MCR100-8 1A Sensitive SCR

Rev.A.2.1

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.

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

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)	V_{DRM}	800	V
Repetitive peak reverse voltage (T_j=25)	V_{RRM}	800	V
Average on-state current ($T_C \leq$ 54)	$I_{T(AV)}$	0.6	A
RMS on-state current ($T_C \leq$ 54)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (t_p=10ms , T_j=25)	I_{TSM}	12	A
Non repetitive surge peak on-state current (t_p=8.3ms , T_j=25)		13	
I^2t value for fusing (t_p=10ms , T_j=25)	I^2t	0.72	A^2s
Critical rate of rise of on-state current (I_G=2 × I_{GT}			

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

NOTE 1: Operating junction temperature T_j is up to 125 when a resistor ≤1kΩ is connected between Gate and Cathode. Without this resistor, the T_j is up to 110 only.

(T_j=25 unless otherwise specified)

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

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

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

MCR100-8

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

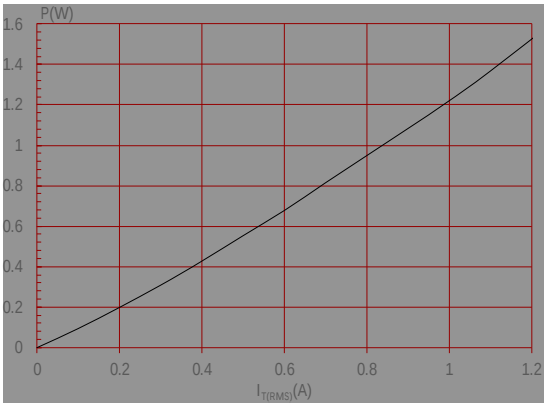


FIG.2: RMS on-state current versus case temperature

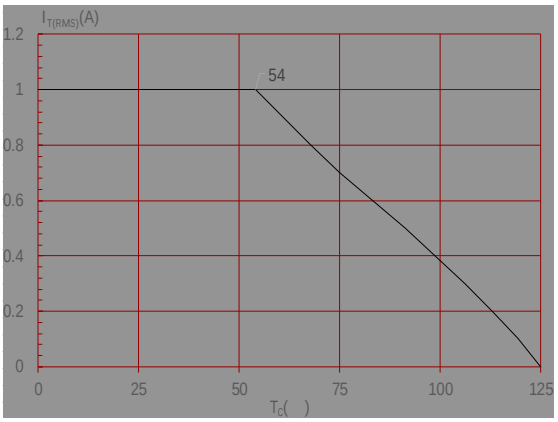
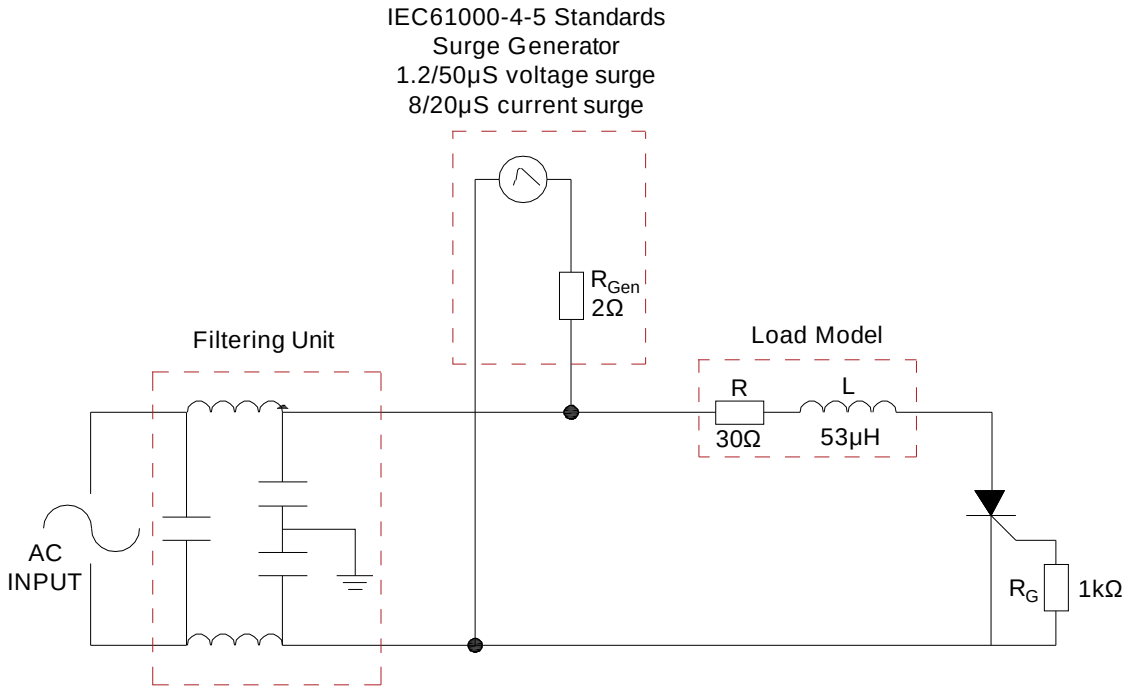


FIG.3: Surge peak on-state current versus number of cycles

FIG.4: On-state characteristics

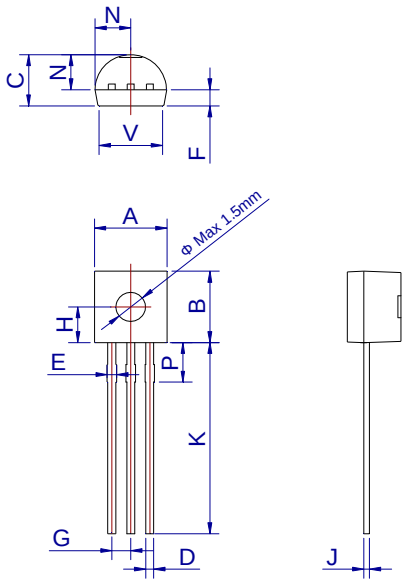
FIG.7 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(μA)	Package	Base qty. (pcs)	Delivery mode
MCR100-8	800	≤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



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						

PACKAGE	OUTLINE	BAG (PCS)	INNER BOX (PCS)	CARTON BOX (PCS)
TO-92	Bulk Pack	1,000	10,000	50,000

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
P	12.40	12.70	13.00	0.488	0.500	0.512
P0	12.40	12.70	13.00	0.488	0.500	0.512
P1	3.55	3.85	4.15	0.140	0.152	0.163
P2	5.95	6.35	6.75	0.233	0.250	0.265
P	-1.00	0	1.00	-0.039	0	0.039
F1 F2	2.30	2.50	2.70	0.090	0.098	0.106
F1-F2	-0.10	0	0.10	-0.004	0	0.004
W	17.50	18.00	19.00	0.689	0.709	0.748
W0	5.50	6.00	6.50	0.217	0.236	0.256
W1	8.50	9.00	9.50	0.335	0.354	0.374
W2			1.00			0.039
D0	3.80	4.00	4.20	0.150	0.157	0.165
H	-1.00	0	1.00	-0.039	0	0.039
L1	2.50			0.098		
H	18.00	19.00	20.00	0.709	0.748	0.787

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