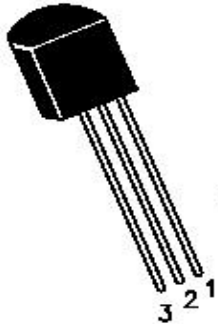


**SENSITIVE GATE SILICON CONTROLLED RECTIFIERS
REVERSE BLOCKING TYRISTORS**

MCR100

**TO-92
Plastic Package**



PIN CONFIGURATION
1. ANODE
2. GATE
3. CATHODE

PNPN 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	$^\circ\text{C}$

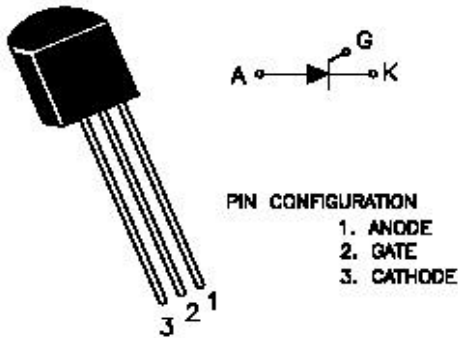
*** V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltage shall not be tested with a constant current source such that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

MCR100 Rev190404E

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

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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

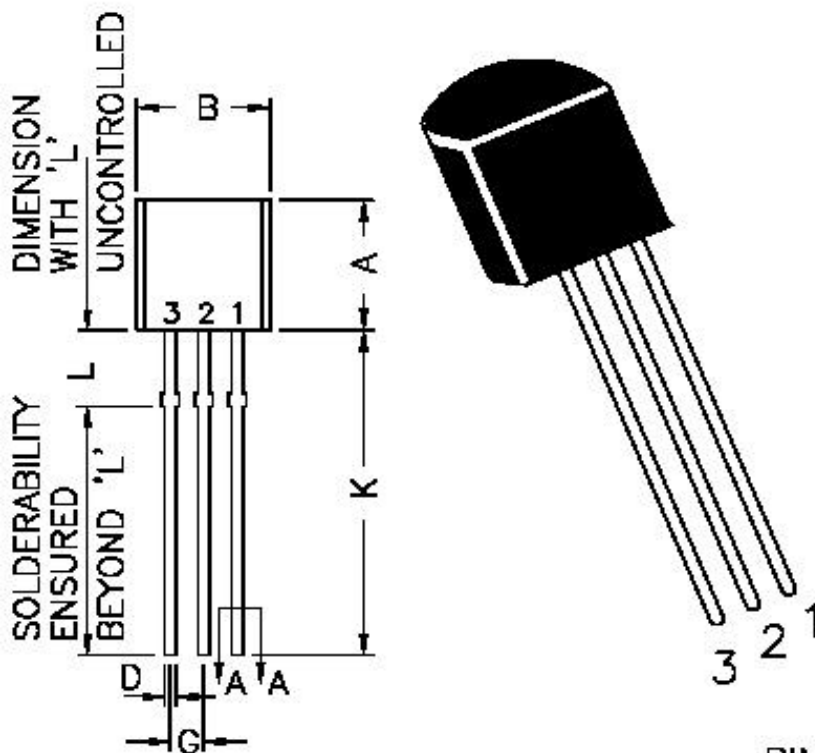
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Critical Rate of Rise of off State Voltage	dv/dt	V_D =Rated V_{DRM} , exponential waveform, $R_{GK}=1000\Omega$, $T_j=110^\circ\text{C}$	20			V/ μs
Critical Rate of Rise of on State Current	di/dt	$I_{PK}=20\text{A}$, $P_w=10\mu\text{s}$, $dig/dt=1\text{A}/\mu\text{s}$,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

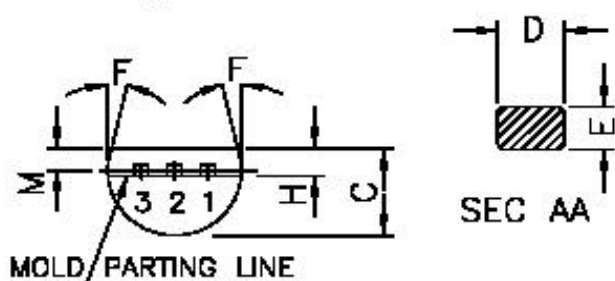
TO-92 Plastic Package



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