

Silicon Controlled Rectifier series

1 Description

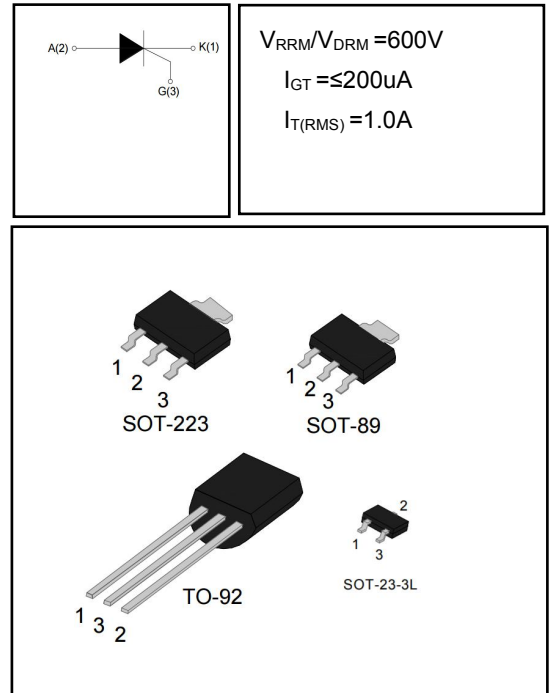
MCR100-8 Micro trigger series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state

2 Features

- High current output up to 1.0A
- Low Peak on-state voltage drop
- High voltage
- High reliability

3 Applications

- Solid state switches etc ·
- Automatic gas lighter,
- battery charger ·
- For capacitive discharge ignitions, motor control
- in kitchen aids, over voltage crowbar protection
- in low power supplies applications



4 Electrical Characteristics

4.1 Absolute Maximum Ratings (T_c=25°C, unless otherwise noted)

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	SOT-89/SOT-223, T _c =70°C	I _{T(RMS)}	1.0	A
	TO-92, T _c =60°C			
Non repetitive surge peak Off-state voltage		V _{DSM}	+ 100	V
Non repetitive peak reverse voltage		V _{RSM}	+ 100	V
Non repetitive surge peak on-state current	tp=8.3ms	I _{TSM}	12	A
	tp=10ms		10	
I ² t value for fusing (tp=10ms)		I ² t	0.4	A
Repetitive rate of rise of on-state current (I _G =2×I _{GT})		dI _T /dt	50	A/us
Peak gate current(tp=20μs, T _j =110°C)		I _{GM}	0.2	A
Peak gate power(tp=20μs, T _j =110°C)		P _{GM}	0.5	W
Average gate power dissipation(tp=20μs, T _j =110°C)		P _{G(AV)}	0.1	W
Operating junction temperature range		T _J	- 40 ~ 115	°C
Storage junction temperature range		T _{STG}	- 40 ~ 150	°C

4.2 Thermal Characteristics

PARAMETER	SYMBOL	VALUE			UNIT
		TO-92	SOT-89	SOT-223	
Thermal Resistance, Junction to Case-sink	R _{thJC}	50	28	25	°C/W

4.3 Electrical Characteristics (Tc=25°C, unless otherwise noted)

SYMBOL	PARAMETER	Test Conditions	Min	Typ	Max	Unit	
I _{GT}	Triggering gate current	V _D =12V R _L =33Ω	-	40	120	uA	
V _{GT}	Triggering gate voltage		-	0.6	0.9	V	
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} T _j =125°C R _L =3.3KΩ	0.1	-	-	V	
I _L	Latching Current	I _G =1.2I _{GT}	-	-	6	mA	
I _H	Holding Current	I _T =50mA	-	-	5	mA	
dV/dt	Critical Rate of Rise of Off-state Voltage	V _D =2/3V _{DRM} Gate Open T _j =110°C	20	-	-	V/us	
V _{TM}	Peak Forward On-State Voltage	I _{TM} =1.5A tp=380us	-	1.32	1.6	V	
I _{DRM}	Maximum forward or reverse leakage current	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	-	-	5	uA
I _{RRM}	Maximum reverse leakage current		T _j =110°C	-	-	100	uA

5 Typical characteristics diagrams

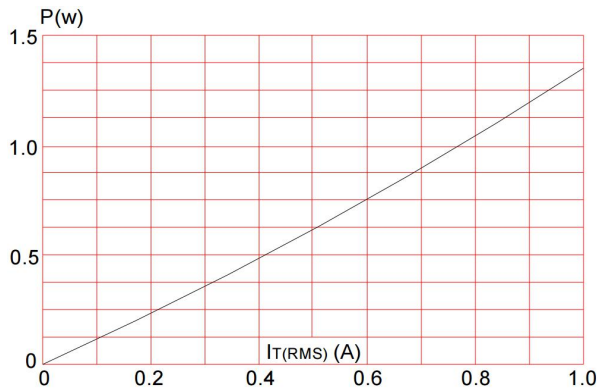


FIG.1: Maximum power dissipation versus RMS on-state current

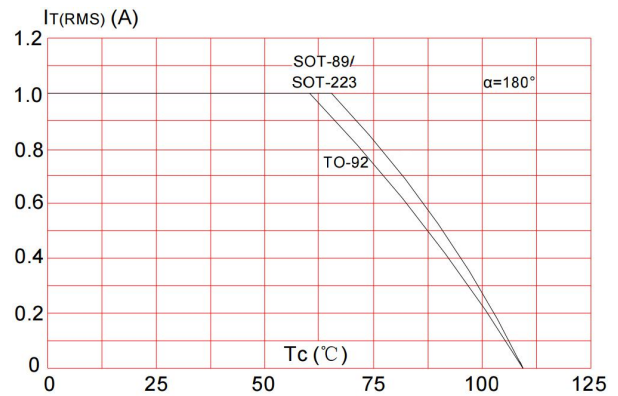


FIG.2: RMS on-state current versus case temperature

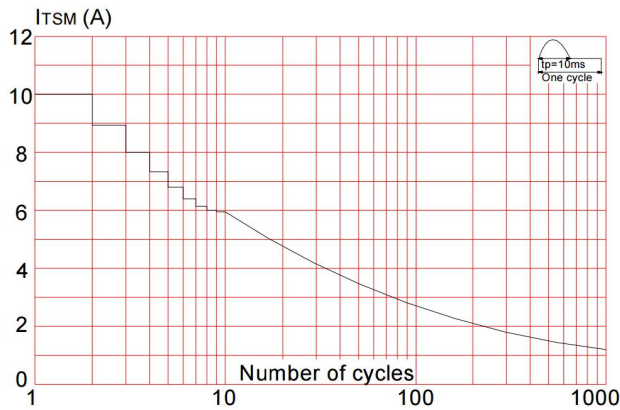


FIG.3: Surge peak on-state current versus number of cycles

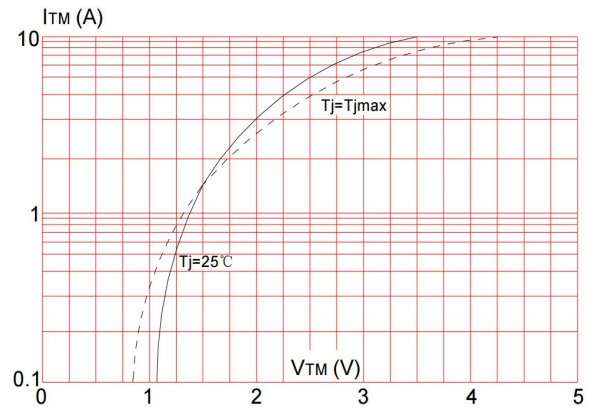


FIG.4: On-state characteristics (maximum values)

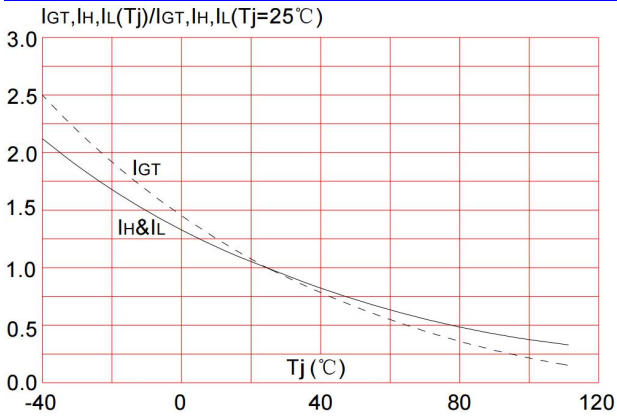
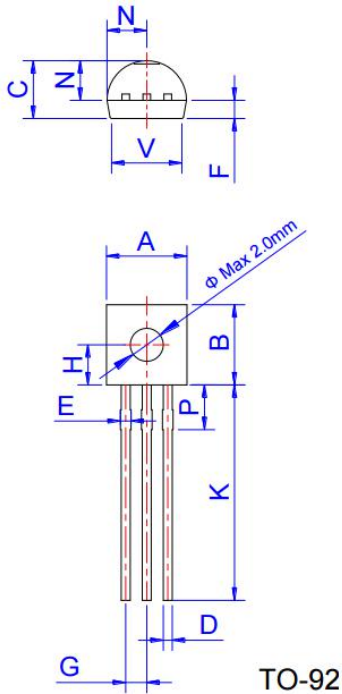
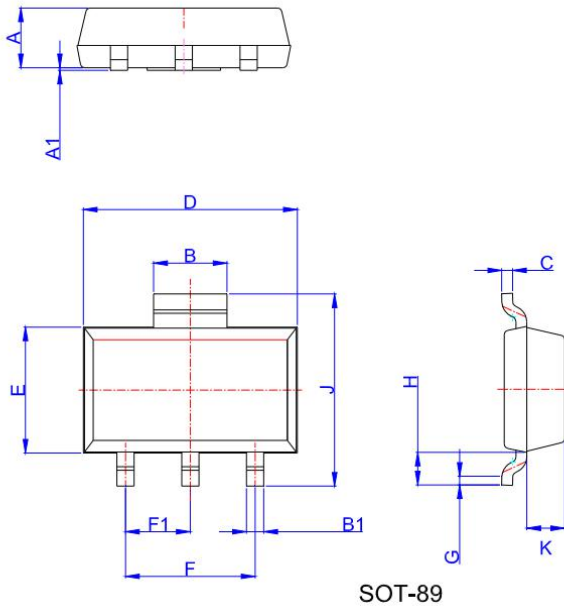


FIG.5: Relative variations of gate trigger current, holding current and latching current versus junction temperature

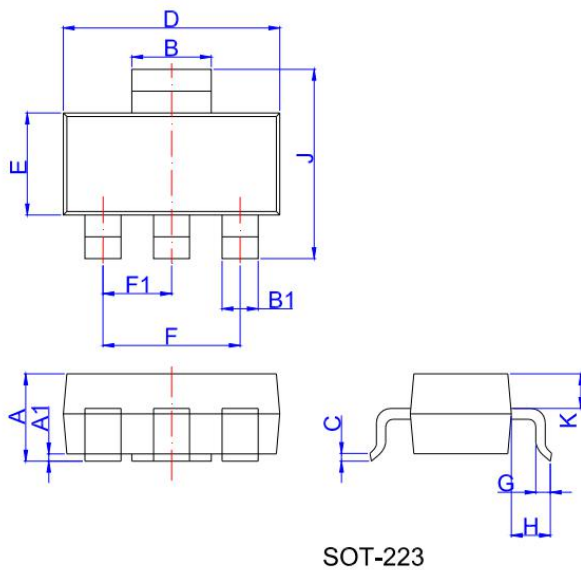
6Dimensions



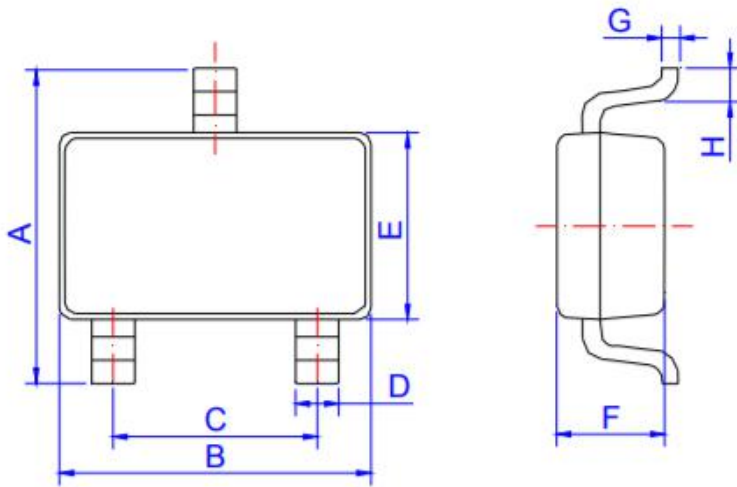
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.56		5.00	0.179		0.197
B	4.56		5.00	0.179		0.197
C	3.30		3.60	0.130		0.142
D	0.50		0.60	0.020		0.024
E	0.60		0.80	0.024		0.032
F	-	1.1	-		0.043	
G	-	1.27	-	-	0.050	-
H	-	2.43	-	-	0.096	-
J	0.36		0.50	0.014		0.020
K	11.50	13.00	14.20	0.453	0.512	0.559
N	2.04		2.66	0.080		0.105
P	2.50		2.90	0.098		0.114
V	-		4.3	-		0.169



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.3	1.4	1.5	0.051	0.055	0.059
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	1.6	1.7	1.8	0.063	0.067	0.071
B1	0.3	0.4	0.5	0.012	0.016	0.020
C	0.22	0.254	0.32	0.009	0.010	0.013
D	4.75	4.95	5.15	0.187	0.195	0.203
E	2.75	2.95	3.15	0.108	0.116	0.124
F		3.0			0.118	
F1		1.5			0.059	
G	0.2	0.3	0.4	0.008	0.012	0.016
H	0.58	0.78	0.98	0.023	0.031	0.039
J	4.3	4.5	4.7	0.169	0.177	0.185
K		0.88			0.035	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	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	0.9	1.0	0.031	0.035	0.039



SOT-23-3L

Ref.	Dimensions		
	Millimeters 5		
	Min.	Typ.	Max.
A	2.30	2.40	2.50
B	2.80	2.90	3.00
C	1.80	1.90	2.00
D	0.30	0.35	0.50
E	1.20	1.30	1.40
F	0.90	1.00	1.10
G	0.05	0.10	0.20
H	0.25	0.40	0.55

7 Attentions

- Jiangsu Donghai Semiconductor Technology Co., Ltd. reserves the right to change the specification without prior notice! The customer should obtain the latest version of the information before making the order and verify that the information is complete and up to date.
- It is the responsibility of the purchaser for any failure or failure of any semiconductor product under certain conditions. It is the responsibility of the purchaser to comply with safety standards and to take safety measures in the system design and machine manufacturing of WXDH products in order to avoid potential risk of failure. Injury or property damage.
- Product promotion is endless, our company will be dedicated to provide customers with better products.

8 Appendix

Revision history:

Date	REV.	Description	Page
2018.03.02	1.0	Original	