

**MCR100-8 1A Sensitive SCR**

Rev.A.2.1

DESCRIPTION:

The MCR100-8 SCR provides high dV/dt rate with strong resistance to electromagnetic interface. It is especially recommended for use on residual current circuit breaker, straight hair, igniter etc. Package TO-92 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	800	V
I_{GT}	≤ 200	μA

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	
Operating junction temperature range	T_j	-40-125	
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
Average on-state current ($T_c \leq 54^\circ C$)	$I_{T(AV)}$	0.6	A
RMS on-state current ($T_c \leq 54^\circ C$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current ($t_p=10ms$, $T_j=25^\circ C$)	I_{TSM}	12	A
Non repetitive surge peak on-state current ($t_p=8.3ms$, $T_j=25^\circ C$)		13	
I^2t value for fusing ($t_p=10ms$, $T_j=25^\circ C$)	I^2t	0.72	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)			



Peak gate power	P_{GM}	2	W
Peak pulse voltage ($T_j=25^\circ\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	1	kV

NOTE 1: Operating junction temperature T_j is up to 125°C when a resistor $\leq 1\text{k}\Omega$ is connected between Gate and Cathode. Without this resistor, the T_j is up to 110°C only.

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	-	40	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	5	mA
I_H	$I_T=0.05\text{A}$	-	-	4	mA
dV/dt	$V_D=600\text{V}$ $T_j=125^\circ\text{C}$ $R_{GK}=1\text{k}\Omega$	200	-	-	$\text{V}/\mu\text{s}$
	$V_D=600\text{V}$ $T_j=125^\circ\text{C}$ $R_{GK}=220\Omega$	500	-	-	
t_{on}	$I_G=10\text{mA}$ $I_A=20\text{mA}$ $I_R=2\text{mA}$	-	2	-	μs
t_{off}	$T_j=25^\circ\text{C}$	-	50	-	μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_T=2\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.4	V
V_{TO}	Threshold voltage	$T_j=125^\circ\text{C}$	0.8	V
R_D	Dynamic Resistance	$T_j=125^\circ\text{C}$	0.1	Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
I_{RRM}		$T_j=125^\circ\text{C}$	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	61	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC)	130	$^{\circ}\text{C}/\text{W}$

MCR100-8

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

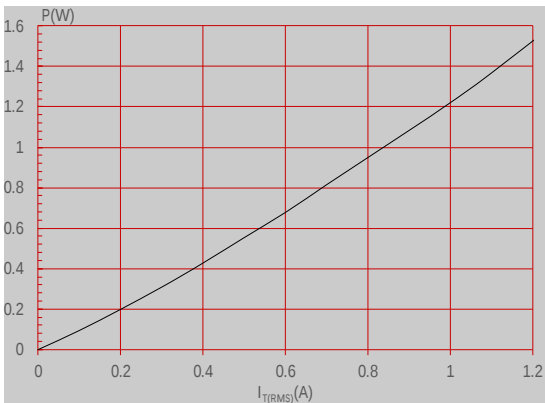


FIG.3: Surge peak on-state current versus number of cycles

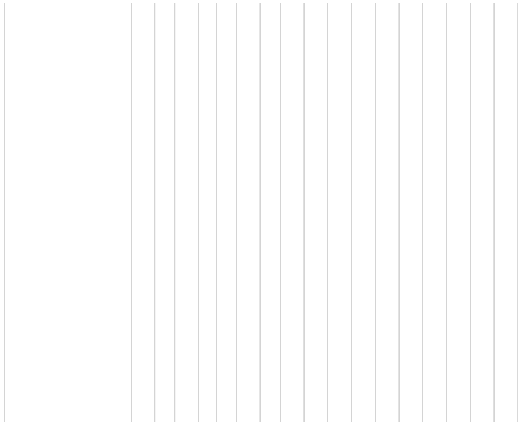


FIG.2: RMS on-state current versus case temperature

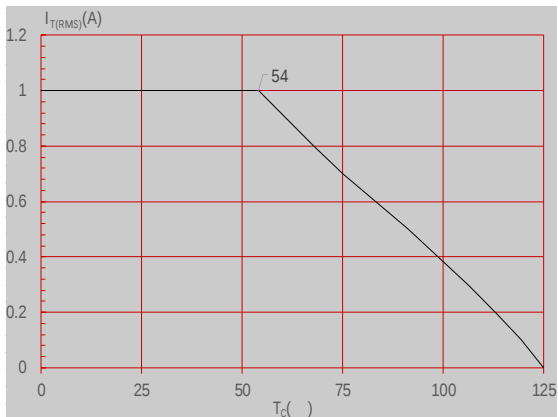
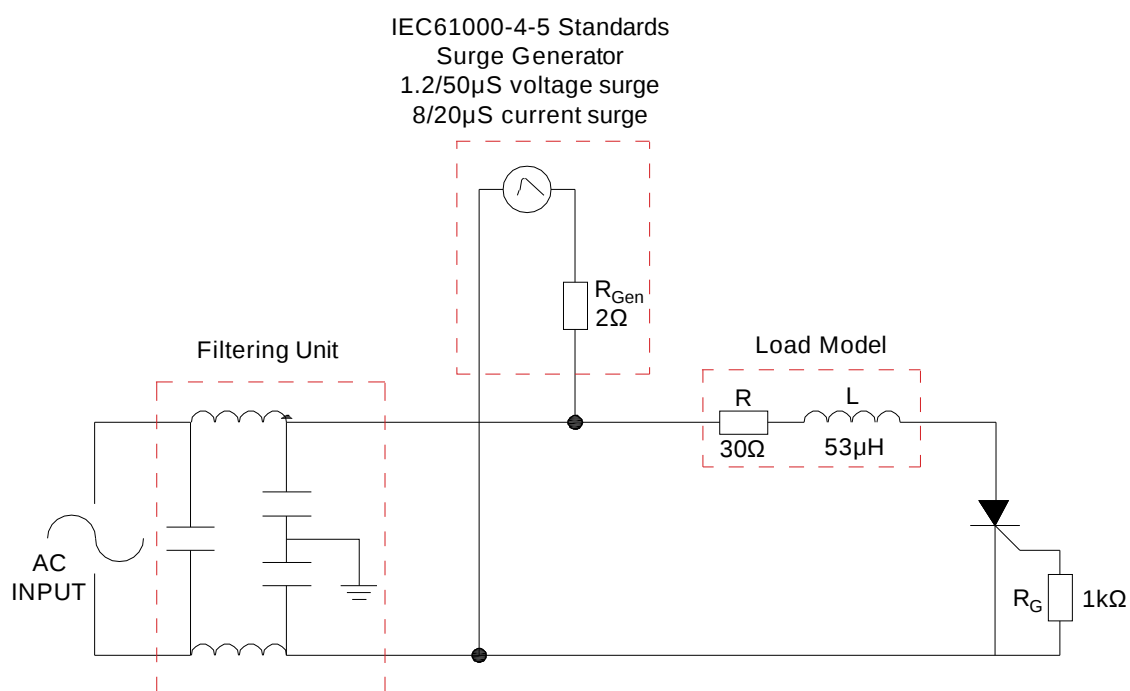


FIG.4: On-state characteristics



FIG.7 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



**ORDERING INFORMATION**

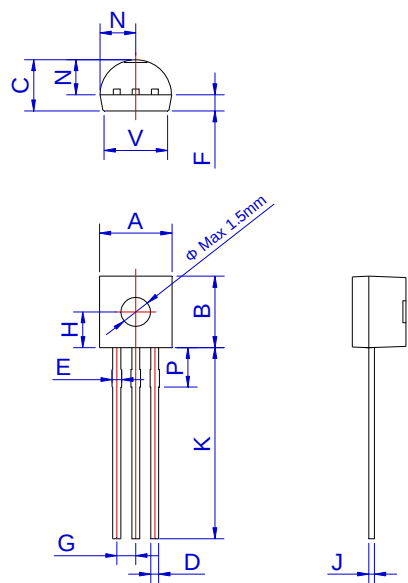
Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(> A)	Package	Base qty. (pcs)	Delivery mode
MCR100-8	800	0.200	TO-92	1,000	Bulk Pack
MCR100-8-TR				2,000	Tape & Reel

Document Revision History

Date	Revision	Changes
May.23, 2023	A.1.0	Last update
Mar.28, 2025	A.2.0	Renew PACKAGE MECHANICAL DATA
Sept.28, 2025	A.2.1	Revise PACKAGE MECHANICAL DATA



PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		
B	4.32		5.33	0.170	318	
C	3.18		4.19	0.0.173		
D	0.407		0.533			
E						
F						
G						
H						
J						
K						
N						
P						
V						



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