



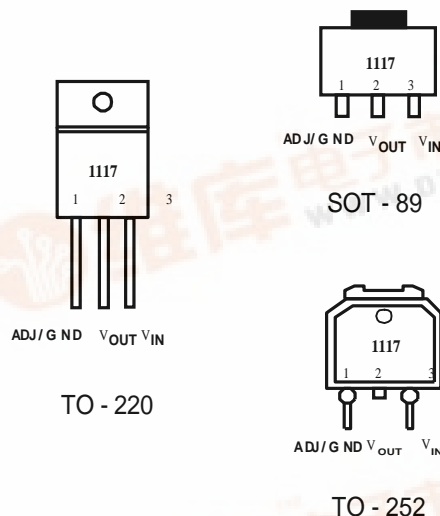
1117

Description

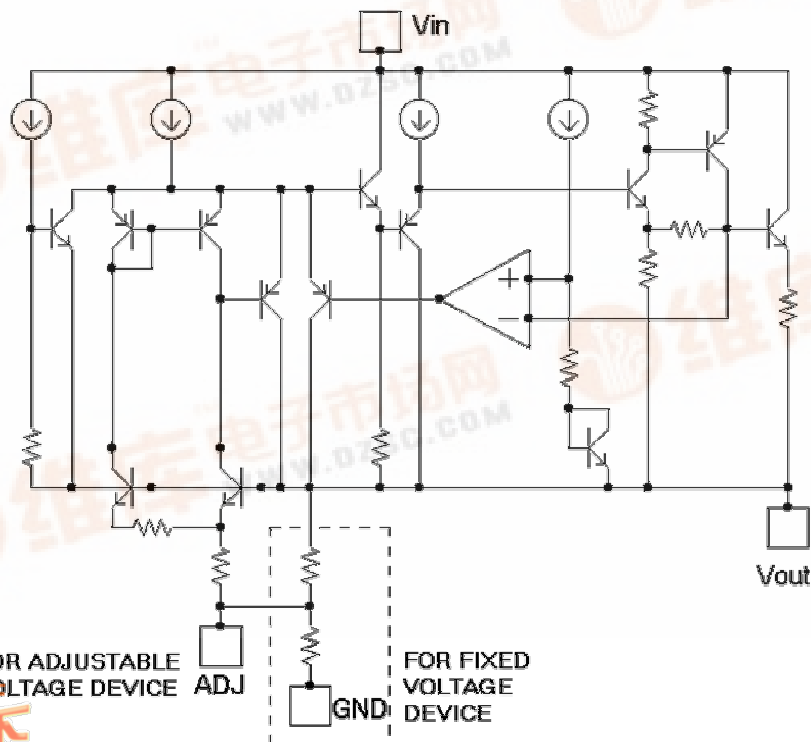
The 1117 series of positive adjustable and fixed regulators are designed to provide 1A with high efficiency. All internal circuitry is designed to operate down to 1.3V input to output differential. On-chip Trimming the reference voltage to 1%.

Features

- Dropout voltage 1.2V
- Line regulation typically at 0.2%
- Load regulation typically at 0.4% max
- Current limiting and Thermal portection
- Adijustable output voltage or fixed 1.25V,1.5V, 1.8V,2.5V,2.85V,3.3V,
- Standard 3-pin power package
- Maximum input $-15V$
- Operating junction temperature -0 to $+150^{\circ}C$



Internal Block Digrum



Package



Absolute Maximum Ratings

- Power Dissipation 12W
- Input Voltage 12V-($V_o=1.5V, 1.8V, 2.5V, 3.3V$)
15V-($V_o=5.0V$ adjustable)
- Operating Junction Temperature Range 0 to +150°C
- Storage Temperature - 65°C to +150

Typical Applications

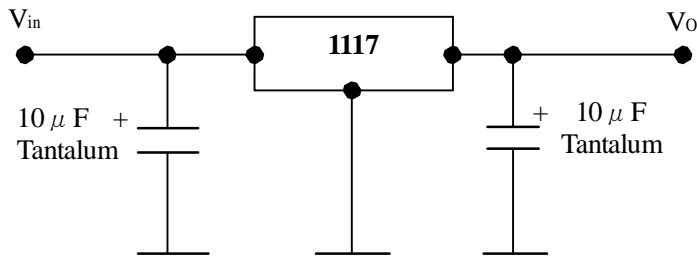


FIGURE 1. Fixed-Voltage Model –Basic Connections.

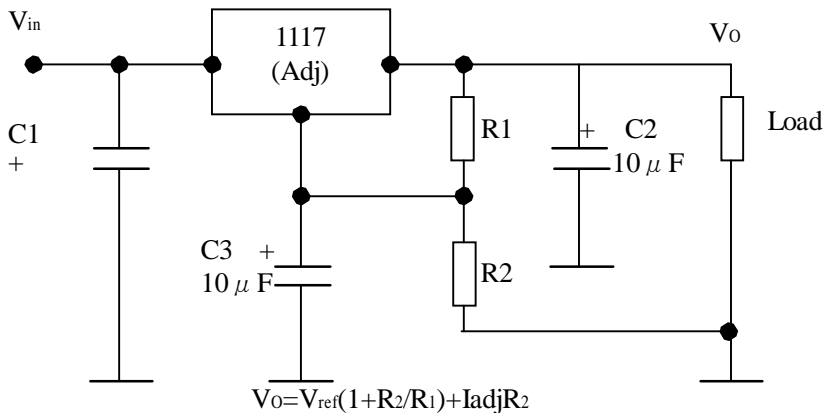


FIGURE 2. Adjustable-Voltage Model-Basic Connections

Electrical Characteristics

 ($T_j=+25^{\circ}\text{C}$, unless otherwise noted)

| PARAMETER | CONDITIONS | MIN | TYP | MAX | |
|---------------------------------|--|-------|-------|-------|----|
| UNIS | | | | | |
| 1117(Adjustable) | $I_o=10\text{mA}, V_{in}-V_o=2\text{V}$ | 1.238 | 1.250 | 1.262 | V |
| | $I_o=10\text{mA to }1\text{A}, V_{in}-V_o=1.5\text{ to }13.75\text{V}$ | 1.232 | 1.250 | 1.268 | V |
| 1117-1.5 | $I_o=10\text{mA}, V_{in}=3.5\text{V}$ | 1.485 | 1.500 | 1.515 | V |
| | $I_o=0\text{ to }1\text{A}, V_{in}=3.0\text{V to }12\text{V}$ | 1.477 | 1.500 | 1.522 | V |
| 1117-1.8 | $I_o=10\text{mA}, V_{in}=3.8\text{V}$ | 1.782 | 1.800 | 1.818 | V |
| | $I_o=0\text{ to }1\text{A}, V_{in}=3.3\text{V to }12\text{V}$ | 1.773 | 1.800 | 1.827 | V |
| 1117-2.5 | $I_o=10\text{mA}, V_{in}=4.5\text{V}$ | 2.475 | 2.500 | 2.525 | V |
| | $I_o=0\text{ to }1\text{A}, V_{in}=4.0\text{V to }12\text{V}$ | 2.462 | 2.500 | 2.538 | V |
| 1117-2.85 | $I_o=10\text{mA}, V_{in}=4.85\text{V}$ | 2.820 | 2.850 | 2.880 | V |
| | $I_o=0\text{ to }1\text{A}, V_{in}=4.4\text{V to }12\text{V}$ | 2.807 | 2.850 | 2.893 | V |
| 1117-3.3 | $I_o=10\text{mA}, V_{in}=5.3\text{V}$ | 3.270 | 3.300 | 3.330 | V |
| | $I_o=0\text{ to }1\text{A}, V_{in}=4.8\text{V to }12\text{V}$ | 3.250 | 3.300 | 3.350 | V |
| 1117-5.0 | $I_o=10\text{mA}, V_{in}=7\text{V}$ | 4.950 | 5.000 | 5.050 | V |
| | $I_o=0\text{ to }1\text{A}, V_{in}=6.5\text{V to }15\text{V}$ | 4.925 | 5.000 | 5.075 | V |
| OUTPUT VOLTAGE | $T_j=0^{\circ}\text{C to }+125^{\circ}\text{C}$ | | | | |
| 1117(Adjustable) | $I_o=10\text{mA to }1\text{A}, V_{in}-V_o=1.5\text{ to }13.75\text{V}$ | 1.225 | 1.250 | 1.280 | V |
| 1117-1.5 | $I_o=0\text{ to }1\text{A}, V_{in}=3.0\text{V to }12\text{V}$ | 1.470 | 1.500 | 1.530 | V |
| 1117-1.8 | $I_o=0\text{ to }1\text{A}, V_{in}=3.3\text{V to }12\text{V}$ | 1.764 | 1.800 | 1.836 | V |
| 1117-2.5 | $I_o=0\text{ to }1\text{A}, V_{in}=4.0\text{V to }12\text{V}$ | 2.450 | 2.500 | 2.550 | V |
| 1117-2.85 | $I_o=0\text{ to }1\text{A}, V_{in}=4.4\text{V to }12\text{V}$ | 2.790 | 2.850 | 2.910 | V |
| 1117-3.3 | $I_o=0\text{ to }1\text{A}, V_{in}=4.8\text{V to }12\text{V}$ | 3.240 | 3.300 | 3.360 | V |
| 1117-5.0 | $I_o=0\text{ to }1\text{A}, V_{in}=6.5\text{V to }15\text{V}$ | 4.900 | 5.000 | 5.100 | V |
| LINE REGULATION | | | | | |
| 1117(Adjustable) | $I_o=10\text{mA}, V_{in}-V_o=1.5\text{ to }13.75\text{V}$ | | 0.1 | 0.2 | % |
| 1117-1.5 | $I_o=0, V_{in}=3.0\text{V to }12\text{V}$ | | 2 | 7 | mV |
| 1117-1.8 | $I_o=0, V_{in}=3.3\text{V to }12\text{V}$ | | 2 | 7 | mV |
| 1117-2.5 | $I_o=0, V_{in}=4.0\text{V to }12\text{V}$ | | 2 | 7 | mV |
| 1117-2.85 | $I_o=0, V_{in}=4.4\text{V to }12\text{V}$ | | 2 | 7 | mV |
| 1117-3.3 | $I_o=0, V_{in}=4.8\text{V to }12\text{V}$ | | 3 | 7 | mV |
| 1117-5.0 | $I_o=0, V_{in}=6.5\text{V to }15\text{V}$ | | 4 | 10 | mV |
| LOAD REGULATION | | | | | |
| 1117(Adjustable) ^(d) | $I_o=10\text{mA to }1\text{A}, V_{in}-V_o=2\text{V}$ | | 0.2 | 0.4 | % |
| 1117-1.5 | $I_o=1\text{ to }1\text{A}, V_{in}=3.5\text{V}$ | | 3 | 10 | mV |
| 1117-1.8 | $I_o=1\text{ to }1\text{A}, V_{in}=3.8\text{V}$ | | 3 | 10 | mV |
| 1117-2.5 | $I_o=1\text{ to }1\text{A}, V_{in}=4.5\text{V}$ | | 3 | 10 | mV |
| 1117-2.85 | $I_o=1\text{ to }1\text{A}, V_{in}=4.85\text{V}$ | | 3 | 10 | mV |
| 1117-3.3 | $I_o=1\text{ to }1\text{A}, V_{in}=5.3\text{V}$ | | 4 | 12 | mV |
| 1117-5.0 | $I_o=1\text{ to }1\text{A}, V_{in}=7.0\text{V}$ | | 5 | 15 | mV |

| | | | | | |
|--|---|------|--------------------|----------------------|--------------------------------|
| DROPOUT VOLTAGE ⁽²⁾ All Models | $I_o=800\text{mA}$ $I_o=1\text{A}$ $I_o=1\text{A}(T_i=0^\circ\text{C to }+125)$ | | 1.10 1.2 1.2 | 1.20 1.30 1.48 | V V V |
| CURRENT LIMIT | $V_{in} - V_o=5\text{V}$ | 1000 | 1250 | 1600 | mA |
| MINIMUM LOAD CURRENT Adjustable | $V_{in}-V_o=12\text{V}$ | | 5 | 10 | mA |
| QUIESCENT CURRENT | $V_{in} - V_o=5\text{V}$ | | 5.2 | 10 | MA |
| Adjust PIN Current vs Load Current, 1117 | $I_o=10\text{mA}, V_{in}-V_o=1.5\text{V to }12\text{V}$ $I_o=10\text{mA to }1\text{A}, V_{in}-V_o=1.5\text{V to }12\text{V}$ | | 50 0.5 | 120 5 | μA μA |
| TEMPERATURE DRIFT | $T_j=0^\circ\text{C to }+125^\circ\text{C}$ | | 0.5 | | % |

Ordering Information

| ORDERING NUMBER | PACKAGE | MARKING |
|-----------------|--------------------------|---------|
| 1117 | TO-220 / SOT-89 / TO-252 | ET1117 |

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