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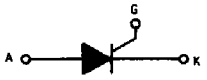
MCR201 (SILICON) thru MCR206



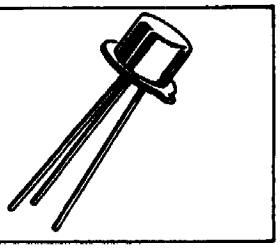
SILICON CONTROLLED RECTIFIERS

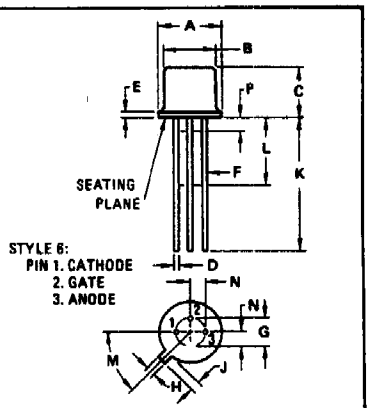
0.5 AMPERE RMS
15 thru 200 VOLTS

SIGNAL THYRISTORS

. . . Annular PNPN devices designed for industrial/military applications such as relay and lamp drivers, small motor controllers and drivers for larger thyristors, and in sensing and detection circuits.

- Sensitive Gate Trigger Current — 200 μA Maximum
- Low Reverse and Forward Blocking Current — 100 μA Maximum, T_C = 125°C
- Low Holding Current — 5.0 mA Maximum
- Passivated Surface for Reliability and Uniformity
- TO-18 Metal Package





DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	0.406	0.533	0.016	0.021
E	–	0.762	–	0.030
F	0.406	0.483	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.914	1.17	0.036	0.046
J	0.711	1.22	0.028	0.048
K	12.70	–	0.500	–
L	6.35	–	0.250	–
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P	–	1.27	–	0.050

All JEDEC notes and dimensions apply.

(TO-18)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Reverse Blocking Voltage MCR201 MCR202 MCR203 MCR204 MCR205 MCR206	V_{RRM}	 15 30 60 100 150 200	Volts
Forward Current RMS (See Figures 4 & 5) (All Conduction Angles)	$I_{T(RMS)}$	0.5	Amp
Peak Forward Surge Current, T_A = 25°C (1/2 cycle, Sine Wave, 60 Hz)	I_{TSM}	6.0	Amp
Circuit Fusing Considerations, T_A = 25°C (t = 1.0 to 8.3 ms)	I^2t	0.15	A^2s
Peak Gate Power — Forward, T_A = 25°C	P_{GM}	0.1	Watt
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)	I_{GFM}	1.0	Amp
Peak Gate Voltage — Reverse	V_{GRM}	4.0	Volts
Operating Junction Temperature Range @ Rated V_{RRM} and V_{DRM}(1)	T_J	-65 to +110	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	150	°C/W
Thermal Resistance, Junction to Ambient	θ_{JA}	400	°C/W

(1) Higher Temperature Devices Available — Consult Factory.

ELECTRICAL CHARACTERISTICS (R_{GK} = 1000 Ohms)

Characteristic		Symbol	Min	Max	Unit
Peak Forward Blocking Voltage (Note 1)		V_{DRM}			Volts
MCR201			15	–	
MCR202			30	–	
MCR203			60	–	
MCR204			100	–	
MCR205			150	–	
MCR206			200	–	
Peak Forward Blocking Current (Rated V_{DRM} @ T_C = 110°C)		I_{DRM}	–	100	μA
Peak Reverse Blocking Current (Rated V_{RRM} @ T_C = 110°C)		I_{RRM}	–	1.5	μA
Forward "On" Voltage (Note 2) (I_{TM} = 500 mA peak @ T_A = 25°C)		V_{TM}	–	1.7	Volts
Gate Trigger Current (Continuous dc) (Note 3)	T_C = 25°C	I_{GT}	–	200	μA
(Anode Voltage = 7.0 Vdc, R_L = 100 Ohms)	T_C = -65°C		–	350	
Gate Trigger Voltage (Continuous dc)	T_C = 25°C	V_{GT}	–	0.8	Volts
(Anode Voltage = 7.0 Vdc, R_L = 100 Ohms)	T_C = -65°C		–	1.2	
(Anode Voltage = Rated V_{DRM})	T_C = 110°C	V_{GD}	0.1	–	
Holding Current	T_C = 25°C	I_H	–	5.0	mA
(Anode Voltage = 7.0 Vdc, initiating current = 20 mA)	T_C = -65°C		–	10	

1. Ratings apply for zero or negative gate voltage but positive gate voltage shall not be applied concurrently with a negative potential on the anode. When checking forward or reverse blocking capability, thyristor devices should not be tested with a constant current source in a manner that the voltage applied exceeds the rated blocking voltage.
2. Forward current applied for 1.0 ms maximum duration, duty cycle ≤ 1.0%.
3. R_{GK} current is not included in measurement.

FIGURE 1 – SURGE RATINGS

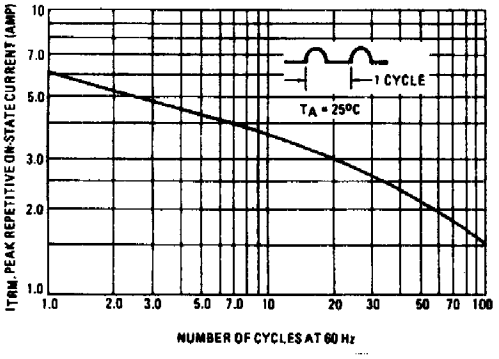


FIGURE 2 – POWER DISSIPATION