



Micro Commercial Components



Micro Commercial Components  
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# MC7905CT THRU MC7912CT

## Three-Terminal Negative Voltage Regulators

### Features

- Halogen free available upon request by adding suffix "-HF"
- Output current in excess of 1.0 Ampere
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Internal short-circuit current limiting And Internal thermal shut down protection
- Safe operating area protection
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Mounting Torque: 5 in-lbs Maximum

**Maximum Ratings @ T<sub>A</sub>=25°C, Unless Otherwise Noted**

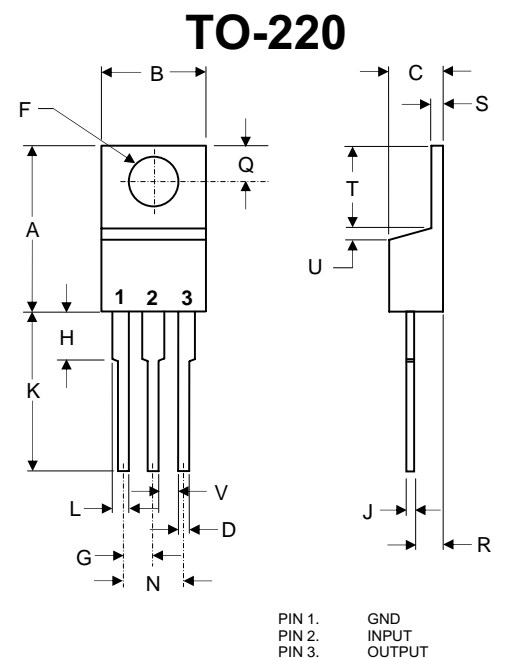
| Parameter                   | Symbol           | Value     | Unit |
|-----------------------------|------------------|-----------|------|
| Input Voltage               | V <sub>I</sub>   | -35       | V    |
| Operating Temperature Range | T <sub>OPR</sub> | 0---125   | °C   |
| Storage Temperature Range   | T <sub>STG</sub> | -55---150 | °C   |

### MC7905CT

**Electrical Characteristics (V<sub>I</sub>=10V, I<sub>o</sub>=500mA, 0°C<T<sub>j</sub><125°C, C<sub>i</sub>=2.0uF, C<sub>o</sub>=1.0uF, Unless Otherwise Specified)**

| Parameter                                 | Sym                              | Min    | Typ             | Max            | Test conditions  |
|---|----------------------------------|--------|-----------------|----------------|--|
| Output Voltage                            | V <sub>o</sub>                   | -4.8V  | -5.0V           | -5.2V          | T <sub>j</sub> =25°C   |
|   |                                  | -4.75V |                 | -5.25V         | -7V ≤ V <sub>I</sub> ≤ -20V,<br>5mA ≤ I <sub>o</sub> ≤ 1.0A,<br>P <sub>D</sub> ≤ 15W                   |
| Load Regulation                           | ΔV <sub>o</sub>                  |        | 15mV            | 100mV          | 5mA ≤ I <sub>o</sub> ≤ 1.5A,<br>T <sub>j</sub> =25°C,  |
|   |                                  |        | 5.0mV           | 50mV           | 250mA ≤ I <sub>o</sub> ≤ 750mA,<br>T <sub>j</sub> =25°C  |
| Line regulation                           | ΔV <sub>o</sub>                  |        | 12.5mv<br>4.0mV | 50mV<br>15mV   | -7V ≤ V <sub>I</sub> ≤ -25V, T <sub>j</sub> =25°C<br>-8V ≤ V <sub>I</sub> ≤ -12V, T <sub>j</sub> =25°C |
| Quiescent Current                         | I <sub>q</sub>                   |        | 1.5mA           | 2.0mA          | T <sub>j</sub> =25°C, I <sub>o</sub> =0  |
| Quiescent Current Change                  | ΔI <sub>q</sub>                  |        |                 | 0.5mA<br>0.5mA | -7V ≤ V <sub>I</sub> ≤ -25V<br>5mA ≤ I <sub>o</sub> ≤ 1.0A   |
| Output Noise Voltage                      | V <sub>N</sub>                   |        | 120μV           |                | f=120Hz  |
| Ripple Rejection                          | RR                               | 54dB   | 60dB            |                | -8V ≤ V <sub>I</sub> ≤ -18V<br>f=120Hz, T <sub>j</sub> =25°C   |
| Dropout Voltage                           | V <sub>d</sub>                   |        | 1.1V            |                | I <sub>o</sub> =1.0A, T <sub>j</sub> =25°C   |
| Peak Output Current                       | I <sub>opeak</sub>               |        | 2.1A            |                | T <sub>j</sub> =25°C   |
| Temperature Coefficient of Output voltage | ΔV <sub>o</sub> /ΔT <sub>j</sub> |        | -0.4mV/°C       |                | 0°C ≤ T <sub>j</sub> ≤ 125°C,<br>I <sub>o</sub> =5mA   |

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.



| DIM | INCHES |      | MM    |       | NOTE |
|-----|--------|------|-------|-------|------|
|     | MIN    | MAX  | MIN   | MAX   |      |
| A   | .560   | .625 | 14.22 | 15.88 |      |
| B   | .380   | .420 | 9.65  | 10.67 |      |
| C   | .140   | .190 | 3.56  | 4.82  |      |
| D   | .020   | .045 | 0.51  | 1.14  |      |
| F   | .139   | .161 | 3.53  | 4.09  | ∅    |
| G   | .190   | .110 | 2.29  | 2.79  |      |
| H   | ---    | .250 | ---   | 6.35  |      |
| J   | .012   | .025 | 0.30  | 0.64  |      |
| K   | .500   | .580 | 12.70 | 14.73 |      |
| L   | .045   | .060 | 1.14  | 1.52  |      |
| N   | .190   | .210 | 4.83  | 5.33  |      |
| Q   | .100   | .135 | 2.54  | 3.43  |      |
| R   | .080   | .115 | 2.04  | 2.92  |      |
| S   | .045   | .055 | 1.14  | 1.39  |      |
| T   | .230   | .270 | 5.84  | 6.86  |      |
| U   | ----   | .050 | ----  | 1.27  |      |
| V   | .045   | ---- | 1.15  | ----  |      |

## MC7906CT

**Electrical Characteristics ( $V_i=11V$ ,  $I_o=500mA$ ,  $0^\circ C < T_j < 125^\circ C$ ,  $C_i=2.0\mu F$ ,  $C_o=1.0\mu F$ , Unless Otherwise Specified)**

| Parameter                                 | Sym                     | Min    | Typ                | Max            | Test conditions  |
|---|-------------------------|--------|--------------------|----------------|--|
| Output Voltage                            | $V_o$                   | -5.75V | -6.0V              | -6.25V         | $T_j=25^\circ C$   |
|   |                         | -5.70V |                    | -6.30V         | $-8V \leq V_1 \leq -21V$ ,<br>$5mA \leq I_o \leq 1.0A$ ,<br>$P_D \leq 15W$                   |
| Load Regulation                           | $\Delta V_o$            |        | 15mV               | 160mV          | $5mA \leq I_o \leq 1.5A$ , $T_j=25^\circ C$ ,  |
|   |                         |        | 5.0mV              | 80mV           | $250mA \leq I_o \leq 750mA$ , $T_j=25^\circ C$   |
| Line regulation                           | $\Delta V_o$            |        | 12.5mV<br>4.0mV    | 160mV<br>80mV  | $-8.0V \leq V_1 \leq -25V$ , $T_j=25^\circ C$<br>$-9V \leq V_1 \leq -13V$ , $T_j=25^\circ C$ |
| Quiescent Current                         | $I_q$                   |        | 1.5mA              | 2.0mA          | $T_j=25^\circ C$ , $I_o=0$   |
| Quiescent Current Change                  | $\Delta I_q$            |        |                    | 1.0mA<br>0.5mA | $-10.5V \leq V_1 \leq -25V$<br>$5mA \leq I_o \leq 1.0A$                                      |
| Output Noise Voltage                      | $V_N$                   |        | 200 $\mu V$        |                | $10Hz \leq f \leq 100KHz$ $T_j=25^\circ C$   |
| Ripple Rejection                          | RR                      | 54dB   | 60dB               |                | $f=120Hz$ $-9V \leq V_1 \leq -13V$ , $T_j=25^\circ C$  |
| Dropout Voltage                           | $V_d$                   |        | 1.1V               |                | $I_o=1.0A$ , $T_j=25^\circ C$  |
| Peak Output Current                       | $I_{opeak}$             |        | 2.1A               |                | $T_j=25^\circ C$   |
| Temperature Coefficient of Output voltage | $\Delta V_o/\Delta T_j$ |        | -0.5mV/ $^\circ C$ |                | $0^\circ C \leq T_j \leq 125^\circ C$ , $I_o=5mA$  |

## MC7908CT

**Electrical Characteristics ( $V_i=14V$ ,  $I_o=500mA$ ,  $0^\circ C < T_j < 125^\circ C$ ,  $C_i=2.0\mu F$ ,  $C_o=1.0\mu F$ , Unless Otherwise Specified)**

| Parameter                                 | Sym                     | Min    | Typ                | Max            | Test conditions  |
|---|-------------------------|--------|--------------------|----------------|--|
| Output Voltage                            | $V_o$                   | -7.70V | -8.0V              | -8.30V         | $T_j=25^\circ C$   |
|   |                         | -7.60V |                    | -8.40V         | $-10.5V \leq V_1 \leq -23V$ ,<br>$5mA \leq I_o \leq 1.0A$ ,<br>$P_D=15W$                       |
| Load Regulation                           | $\Delta V_o$            |        | 12mV               | 160mV          | $5mA \leq I_o \leq 1.5A$ , $T_j=25^\circ C$ ,  |
|   |                         |        | 4.0mV              | 80mV           | $250mA \leq I_o \leq 750mA$ , $T_j=25^\circ C$   |
| Line regulation                           | $\Delta V_o$            |        | 6.0mV<br>2.0mV     | 160mV<br>80mV  | $-10.5V \leq V_1 \leq -25V$ , $T_j=25^\circ C$<br>$-11V \leq V_1 \leq -17V$ , $T_j=25^\circ C$ |
| Quiescent Current                         | $I_q$                   |        | 2.2mA              | 4.5mA          | $T_j=25^\circ C$ , $I_o=0$   |
| Quiescent Current Change                  | $\Delta I_q$            |        |                    | 1.0mA<br>0.5mA | $-10.5V \leq V_1 \leq -25V$<br>$5mA \leq I_o \leq 1.0A$  |
| Output Noise Voltage                      | $V_N$                   |        | 52 $\mu V$         |                | $10Hz \leq f \leq 100KHz$ $T_j=25^\circ C$   |
| Ripple Rejection                          | RR                      | 56dB   | 71dB               |                | $f=120Hz$ $-10.5V \leq V_1 \leq -25V$ $T_j=25^\circ C$   |
| Dropout Voltage                           | $V_d$                   |        | 2.0V               |                | $I_o=1.0A$ , $T_j=25^\circ C$  |
| Peak Output Current                       | $I_{opeak}$             |        | 2.1A               |                | $T_j=25^\circ C$   |
| Temperature Coefficient of Output voltage | $\Delta V_o/\Delta T_j$ |        | -0.6mV/ $^\circ C$ |                | $0^\circ C \leq T_j \leq 125^\circ C$ , $I_o=5mA$  |

# MC7909CT

**Electrical Characteristics (Vi=15V, Io=500mA, 0°C<Tj<125°C, Ci=2.0uF, Co=1.0uF, Unless Otherwise Specified)**

| Parameter                                 | Sym     | Min    | Typ           | Max            | Test conditions  |
|---|---------|--------|---------------|----------------|--|
| Output Voltage                            | Vo      | -8.70V | -9.0V         | -9.30V         | Tj=25°C  |
|   |         | -8.60V |               | -9.40V         | -11.5V ≤ V1 ≤ -24V,<br>5mA ≤ Io ≤ 1.0A,<br>Pd <= 15W     |
| Load Regulation                           | ΔVo     |        | 12mV          | 180mV          | 5mA ≤ Io ≤ 1.5A, Tj=25°C,                                |
|   |         |        | 4.0mV         | 90mV           | 250mA ≤ Io ≤ 750mA, Tj=25°C                              |
| Line regulation                           | ΔVo     |        | 10mV<br>5.0mV | 180mV<br>90mV  | -11.5V ≤ V1 ≤ -26V, Tj=25°C<br>-12V ≤ V1 ≤ -18V, Tj=25°C |
| Quiescent Current                         | Iq      |        | 3.0mA         | 6.0mA          | Tj=25°C, Io=0  |
| Quiescent Current Change                  | ΔIq     |        |               | 1.0mA<br>0.5mA | -11.5V ≤ V1 ≤ -26V<br>5mA ≤ Io ≤ 1.0A                    |
| Output Noise Voltage                      | VN      |        | 175μV         |                | 10Hz ≤ f ≤ 100KHz Tj=25°C                                |
| Ripple Rejection                          | RR      | 54dB   | 60dB          |                | f=120Hz, -11.5V ≤ V1 ≤ -26V, Tj=25°C                     |
| Dropout Voltage                           | Vd      |        | 1.1V          |                | Io=1.0A, Tj=25°C   |
| Peak Output Current                       | Iopeak  |        | 2.1A          |                | Tj=25°C  |
| Temperature Coefficient of Output voltage | ΔVo/ΔTj |        | -0.6mV/°C     |                | 0°C ≤ Tj ≤ 125°C, Io=5mA                                 |

# MC7912CT

**Electrical Characteristics (Vi=19V, Io=500mA, 0°C<Tj<125°C, Ci=2.0uF, Co=1.0uF, Unless Otherwise Specified)**

| Parameter                                 | Sym     | Min     | Typ            | Max            | Test conditions  |
|---|---------|---------|----------------|----------------|--|
| Output Voltage                            | Vo      | -11.50V | -12V           | -12.50V        | Tj=25°C  |
|   |         | -11.40V |                | -12.60V        | -14.5V ≤ V1 ≤ -27V,<br>5mA ≤ Io ≤ 1.0A,<br>Pd ≤ 15W      |
| Load Regulation                           | ΔVo     |         | 15mV           | 200mV          | 5.0mA ≤ Io ≤ 1.5A, Tj=25°C,                              |
|   |         |         | 5.0mV          | 75mV           | 250mA ≤ Io ≤ 750mA, Tj=25°C                              |
| Line regulation                           | ΔVo     |         | 5.0mV<br>3.0mV | 80mV<br>30mV   | -14.5V ≤ V1 ≤ -30V, Tj=25°C<br>-16V ≤ V1 ≤ -22V, Tj=25°C |
| Quiescent Current                         | Iq      |         | 2.0mA          | 3.0mA          | Tj=25°C, Io=0  |
| Quiescent Current Change                  | ΔIq     |         |                | 0.5mA<br>0.5mA | -14.5V ≤ V1 ≤ -30V<br>5mA ≤ Io ≤ 1.0A                    |
| Output Noise Voltage                      | VN      |         | 300μV          |                | 10Hz ≤ f ≤ 100KHz Tj=25°C                                |
| Ripple Rejection                          | RR      | 54dB    | 60dB           |                | f=120Hz, -14.5V ≤ V1 ≤ -30V, Tj=25°C                     |
| Dropout Voltage                           | Vd      |         | 1.1V           |                | Io=1.0A, Tj=25°C   |
| Peak Output Current                       | Iopeak  |         | 2.1A           |                | Tj=25°C  |
| Temperature Coefficient of Output voltage | ΔVo/ΔTj |         | -0.8mV/°C      |                | 0°C ≤ Tj ≤ 125°C, Io=5mA                                 |

Marking:

|                       |
|-----------------------|
| <p>MCC<br/>79XXCT</p> |
|-----------------------|

XX:05~12





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### Ordering Information :

| Device         | Packing         |
|----------------|-----------------|
| Part Number-BP | Bulk; 1Kpcs/Box |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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## JONHON

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