



Jiangsu Weida Semiconductor Co., Ltd.

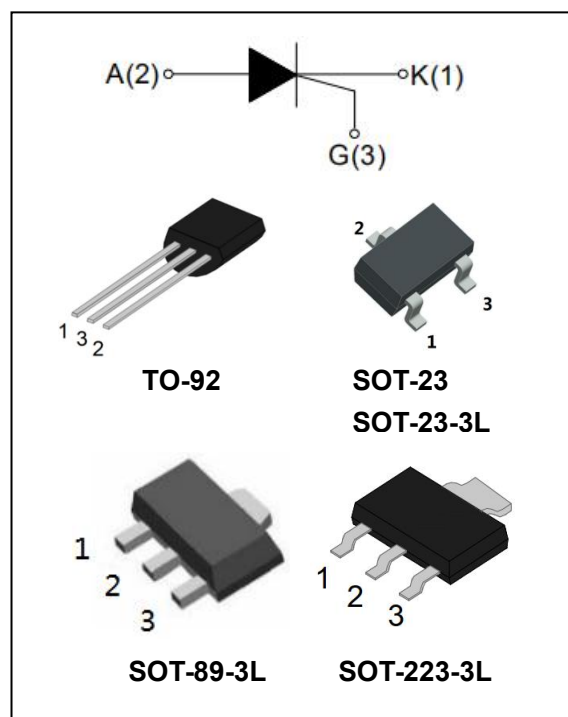
MCR100-8 Series 1A Sensitive SCRs

DESCRIPTION:

The MCR100-8 SCR series provide high dv/dt rate with strong resistance to electromagnetic interface. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

MAIN FEATURES:

symbol	value	unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	800	V
V_{TM}	≤ 1.5	V



ABSOLUTE MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40~150	°C
Operating junction temperature range	T_j	-40~110	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	800	V
RMS on-state current ($T_c=80^\circ\text{C}$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)	I_{TSM}	10	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	0.5	A^2s
Critical rate of rise of on-state current ($I_G=2\times I_{GT}$)	di/dt	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	0.2	A
Average gate power dissipation	$P_{G(AV)}$	0.1	W
Peak gate power	P_{GM}	0.5	W



Jiangsu Weida Semiconductor Co., Ltd.
MCR100-8 Series 1A Sensitive SCRs

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

Symbol	Test Condition	Value			Unit
		MIN	TYPE	MAX	
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	-	20	200	μA
V_{GT}		-	0.5	1.0	V
V_{GD}	$V_D=V_{DRM} T_j=110^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	0.2	-	-	V
I_H	$I_T=50\text{mA}$	-	-	2	mA
I_L	$I_G=1.2I_{GT}$	-	-	3	mA
dV/dt	$V_D=0.66 \times V_{DRM} T_j=110^{\circ}\text{C}$ G 极开路 $R_{GK}=1\text{k}\Omega$	20	-	-	$\text{V}/\mu\text{s}$

STATIC CHARACTERISTICS

Symbol	Test Condition			Value	Unit
V_{TM}	$I_{TM}=2\text{A} \quad t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	MAX	1.5	V
I_{DRM} I_{RRM}	$V_{DRM}=V_{RRM}$ $R_{GK}=1\text{k}\Omega$	$T_j=25^{\circ}\text{C}$	MAX	5	μA
		$T_j=110^{\circ}\text{C}$		100	μA

THERMAL RESISTANCES

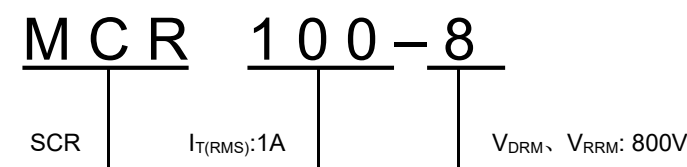
Symbol	Test Condition		Value	Unit
$R_{th(j-c)}$	结到外壳(AC)	SOT-223-3L	25	$^{\circ}\text{C}/W$
		TO-92	50	
		SOT-23 SOT-23-3L		
		SOT-89-3L	28	



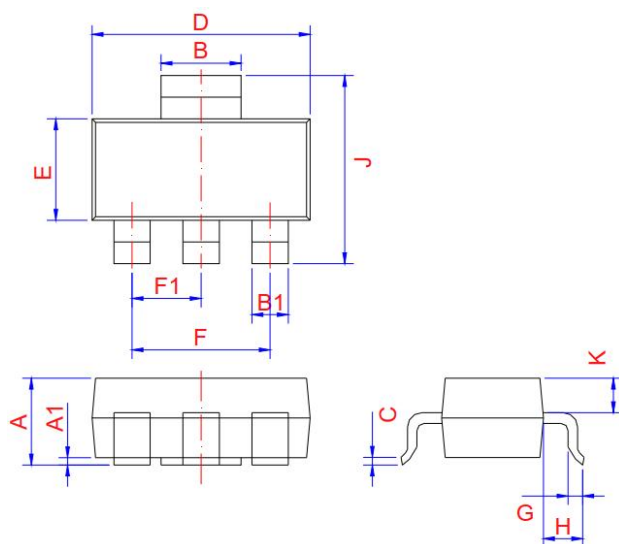
Jiangsu Weida Semiconductor Co., Ltd.

MCR100-8 Series 1A Sensitive SCRs

ORDERING INFORMATION

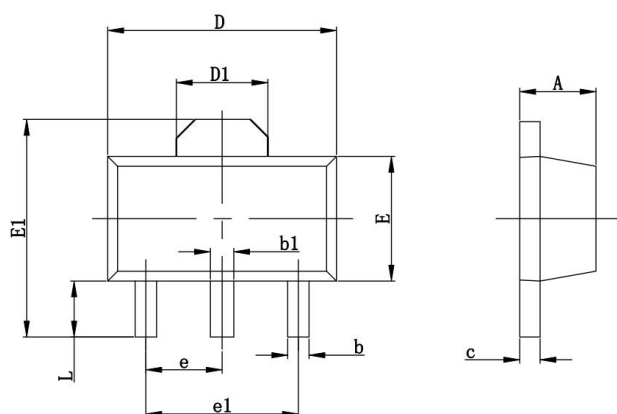


PACKAGE MECHANICAL DATA



SOT-223-3L

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	0.25	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	6.8	0.252	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



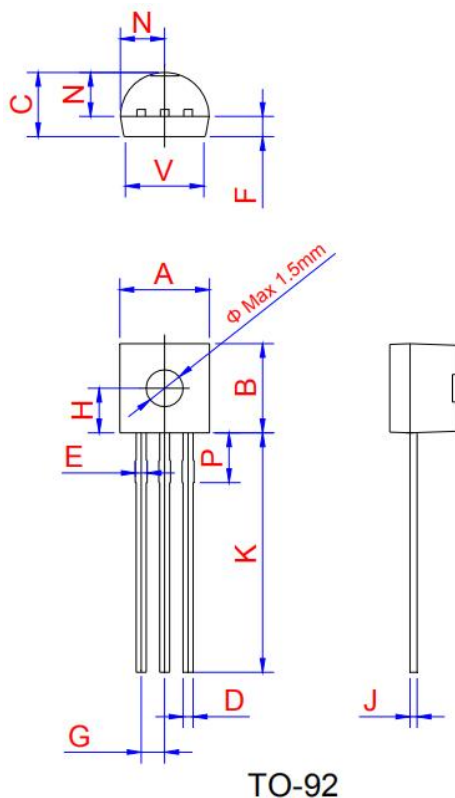
SOT-89-3L

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.4		1.6	0.055		0.063
b	0.35		0.52	0.013		0.197
b1	0.4		0.58	0.016		0.023
c	0.35		0.44	0.014		0.017
D	4.4		4.6	0.173		0.181
D1		1.55			0.061	
E	2.35		2.55	0.091		0.102
E1	3.94		4.25	0.155		0.167
e		1.500			0.060	
e1		3.000			0.118	
L	0.9		1.1	0.035		0.047



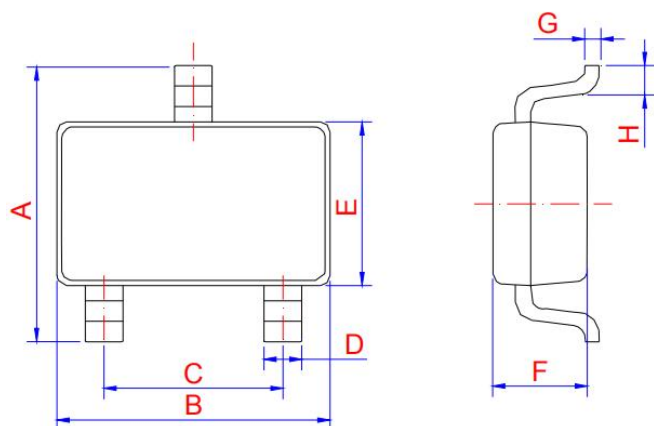
Jiangsu Weida Semiconductor Co., Ltd.

MCR100-8 Series 1A Sensitive SCRs



TO-92

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45	4.6	5.2	0.175	0.181	0.205
B	4.32	4.6	5.33	0.17	0.181	0.21
C	3.18	3.55	4.19	0.125	0.14	0.165
D	0.407		0.533	0.016		0.021
E	0.6		0.8	0.024	0	0.031
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.05	-
H	-	2.3	-	-	0.091	-
J	0.36	0.38	0.5	0.014	0.015	0.02
K	12.7		15	0.5		0.591
N	2.04	2.3	2.66	0.08	0.091	0.105
P	1.86		2.06	0.073		0.081
V	-		4.3	-		0.169

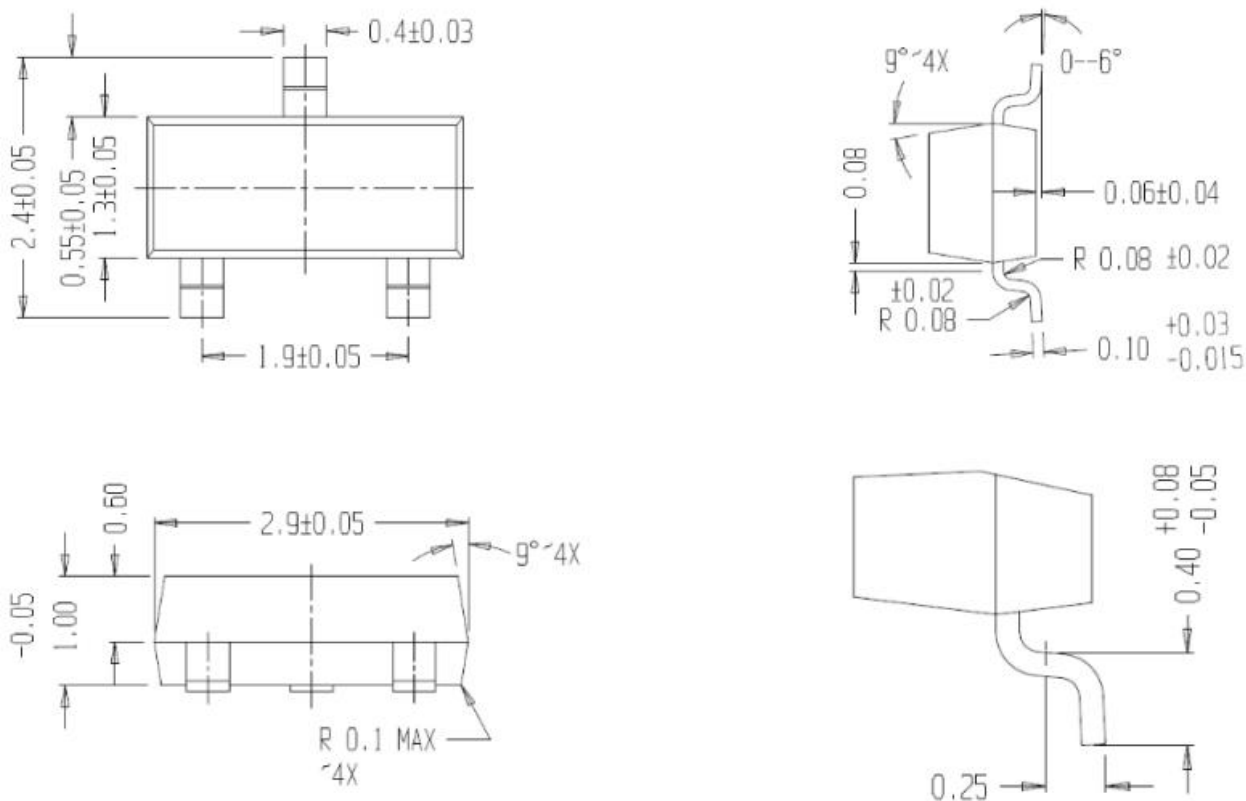


SOT-23-3L

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.65	2.8	2.95	0.104	0.11	0.116
B	2.82	2.92	3.02	0.111	0.115	0.119
C	1.8	1.9	2	0.071	0.075	0.079
D	0.3	0.35	0.5	0.012	0.014	0.02
E	1.5	1.6	1.7	0.059	0.063	0.067
F	1.07	1.17	1.27	0.042	0.046	0.05
G	0.05	0.15	0.25	0.002	0.006	0.01
H	0.25	0.4	0.55	0.01	0.016	0.022



Jiangsu Weida Semiconductor Co., Ltd.
MCR100-8 Series 1A Sensitive SCRs



SOT-23

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

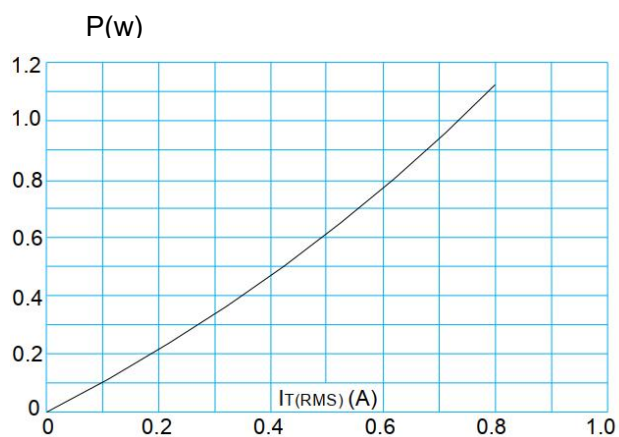
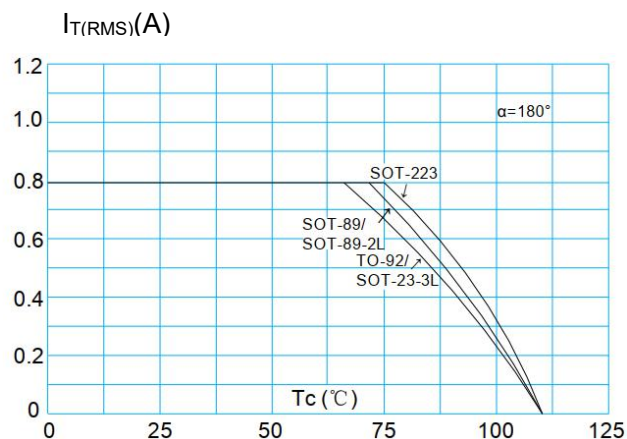


FIG.2: RMS on-state current versus case temperature





Jiangsu Weida Semiconductor Co., Ltd.

MCR100-8 Series 1A Sensitive SCRs

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

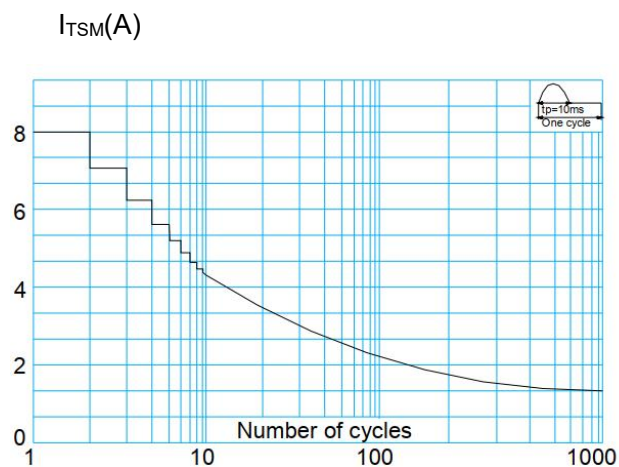


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of $I^2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

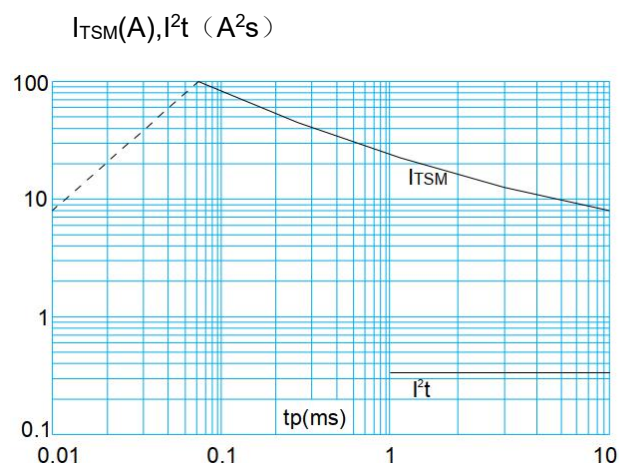


FIG.4: On-state characteristics (maximum values)

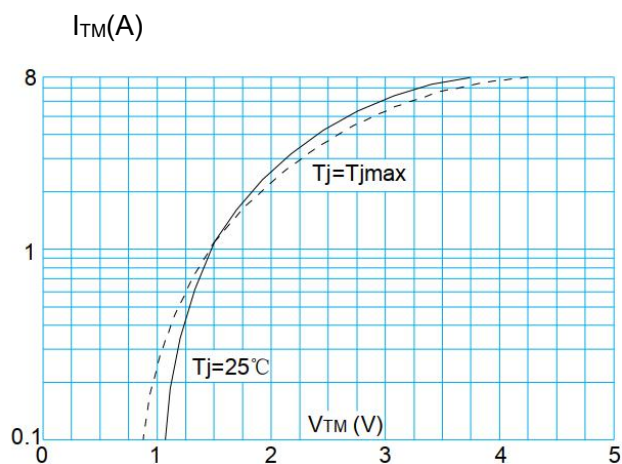
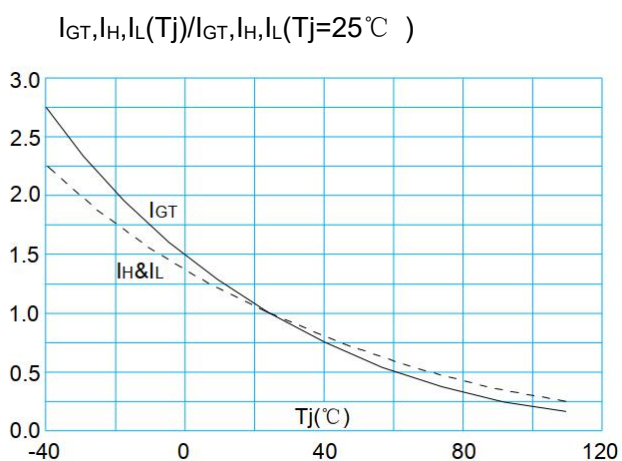


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





Jiangsu Weida Semiconductor Co., Ltd.
MCR100-8 Series 1A Sensitive SCRs

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu Weida Semiconductor Co., Ltd assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.

Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu Weida Semiconductor Co., Ltd complies with the agreement.

Products and information provided in this document have no infringement of patents. Jiangsu Weida Semiconductor Co., Ltd assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information.