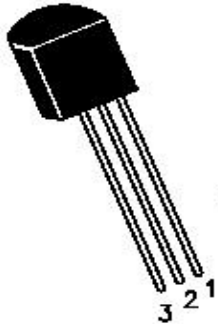


**SENSITIVE GATE SILICON CONTROLLED RECTIFIERS
REVERSE BLOCKING TYRISTORS**

MCR100

**TO-92
Plastic Package**



PIN CONFIGURATION
1. ANODE
2. GATE
3. CATHODE

PNP Device Designed for High Volume, Line-Powered Consumer Applications such as Relay and Lamp Drivers, Small Motor Controls, Gate Drivers for Larger Thyristors and Sensing and Detection Circuits

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	VALUE	UNITS
Peak Repetitive Off State Voltage ($T_j = -40$ to 110°C , Sine Wave, 50 to 60Hz; Gate Open)	$*V_{\text{DRM}}$ $*V_{\text{RRM}}$		
MCR100-3		100	V
MCR100-4		200	V
MCR100-6		400	V
MCR100-8		600	V
On State RMS Current ($T_c=80^\circ\text{C}$) 180° Conduction Angles	$I_{\text{T(RMS)}}$	0.8	A
Peak Non Repetitive Surge Current (1/2 Cycle, Sine Wave, 60Hz, $T_j=25^\circ\text{C}$)	I_{TSM}	10	A
Circuit Fusing Consideration ($t=8.3\text{ms}$)	I^2t	0.415	A^2s
Forward Peak Gate Power ($T_a=25^\circ\text{C}$, Pulse Width $\leq 1\text{ms}$)	P_{GM}	0.1	W
Forward Average Gate Power ($T_a=25^\circ\text{C}$, $t=8.3\text{ms}$)	$P_{\text{G(AV)}}$	0.1	W
Forward Peak Gate Current ($T_a=25^\circ\text{C}$, Pulse Width $\leq 1\text{ms}$)	I_{GM}	1.0	A
Reverse Peak Gate Voltage ($T_a=25^\circ\text{C}$, Pulse Width $\leq 1\text{ms}$)	V_{GRM}	5.0	V
Operating Junction Temperature Range @ Rate V_{RRM} and V_{DRM}	T_j	- 40 to +110	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 40 to +150	$^\circ\text{C}$

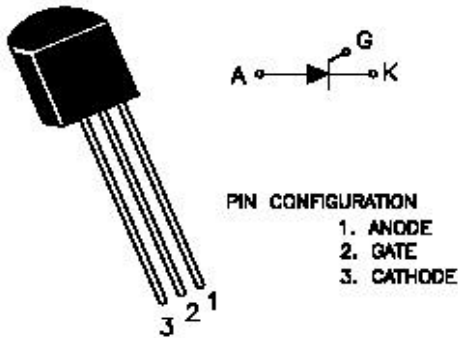
$*V_{\text{DRM}}$ and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltage shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded

MCR100 Rev190404E

**SENSITIVE GATE SILICON CONTROLLED RECTIFIER
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THERMAL CHARACTERISTICS

Junction to Case	$R_{th(j-c)}$	75	°C/W
Junction to Ambient in free air	$R_{th(j-a)}$	200	°C/W
Lead Solder Temperature (1/16" from case, 10secs max)	T_L	260	°C

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

OFF CHARACTERISTICS

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Repetitive Forward or Reverse Blocking Current	** I_{DRM} , ** I_{RRM}	V_D =Rated V_{DRM} and V_{RRM} ; $R_{GK}=1K\Omega$ $T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$			10 100	μA μA

ON CHARACTERISTICS

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Forward On State Voltage (note1)	V_{TM}	$I_{TM}=1\text{A}$ peak @ $T_a=25^\circ\text{C}$			1.7	V
Gate Trigger Current (Continuous DC)	*** I_{GT}	$V_{AK}=7\text{V}$, $R_L=100\Omega$, $T_C=25^\circ\text{C}$			0.2	mA
Holding Current	** I_H	$V_{AK}=7\text{V}$, initiating Current 20mA $T_C=25^\circ\text{C}$ $T_C=-40^\circ\text{C}$			5.0 10	mA mA
Latching Current	I_L	$V_{AK}=7\text{V}$, $I_G=200\mu\text{A}$ $T_C=25^\circ\text{C}$ $T_C=-40^\circ\text{C}$			10 15	mA mA
Gate Trigger Voltage (Continuous DC)	*** V_{GT}	$V_{AK}=7\text{V}$, $R_L=100\Omega$ $T_C=25^\circ\text{C}$ $T_C=-40^\circ\text{C}$			0.8 1.2	V V

DYNAMIC CHARACTERISTICS

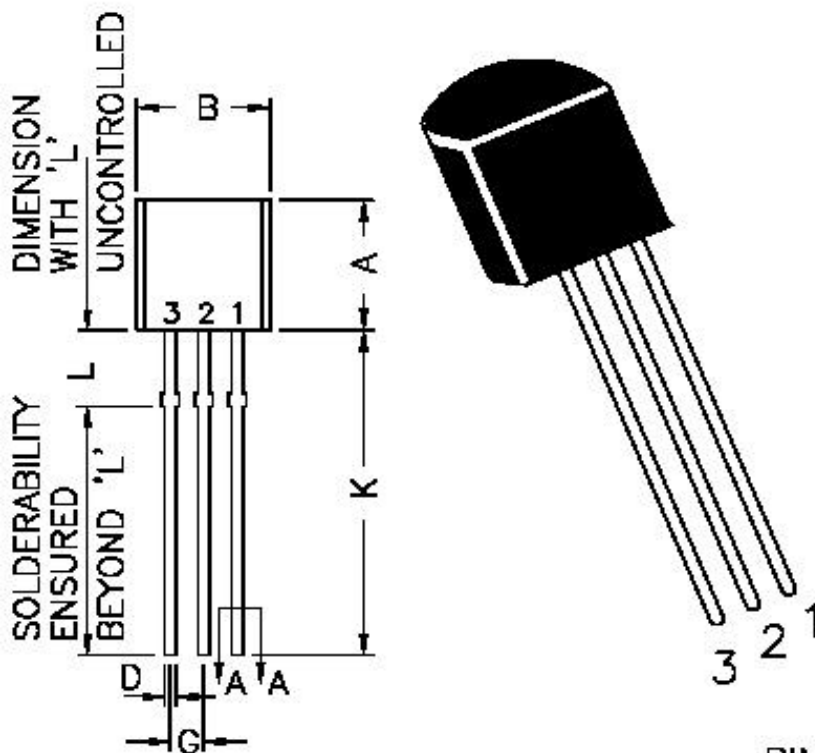
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Critical Rate of Rise of off State Voltage	dv/dt	V_D =Rated V_{DRM} , exponential waveform, $R_{GK}=1000\Omega$, $T_j=110^\circ\text{C}$	20			V/ μs
Critical Rate of Rise of on State Current	di/dt	$I_{PK}=20\text{A}$, $P_w=10\mu\text{s}$, $dig/dt=1\text{A}/\mu\text{s}$, $I_{gt}=20\text{mA}$			50	A/ μs

Note1 Pulse Test: Pulse Width $\leq 1\text{ms}$, Duty Cycle $\leq 1\%$

** $R_{GK}=1000\Omega$ include in measurement

***Does not include R_{GK} in measurement

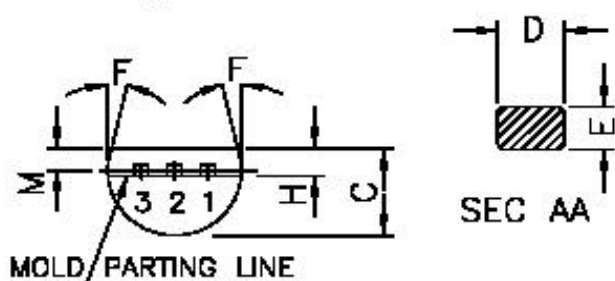
TO-92 Plastic Package



DIM	MIN	MAX
A	4,32	5,33
B	4,45	5,20
C	3,18	4,19
D	0,41	0,55
E	0,35	0,50
F	5 DEG	
G	1,14	1,40
H	1,20	1,40
K	12,70	—
L	1,982	2,082
M	1,03	1,20

PIN CONFIGURATION :-

1. ANODE
2. GATE
3. CATHODE



Packing Details

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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