



# Jiangsu Weida Semiconductor Co., Ltd.

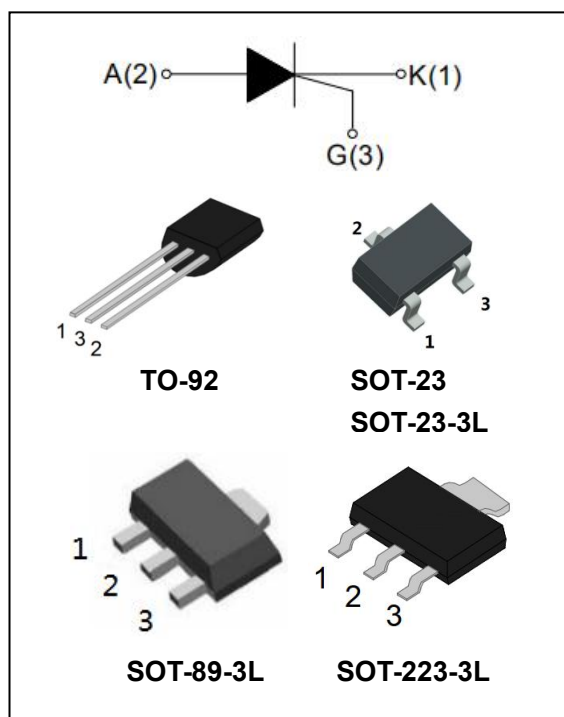
## MCR100-8 Series 0.8A Sensitive SCRs

### DESCRIPTION:

The MCR100-8 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.

### MAIN FEATURES:

symbol	value	unit
$I_{T(RMS)}$	0.8	A
$V_{DRM}/V_{RRM}$	800	V
$V_{TM}$	$\leq 1.5$	V



### ABSOLUTE MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40~150	$^{\circ}C$
Operating junction temperature range	$T_j$	-40~110	$^{\circ}C$
Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )	$V_{DRM}$	800	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )	$V_{RRM}$	800	V
RMS on-state current ( $T_c=80^{\circ}C$ )	$I_{T(RMS)}$	0.8	A
Non repetitive surge peak on-state current (full cycle, $F=50Hz$ )	$I_{TSM}$	8	A
$I^2t$ value for fusing ( $t_p=10ms$ )	$I^2t$	0.5	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	$di/dt$	50	$A/\mu s$
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



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**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	$\mu\text{A}$
$V_{GT}$		-	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	-	-	V/ $\mu\text{s}$

**STATIC CHARACTERISTICS**

Symbol	Test Condition		Value	Unit
$V_{TM}$	$I_{TM}=2\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	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 $\mu\text{A}$
		$T_j=110^\circ\text{C}$		100 $\mu\text{A}$

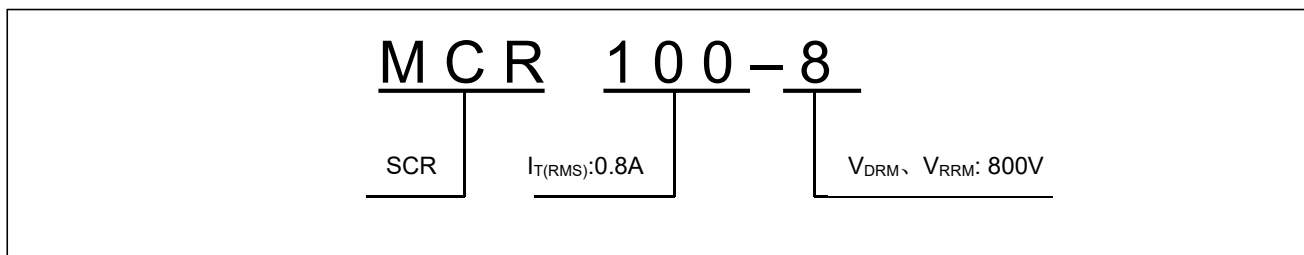
**THERMAL RESISTANCES**

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

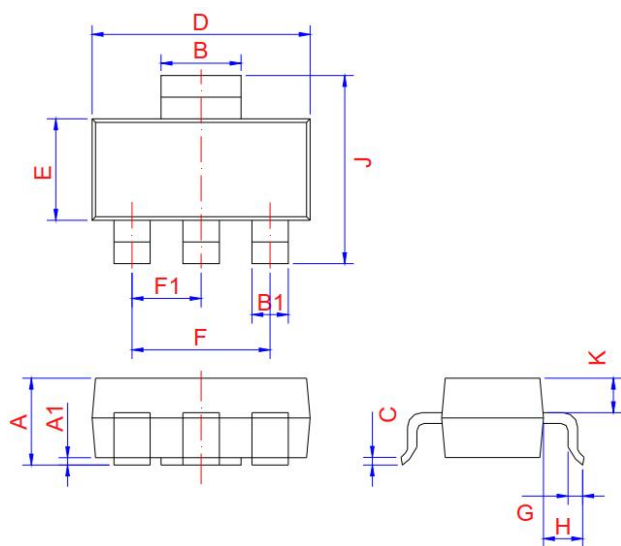


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**ORDERING INFORMATION**

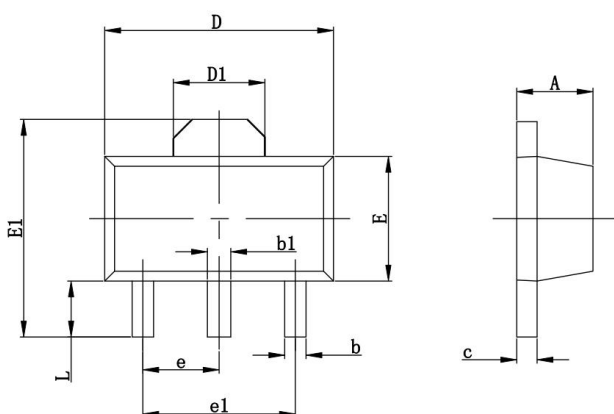


**PACKAGE MECHANICAL DATA**



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

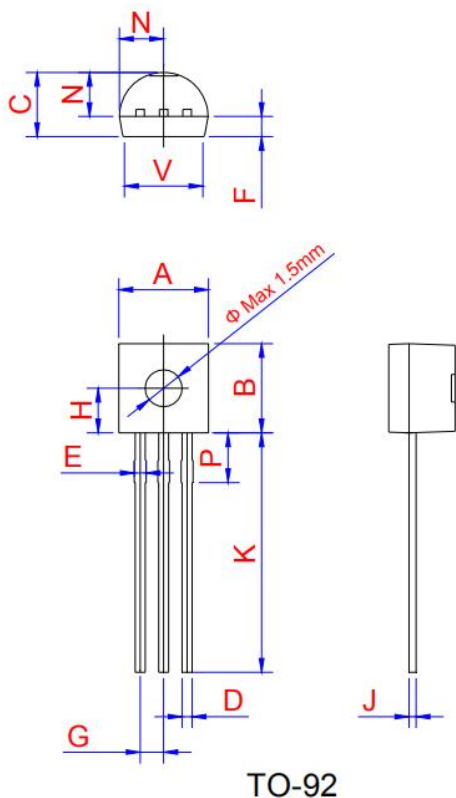


SOT-89-3L

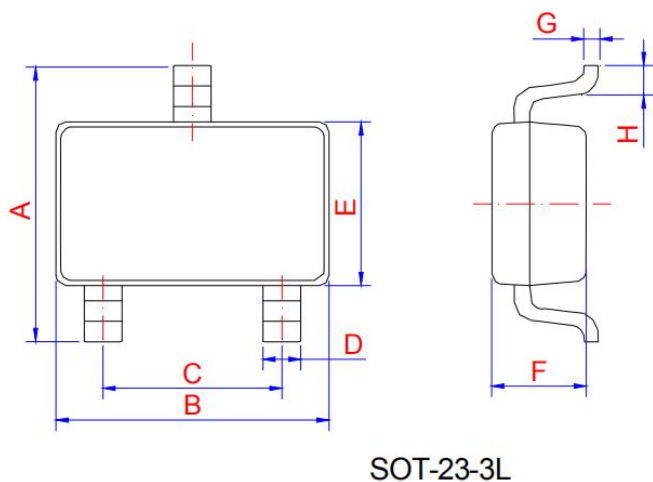
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.4		1.6	0.055		0.063
b	0.35		0.52	0.013		0.197
b1	0.4		0.58	0.016		0.023
c	0.35		0.44	0.014		0.017
D	4.4		4.6	0.173		0.181
D1		1.55			0.061	
E	2.35		2.55	0.091		0.102
E1	3.94		4.25	0.155		0.167
e		1.500			0.060	
e1		3.000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



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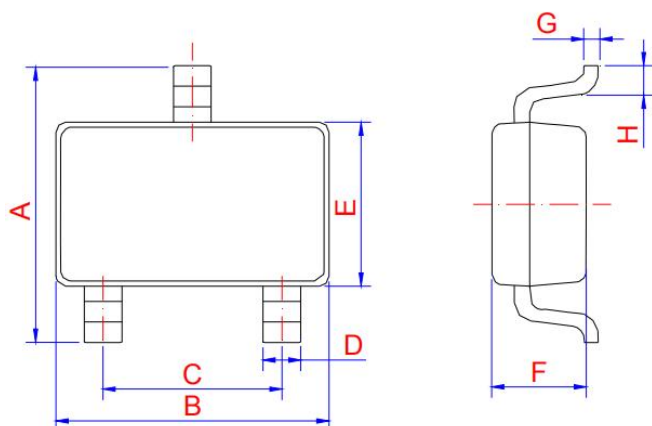
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45	4.6	5.2	0.175	0.181	0.205
B	4.32	4.6	5.33	0.17	0.181	0.21
C	3.18	3.55	4.19	0.125	0.14	0.165
D	0.407		0.533	0.016		0.021
E	0.6		0.8	0.024	0	0.031
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.05	-
H	-	2.3	-	-	0.091	-
J	0.36	0.38	0.5	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



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



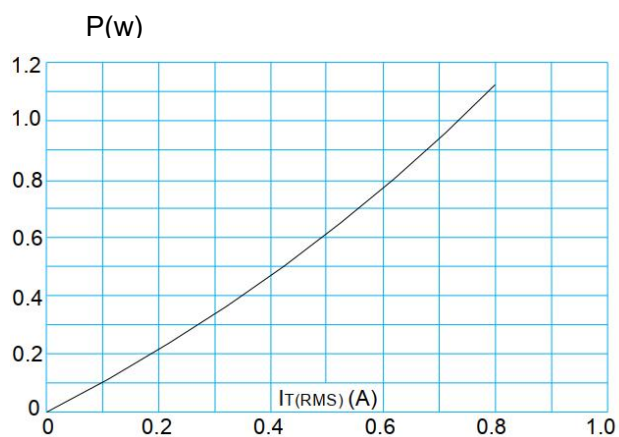
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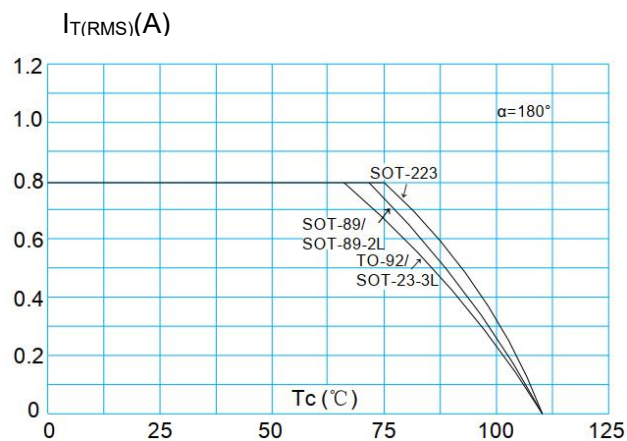
SOT-23

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.35	2.40	2.45	0.092	0.094	0.096
B	2.85	2.90	3.95	0.112	0.114	0.155
C	1.85	1.90	1.95	0.073	0.075	0.077
D	0.37	0.40	0.43	0.015	0.016	0.017
E	1.25	1.30	1.35	0.049	0.051	0.053
F	0.95	1.00	1.05	0.037	0.039	0.041
G	0.085	0.10	0.13	0.003	0.004	0.005
H	0.35	0.40	0.48	0.014	0.016	0.019

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



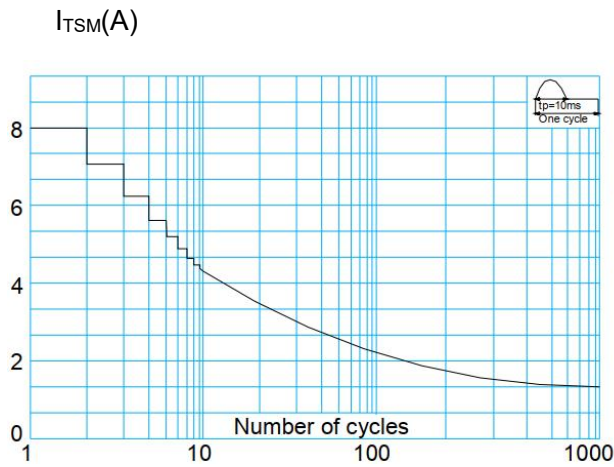
**FIG.2:** RMS on-state current versus case temperature



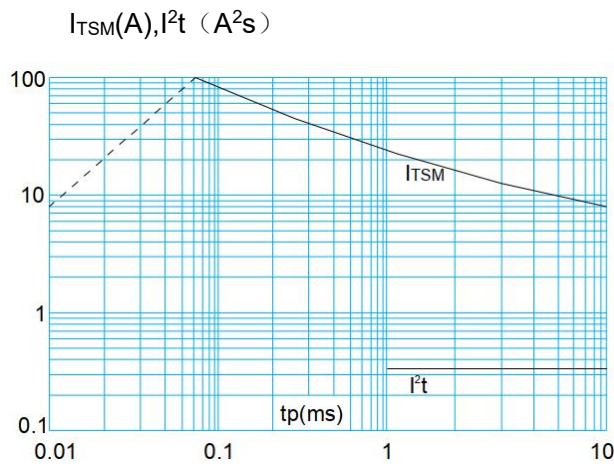


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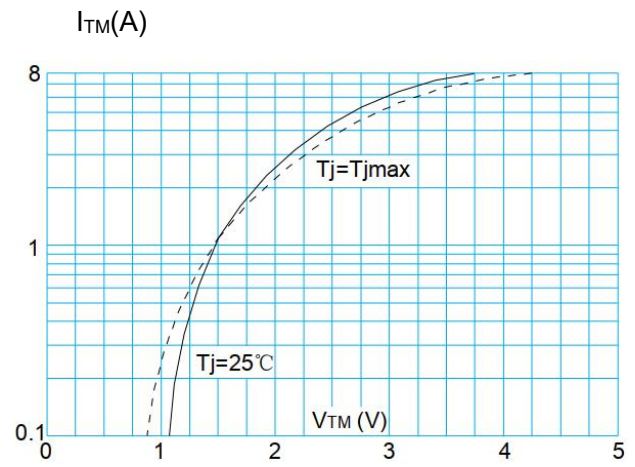
**FIG.3:** Surge peak on-state current versus number of cycles



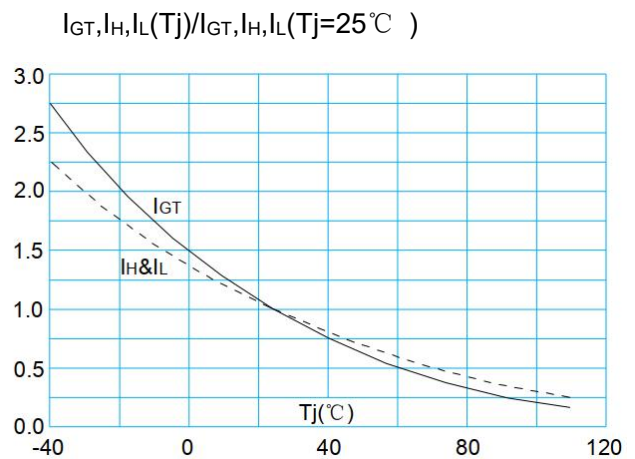
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



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



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





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