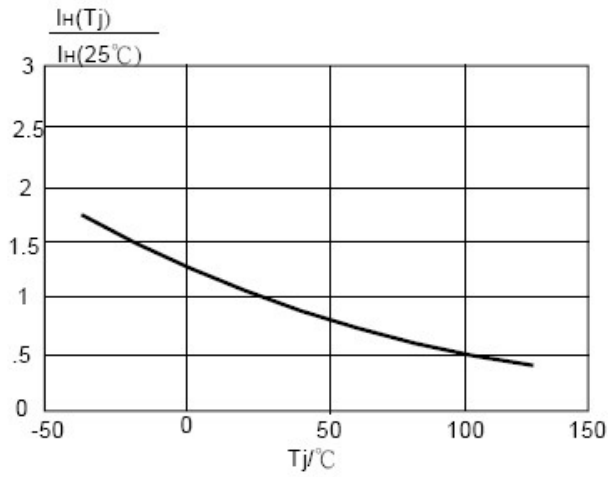


Figure 11. Transient Thermal Impedance $Z_{th\ j-sp}$, vs Pulse Width t_p

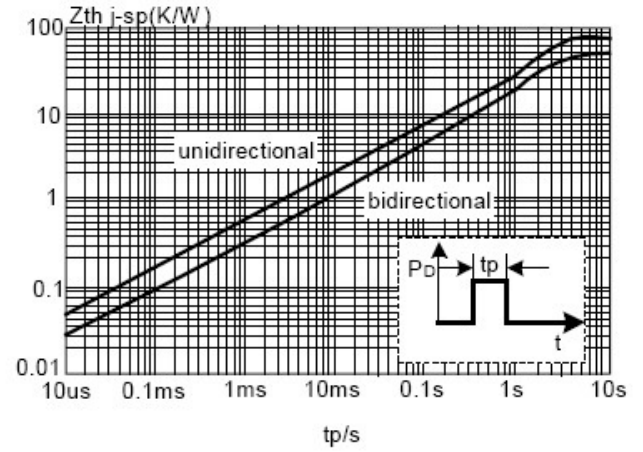
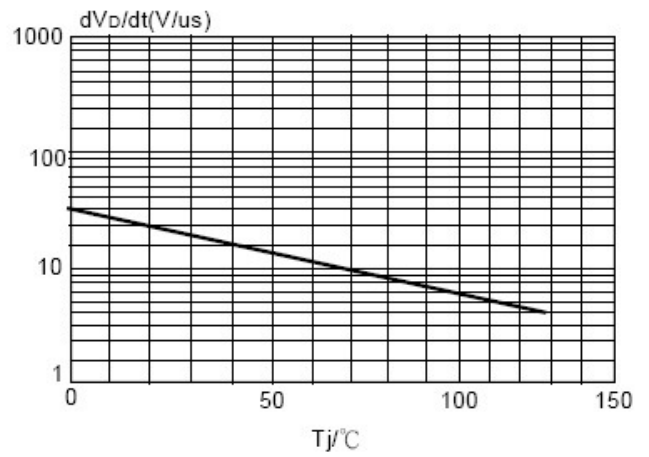
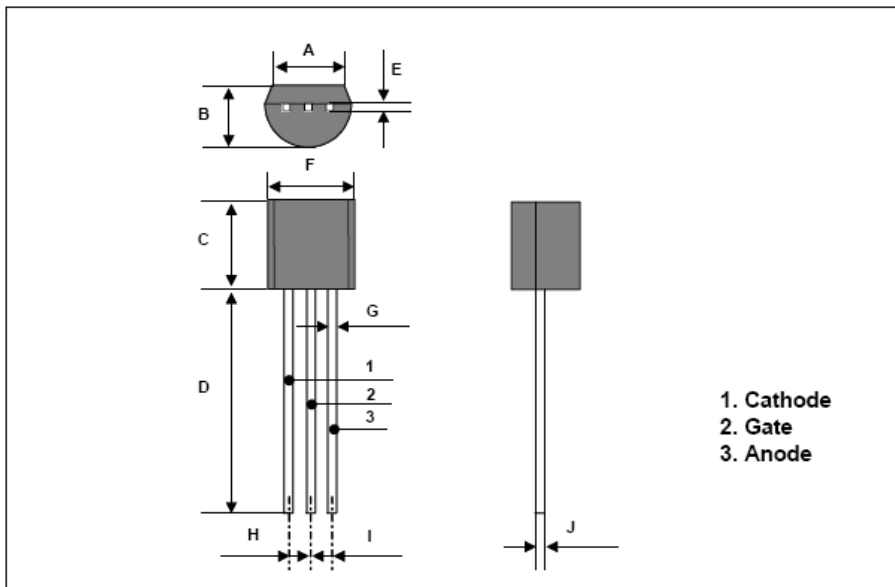


Figure 12. Typical Critical Rate of Rise of off-state Voltage, dV_D/dt vs Junction Temperature T_j



PACKAGE MECHANICAL DATA

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		4.2			0.165	
B			3.7			0.146
C	4.43		4.83	0.174		0.190
D	14.07		14.87	0.554		0.585
E			0.4			0.016
F	4.43		4.83	0.174		0.190
G			0.45			0.017
H		2.54			0.100	
I		2.54			0.100	
J	0.33		0.48	0.013		0.019



NOTE

1. Semiwill Semiconductor Inc. sales its product either through direct sales or sales agent, thus, for customers, when ordering , please check with our company.
2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Semiwill Semiconductor Inc. reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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