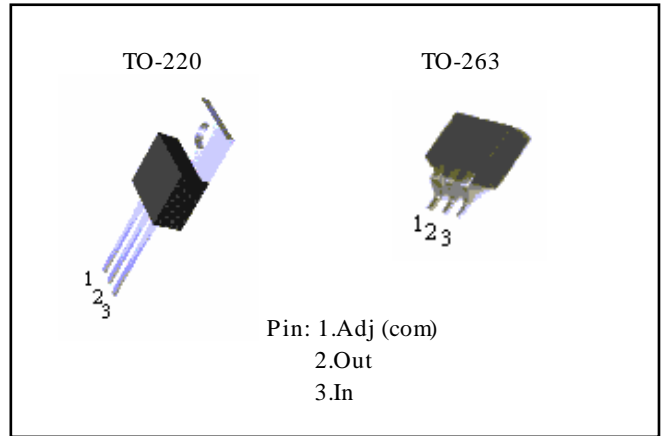


5 Amp Low Dropout Positive Voltage Regulator

The PJ1084 Series are high performance positive voltage regulators are designed for use in applications requiring low dropout performance at full rated current. Additionally, the PJ1084 Series provides excellent regulation over variations due to changes in line, load and temperature. Outstanding features include low dropout performance at rated current, fast transient response, internal current limiting and thermal shutdown protection of the output device. The PJ1084 Series are three terminal regulators with fixed and adjustable voltage options available in popular packages.

FEATURES

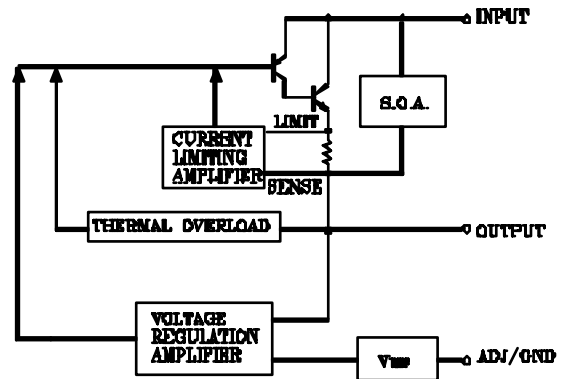
- Low dropout performance 1.3V max.
- Full current rating over line and temperature
- Fast transient response
- $\pm 2\%$ Total output regulation over line, load and temperature
- Adjust pin current max $90 \mu A$ over temperature
- Line regulation typical 0.015%.
- Load regulation typical 0.05%.
- Fixed/adjustable output voltage
- TO-220 & TO-263 package



ORDERING INFORMATION

| Device | Operating Temperature | Package |
|--|-----------------------|---------|
| PJ1084CZ PJ1084CZ-2.5 PJ1084CZ-3.3 | -20°C to +85°C | TO-220 |
| PJ1084CM PJ1084CM-2.5 PJ1084CM-3.3 | | TO-263 |

NOTE: Contact factory for additional voltage option.



| Parameter | Symbol | Maximum | Units |
|---|---------------|--------------------|-------|
| Input Voltage | V_{IN} | 12 | V |
| Power Dissipation | P_D | Internally Limited | W |
| Thermal Resistance Junction to Case | θ_{JC} | 2.5 | °C/W |
| Thermal Resistance Junction to Ambient | θ_{JA} | 50 | |
| Operating Junction Temperature Range | T_J | 0 to 125 | |
| Storage Temperature Range | T_{STG} | -65 to 150 | °C |
| Lead Temperature (Soldering) 10 Sec. | T_{LEAD} | 260 | |

5 Amp Low Dropout Positive Voltage Regulator

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, Adjust $V_{IN} = 2.75V$ to $12V$ and Adjust $I_o = 10mA$ to $5.0A$

Fixed $V_{IN} = 4.75V$ to $12V$ and Fixed $I_o = 10mA$ to $5.0A$

| Parameter | Symbol | Test Conditions | | | Test Limits | | | Units |
|---|----------------|--------------------|-------|-------------|-------------|-------|---------|---------|
| | | $V_{IN} - V_{OUT}$ | I_o | $T_J^{(4)}$ | Min | Typ | Max | |
| Output Voltage ⁽¹⁾ | V_o | 5V | 10mA | 25 | 0.99 Vo | V_o | 1.01 Vo | V |
| Fixed Voltage | | | | Over Temp. | 0.98 Vo | | 1.02 Vo | |
| Reference Voltage ⁽¹⁾ | V_{REF} | 5V | 10mA | 25 | 1.238 | 1.250 | 1.262 | |
| Adj Voltage | | | | Over Temp. | 1.225 | | 1.275 | |
| Line Regulation ⁽¹⁾ ($V_{in} - V_{out} = 3V$) | $REG_{(LINE)}$ | | 10mA | 25 | | 0.015 | 0.2 | % |
| | | | | Over Temp. | | 0.035 | | |
| Load Regulation ⁽¹⁾ ($V_{in} - V_{out} = 3V$) | $REG_{(LOAD)}$ | | | 25 | | 0.1 | 0.3 | |
| | | | | Over Temp. | | 0.2 | 0.4 | |
| Dropout Voltage $\Delta V_{REF} = 1\%$ | V_D | | | 25 | | 1 | V | |
| | | | | | Over Temp. | 1.1 | | 1.3 |
| Current Limit ($V_{in} - V_{out} = 5V$) | I_{CL} | | | | 5.5 | 6.5 | A | |
| Quiescent Current Fixed Model | I_Q | 5V | | | | 12 | 14 | mA |
| Temperature Coefficient | T_c | | | | | 0.005 | | %/°C |
| Adjust Pin Current | I_{ADJ} | | | 25 | | 55 | 120 | μA |
| Adjust Pin Current Change | | | | | | 0.2 | | |
| Temperature Stability | T_s | 5V | 500mA | Over Temp. | | 0.5 | | % |
| Minimum Load Current Adjust Model | I_o | 5V | | | | 5 | 10 | mA |
| RMS Output Noise ⁽²⁾ | V_N | | | 25 | | 0.003 | | %Vo |
| Ripple Rejection Ratio ⁽³⁾ | R_A | 5V | 5.0A | Over Temp. | 60 | 72 | | dB |

(1)Low duty cycle pulse testing with Kelvin connections required.

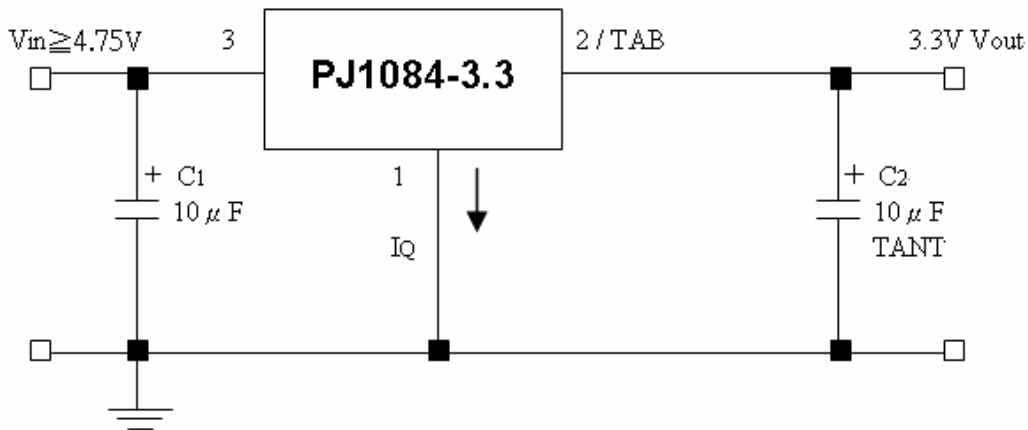
(2)Bandwidth of 10Hz to 10KHz.

(3)120Hz input ripple (C_{ADJ} for ADJ) = $25 \mu F$.

(4)Over Temp.-over specified operating junction temperature range.

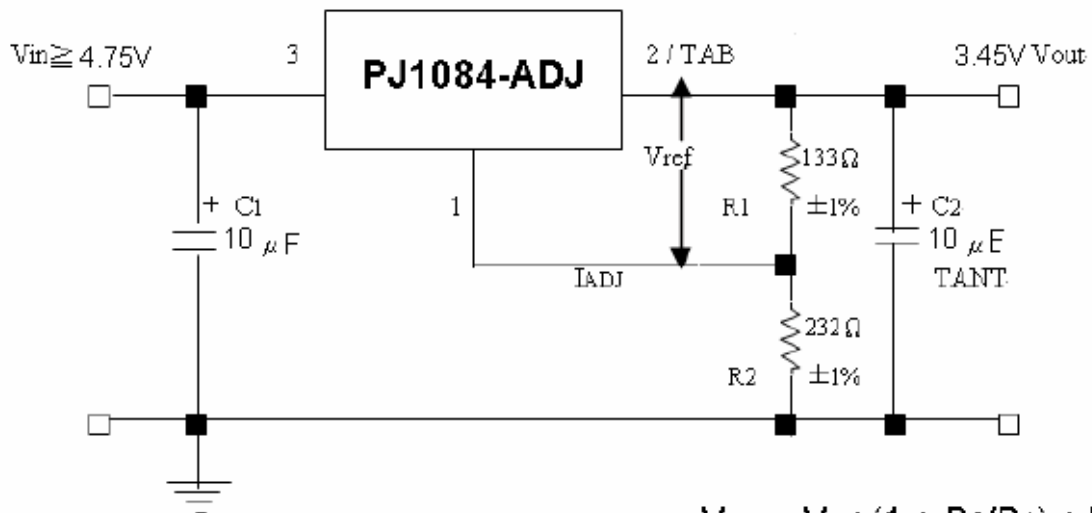
ELECTRICAL CHARACTERISTICS

FIXED VOLTAGE REGULATOR (1)(2)



- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
- (2) C2 REQUIRED FOR STABILITY

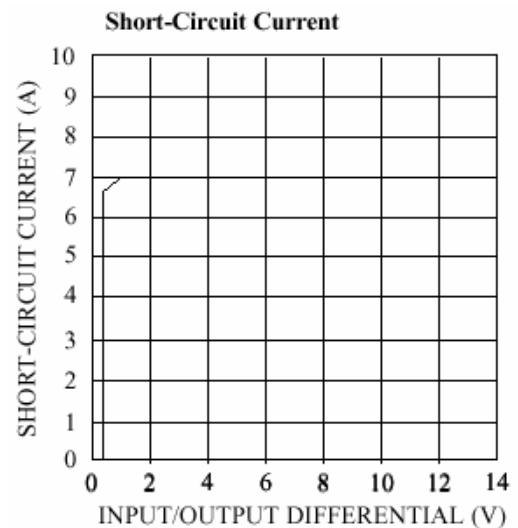
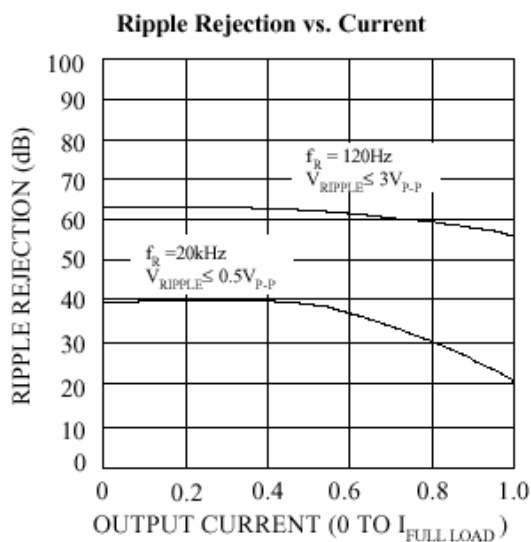
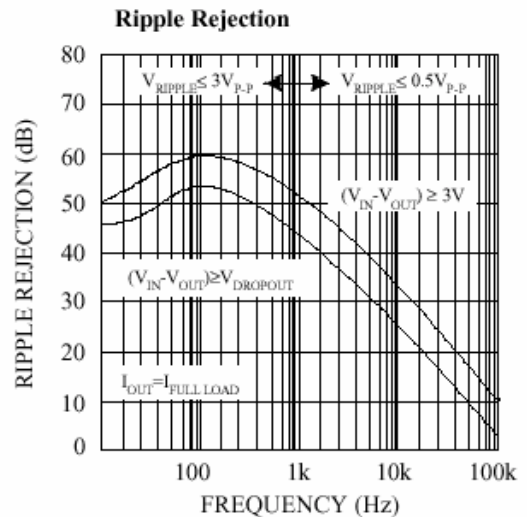
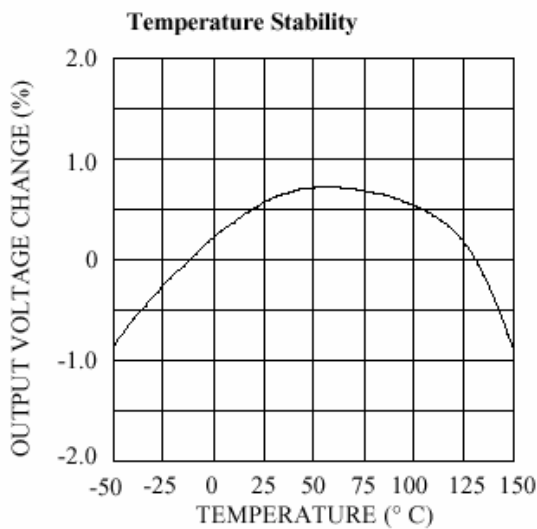
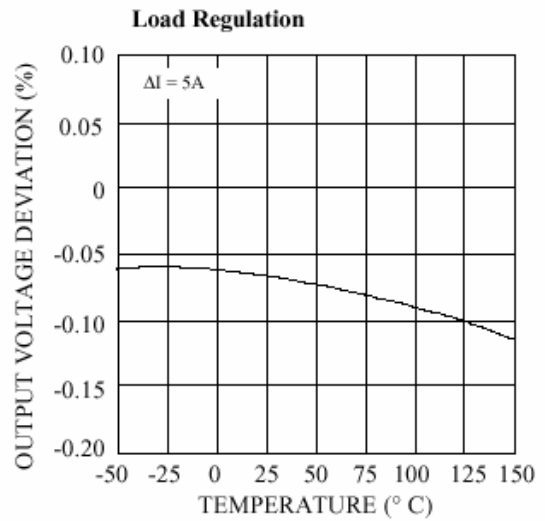
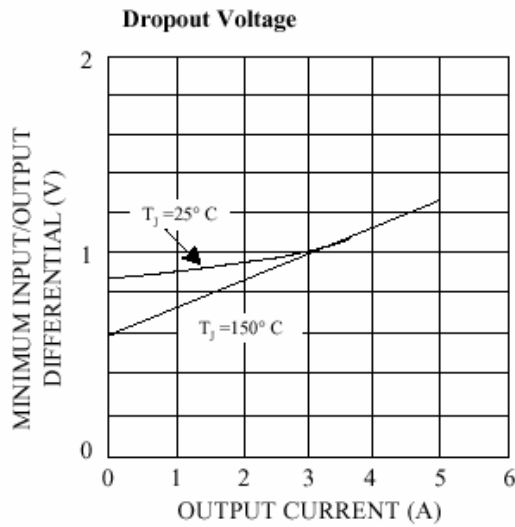
ADJUSTABLE VOLTAGE REGULATOR (1)(2)



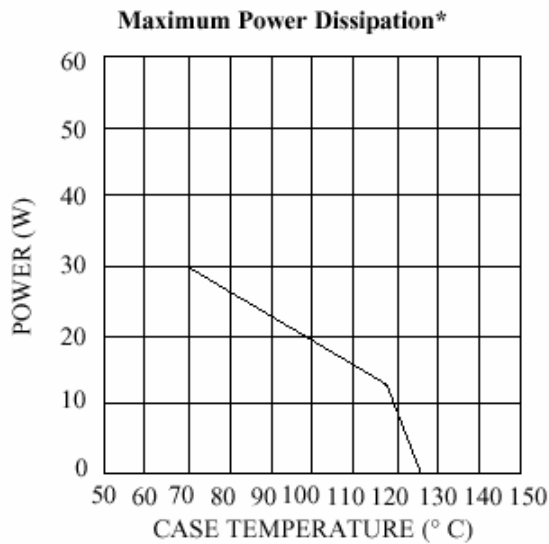
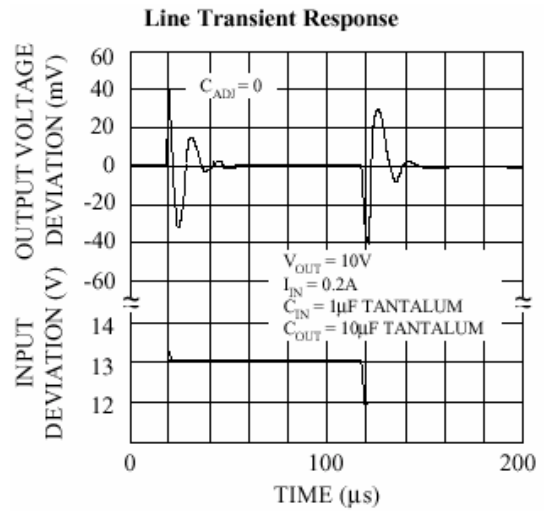
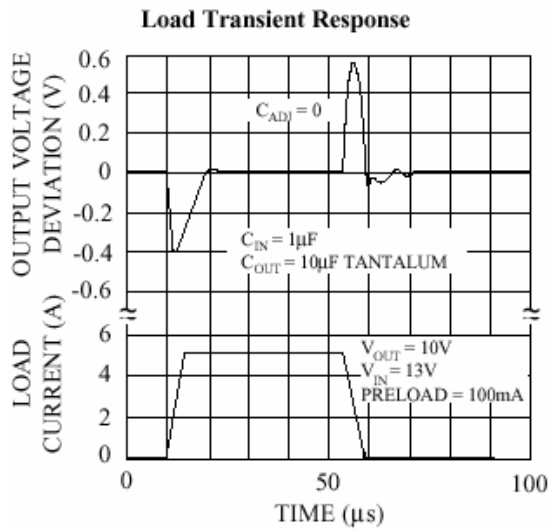
$$V_{out} = V_{ref} (1 + R2/R1) + I_{adj}R2$$

- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
- (2) C2 REQUIRED FOR STABILITY

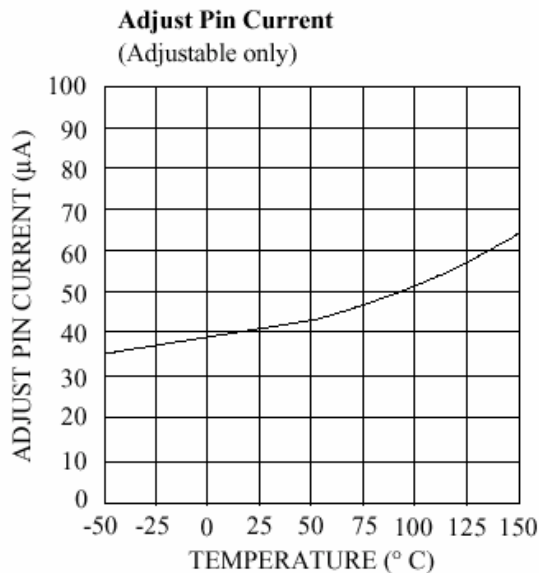
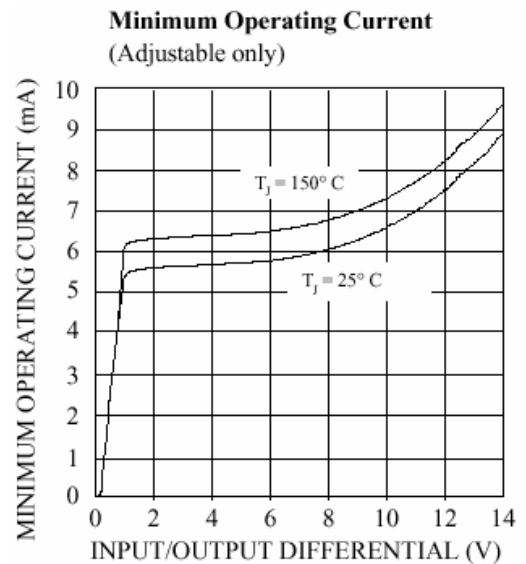
5 Amp Low Dropout Positive Voltage Regulator



5 Amp Low Dropout Positive Voltage Regulator

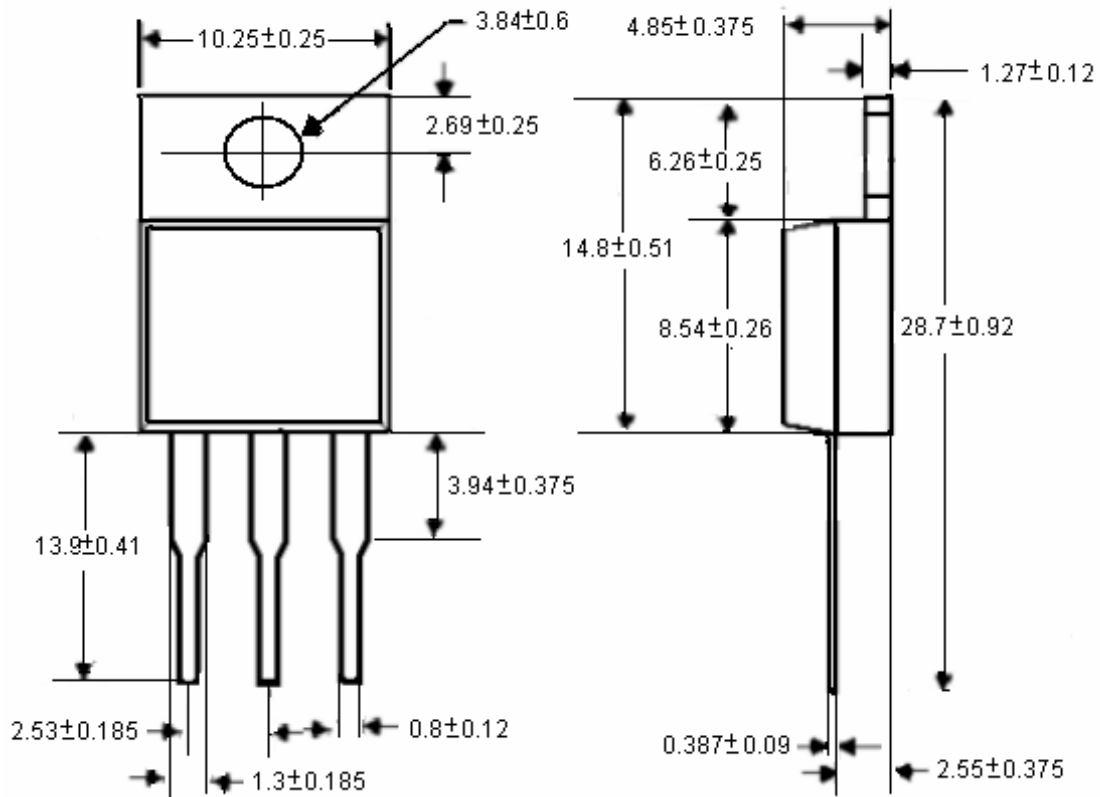


*AS LIMITED BY MAXIMUM JUNCTION TEMPERATURE



5 Amp Low Dropout Positive Voltage Regulator

TO-220 Unit:mm



TO-263 Unit:mm

