

**42095****NEGATIVE HIGH TEMPERATURE REGULATOR****Mii**

MICROPAC

MICROCIRCUITS PRODUCTS  
DIVISION**Features:**

- Output current to 1.5 amps
- Input voltage to -38V
- Output voltage to -30V
- Internal short circuit protection, foldback and current limiting
- Storage Temperature +250°C
- 200°C Operating temperature

**Applications:**

- Logging while drilling
- Measuring while drilling (down-hole applications)
- Other harsh environments
- Used as military and industrial devices
- Designed for use in high temperature environments

**DESCRIPTION**

The 42095 series of regulators covers the voltage range from -5 VDC through -30 VDC. These regulators are fabricated using hybrid techniques and will operate at temperatures up to +200°C case. These devices are complete with internal short circuit protection which includes voltage shutdown and current foldback. It is strongly recommended that input and output capacitors be added as close to the case as possible. A 2µf capacitor should be added to the input and a minimum of 1.5 µf should be added to the output. See typical connection diagram.

**ABSOLUTE MAXIMUM RATINGS AT 200°C Case temperature**

|                                              |                |
|----------------------------------------------|----------------|
| Output Current (I <sub>OUT</sub> ) .....     | 1.5A           |
| Input Voltage (V <sub>IN</sub> ) .....       | -38VDC         |
| Operating Temperature (T <sub>C</sub> )..... | 200°C          |
| Storage Temperature .....                    | -65°C to 200°C |
| Power Dissipation (P <sub>d</sub> ).....     | 25W            |

**TABLE 1 (see note)**

| TYPE      | V <sub>OUT</sub> VDC | MAX I <sub>OUT</sub> A | I <sub>KNEE</sub> TYP A |
|-----------|----------------------|------------------------|-------------------------|
| 42095-005 | -5                   | 1.5                    | 2.0                     |
| 42095-012 | -12                  | 1.5                    | 2.0                     |
| 42095-015 | -15                  | 1.5                    | 2.0                     |
| 42095-018 | -18                  | 1.5                    | 2.0                     |
| 42095-024 | -24                  | 1.5                    | 2.0                     |
| 42095-030 | -30                  | 1.5                    | 2.0                     |

NOTE: Under condition (V<sub>IN</sub> - V<sub>OUT</sub> × I<sub>OUT</sub>) ≤ 25 watts at 200°C. Micropac can provide custom output voltages between -5VDC and -30VDC.

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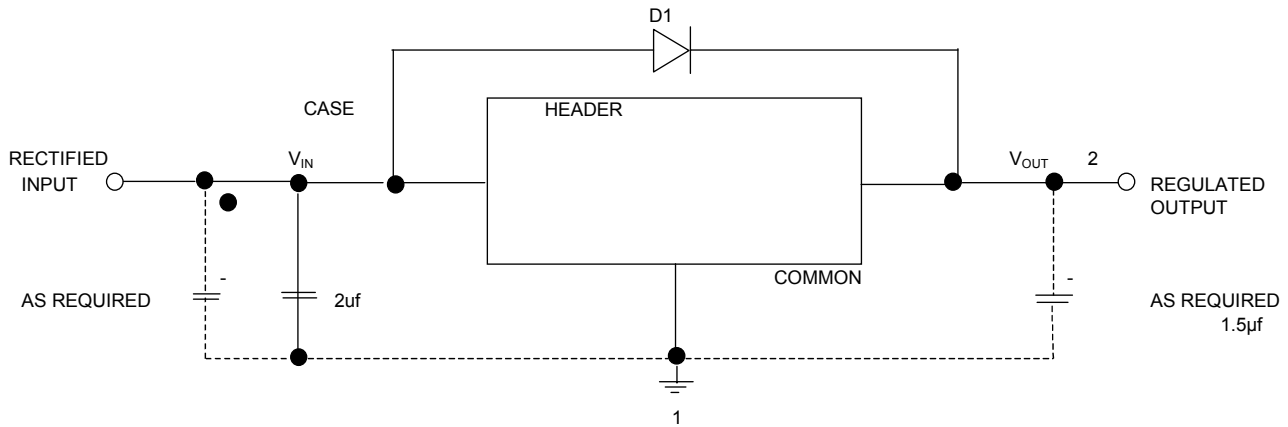
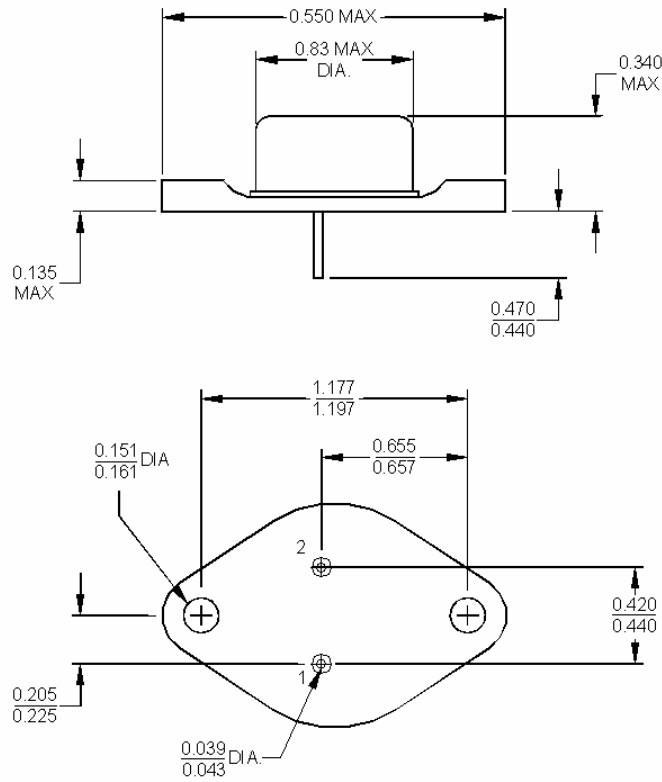
## ELECTRICAL CHARACTERISTICS

| PARAMETER                                                   | TEST CONDITIONS                                                                             | TEMPERATURE CASE TEMP | TYPICAL             |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------|---------------------|
| *Output Voltage                                             | $I_{OUT} = 300 \text{ mA}$<br>$V_{IN} = V_{OUT} + 3\text{VDC}$                              | +25°C to +200°C       | $V_{OUT} \pm 1.0\%$ |
| *Line Regulation                                            | $V_{IN} = V_{OUT} + 3\text{VDC}$<br>to $V_{IN} = 38 \text{ V}$<br>$I_{OUT} = 50 \text{ mA}$ | +25°C to +200°C       | $V_{OUT} \pm 0.3\%$ |
| Load Regulation                                             | $V_{IN} = V_{OUT} + 5\text{VDC}$<br>$I_{OUT} = 50 \text{ to } 300\text{mA}$                 | +25°C to +200°C       | $V_{OUT} \pm 0.5\%$ |
| Ripple Rejection at 120 Hz                                  | $V_{IN} = V_{OUT} + 5\text{VDC}$                                                            | +25°C                 | -60dB               |
| Standby Current                                             | $V_{IN} = V_{OUT} + 5\text{VDC}$<br>$I_{OUT} = 0$                                           | +25°C                 | 30mA                |
| Short Circuit Current                                       | $V_{IN} = V_{OUT} + 5\text{VDC}$                                                            | +25°C                 | 400mA               |
| Short Circuit Current                                       | $V_{IN} = V_{OUT} + 5\text{VDC}$                                                            | +200°C                | 200mA               |
| Foldback Current (knee)                                     | $V_{IN} = V_{OUT} + 5\text{VDC}$                                                            | +25°C                 | 2A                  |
| Foldback Current (knee)                                     | $V_{IN} = V_{OUT} + 5\text{VDC}$                                                            | +200°C                | 1.5A                |
| Noise Output                                                | $V_{IN} = V_{OUT} + 5\text{VDC}$<br>$I_{OUT} = 300 \text{ mA}$                              | +25°C                 | 2mVRMS              |
| Differential Voltage<br>* ( $\Delta V = V_{IN} - V_{OUT}$ ) | $I_{OUT} = 300 \text{ mA}$                                                                  | +25°C to +200°C       | 3 VDC MIN           |

\* $V_{IN} = 10\text{V Min}$ 

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Mechanical Configuration



| Electrical Connection |           |
|-----------------------|-----------|
| Case                  | $V_{IN}$  |
| Pin 1                 | Ground    |
| Pin 2                 | $V_{OUT}$ |

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