

Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|------------------------------|------------|----------|------|
| Input Voltage | V_i | 33 | V |
| Over Protection Voltage | $V_{(OP)}$ | 60 | V |
| Operating Temperature Range | T_{OPR} | -40~+125 | °C |
| Maximum Junction Temperature | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -65~+150 | °C |

Electrical Characteristics

($V_i = 14V$, $I_O = 10mA$, $C_O = 100\mu F$, $T_A = 25^\circ C$)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|--|--------------------|---|------|------|------|---------------|
| Output Voltage (I) | V_O (I) | $V_i = 14V$, $I_O = 10mA$ | 4.81 | 5.0 | 5.19 | V |
| Output Voltage (II) | V_O (II) | $V_i = 6 \sim 26V$, $I_O = 100mA$ $T_J = -40 \sim +125^\circ C$ | 4.75 | 5.0 | 5.25 | V |
| Line Regulation (I) | ΔV_O (I) | $V_i = 9 \sim 16V$, $I_O = 10mA$ | - | 2.0 | 10 | mV |
| Line Regulation (II) | ΔV_O (II) | $V_i = 6 \sim 26V$, $I_O = 10mA$ | - | 4.0 | 30 | mV |
| Load Regulation | ΔV_O (III) | $V_i = 14V$, $I_O = 5 \sim 100mA$ | - | 10 | 50 | mV |
| Output Impedance | Z_O | $V_i = 14V$, $I_O = 100mA$ | - | 100 | 600 | $m\Omega$ |
| Quiescent Current (I) | I_Q (I) | $V_i = 6 \sim 26V$, $I_O \leq 10mA$ | - | 0.1 | 1.0 | mA |
| Quiescent Current (II) | I_Q (II) | $V_i = 14V$, $I_O \leq 100mA$ | - | 5.0 | 30 | mA |
| Output Noise Voltage | V_N | $V_i = 14V$, $I_O = 10mA$, $f = 10Hz \sim 100KHz$ | - | 150 | 1000 | μV_{rms} |
| Ripple Rejection | RR | $V_i = 14V$, $I_O = 10mA$, $f = 120Hz$ | 55 | 80 | - | dB |
| Dropout Voltage (I) | V_D (I) | $I_O = 10mA$, $V_D = V_i - V_O$ | - | 0.03 | 0.2 | V |
| Dropout Voltage (II) | V_D (II) | $I_O = 100mA$, $V_D = V_i - V_O$ | - | 0.1 | 0.6 | V |
| Max Operational Input Voltage | V_{IN} | $I_O = 10mA$ | 26 | 33 | - | V |
| Max Line Transient | $V_{LT(MAX)}$ | $V_i = 14V$, $I_O = 10mA$, Time = 100ms | 60 | 70 | - | V |
| Reverse Polarity Input Voltage DC | $V_{I(DC)}$ | $V_i = 14V$, $I_O = 10mA$, $V_O \geq -0.3V$ | - 15 | - 30 | - | V |
| Reverse Polarity Input Voltage Transient | $V_{I(TR)}$ | $V_i = 14V$, $I_O = 10mA$, Time $\leq 10ms$ | - 50 | - 80 | - | V |
| Peak Output Current | I_{PK} | $V_i = 14V$ | 200 | 400 | 600 | mA |

Typical Performance Characteristics

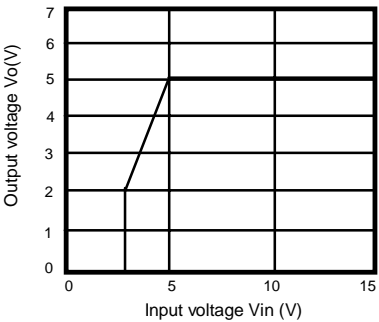


Figure 1. Output Voltage vs. Input Voltage

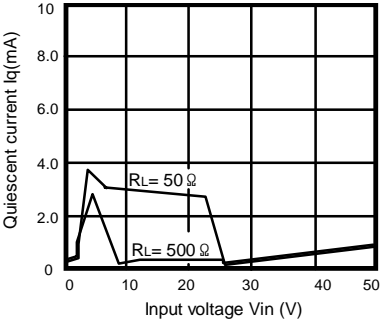


Figure 2. Quiescent Current vs. Input Voltage

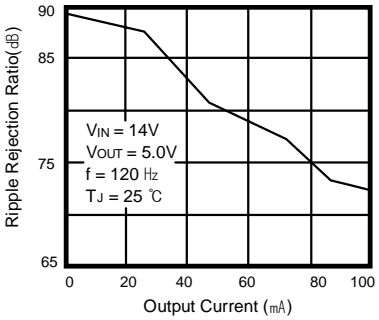


Figure 3. Ripple Rejection vs. Output Voltage

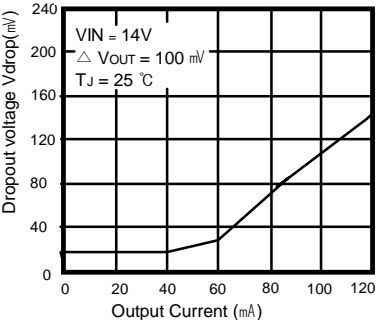


Figure 4. Drop Voltage vs. Output Current

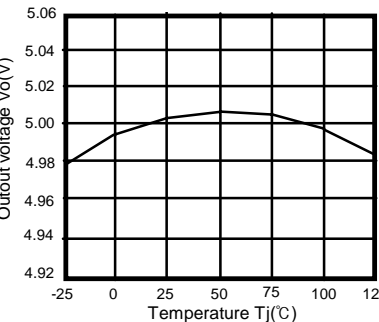


Figure 5. Output Voltage vs. Temperature(Tj)

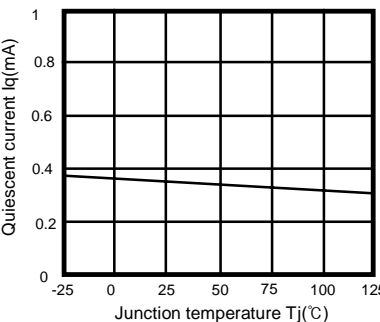


Figure 6. Quiescent Current vs. Temperature(Tj)

Typical Application

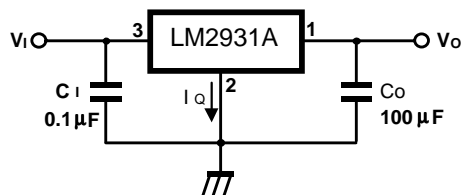


Figure 1. Application Circuit

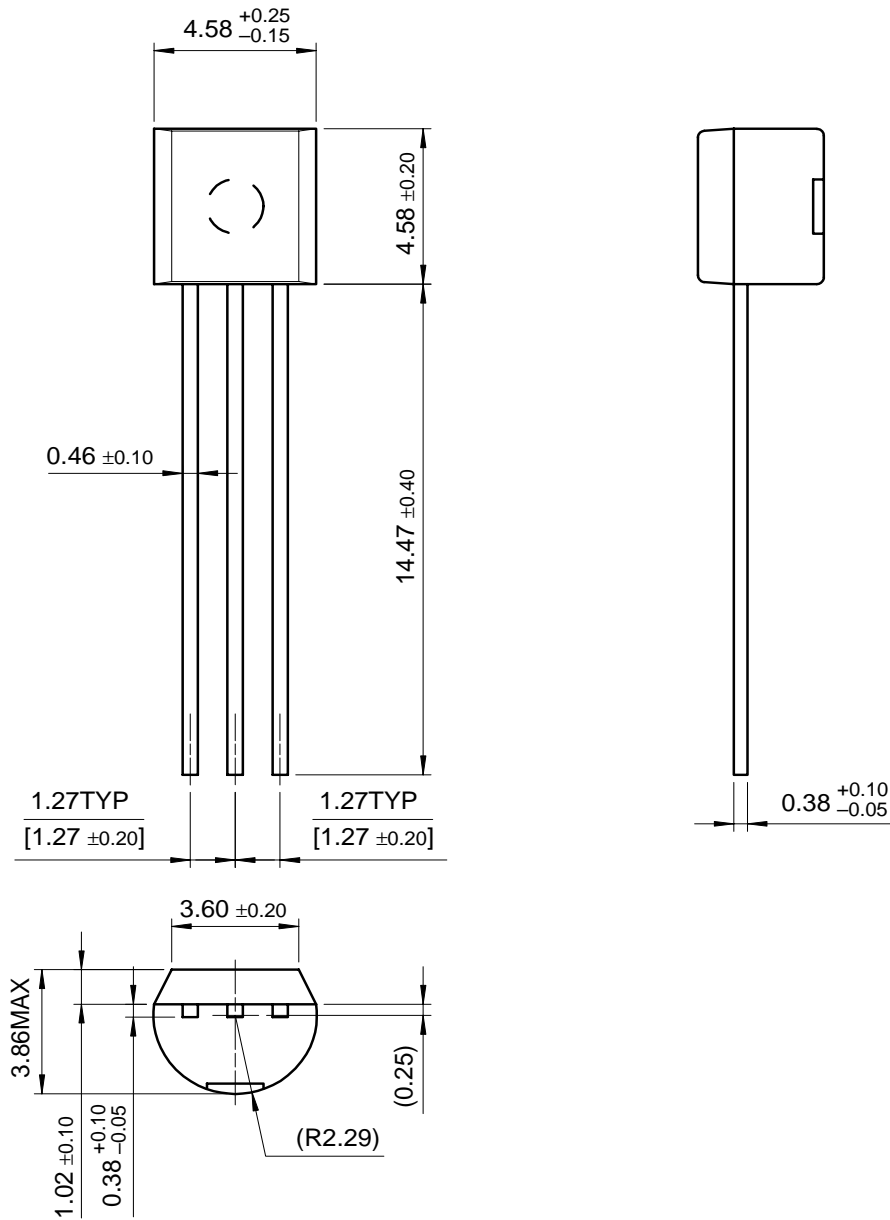
- C_i is required if regulator is located an appreciable distance from power supply filter.
- C_o improves stability .

Mechanical Dimensions

Package

Dimensions in millimeters

TO-92



Ordering Information

| Product Number | Package | Operating Temperature |
|----------------|---------|-----------------------|
| LM2931AZ5 | TO-92 | -40°C to + 125°C |

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