

AN8060, AN8060S

Low Drop Type Negative Output (−4V) Regulator with Reset Pin

■ Overview

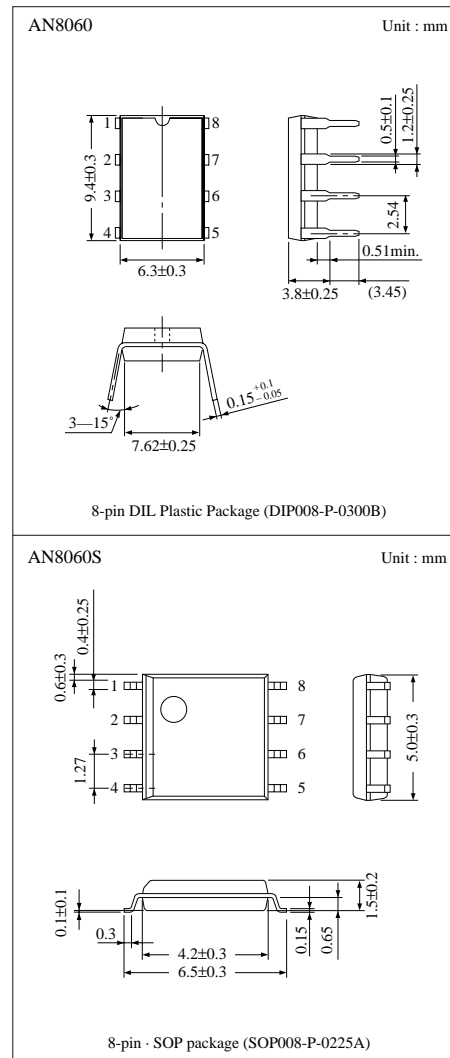
The AN8060 and the AN8060S are the low drop type regulators having the function of resetting output voltage. With a comparator to sense reduced voltage building it is suitable for batteries operation.

■ Features

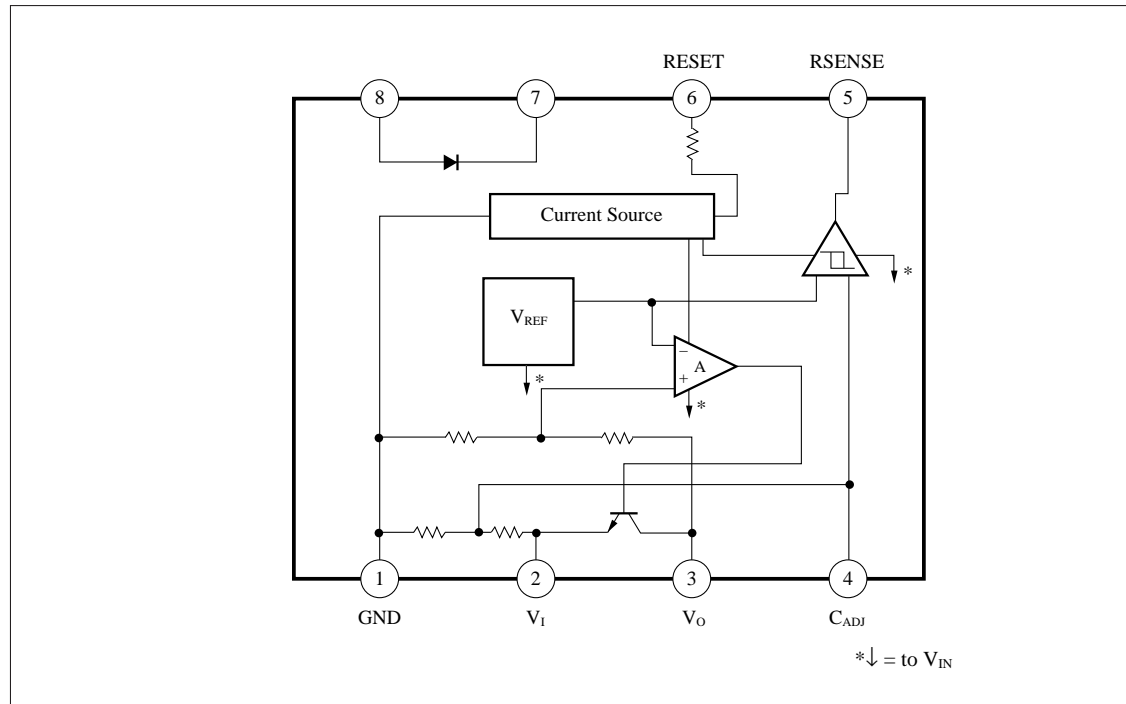
- With reset function : bias current at resetting $-5\mu\text{A}$
- Small input-output voltage difference : $I_O=30\text{mA}$, 0.2V
- Low Supply Voltage sensing comparator built-in

■ Pin Descriptions

| Pin No. | Symbol | Pin name |
|---------|-----------|-----------------------------------|
| 1 | GND | GND |
| 2 | V_I | Input voltage |
| 3 | V_O | Output voltage |
| 4 | C_{ADJ} | Low supply voltage sensing adj. |
| 5 | RSENSE | Low supply voltage sensing output |
| 6 | RESET | Reset pin |
| 7 | D_{IC} | Diode pin (Cathode) |
| 8 | D_{IA} | Diode pin (Anode) |



■ Block Diagram



■ Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

| Parameter | Symbol | Rating | Unit |
|-------------------------------|-----------|-------------|--------------------|
| Supply voltage | V_{CC} | -12 to +0.3 | V |
| Supply current | I_{CC} | — | mA |
| Power dissipation | P_D | AN8060 | 500 |
| | | AN8060S | 361 |
| Operating ambient temperature | T_{opr} | -20 to +75 | $^{\circ}\text{C}$ |
| Storage temperature | T_{sig} | AN8060 | -55 to +150 |
| | | AN8060S | -55 to +125 |

■ Electrical Characteristics ($T_a=25^{\circ}\text{C}$)

| Parameter | Symbol | Condition | min | typ | max | Unit |
|----------------------------------|------------|---|-------|-------|-------|---------------|
| Bias current at reset | I_{RB} | $V_{RESET}=0\text{V}$, $V_I=-6\text{V}$ | — | — | 5 | μA |
| Bias current at no load | I_{UB} | $V_I=-6\text{V}$ | — | 2.5 | 6 | mA |
| Output voltage | V_O | $V_I=-6\text{V}$, $I_O=10\text{mA}$ | -4.08 | -3.92 | -3.76 | V |
| Output voltage tolerance | V_T | $V_I=-4.4$ to -8V , $I_O=1$ to 30mA | -4.06 | — | -3.66 | V |
| Stable input voltage | V_{IS} | $V_I=-4.4$ to -7.4V , $I_O=10\text{mA}$ | — | 3.6 | 60 | mV |
| Stable lock voltage | V_{LS} | $V_I=-6\text{V}$, $I_O=1$ to 30mA | — | 8 | 60 | mV |
| Input/Output voltage difference | V_{IOS} | $V_I=-3.8\text{V}$, $I_O=30\text{mA}$ | — | 0.1 | 0.2 | V |
| Reset pin input current (H) | I_{RICH} | $V_I=-6\text{V}$, $V_{RESET}=0\text{V}$ | -1 | — | — | μA |
| Reset pin input current (L) | I_{RICL} | $V_I=-6\text{V}$, $V_{RESET}=-6\text{V}$ | -200 | — | — | μA |
| Low supply voltage sending level | V_{RDL} | $I_O=10\text{mA}$ | -4.55 | -4.3 | -4.05 | V |
| Output voltage at reset | V_{RO} | $V_{RESET}=0\text{V}$, $V_I=-6\text{V}$ | -0.1 | — | — | V |
| Comparator output current | I_{CO} | $V_I=-4\text{V}$, $V_{RSENSE}=-3.6\text{V}$ | 1 | — | — | mA |

■ Characteristics Curve

