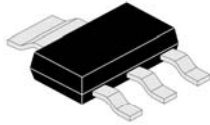


0.8A Sensitive Gate SCRs

BT169GW



SOT-223

Surface Mount

Plastic Package

RoHS compliant

SOT-223

GENERAL DESCRIPTION:

The BT169GW SCR series provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Repetitive peak off-state voltage	V_{DRM}	600	V
Repetitive peak reverse voltage	V_{RRM}	600	V
RMS on-state current (T _C =75°C)	$I_{T(RMS)}$	0.8	A
Non repetitive surge peak on-state current (t _p =10ms)	I_{TSM}	8	A
I ² t value for fusing (t _p =10ms)	I^2t	0.32	A ² s
Critical rate of rise of on-state current	di/dt	50	A/μs
Peak gate current (t _p =20μs, T _J =110°C)	I_{GM}	0.2	A
Peak gate power (t _p =20μs, T _J =110°C)	P_{GM}	0.5	W
Average gate power dissipation(T _J =110°C)	$P_{G(AV)}$	0.1	W
Operating junction temperature range	T _J	-40 to +110	°C
Storage Temperature range	T _{stg}	-40 to +150	°C

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Junction to case thermal resistance	R _{th(j-c)}	31	°C/W



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ELECTRICAL CHARACTERISTICS at ($T_a = 25\text{ }^{\circ}\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	VALUE			UNIT
			MIN	TYP	MAX	
Triggering gate current	I_{GT}	$V_D=12\text{V } R_L=33\Omega$	--	40	200	μA
Triggering gate voltage	V_{GT}		--	0.6	0.8	V
Non-triggering gate voltage	V_{GD}	$V_D=V_{DRM} \text{ } T_J=110^{\circ}\text{C}$	0.2	--	--	V
Latching current	I_L	$I_G=1.2 I_{GT}$	--	--	6	mA
Holding current	I_H	$I_T=0.05\text{A}$	--	--	5	mA
Critical rate of rise of off-state voltage	dV/dt	$V_D=2/3V_{DRM} \text{ } T_J=110^{\circ}\text{C}$ $R_{GK}=1\text{K}\Omega$	200	--	--	$\text{V}/\mu\text{s}$
STATIC CHARACTERISTICS						
Peak on-state voltage drop	V_{TM}	$I_T=1.1\text{A } t_p=380\mu\text{s } T_J=25^{\circ}\text{C}$	--	--	1.5	V
Maximum forward leakage current	I_{DRM}	$V_D=V_{DRM} \text{ } T_J=25^{\circ}\text{C}$	--	--	5	μA
Maximum reverse leakage current	I_{RRM}	$V_R=V_{RRM} \text{ } T_J=110^{\circ}\text{C}$	--	--	100	μA

TYPICAL CHARACTERISTICS CURVES

Fig 1: Maximum power dissipation versus RMS on-state current

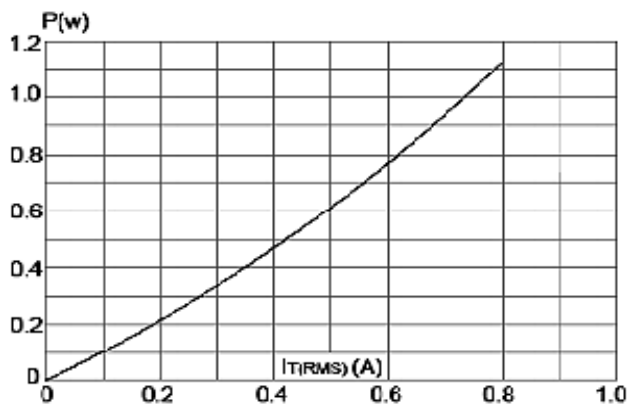


Fig 2: RMS on-state current versus case temperature

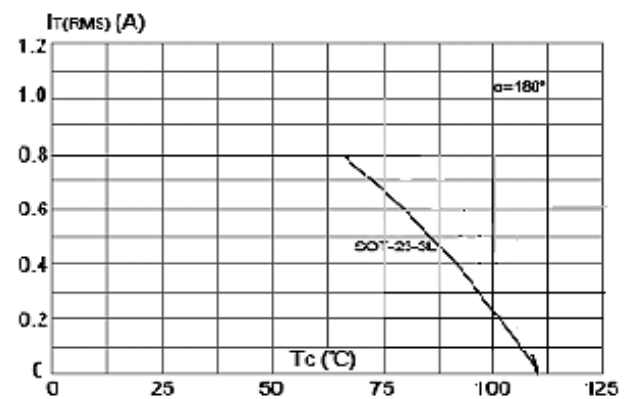


Fig 3: Surge peak on-state current versus number of cycles

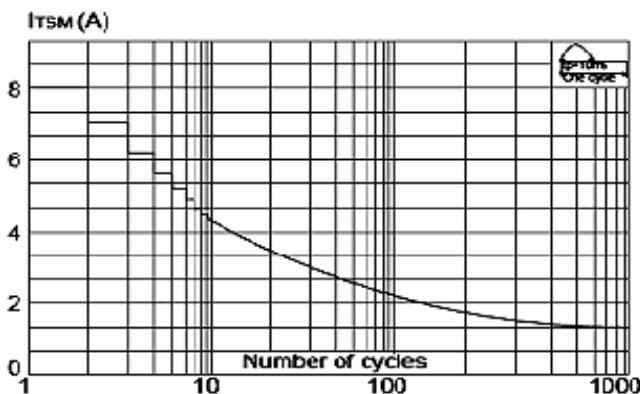


Fig 4: On-state characteristics (maximum value)

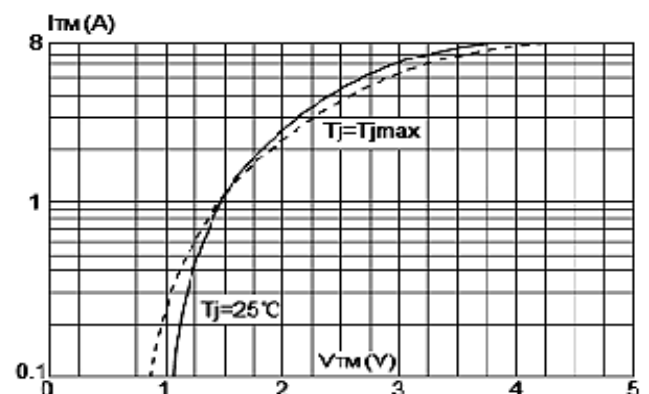


Fig 5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t

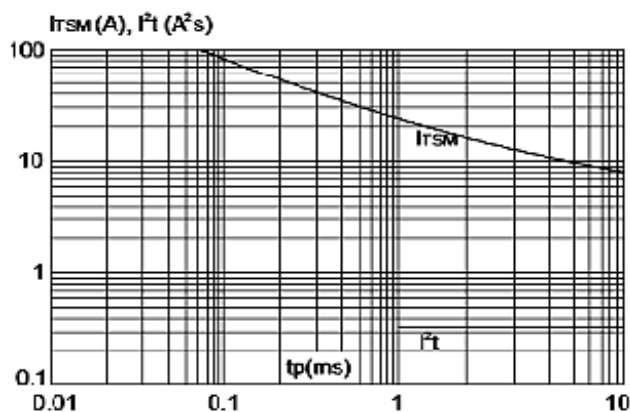
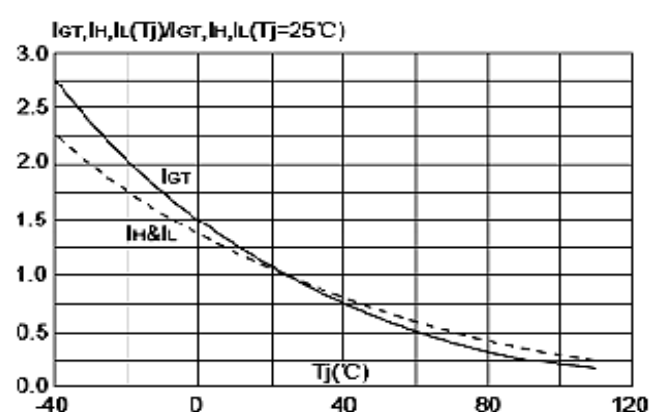


Fig 6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





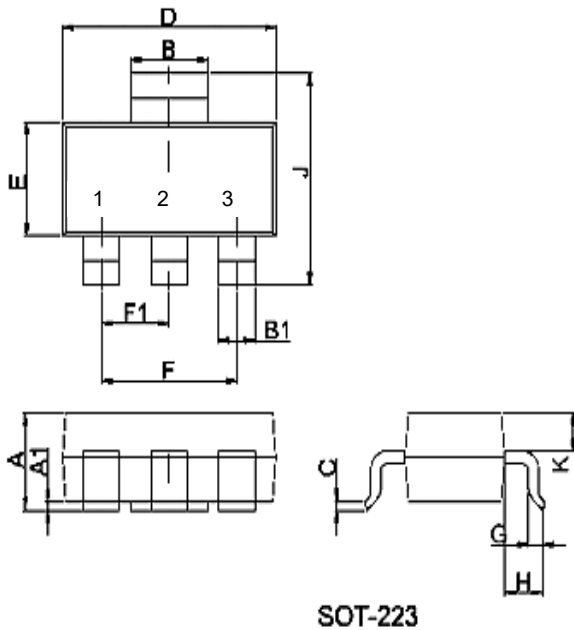
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PACKAGE DETAILS

SOT-223 Surface Mount Plastic Package



Ref	Dimension					
	Millimeters			Inches		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0	0.06	0.10	0	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2.0	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K	0.8	1.0	1.0	0.031	0.035	0.039

Pin Details

1. Cathode
2. Anode
3. Gate



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Recommended Product Storage Environment for Discrete Semiconductor Devices

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
 - Humidity between 40 to 70 %RH
 - Air should be clean.
 - Avoid harmful gas or dust.
 - Avoid outdoor exposure or storage in areas subject to rain or water spraying .
 - Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
 - Avoid rapid change of temperature.
 - Avoid condensation.
 - Mechanical stress such as vibration and impact shall be avoided.
 - The product shall not be placed directly on the floor.
 - The product shall be stored on a plane area. They should not be turned upside down.
- They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start.

For this, the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤30 °C / 85% RH
2	1 Year	≤30 °C / 60% RH
2a	4 Weeks	≤30 °C / 60% RH
3	168 Hours	≤30 °C / 60% RH
4	72 Hours	≤30 °C / 60% RH
5	48 Hours	≤30 °C / 60% RH
5a	24 Hours	≤30 °C / 60% RH
6	Time on Label(TOL)	≤30 °C / 60% RH



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Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



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BT169GW

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