



MOTOROLA Semiconductors

3501 ED BLUESTEIN BLVD., AUSTIN, TEXAS 78721



REVERSE BLOCKING TRIODE THYRISTORS

These devices are glassivated planar construction designed for applications in control systems and sensing circuits where low-level gating and holding characteristics are necessary.

- Low-Level Gate Characteristics —
 $I_{GT} = 1.0 \text{ mA (Max) @ } T_C = 25^\circ\text{C}$
- Low Holding Current — $I_H = 5.0 \text{ mA (Max) @ } T_C = 25^\circ\text{C}$
- Glass-to-Metal Bond for Maximum Hermetic Seal

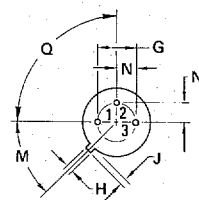
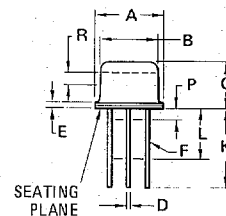
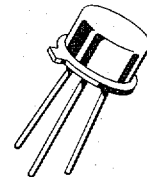
MAXIMUM RATINGS ($T_J = 100^\circ\text{C}$ unless otherwise noted.)

Rating	Symbol	Value	Unit
Repetitive Peak Reverse Blocking Voltage	V_{RRM}		Volts
MCR1906-1		25	
MCR1906-2		50	
MCR1906-3		100	
MCR1906-4		200	
MCR1906-5		300	
MCR1906-6		400	
MCR1906-7		500	
MCR1906-8		600	
RMS On-State Current (All Conduction Angles)	$I_T(\text{RMS})$	1.6	Amp
Peak Non-Repetitive Surge Current (One Cycle, 60 Hz, $T_J = -40$ to $+110^\circ\text{C}$) Preceded and followed by rated current and voltage	I_{TSM}	15	Amp
Peak Gate Power	P_{GM}	0.1	Watt
Average Gate Power	$P_{GF(AV)}$	0.01	Watt
Peak Gate Current	I_{GM}	0.1	Amp
Peak Gate Voltage	V_{GM}	6.0	Volt
Operating Junction Temperature Range	T_J	-65 to $+110$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to $+150$	$^\circ\text{C}$
Lead Solder Temperature ($> 1/16''$ From Case, 10 s max.)	—	+230	$^\circ\text{C}$

MCR1906-1 thru MCR1906-6

SILICON CONTROLLED RECTIFIERS

1.6 AMPERES RMS
25 thru 400 VOLTS



STYLE 3:
PIN 1. CATHODE
2. GATE
3. ANODE (CONNECTED TO CASE)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45° NOM	—	45° NOM	—
P	—	1.27	—	0.050
Q	90° NOM	—	90° NOM	—
R	2.54	—	0.100	—

All JEDEC dimensions and notes apply.

CASE 79-02
TO-39

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward Blocking Voltage ($R_{GK} = 1000\ \Omega$)	V_{DRM}				Volt
MCR1906-1		25	—	—	
MCR1906-2		50	—	—	
MCR1906-3		100	—	—	
MCR1906-4		200	—	—	
MCR1906-5		300	—	—	
MCR1906-6		400	—	—	
MCR1906-7		500	—	—	
MCR1906-8		600	—	—	
Peak Forward Blocking Current (Rated V_{DRM} , $R_{GK} = 1000\ \Omega$, $T_J = 110^\circ\text{C}$)	I_{DRM}	—	—	500	μA
Peak Reverse Blocking Current (Rated V_{RRM} , $R_{GK} = 1000\ \Omega$, $T_J = 110^\circ\text{C}$)	I_{RRM}	—	—	500	μA
Peak On-State Voltage (Pulsed, 1.0 ms max, Duty Cycle $\leq 1.0\%$) ($I_F = 1.0\ \text{A}$ dc peak)	V_{TM}	—	—	1.75	Volt
Gate Trigger Current (Continuous dc) ($V_{AK} = 7.0\ \text{V}$, $R_L = 100\ \Omega$)	I_{GT}	—	—	1.0	mA dc
Gate Trigger Voltage (Continuous dc) ($V_{AK} = 7.0\ \text{V}$, $R_L = 100\ \Omega$) ($V_{AK} = \text{Rated } V_{DRM}$, $R_L = 100\ \Omega$, $R_{GK} = 1000\ \Omega$, $T_J = 110^\circ\text{C}$)	V_{GT}	— 0.1	— —	1.0 —	Volt
Holding Current ($V_{AK} = 7.0\ \text{V}$, $R_{GK} = 1000\ \Omega$)	I_H	—	—	5.0	mA
Turn-On Time ($I_{GT} = 10\ \text{mA}$, $I_F = 1.0\ \text{A}$) ($I_{GT} = 20\ \text{mA}$, $I_F = 1.0\ \text{A}$)	t_{gt}	— —	0.8 0.6	— —	μs
Turn-Off Time ($I_F = 1.0\ \text{A}$, $I_R = 1.0\ \text{A}$, $dv/dt = 20\ \text{V}/\mu\text{s}$, $T_J = 110^\circ\text{C}$)	t_q	—	10	—	μs

CURRENT DERATING

FIGURE 1 — CASE TEMPERATURE REFERENCE

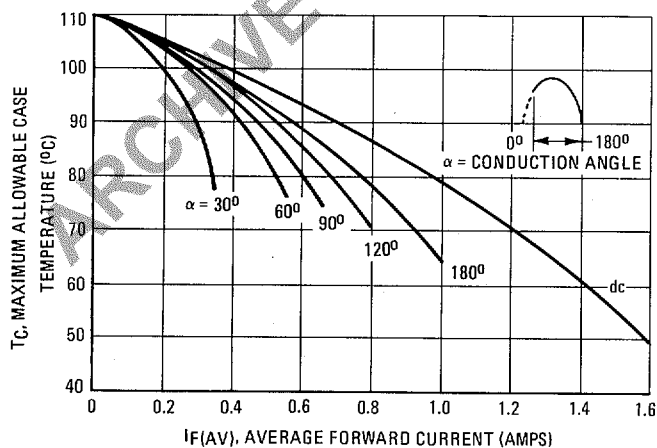
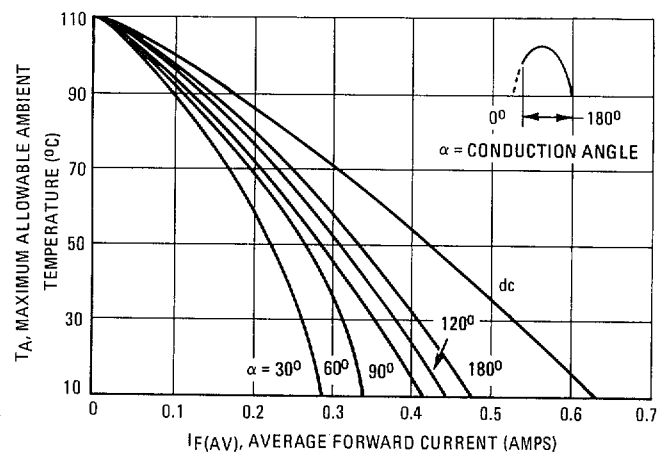


FIGURE 2 — AMBIENT TEMPERATURE REFERENCE


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