

# DIGITRON SEMICONDUCTORS

## MCR1906 SERIES

## SILICON CONTROLLED RECTIFIERS

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).

Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

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

| Rating  | Symbol       | Value       | Unit             |
|---|--------------|-------------|------------------|
| <b>Peak reverse blocking voltage</b>  |              |             |                  |
| MCR1906-1   | $V_{RRM}$    | 25          | Volts            |
| MCR1906-2   |              | 50          |                  |
| MCR1906-3   |              | 100         |                  |
| MCR1906-4   |              | 200         |                  |
| MCR1906-5   |              | 300         |                  |
| MCR1906-6   |              | 400         |                  |
| MCR1906-7   |              | 500         |                  |
| MCR1906-8   |              | 600         |                  |
| <b>Forward current RMS (all conduction angles)</b>  | $I_{T(RMS)}$ | 1.6         | Amps             |
| <b>Peak forward surge current (1 cycle, 60 Hz, <math>T_J = -40</math> to <math>+100^\circ\text{C}</math>)</b> | $I_{TSM}$    | 15          | Amps             |
| <b>Forward peak gate power</b>  | $P_{GM}$     | 0.1         | Watts            |
| <b>Forward average gate power</b>   | $P_{G(AV)}$  | 0.01        | Watts            |
| <b>Forward peak gate current</b>  | $I_{GM}$     | 0.1         | Amps             |
| <b>Forward peak gate voltage</b>  | $V_{GFM}$    | 6.0         | Volts            |
| <b>Reverse peak gate voltage</b>  | $V_{GRM}$    | 6.0         | Volts            |
| <b>Operating junction temperature range</b>   | $T_J$        | -65 to +100 | $^\circ\text{C}$ |
| <b>Storage temperature range</b>  | $T_{stg}$    | -65 to +150 | $^\circ\text{C}$ |
| <b>Lead solder temperature (&lt;1/16" from case, 10 sec. max.)</b>  | -            | +230        | $^\circ\text{C}$ |

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted, $R_{GK} = 1000\Omega$ )

| Characteristic   | Symbol               | Min      | Max      | Unit          |
|--|----------------------|----------|----------|---------------|
| <b>Peak forward blocking voltage<sup>(1)</sup></b>   |                      |          |          |               |
| MCR1906-1  | $V_{DRM}$            | 25       | -        | Volts         |
| MCR1906-2  |                      | 50       | -        |               |
| MCR1906-3  |                      | 100      | -        |               |
| MCR1906-4  |                      | 200      | -        |               |
| MCR1906-5  |                      | 300      | -        |               |
| MCR1906-6  |                      | 400      | -        |               |
| MCR1906-7  |                      | 500      | -        |               |
| MCR1906-8  |                      | 600      | -        |               |
| <b>Peak forward blocking current (Rated <math>V_{DRM}</math> @ <math>T_J = 100^\circ\text{C}</math>)</b>   | $I_{DRM}$            | -        | 500      | $\mu\text{A}$ |
| <b>Peak reverse blocking current (Rated <math>V_{RRM}</math> @ <math>T_J = 100^\circ\text{C}</math>)</b>   | $I_{RRM}$            | -        | 500      | $\mu\text{A}$ |
| <b>Forward "on" voltage (<math>I_{TM} = 1.0\text{A}</math> peak)</b>   | $V_{TM}$             | -        | 1.75     | Volts         |
| <b>Gate trigger current (continuous dc)<sup>(2)</sup> (<math>V_{AK} = 7\text{Vdc}</math>, <math>R_L = 100\Omega</math>, <math>T_C = 25^\circ\text{C}</math>)</b>   | $I_{GT}$             | -        | 1.0      | mA            |
| <b>Gate trigger voltage (continuous dc)</b><br>( $V_{AK} = 7\text{Vdc}$ , $R_L = 100\Omega$ , $T_C = 25^\circ\text{C}$ )<br>( $V_{AK} = \text{Rated } V_{DRM}$ , $R_L = 100\Omega$ , $T_J = 100^\circ\text{C}$ ) | $V_{GT}$<br>$V_{GD}$ | -<br>0.1 | 1.0<br>- | Volts         |
| <b>Holding current</b><br>( $V_{AK} = 7\text{Vdc}$ )   | $I_H$                | -        | 5.0      | mA            |

Note 1:  $V_{DRM}$  and  $V_{RRM}$  for all types can be applied on a continuous dc basis without incurring damage.

Note 2:  $R_{GK}$  current is not included in measurement.

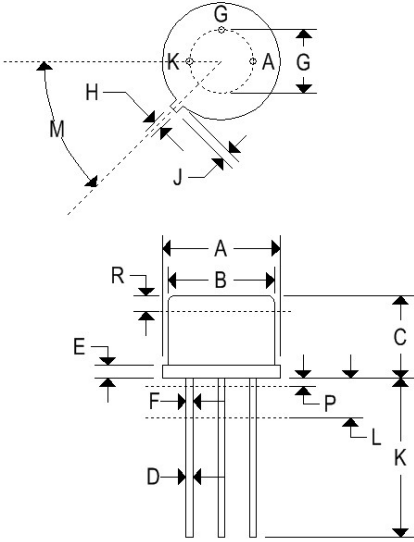
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## MCR1906 SERIES

## SILICON CONTROLLED RECTIFIERS

### MECHANICAL CHARACTERISTICS

|         |               |
|---------|---------------|
| Case    | TO-39         |
| Marking | Alpha-numeric |
| Pin out | See below     |



|   | TO-39     |       |             |            |
|---|-----------|-------|-------------|------------|
|   | Inches    |       | Millimeters |            |
|   | Min       | Max   | Min         | Max        |
| A | 0.335     | 0.370 | 8.510       | 9.390      |
| B | 0.305     | 0.335 | 7.750       | 8.500      |
| C | 0.240     | 0.260 | 6.100       | 6.600      |
| D | 0.016     | 0.021 | 0.410       | 0.530      |
| E | 0.009     | 0.041 | 0.230       | 1.040      |
| F | 0.016     | 0.019 | 0.410       | 0.480      |
| G | 0.200 BSC |       | 5.080 BSC   |            |
| H | 0.028     | 0.034 | 0.720       | 0.860      |
| J | 0.029     | 0.045 | 0.740       | 1.140      |
| K | 0.500     | 0.750 | 12.70<br>0  | 19.05<br>0 |
| L | 0.250     | -     | 6.350       | -          |
| M | 45°C BSC  |       | 45°C BSC    |            |
| P | -         | 0.050 | -           | 1.270      |
| R | 0.100     | -     | 2.540       | -          |

FIGURE 1 — CASE TEMPERATURE vs CURRENT

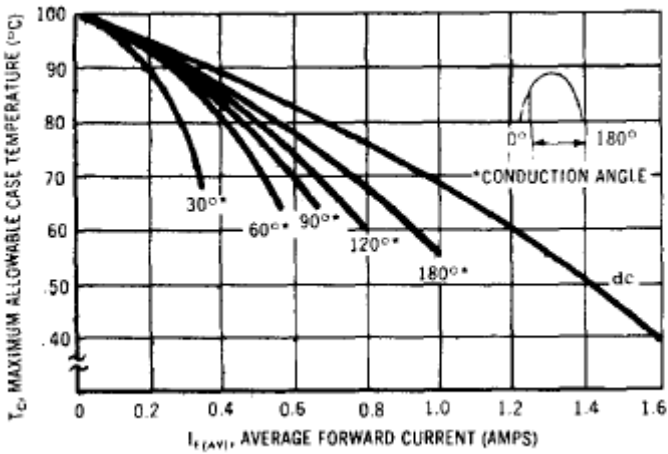


FIGURE 2 — AMBIENT TEMPERATURE vs CURRENT

