42094

POSITIVE HIGH TEMPERATURE REGULATOR

Mii
HYBRID MICROELECTRONICS
PRODUCTS DIVISION

Features:

- Output current to 1.5 amps
- Input voltage to 38V
- Internal short circuit protection, foldback and current limiting
- Storage Temperature 225°C
- 200°C Operating Temperature
- Output voltage to 30 VDC

Applications:

- Logging while drilling
- Measuring while drilling (down-hole applications)
- Other harsh environments
- Designed to 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. The 42094 series regulators normally do not require any additional components. However, for good design practice, an external filter cap should be installed at the input, as close to the case as possible.

ABSOLUTE MAXIMUM RATINGS AT 200°C

Output Current (I_{OUT}) 1.5A
Input Voltage (V_{IN}) ..... +38VDC
Operating Temperature (T_C) ..... 200°C
Storage Temperature ..... –65°C to 200°C
Power Dissipation (P_d) 25W

TABLE 1 (see note)

TYPE	V_{OUT} VDC	MAX I_{OUT} A	TYP I_{KNEE} 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

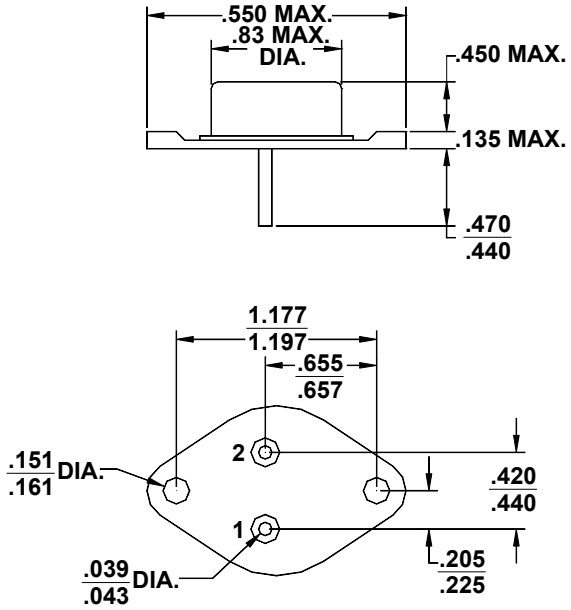
NOTE: Under condition $(V_{IN} - V_{OUT}) \times I_{OUT} \leq 25$ watts at 200°C case. Micropac can provide custom output voltages between 5VDC and 30VDC.

ELECTRICAL CHARACTERISTICS

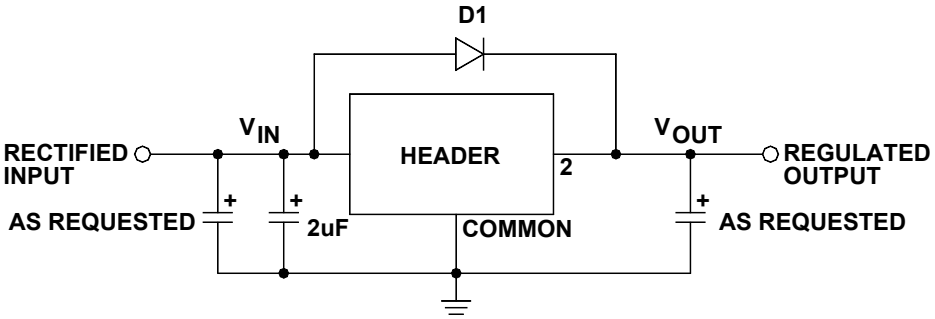
PARAMETER	TEST CONDITIONS	TEMPERATURE CASE TEMP	TYPICAL
*Output Voltage	I_{OUT} = 300 mA V_{IN} = V_{OUT} +3VDC	+25°C to +200°C	V_{OUT} ±1.0%
*Line Regulation	V_{IN} = V_{OUT} +3VDC to V_{IN} = 38 VDC I_{OUT} = 50 mA	+25°C to +200°C	V_{OUT} ±0.3%
Load Regulation	V_{IN} = V_{OUT} +5VDC I_{OUT} = 50 to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

* V_{IN} = 10V Min

Mechanical Configuration



Typical Connection Diagram



Note: D1 should be installed for input safety.

Electrical Conncetions	
Case	V_{IN}
Pin 1	Ground
Pin 2	V_{OUT}