



## MCR100-8 1A Sensitive SCR

Rev.A.1.0

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. Complying with UL standards (File ref: E252906). Package TO-92 is RoHS compliant.

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

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	$^{\circ}C$
Operating junction temperature range	$T_j$	-40-125 <sup>①</sup>	$^{\circ}C$

Repetitive peak off-state voltage ( $T_j = 25^{\circ}C$ )  $V_{DRM} = 800V$  (100%)  $V_{RRM} = 800V$  (100%)  $V_{T0} = 0.7V$  (100%)  $V_{T1} = 0.7V$  (100%)  $V_{T2} = 0.7V$  (100%)  $V_{T3} = 0.7V$  (100%)  $V_{T4} = 0.7V$  (100%)  $V_{T5} = 0.7V$  (100%)  $V_{T6} = 0.7V$  (100%)  $V_{T7} = 0.7V$  (100%)  $V_{T8} = 0.7V$  (100%)  $V_{T9} = 0.7V$  (100%)  $V_{T10} = 0.7V$  (100%)  $V_{T11} = 0.7V$  (100%)  $V_{T12} = 0.7V$  (100%)  $V_{T13} = 0.7V$  (100%)  $V_{T14} = 0.7V$  (100%)  $V_{T15} = 0.7V$  (100%)  $V_{T16} = 0.7V$  (100%)  $V_{T17} = 0.7V$  (100%)  $V_{T18} = 0.7V$  (100%)  $V_{T19} = 0.7V$  (100%)  $V_{T20} = 0.7V$  (100%)  $V_{T21} = 0.7V$  (100%)  $V_{T22} = 0.7V$  (100%)  $V_{T23} = 0.7V$  (100%)  $V_{T24} = 0.7V$  (100%)  $V_{T25} = 0.7V$  (100%)  $V_{T26} = 0.7V$  (100%)  $V_{T27} = 0.7V$  (100%)  $V_{T28} = 0.7V$  (100%)  $V_{T29} = 0.7V$  (100%)  $V_{T30} = 0.7V$  (100%)  $V_{T31} = 0.7V$  (100%)  $V_{T32} = 0.7V$  (100%)  $V_{T33} = 0.7V$  (100%)  $V_{T34} = 0.7V$  (100%)  $V_{T35} = 0.7V$  (100%)  $V_{T36} = 0.7V$  (100%)  $V_{T37} = 0.7V$  (100%)  $V_{T38} = 0.7V$  (100%)  $V_{T39} = 0.7V$  (100%)  $V_{T40} = 0.7V$  (100%)  $V_{T41} = 0.7V$  (100%)  $V_{T42} = 0.7V$  (100%)  $V_{T43} = 0.7V$  (100%)  $V_{T44} = 0.7V$  (100%)  $V_{T45} = 0.7V$  (100%)  $V_{T46} = 0.7V$  (100%)  $V_{T47} = 0.7V$  (100%)  $V_{T48} = 0.7V$  (100%)  $V_{T49} = 0.7V$  (100%)  $V_{T50} = 0.7V$  (100%)  $V_{T51} = 0.7V$  (100%)  $V_{T52} = 0.7V$  (100%)  $V_{T53} = 0.7V$  (100%)  $V_{T54} = 0.7V$  (100%)  $V_{T55} = 0.7V$  (100%)  $V_{T56} = 0.7V$  (100%)  $V_{T57} = 0.7V$  (100%)  $V_{T58} = 0.7V$  (100%)  $V_{T59} = 0.7V$  (100%)  $V_{T60} = 0.7V$  (100%)  $V_{T61} = 0.7V$  (100%)  $V_{T62} = 0.7V$  (100%)  $V_{T63} = 0.7V$  (100%)  $V_{T64} = 0.7V$  (100%)  $V_{T65} = 0.7V$  (100%)  $V_{T66} = 0.7V$  (100%)  $V_{T67} = 0.7V$  (100%)  $V_{T68} = 0.7V$  (100%)  $V_{T69} = 0.7V$  (100%)  $V_{T70} = 0.7V$  (100%)  $V_{T71} = 0.7V$  (100%)  $V_{T72} = 0.7V$  (100%)  $V_{T73} = 0.7V$  (100%)  $V_{T74} = 0.7V$  (100%)  $V_{T75} = 0.7V$  (100%)  $V_{T76} = 0.7V$  (100%)  $V_{T77} = 0.7V$  (100%)  $V_{T78} = 0.7V$  (100%)  $V_{T79} = 0.7V$  (100%)  $V_{T80} = 0.7V$  (100%)  $V_{T81} = 0.7V$  (100%)  $V_{T82} = 0.7V$  (100%)  $V_{T83} = 0.7V$  (100%)  $V_{T84} = 0.7V$  (100%)  $V_{T85} = 0.7V$  (100%)  $V_{T86} = 0.7V$  (100%)  $V_{T87} = 0.7V$  (100%)  $V_{T88} = 0.7V$  (100%)  $V_{T89} = 0.7V$  (100%)  $V_{T90} = 0.7V$  (100%)  $V_{T91} = 0.7V$  (100%)  $V_{T92} = 0.7V$  (100%)  $V_{T93} = 0.7V$  (100%)  $V_{T94} = 0.7V$  (100%)  $V_{T95} = 0.7V$  (100%)  $V_{T96} = 0.7V$  (100%)  $V_{T97} = 0.7V$  (100%)  $V_{T98} = 0.7V$  (100%)  $V_{T99} = 0.7V$  (100%)  $V_{T100} = 0.7V$  (100%)

Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	0.1	W
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

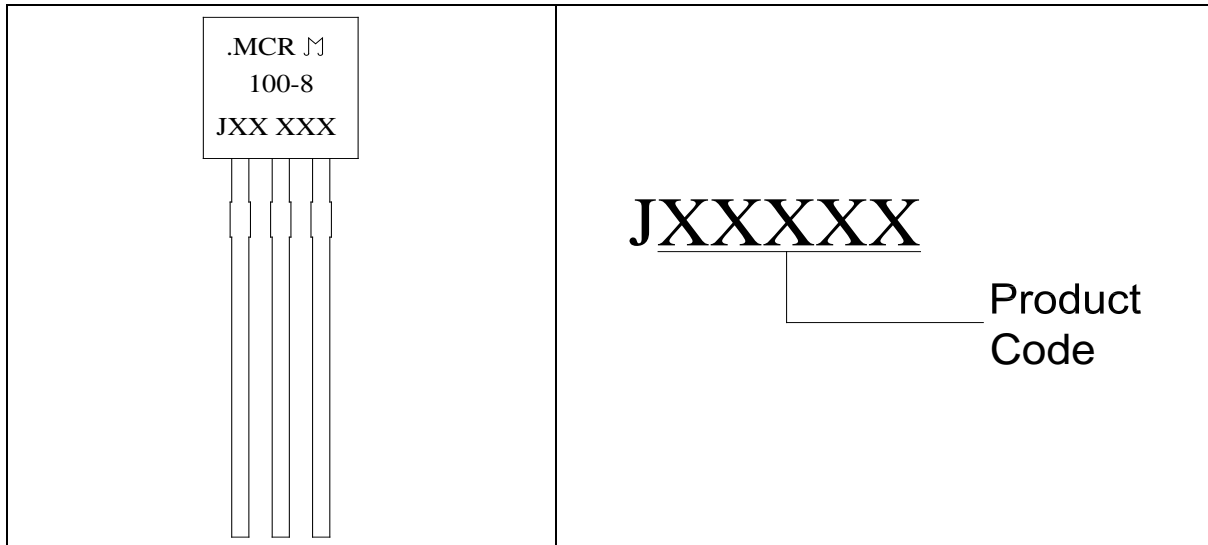
**NOTE 1:** When we parallel connect a  $T_j$  can reach  $125^\circ\text{C}$ ; if without this resistor, the  $T_j$  only can reach  $110^\circ\text{C}$ .

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

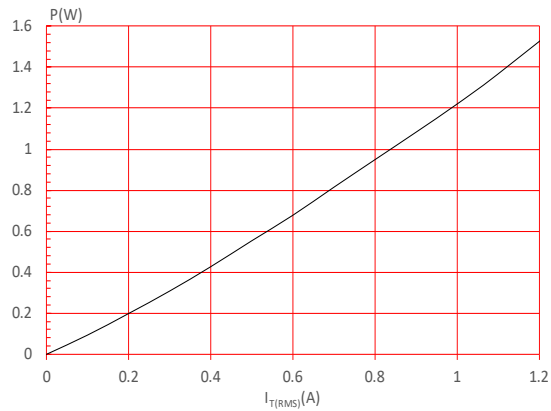
Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12\text{V } R_L=33$	-	40	200	$\mu\text{A}$
$V_{GT}$		-	0.6	0.8	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ\text{C}$	0.2	-	-	V
$I_L$	$I_G=1.2 I_{GT}$	-	-	5	mA
$I_H$	$I_T=0.05\text{A}$	-	-	4	mA
dV/dt	$V_D=540\text{V } T_j=125^\circ\text{C } R_{GK}=1\text{K}$	200	-	-	V/ $\mu\text{s}$
	$V_D=540\text{V } T_j=125^\circ\text{C } R_{GK}=220$	500	-	-	
$t_{on}$	$I_G=10\text{mA } I_A=20\text{mA } I_R=2\text{mA}$	-	2	-	$\mu\text{s}$
$t_{off}$	$T_j=25^\circ\text{C}$	-	50	-	$\mu\text{s}$

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	
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	0.2	mA

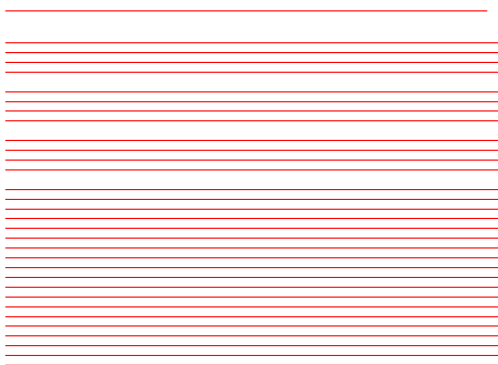
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	61	$^\circ\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC)	130	$^\circ\text{C/W}$



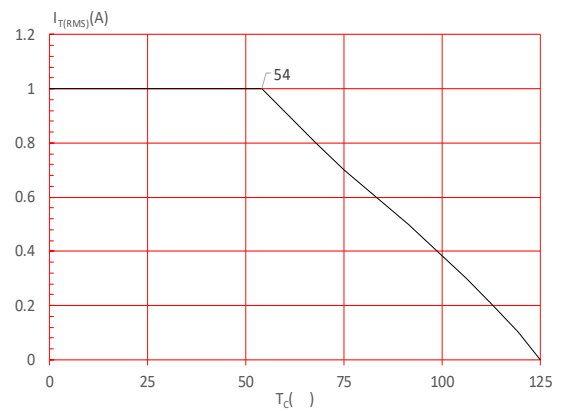
**FIG.1** Maximum power dissipation versus RMS on-state current



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

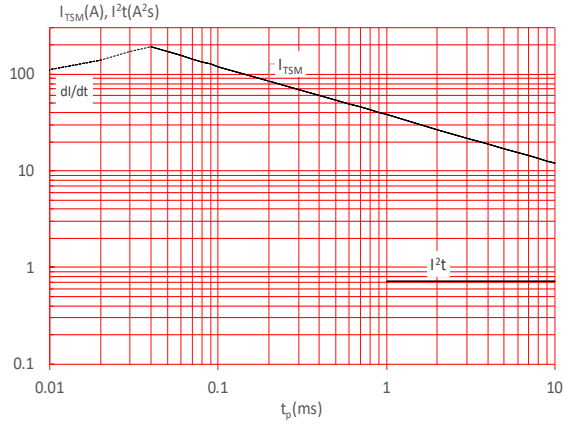


**FIG.2:** RMS on-state current versus case temperature

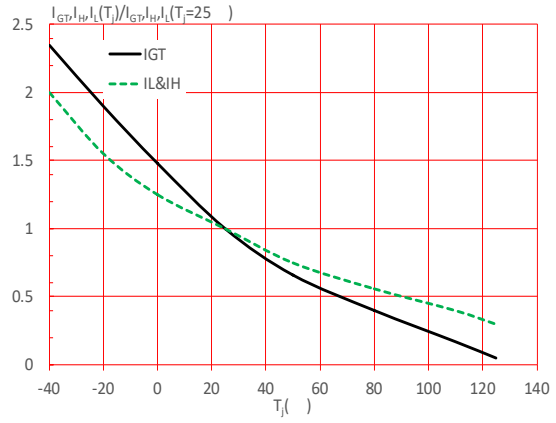


**FIG.4:** On-state characteristics

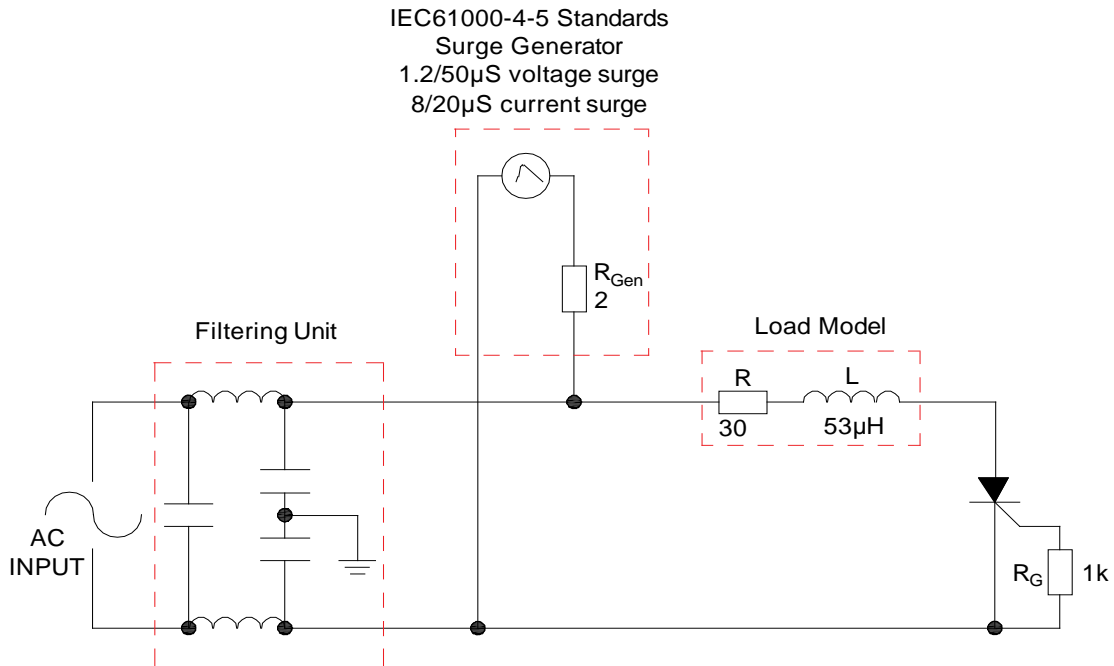
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 100\text{A}/\mu\text{s}$ )



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



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

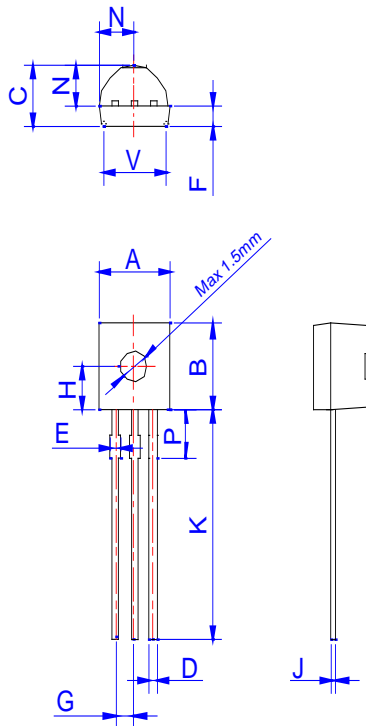


Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT )	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
Apr.12, 2023	A.1.0	Last update



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.407		0.533	0.016		0.021
E	0.50		0.70	0.020		0.028
F	1.10		1.30			0.051
G	1.10		1.40	0.043		0.055
H	2.20		2.40	0.087		0.094
J	0.36		0.50	0.014		0.020
K	12.70		15.0	0.500		0.591
N	2.04		2.66	0.080		0.105
P	1.80		2.30	0.071		0.091
V	4.10		4.50	0.161		0.177

<b>PACKAGE</b>	<b>OUTLINE</b>	<b>BAG</b>
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