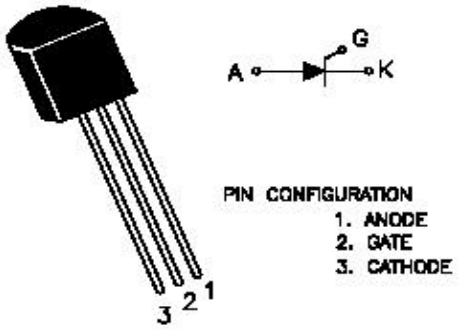
SENSITIVE GATE SILICON CONTROLLED RECTIFIERS

REVERSE BLOCKING TYRISTORS

MCR100

TO-92
Plastic Package



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=25ºC unless specified otherwise)

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

***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**

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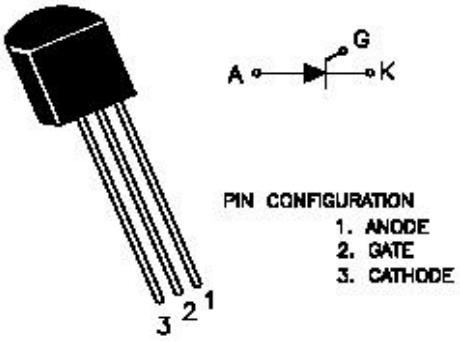

THERMAL CHARACTERISTICS

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°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}=1KΩ				
		T_C=25°C			10	µA
		T_C=110°C			100	µA

ON CHARACTERISTICS

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Forward On State Voltage (note1)	V_{TM}	I_{TM}=1A peak @ T_a=25°C			1.7	V
Gate Trigger Current (Continuous DC)	$^{***}I_{GT}$	V_{AK}=7V, R_L=100Ω, T_c=25°C			0.2	mA
Holding Current	$^{**}I_H$	V_{AK}=7V, initiating Current 20mA				
		T_C=25°C			5.0	mA
		T_C= -40°C			10	mA
Latching Current	I_L	V_{AK}=7V, I_G=200µA				
		T_C=25°C			10	mA
		T_C= -40°C			15	mA
Gate Trigger Voltage (Continuous DC)	$^{***}V_{GT}$	V_{AK}=7V, R_L=100Ω				
		T_C=25°C			0.8	V
		T_C= -40°C			1.2	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}=1000Ω, T_j=110°C	20			V/µs
Critical Rate of Rise of on State Current	di/dt	I_{PK}=20A, Pw=10µs, dig/dt=1A/µs, Igt=20mA			50	A/µs

Note1 Pulse Test: Pulse Width ≤1ms, Duty Cycle ≤1% **$^{**}R_{GK}$=1000W include in measurement**

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

MCR100 Rev190404E

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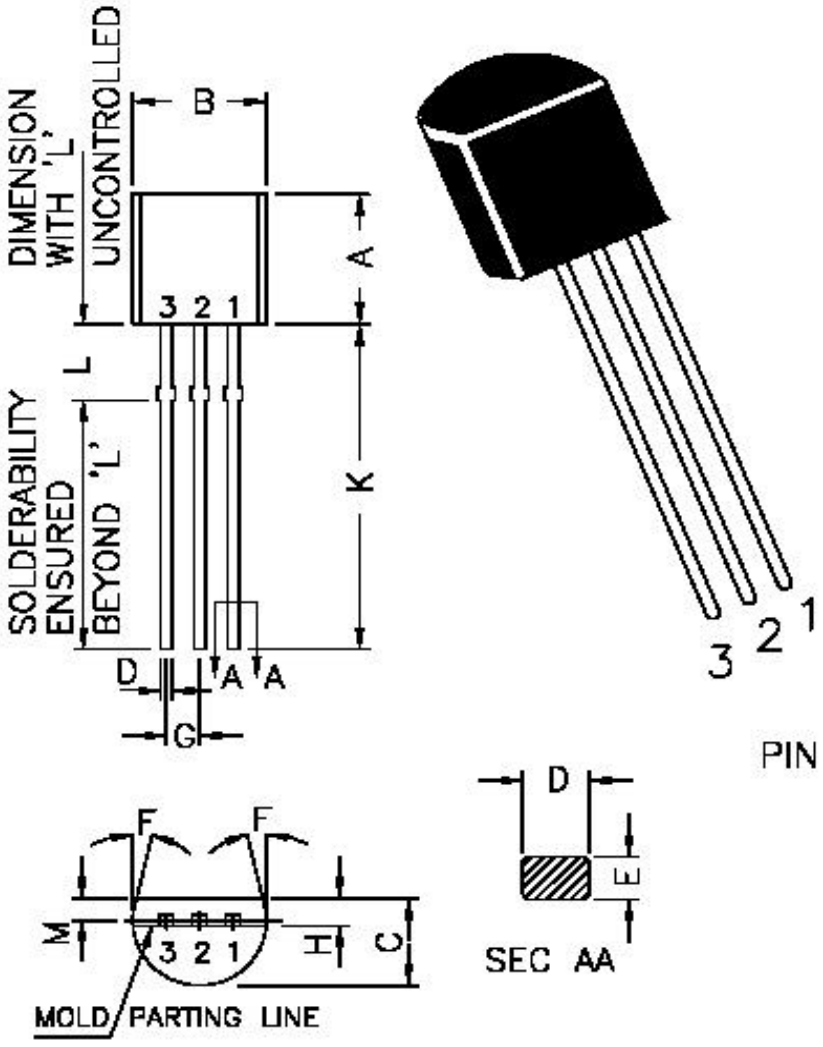

DIM	MIN	MAX
A	4,32	5,33
B	4,45	5,20
C	3,18	4,19
D	0,41	0,55
E	0,35	0,50
F	5 DEG	
G	1,14	1,40
H	1,20	1,40
K	12,70	–
L	1,982	2,082
M	1,03	1,20

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

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