

**42094**

**POSITIVE 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 225°C
- 200°C Operating temperature

**Applications:**

- Logging while drilling
- Measuring while drilling (down-hole applications)
- Other harsh environments
- Designed for use in high temperature environments 200°C

**DESCRIPTION**

The 42094 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 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 capacitor 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
42094-005	5	1.5	2.0
42094-012	12	1.5	2.0
42094-015	15	1.5	2.0
42094-018	18	1.5	2.0
42094-024	24	1.5	2.0
42094-030	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 case. Micropac can provide custom output voltages between 5VDC and 30VDC.

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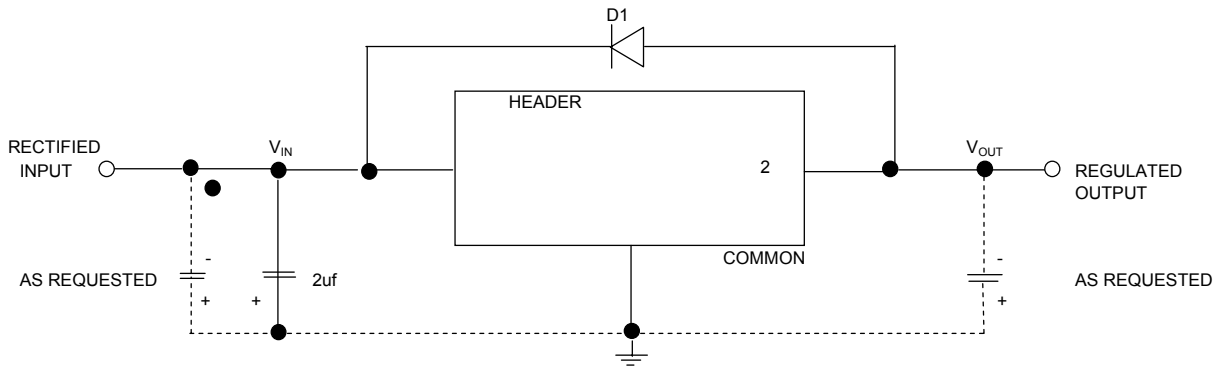
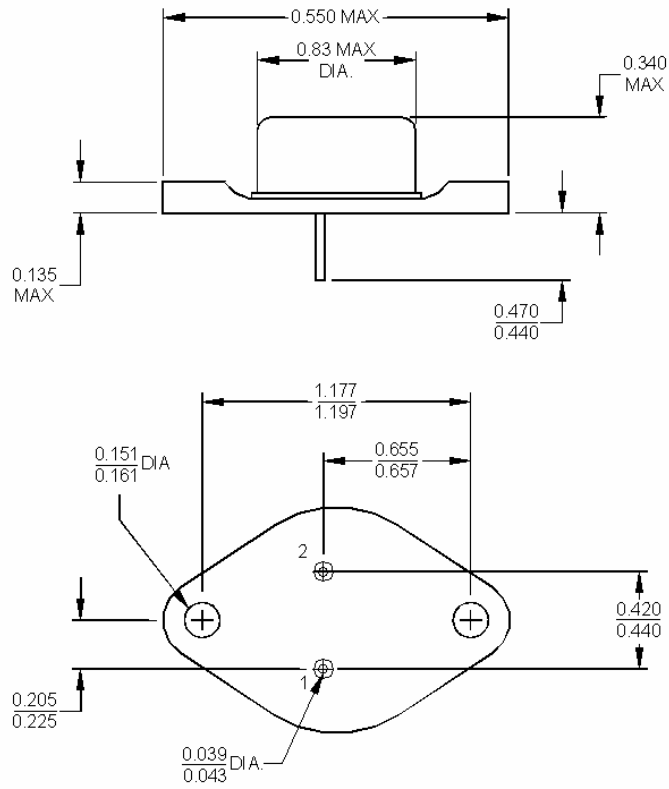
## ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	TEMPERATURE CASE TEMP	TYPICAL
*Output Voltage	$I_{OUT} = 300 \text{ mA}$ $V_{IN} = V_{OUT} + 3\text{VDC}$	+25°C to +200°C	$V_{OUT} \pm 1.0\%$
*Line Regulation	$V_{IN} = V_{OUT} + 3\text{VDC}$ to $V_{IN} = 38\text{VDC}$ $I_{OUT} = 50 \text{ mA}$	+25°C to +200°C	$V_{OUT} \pm 0.3\%$
Load Regulation	$V_{IN} = V_{OUT} + 5\text{VDC}$ $I_{OUT} = 50 \text{ to } 300\text{mA}$	+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	$V_{IN} = V_{OUT} + 5\text{VDC}$ $I_{OUT} = 0$	+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	$V_{IN} = V_{OUT} + 5\text{VDC}$ $I_{OUT} = 300 \text{ mA}$	+25°C	2mVRMS
Differential Voltage * ( $\Delta V = V_{IN} - V_{OUT}$ )	$I_{OUT} = 300 \text{ mA}$	+25°C to +200°C	3 VDC MIN

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

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Mechanical Configuration



Electrical Connection	
Case	V <sub>IN</sub>
Pin 1	Ground
Pin 2	V <sub>OUT</sub>

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