Silicon Controlled Rectifiers

Reverse Blocking Triode Thyristors

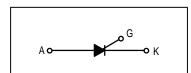
PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive plastic TO-226AA package which is readily adaptable for use in automatic insertion equipment.

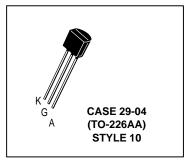
- Sensitive Gate Trigger Current 200 μA Maximum
- Low Reverse and Forward Blocking Current 100 μA Maximum, T_C = 125°C
- Low Holding Current 5 mA Maximum
- · Glass-Passivated Surface for Reliability and Uniformity

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Motorola preferred devices

SCRs 0.8 AMPERE RMS 400 thru 600 VOLTS





MAXIMUM RATINGS ($T_J = 25^{\circ}C$ unless otherwise noted.)

Rating	Symbol	Value	Unit	
Peak Repetitive Forward and Reverse Blocking Voltage ⁽¹⁾ (T _J = 25 to 125°C, R _{GK} = 1 k Ω MCR100–6 MCR100–8	VDRM and VRRM	400 600	Volts	
Forward Current RMS (See Figures 1 & 2) (All Conduction Angles)	IT(RMS)	0.8	Amps	
Peak Forward Surge Current, T _A = 25°C (1/2 Cycle, Sine Wave, 60 Hz)	ITSM	10	Amps	
Circuit Fusing Considerations (t = 8.3 ms)	ı2 _t	0.415	A ² s	
Peak Gate Power — Forward, T _A = 25°C	P _{GM}	0.1	Watts	
Average Gate Power — Forward, T _A = 25°C	P _{GF(AV)}	0.01	Watt	
Peak Gate Current — Forward, T _A = 25°C (300 µs, 120 PPS)	IGFM	1	Amp	
Peak Gate Voltage — Reverse	VGRM	5	Volts	
Operating Junction Temperature Range @ Rated V _{RRM} and V _{DRM}	TJ	-40 to +125	°C	
Storage Temperature Range	T _{stg}	-40 to +150	°C	
Lead Solder Temperature (< 1/16" from case, 10 s max)	_	+230	°C	

^{1.} VDRM and VRRM 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 voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

Preferred devices are Motorola recommended choices for future use and best overall value.

REV₁



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THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{ heta JC}$	75	°C/W
Thermal Resistance, Junction to Ambient	$R_{ heta JA}$	200	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25° C, R_{GK} = 1 k Ω unless otherwise noted.)

Characteristic		Symbol	Min	Max	Unit
Peak Forward or Reverse Blocking Current (VAK = Rated VDRM or VRRM)	T _C = 25°C T _C = 125°C	I _{DRM} , I _{RRM}	_	10 100	μΑ μΑ
Forward "On" Voltage ⁽¹⁾ (I _{TM} = 1 A Peak @ T _A = 25°C)		VTM	_	1.7	Volts
Gate Trigger Current (Continuous dc) ⁽²⁾ (Anode Voltage = 7 Vdc, R _L = 100 Ohms)	T _C = 25°C	^I GT	_	200	μΑ
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 7 Vdc, R _L = 100 Ohms) (Anode Voltage = Rated V _{DRM} , R _L = 100 Ohms)	$T_{C} = 25^{\circ}C$ $T_{C} = -40^{\circ}C$ $T_{C} = 125^{\circ}C$	V _{GT}	— — 0.1	0.8 1.2 —	Volts
Holding Current (Anode Voltage = 7 Vdc, initiating current = 20 mA)	$T_C = 25^{\circ}C$ $T_C = -40^{\circ}C$	lн	_	5 10	mA

^{1.} Forward current applied for 1 ms maximum duration, duty cycle ≤ 1%.

FIGURE 1 – MCR100-8 CURRENT DERATING (REFERENCE: CASE TEMPERATURE)

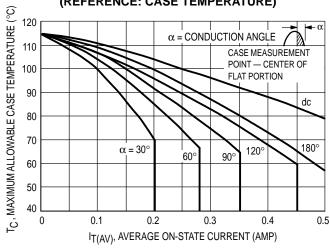
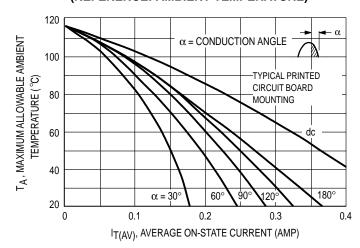
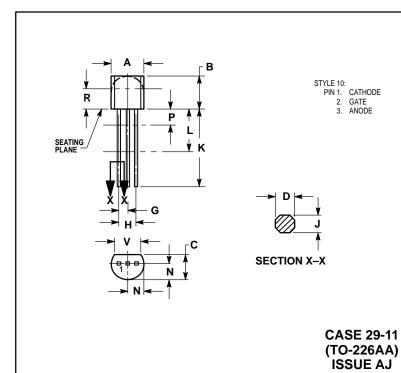


FIGURE 2 – MCR100-8 CURRENT DERATING (REFERENCE: AMBIENT TEMPERATURE)



^{2.} RGK current is not included in measurement.

PACKAGE DIMENSIONS



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
 4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INC	INCHES MILLIMETERS		IETERS
DIM	MIN	MAX	MIN MAX	
Α	0.175	0.205	4.45	5.20
В	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
Н	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500		12.70	_
L	0.250		6.35	
Ν	0.080	0.105	2.04	2.66
Р		0.100		2.54
R	0.115		2.93	-
٧	0.135		3.43	

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