MCR100-8W

1.0A Sensitive Gate SCRs

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	1.0	A
V_{DRM} V_{RRM}	600 / 800	V
I_{GT}	100	μA

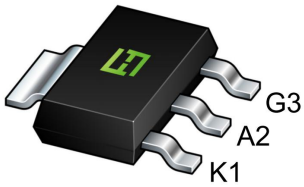
Feature

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

Application

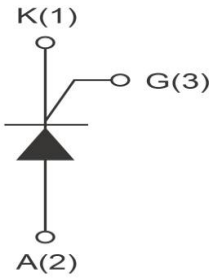
Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

Package

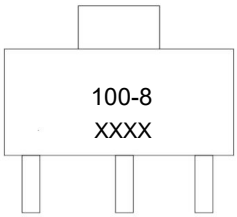


SOT-223-3L

Circuit diagram



Marking



Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	600 / 800	V
Repetitive peak reverse voltage	V_{RRM}	600 / 800	V
RMS on-state current	$I_{T(RMS)}$	1.0	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	12	A
I^2t value for fusing (tp=10ms)	I^2t	0.72	A^2s
Critical rate of rise of on-state current (I_G =2×I_{GT})	dI_T/dt	50	A/μs
Peak gate current	I_{GM}	0.5	A
Average gate power dissipation	$P_{G(AV)}$	0.1	W
Junction Temperature	T_J	-40 ~ +110	℃
Storage Temperature	T_{STG}	-40 ~ +150	℃

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition		Value		Unit
				Min	Max	
Gate trigger current	I_{GT}	V_D =12V I_T=10mA T_j =25℃		-	100	μA
Gate trigger voltage	V_{GT}			-	0.8	V
Gate non-trigger voltage	V_{GD}	V_D =1/2V_{DRM} T_j =110℃		0.2	-	V
latching current	I_L	V_D =12V I_G=0.5mA		-	5	mA
Holding current	I_H	R_{GK}=1kΩ T_j =25℃		-	4	mA
Critical-rate of rise of commutation voltage	dV_D/dt	V_D=2/3V_{DRM} Gate Open T_j =110℃		50	-	V/μs
STATIC CHARACTERISTICS						
Forward "on" voltage	V_{TM}	I_{TM} =2A tp=380μs		-	1.7	V
Repetitive Peak Off-State Current	I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	-	5	μA
Repetitive Peak Reverse Current	I_{RRM}		T_j=110℃	-	0.1	mA
THERMAL RESISTANCES						
Thermal resistance	Rth(j-c)	Junction to case		TYP.	20	℃/W
	Rth(j-a)	Junction to ambient		TYP.	60	℃/W

Typical Characteristics

FIG1 Maximum power dissipation versus RMS on-state current

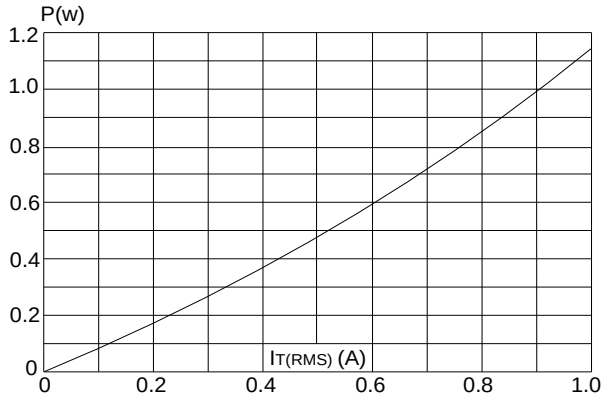


FIG2 RMS on-state current versus case temperature

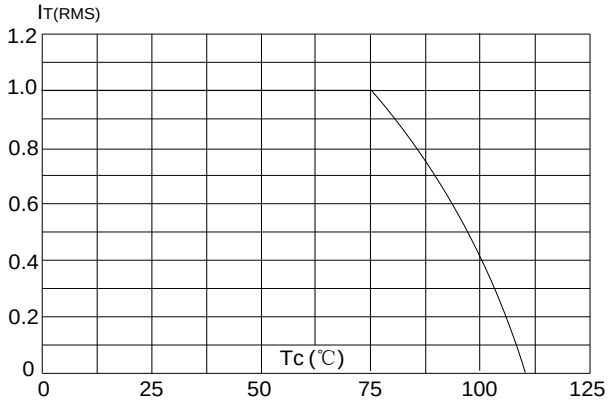


FIG3 Surge peak on-state current versus number of cycles

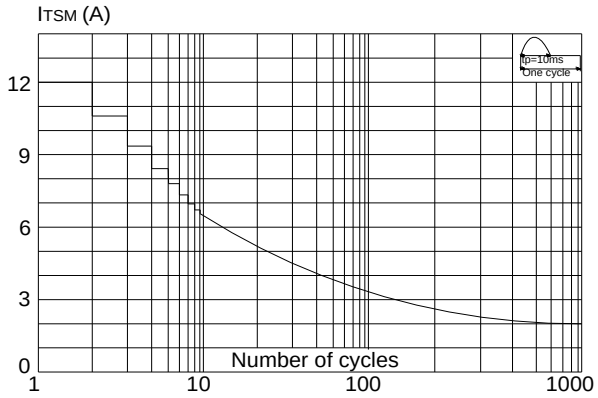


FIG4 On-state characteristics (maximum values)

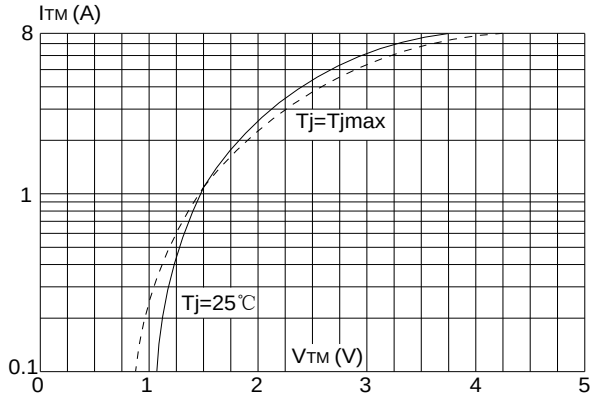


FIG5 Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 100A/μs)

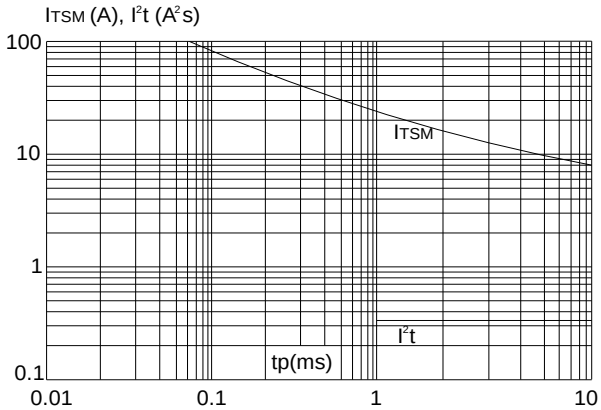
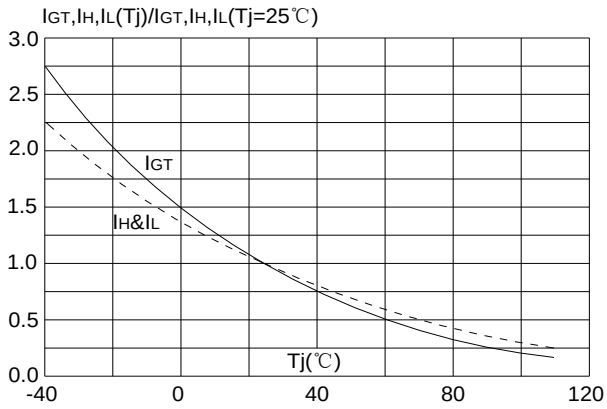
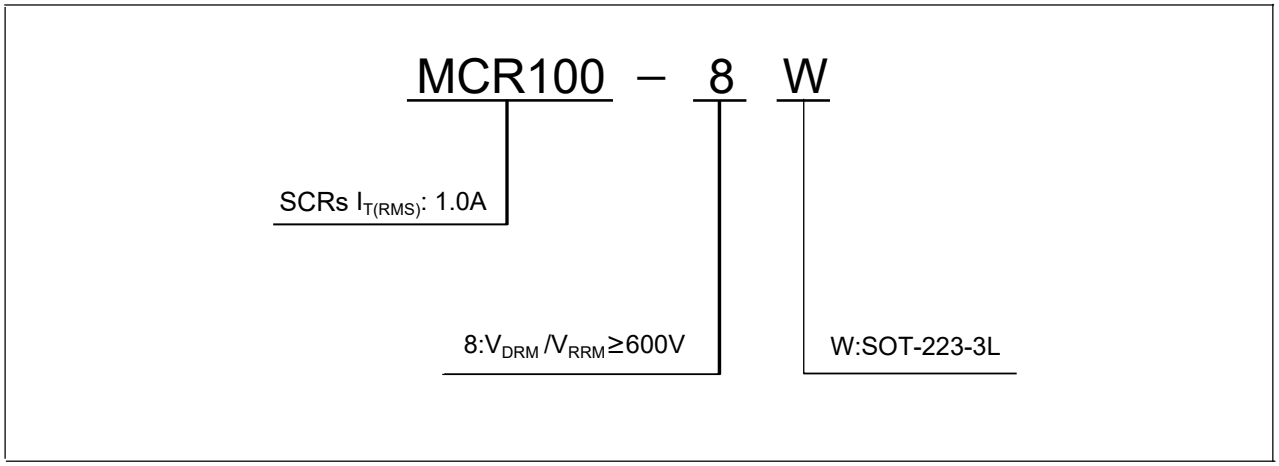


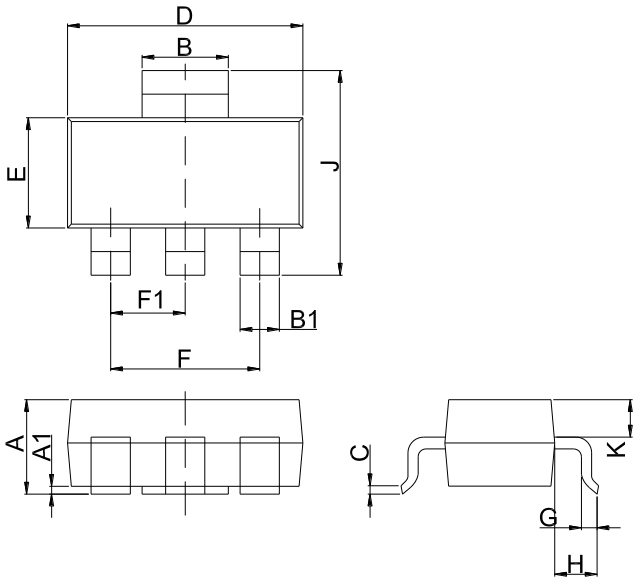
FIG6 Relative variations of gate trigger current, holding current and latching current versus junction temperature



Ordering Information



SOT-223-3L Package Information



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	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	0.9	1.0	0.031	0.035	0.039