# 800mA and 1A Low Dropout Positive Regulator
# 1.8V, 2.5V, 2.85V, 3.3V, 5V, and Adjustable

## FEATURES

● **FIXED AND ADJUSTABLE VERSIONS**
● **2.85V MODEL FOR SCSI-2 ACTIVE TERMINATION**
● **OUTPUT CURRENT:**
    **REG1117: 800mA max**
    **REG1117A: 1A max**
● **OUTPUT TOLERANCE: ±1% max**
● **DROPOUT VOLTAGE:**
    **REG1117: 1.2V max at $I_O$ = 800mA**
    **REG1117A: 1.3V max at $I_O$ = 1A**
● **INTERNAL CURRENT LIMIT**
● **THERMAL OVERLOAD PROTECTION**
● **SOT-223 AND DDPAK SURFACE-MOUNT PACKAGES**

## APPLICATIONS

● **SCSI-2 ACTIVE TERMINATION**
● **HAND-HELD DATA COLLECTION DEVICES**
● **HIGH EFFICIENCY LINEAR REGULATORS**
● **BATTERY POWERED INSTRUMENTATION**
● **BATTERY MANAGEMENT CIRCUITS FOR NOTEBOOK AND PALMTOP PCs**
● **CORE VOLTAGE SUPPLY: FPGA, PLD, DSP, CPU**

## DESCRIPTION

The REG1117 is a family of easy-to-use three-terminal voltage regulators. The family includes a variety of fixed- and adjustable-voltage versions, two currents (800mA and 1A) and two package types (SOT-223 and DDPAK). See the chart below for available options.

Output voltage of the adjustable versions is set with two external resistors. The REG1117's low dropout voltage allows its use with as little as 1V input-output voltage differential.

Laser trimming assures excellent output voltage accuracy without adjustment. An NPN output stage allows output stage drive to contribute to the load current for maximum efficiency.

| VOLTAGE | 800mA | | 1A | |
|---|---|---|---|---|
| | SOT-223 | DDPAK | SOT-223 | DDPAK |
| 1.8V | | | ✔ | ✔ |
| 2.5V | | | ✔ | ✔ |
| 2.85V | ✔ | | | |
| 3.3V | ✔ | ✔ | | |
| 5V | ✔ | | | ✔ |
| Adj. | ✔ | | ✔ | ✔ |

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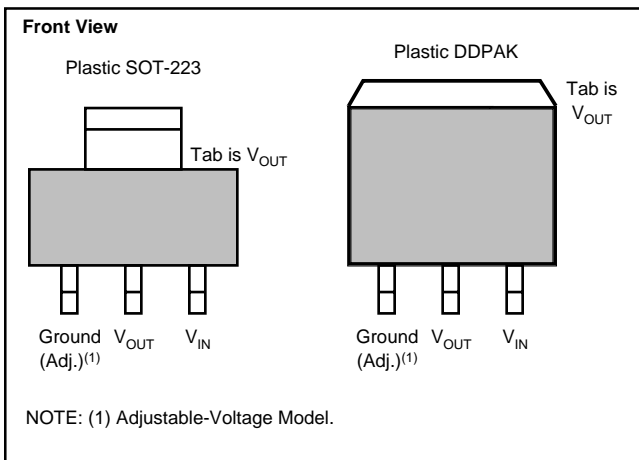
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## PACKAGE/ORDERING INFORMATION

| PRODUCT | V$_O$/I$_O$ | PACKAGE-LEAD | PACKAGE DESIGNATOR | SPECIFIED TEMPERATURE RANGE | PACKAGE MARKING | ORDERING NUMBER | TRANSPORT MEDIA, QUANTITY |
|---|---|---|---|---|---|---|---|
| **800mA Output** | | | | | | | |
| REG1117-2.85 | 2.85/800mA | SOT223-3 | DCY | 0°C to +125°C | BB11172 | REG1117-2.85 | Rails, 80 |
| " | "/" | " | | " | " | REG1117-2.85 | Tape and Reel, 2500 |
| REG1117-3.3 | 3.3/800mA | SOT223-3 | DCY | 0°C to +125°C | BB11174 | REG1117-3.3 | Rails, 80 |
| " | "/" | " | | " | " | REG1117-3.3 | Tape and Reel, 2500 |
| REG1117F-3.3 | 3.3/800mA | DDPAK-3 | KTT | 0°C to +125°C | BB1117F4 | REG1117F-3.3 | Rails, 49 |
| " | "/" | " | | " | " | REG1117F-3.3 | Tape and Reel, 500 |
| REG1117-5 | 5V/800mA | SOT223-3 | DCY | 0°C to +125°C | BB11175 | REG1117-5 | Rails, 80 |
| " | "/" | " | | " | " | REG1117-5 | Tape and Reel, 2500 |
| REG1117 | Adj./800mA | SOT223-3 | DCY | 0°C to +125°C | BB1117 | REG1117 | Rails, 80 |
| " | "/" | " | | " | " | REG1117 | Tape and Reel, 2500 |
| **1A Output** | | | | | | | |
| REG1117A-1.8 | 1.8V/1A | SOT223-3 | DCY | 0°C to +125°C | R111718 | REG1117A-1.8 | Rails, 80 |
| " | "/" | " | | " | " | REG1117A-1.8 | Tape and Reel, 2500 |
| REG1117FA-1.8 | 1.8/1A | DDPAK-3 | KTT | 0°C to +125°C | REG1117FA1.8 | REG1117FA-1.8 | Rails, 49 |
| " | "/" | " | | " | " | REG1117FA-1.8 | Tape and Reel, 500 |
| REG1117A-2.5 | 2.5/1A | SOT223-3 | DCY | 0°C to +125°C | R111725 | REG1117A-2.5 | Rails, 80 |
| " | "/" | " | | " | " | REG1117A-2.5 | Tape and Reel, 2500 |
| REG1117FA-2.5 | 2.5/1A | DDPAK-3 | KTT | 0°C to +125°C | REG1117FA2.5 | REG1117FA-2.5 | Rails, 49 |
| " | "/" | " | | " | " | REG1117FA-2.5 | Tape and Reel, 500 |
| REG1117FA-5 | 5/1A | DDPAK-3 | KTT | 0°C to +125°C | REG1117FA5.0 | REG1117FA-5.0 | Rails, 49 |
| " | "/" | " | | " | " | REG1117FA-5.0 | Tape and Reel, 500 |
| REG1117A | Adj./1A | SOT223-3 | DCY | 0°C to +125°C | BB1117A | REG1117A | Rails, 80 |
| " | "/" | " | | " | " | REG1117A | Tape and Reel, 2500 |
| REG1117FA | Adj./1A | DDPAK-3 | KTT | 0°C to +125°C | REG1117FA | REG1117FA | Rails, 49 |
| " | "/" | " | | " | " | REG1117FA | Tape and Reel, 500 |

## ABSOLUTE MAXIMUM RATINGS[1]

Power Dissipation ............................................. Internally Limited
Input Voltage .................................................................................. 15V
Operating Junction Temperature Range ............................. 0°C to +125°C
Storage Temperature Range .......................................... –65°C to +150°C
Lead Temperature (soldering, 10s)[2] ........................................... +300°C

NOTE: (1) Stresses above these ratings may cause permanent damage. (2) See "Soldering Methods."

## CONNECTION DIAGRAM



Front View

Plastic SOT-223

Tab is V$_{OUT}$

Ground (Adj.)[1]   V$_{OUT}$   V$_{IN}$

Plastic DDPAK

Tab is V$_{OUT}$

Ground (Adj.)[1]   V$_{OUT}$   V$_{IN}$

NOTE: (1) Adjustable-Voltage Model.

## ⚠ ELECTROSTATIC DISCHARGE SENSITIVITY

This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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**REG1117, REG1117A**
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# ELECTRICAL CHARACTERISTICS

At $T_J$ = +25°C, unless otherwise noted.

| PARAMETER | CONDITIONS | REG1117, REG1117A | | | UNITS |
|---|---|---|---|---|---|
| | | MIN | TYP | MAX | |
| **OUTPUT VOLTAGE** | | | | | |
| REG1117-2.85 | $I_O$ = 10mA, $V_{IN}$ = 4.85V | 2.820 | 2.85 | 2.880 | V |
| See Note 1 | $I_O$ = 0 to 800mA, $V_{IN}$ = 4.05 to 10V | 2.790 | 2.85 | 2.910 | V |
| REG1117-3.3 | $I_O$ = 10mA, $V_{IN}$ = 5.3V | 3.270 | 3.30 | 3.330 | V |
| See Note 1 | $I_O$ = 0 to 800mA, $V_{IN}$ = 4.8 to 10V | 3.240 | 3.30 | 3.360 | V |
| REG1117-5 | $I_O$ = 10mA, $V_{IN}$ = 7V | 4.950 | 5.00 | 5.050 | V |
| See Note 1 | $I_O$ = 0 to 800mA, $V_{IN}$ = 6.5 to 10V | 4.900 | 5.00 | 5.100 | V |
| REG1117A-1.8 | $I_O$ = 10mA, $V_{IN}$ = 3.8V | 1.782 | 1.8 | 1.818 | V |
| See Note 1 | $I_O$ = 0 to 1A, $V_{IN}$ = 3.8V to 10V | 1.764 | 1.8 | 1.836 | V |
| REG1117A-2.5 | $I_O$ = 10mA, $V_{IN}$ = 4.5V | 2.475 | 2.5 | 2.525 | V |
| See Note 1 | $I_O$ = 0 to 1A, $V_{IN}$ = 4.5V to 10V | 2.450 | 2.5 | 2.550 | V |
| REG1117A-5 | $I_O$ = 10mA, $V_{IN}$ = 7V | 4.950 | 5.0 | 5.050 | V |
| See Note 1 | $I_O$ = 0 to 1A, $V_{IN}$ = 7V to 10V | 4.900 | 5.0 | 5.100 | V |
| **REFERENCE VOLTAGE** | | | | | |
| REG1117 (Adjustable) | $I_O$ = 10mA, $V_{IN} - V_O$ = 2V | 1.238 | 1.250 | 1.262 | V |
| See Note 1 | $I_O$ = 10 to 800mA, $V_{IN} - V_O$ = 1.4 to 10V | 1.225 | 1.250 | 1.280 | V |
| REG1117A (Adjustable) | $I_O$ = 10mA, $V_{IN} - V_O$ = 2V | 1.238 | 1.250 | 1.262 | V |
| See Note 1 | $I_O$ = 10mA to 1A, $V_{IN} - V_O$ = 1.4 to 10V | 1.225 | 1.250 | 1.280 | V |
| **LINE REGULATION** | | | | | |
| REG1117-2.85[1] | $I_O$ = 0, $V_{IN}$ = 4.25 to 10V | | 1 | 7 | mV |
| REG1117-3.3[1] | $I_O$ = 0, $V_{IN}$ = 4.8 to 10V | | 2 | 7 | mV |
| REG1117-5[1] | $I_O$ = 0, $V_{IN}$ = 6.5 to 15V | | 3 | 10 | mV |
| REG1117 (Adjustable)[1] | $I_O$ = 10mA, $V_{IN} - V_O$ = 1.5 to 13.75V | | 0.1 | 0.4 | % |
| REG1117A (Adjustable)[1] | $I_O$ = 10mA, $V_{IN} - V_O$ = 1.5 to 13.75V | | 0.1 | 0.4 | % |
| REG1117A-1.8[1] | $I_O$ = 0, $V_{IN}$ = 3.8V to 10V | | 1 | 7 | mV |
| REG1117A-2.5[1] | $I_O$ = 0, $V_{IN}$ = 4.5V to 10V | | 1 | 7 | mV |
| REG1117A-5.0[1] | $I_O$ = 0, $V_{IN}$ = 7V to 15V | | 3 | 10 | mV |
| **LOAD REGULATION** | | | | | |
| REG1117-2.85[1] | $I_O$ = 0 to 800mA, $V_{IN}$ = 4.25V | | 2 | 10 | mV |
| REG1117-3.3[1] | $I_O$ = 0 to 800mA, $V_{IN}$ = 4.8V | | 3 | 12 | mV |
| REG1117-5[1] | $I_O$ = 0 to 800mA, $V_{IN}$ = 6.5V | | 3 | 15 | mV |
| REG1117 (Adjustable)[1][2] | $I_O$ = 10 to 800mA, $V_{IN} - V_O$ = 3V | | 0.1 | 0.4 | % |
| REG1117A (Adjustable)[1][2] | $I_O$ = 10mA to 1A, $V_{IN} - V_O$ = 3V | | 0.1 | 0.4 | % |
| REG1117A-1.8 | $I_O$ = 0 to 1A, $V_{IN}$ = 3.8V | | 2 | 10 | mV |
| REG1117A-2.5 | $I_O$ = 0 to 1A, $V_{IN}$ = 4.5V | | 2 | 10 | mV |
| REG1117A-5 | $I_O$ = 0 to 1A, $V_{IN}$ = 7.0V | | 3 | 15 | mV |
| **DROPOUT VOLTAGE[3]** | | | | | |
| All Models[1] | $I_O$ = 100mA | | 1.00 | 1.10 | V |
| See Note 1 | $I_O$ = 500mA | | 1.05 | 1.15 | V |
| REG1117 Models[1] | $I_O$ = 800mA | | 1.10 | 1.20 | V |
| REG1117A | $I_O$ = 1A | | 1.2 | 1.30 | V |
| See Note 1 | $I_O$ = 1A | | 1.2 | 1.55 | V |
| **CURRENT LIMIT** | | | | | |
| REG1117 Models | $V_{IN} - V_O$ = 5V | 800 | 950 | 1200 | mA |
| REG1117A | $V_{IN} - V_O$ = 5V | 1000 | 1250 | 1600 | mA |
| **MINIMUM LOAD CURRENT** | | | | | |
| Adjustable Models[1][2] | $V_{IN} - V_O$ = 13.75V | | 1.7 | 5 | mA |
| **QUIESCENT CURRENT** | | | | | |
| Fixed-Voltage Models[1] | $V_{IN} - V_O$ = 5V | | 4 | 10 | mA |
| **Adjust Pin Current[1][2]** | $I_O$ = 10mA, $V_{IN} - V_O$ = 1.4 to 10V | | 50 | 120 | µA |
| vs Load Current, REG1117[1] | $I_O$ = 10mA to 800mA, $V_{IN} - V_O$ = 1.4 to 10V | | 0.5 | 5 | µA |
| vs Load Current, REG1117A[1] | $I_O$ = 10mA to 1A, $V_{IN} - V_O$ = 1.4 to 10V | | 0.5 | 5 | µA |
| **THERMAL REGULATION** | | | | | |
| All Models[4] | 30ms Pulse | | 0.01 | 0.1 | %/W |
| **RIPPLE REJECTION** | | | | | |
| All Models | f = 120Hz, $V_{IN} - V_{OUT}$ = 3V + 1Vp-p Ripple | | 62 | | dB |
| **TEMPERATURE DRIFT** | | | | | |
| Fixed-Voltage Models | $T_J$ = 0°C to +125°C | | 0.5 | | % |
| Adjustable Models | $T_J$ = 0°C to +125°C | | 2 | | % |

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# ELECTRICAL CHARACTERISTICS (Cont.)

At $T_J$ = +25°C, unless otherwise noted.

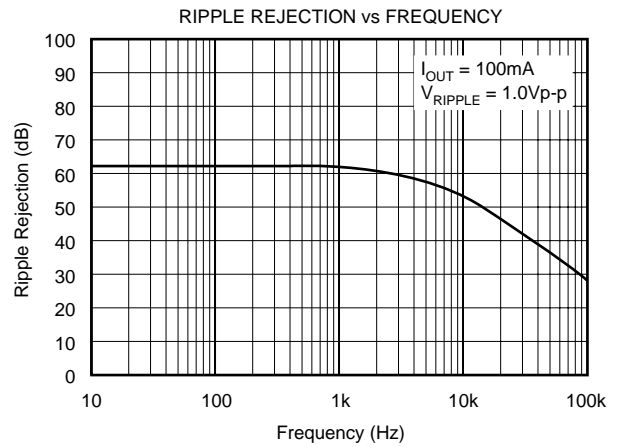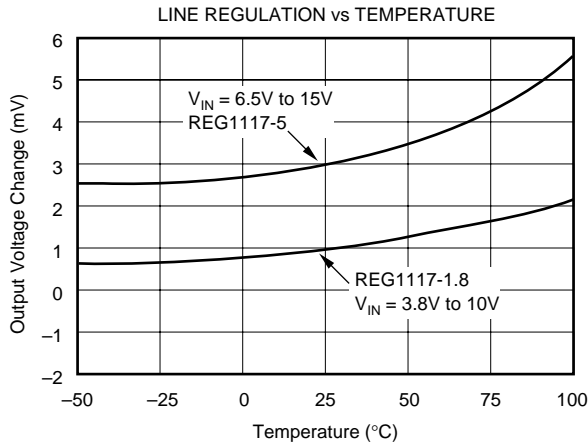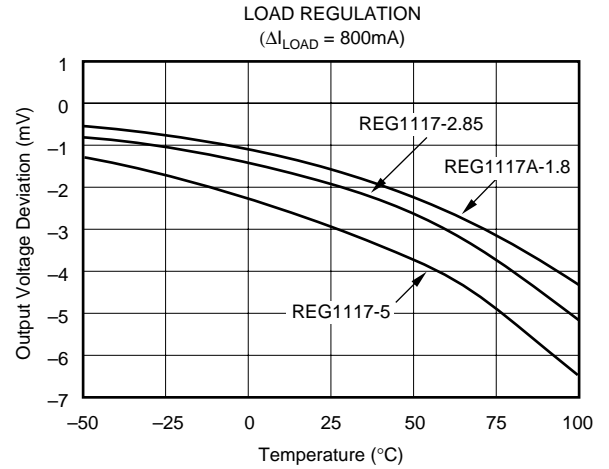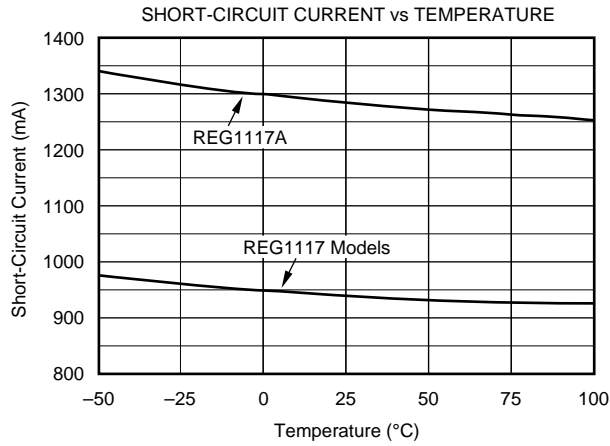| PARAMETER | CONDITIONS | REG1117, REG1117A | | | UNITS |
| | | MIN | TYP | MAX | |
|---|---|---|---|---|---|
| **LONG-TERM STABILITY** | | | | | |
| All Models | $T_A$ = +125°C, 1000Hr | | 0.3 | | % |
| **OUTPUT NOISE** | | | | | |
| r ms Noise, All Models | f = 10Hz to 10kHz | | 0.003 | | % |
| **THERMAL RESISTANCE** | | | | | |
| Operating Junction Temperature Range | | 0 | | +125 | °C |
| Storage Range | | −65 | | +150 | °C |
| Thermal Resistance, $\theta_{JC}$ | (Junction-to-Case at Tab) | | | | |
| 3-Lead SOT-223 Surface-Mount | | | 15 | | °C/W |
| 3-Lead DDPAK Surface-Mount | f > 50Hz | | 2 | | °C/W |
| | dc | | 3 | | °C/W |
| Thermal Resistance, $\theta_{JA}$ | (Junction-to-Case at Tab) | | | | |
| 3-Lead DDPAK Surface-Mount | No Heat Sink | | 65 | | °C/W |

NOTES: (1) Specification applies over the full operating Junction temperature range, 0°C to +125°C. (2) REG1117 and REG1117A adjustable versions require a minimum load current for ±3% regulation. (3) Dropout voltage is the input voltage minus output voltage that produces a 1% decrease in output voltage. (4) Percentage change in unloaded output voltage before versus after a 30ms power pulse of $I_O$ = 800mA (REG1117 models), $I_O$ = 1A (REG1117A), $V_{IN} - V_O$ = 1.4V (Reading taken 10ms after pulse).
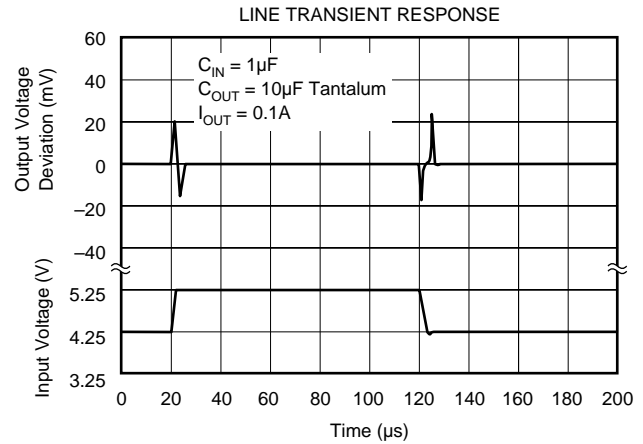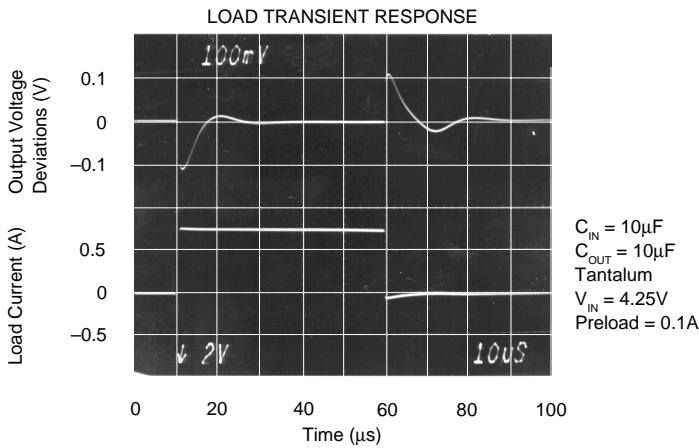
## SIMPLIFIED SCHEMATIC

**REG1117, REG1117A**

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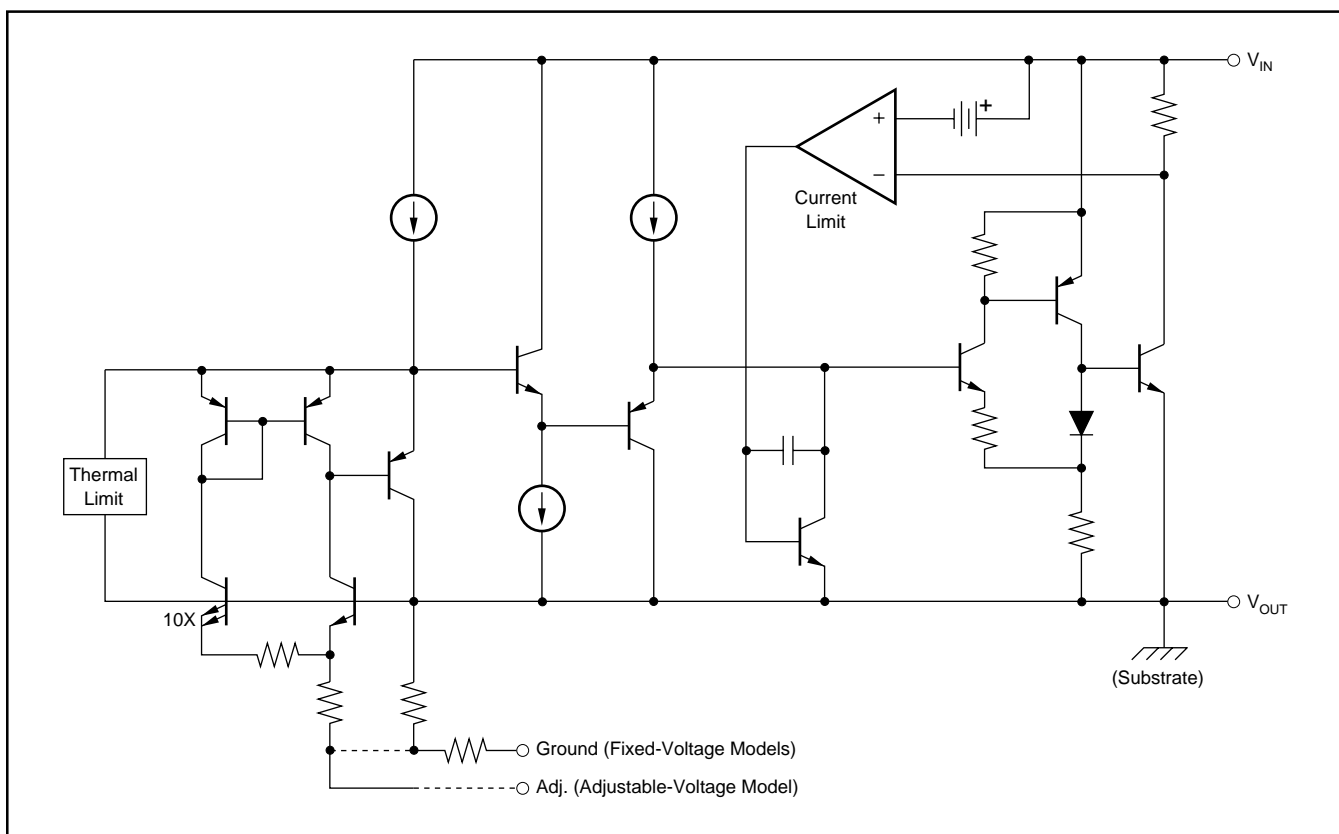
# TYPICAL CHARACTERISTICS

At $T_J$ = +25°C, all models, unless otherwise specified.

SHORT-CIRCUIT CURRENT vs TEMPERATURE

LOAD REGULATION
($\Delta I_{LOAD}$ = 800mA)

LINE REGULATION vs TEMPERATURE

RIPPLE REJECTION vs FREQUENCY

OUTPUT VOLTAGE vs TEMPERATURE

QUIESCENT CURRENT vs TEMPERATURE
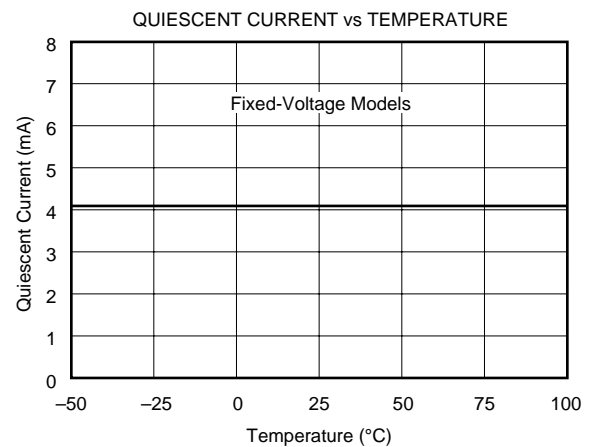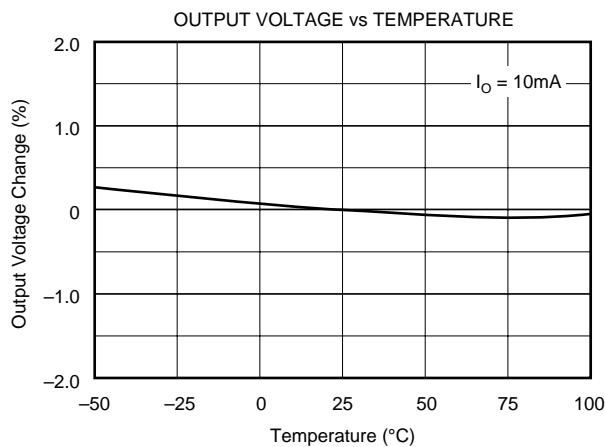
# TYPICAL CHARACTERISTICS (Cont.)

At $T_J$ = +25°C, all models, unless otherwise specified.

LOAD TRANSIENT RESPONSE



$C_{IN}$ = 10µF
$C_{OUT}$ = 10µF
Tantalum
$V_{IN}$ = 4.25V
Preload = 0.1A

LINE TRANSIENT RESPONSE



$C_{IN}$ = 1µF
$C_{OUT}$ = 10µF Tantalum
$I_{OUT}$ = 0.1A

# APPLICATIONS INFORMATION

Figure 1 shows the basic hookup diagram for fixed-voltage models. All models require an output capacitor for proper operation and to improve high frequency load regulation. A 10µF tantalum capacitor is recommended. Aluminum electrolytic types of 50µF or greater can also be used. A high quality capacitor should be used to assure that the ESR (Effective Series Resistance) is less than 0.5Ω.

Figure 2 shows a hookup diagram for the adjustable voltage model. Resistor values are shown for some commonly used output voltages. Values for other voltages can be calculated from the equation shown in Figure 2. For best load regulation, connect $R_1$ close to the output pin and $R_2$ close to the ground side of the load as shown.
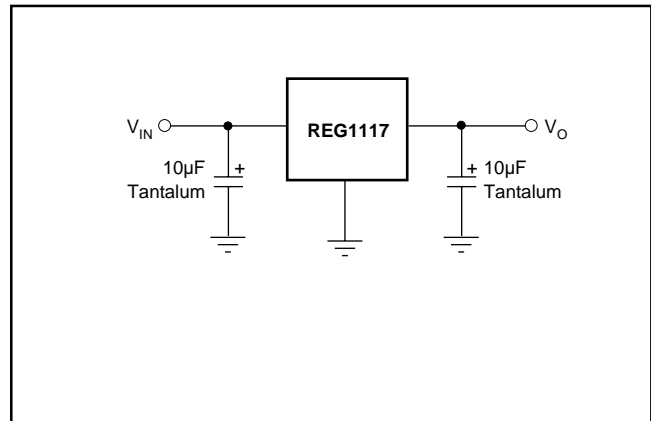


FIGURE 1. Fixed-Voltage Model—Basic Connections.



$$V_O = \frac{R_1 + R_2}{R_1} \cdot (1.25V) + (50\mu A)(R_2)$$

This term is negligible with proper choice of values—see table at right.

| $V_{OUT}$ (V) | $R_1$ (Ω)[2] | $R_2$ (Ω)[2] |
|---|---|---|
| 1.25 | Open | Short |
| 1.5 | 750 | 147 |
| 2.1 | 158 | 107 |
| 2.85 | 169 | 215 |
| 3 | 137 | 191 |
| 3.3 | 115 | 187 |
| 5 | 113 | 340 |
| 10 | 113 | 787 |

NOTE: (1) $C_3$ optional. Improves high-frequency line rejection. (2) Resistors are standard 1% values.
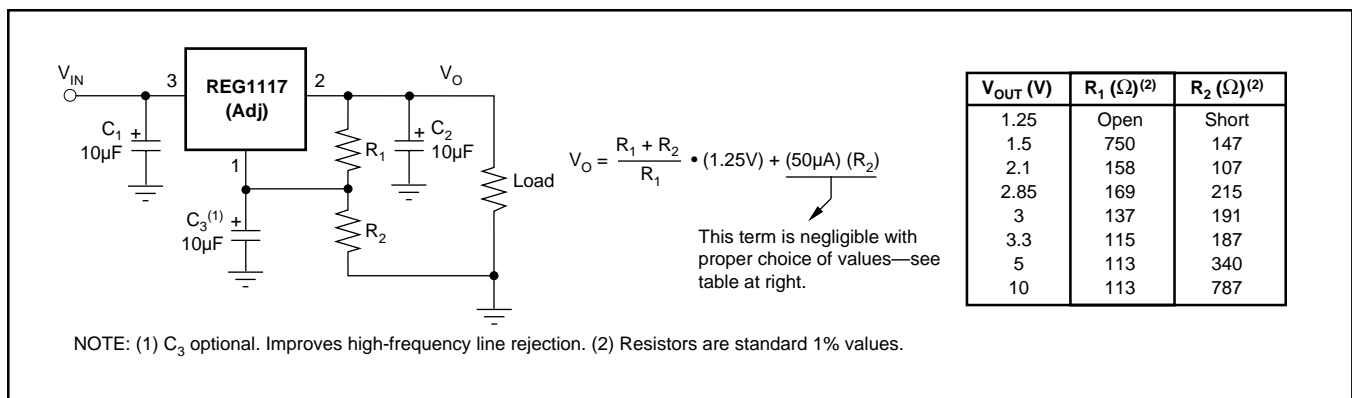
FIGURE 2. Adjustable-Voltage Model—Basic Connections.

## THERMAL CONSIDERATIONS

The REG1117 has current limit and thermal shutdown circuits that protect it from overload. The thermal shutdown activates at approximately $T_J = 165°C$. For continuous operation, however, the junction temperature should not be allowed to exceed 125°C. Any tendency to activate the thermal shutdown in normal use is an indication of an inadequate heat sink or excessive power dissipation. The power dissipation is equal to:

$$P_D = (V_{IN} - V_{OUT})\, I_{OUT}$$

The junction temperature can be calculated by:

$$T_J = T_A + P_D\, (\theta_{JA})$$

where $T_A$ is the ambient temperature, and
$\theta_{JA}$ is the junction-to-ambient thermal resistance

A simple experiment will determine whether the maximum recommended junction temperature is exceeded in an actual circuit board and mounting configuration: Increase the ambient temperature above that expected in normal operation until the device's thermal shutdown is activated. If this occurs at more than 40°C above the maximum expected ambient temperature, then the $T_J$ will be less than 125°C during normal operation.

The internal protection circuitry of the REG1117 was designed to protect against overload conditions. It was not intended to replace proper heat sinking. Continuously running the REG1117 into thermal shutdown will degrade reliability.

## LAYOUT CONSIDERATIONS

The DDPAK (REG1117F-3.3 and REG1117FA) is a surface-mount power package that has excellent thermal characteristics. For best thermal performance, its mounting tab should be soldered directly to a circuit board copper area, as shown in Figure 3. Increasing the copper area improves heat dissipation. Figure 4 shows typical thermal resistance from junction-to-ambient as a function of the copper area.
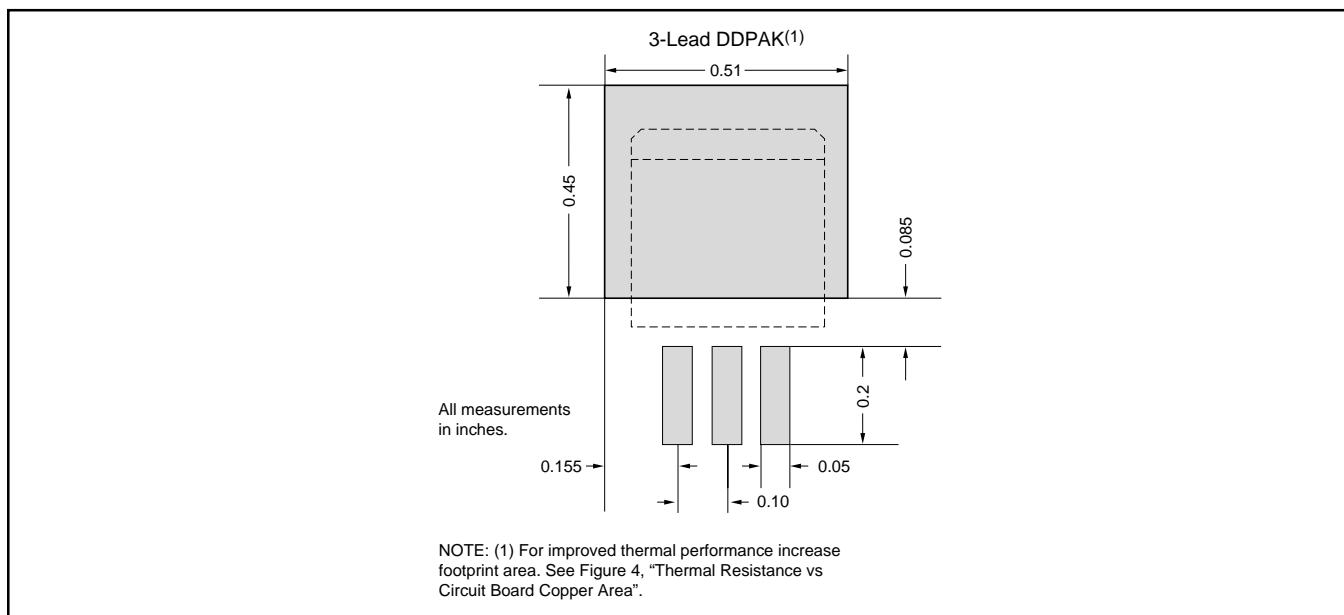


3-Lead DDPAK[1]

0.51

0.45

0.085

All measurements in inches.

0.155

0.05

0.10

0.2

NOTE: (1) For improved thermal performance increase footprint area. See Figure 4, "Thermal Resistance vs Circuit Board Copper Area".

FIGURE 3. DDPAK Thermal Resistance versus Circuit Board Copper Area.



THERMAL RESISTANCE vs
CIRCUIT BOARD COPPER AREA

REG1117F
DDPAK Surface Mount Package
1oz copper

Circuit Board Copper Area

REG1117F
DDPAK Surface-Mount Package
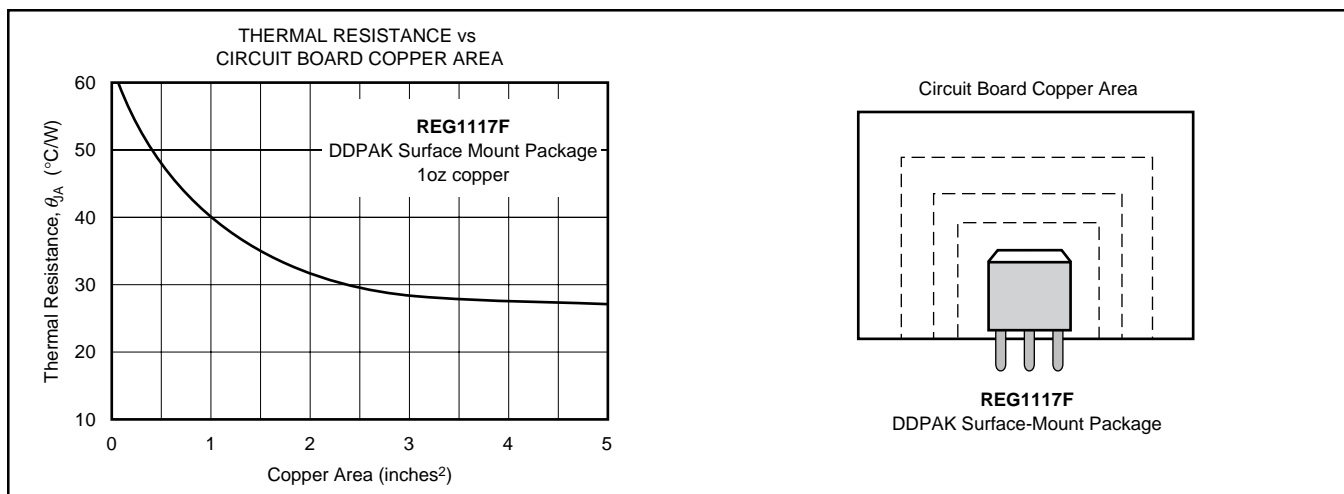
FIGURE 4. DDPAK Thermal Resistance versus Circuit Board Copper Area.

**REG1117, REG1117A**

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The SOT-223 package derives heat sinking from conduction through its copper leads, especially the large mounting tab. These must be soldered to a circuit board with a substantial amount of copper remaining, as shown in Figure 5. Circuit board traces connecting the tab and the leads should be made as large as practical. The mounting tab of both packages is electrically connected to $V_{OUT}$.
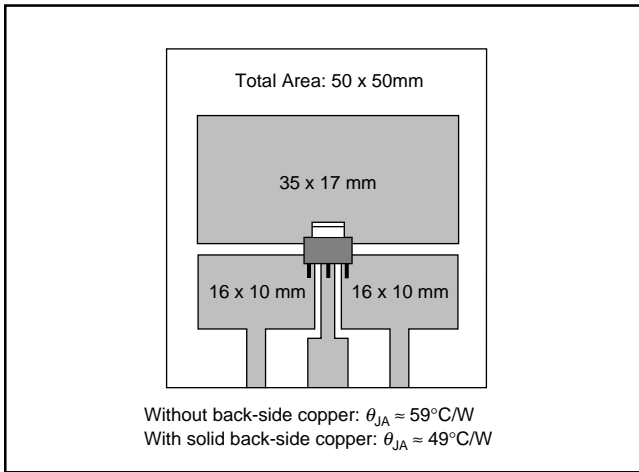


FIGURE 5. SOT-223 Circuit Board Layout Example.

Other nearby circuit traces, including those on the back side of the circuit board, help conduct heat away from the device, even though they may not be electrically connected. Make all nearby copper traces as wide as possible and leave only narrow gaps between traces.

Table I shows approximate values of $\theta_{JA}$ for various circuit board and copper areas for the SOT-223 package. Nearby heat dissipating components, circuit board mounting conditions, and ventilation can dramatically affect the actual $\theta_{JA}$. Proper heat sinking significantly increases the maximum power dissipation at a given ambient temperature, as shown in Figure 6.

## SOLDERING METHODS

Both REG1117 packages are suitable for infrared reflow and vapor-phase reflow soldering techniques. The high rate of temperature change that occurs with wave soldering, or hand soldering can damage the REG1117.

| TOTAL PC BOARD AREA | TOPSIDE[1] COPPER AREA | BACKSIDE COPPER AREA | SOT-223 THERMAL RESISTANCE JUNCTION-TO-AMBIENT |
|---|---|---|---|
| 2500mm$^2$ | 2500mm$^2$ | 2500mm$^2$ | 46°C/W |
| 2500mm$^2$ | 1250mm$^2$ | 2500mm$^2$ | 47°C/W |
| 2500mm$^2$ | 950mm$^2$ | 2500mm$^2$ | 49°C/W |
| 2500mm$^2$ | 2500mm$^2$ | 0 | 51°C/W |
| 2500mm$^2$ | 1800mm$^2$ | 0 | 53°C/W |
| 1600mm$^2$ | 600mm$^2$ | 1600mm$^2$ | 55°C/W |
| 2500mm$^2$ | 1250mm$^2$ | 0 | 58°C/W |
| 2500mm$^2$ | 915mm$^2$ | 0 | 59°C/W |
| 1600mm$^2$ | 600mm$^2$ | 0 | 67°C/W |
| 900mm$^2$ | 340mm$^2$ | 900mm$^2$ | 72°C/W |
| 900mm$^2$ | 340mm$^2$ | 0 | 85°C/W |

NOTE: (1) Tab is attached to the topside copper.

TABLE I.

INSPEC Abstract Number: B91007604, C91012627
Kelly, E.G. "Thermal Characteristics of Surface 5WK9Ω Packages." The Proceedings of SMTCON. Surface Mount Technology Conference and Exposition: *Competitive Surface Mount Technology*, April 3-6, 1990, Atlantic City, NJ, USA. *Abstract Publisher*: IC Manage, 1990, Chicago, IL, USA.
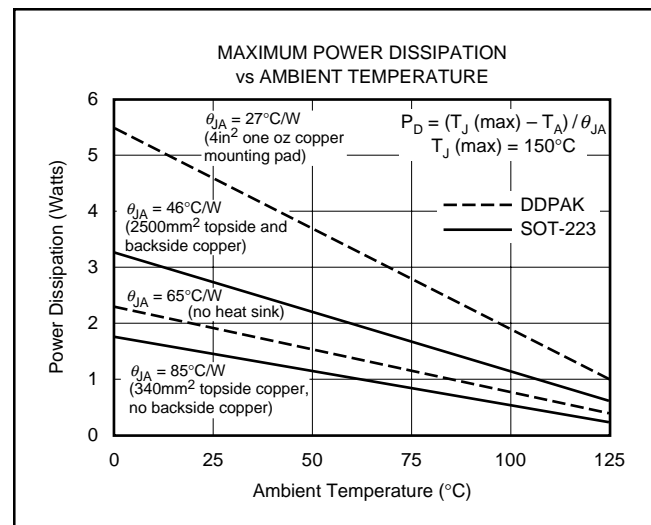
FIGURE 6. Maximum Power Dissipation versus Ambient Temperature.

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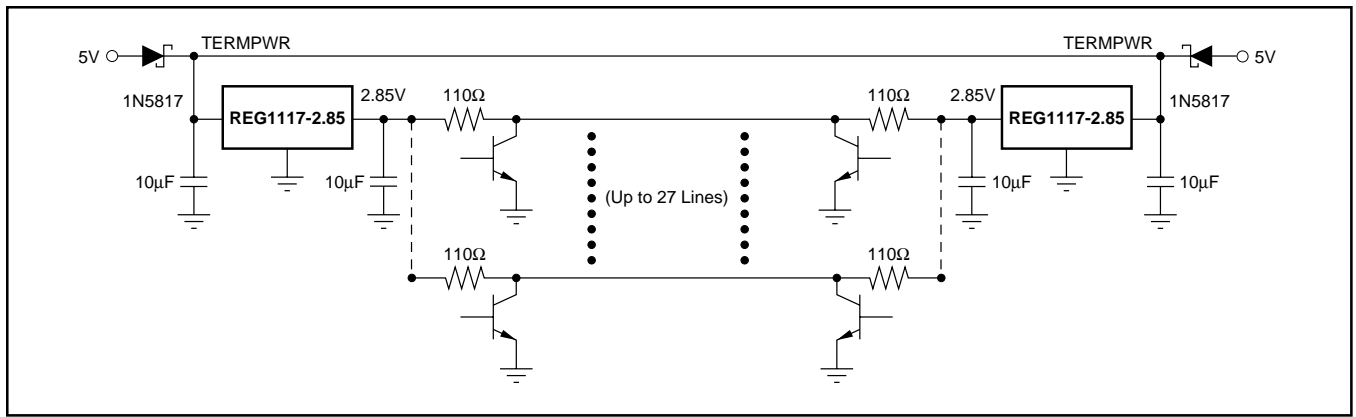www.ti.com

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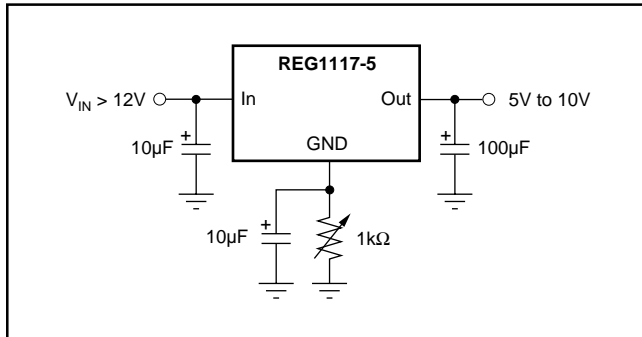FIGURE 7. SCSI Active Termination Configuration.



FIGURE 8. Adjusting Output of Fixed Voltage Models.
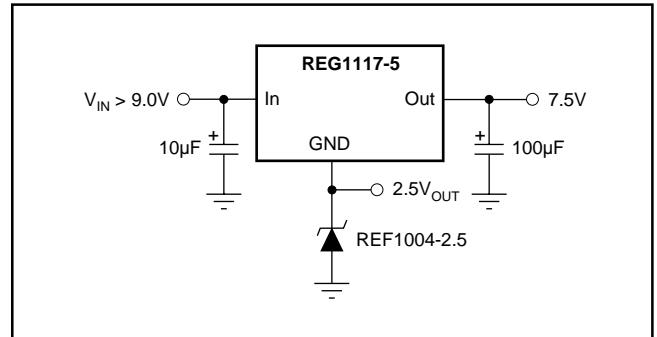


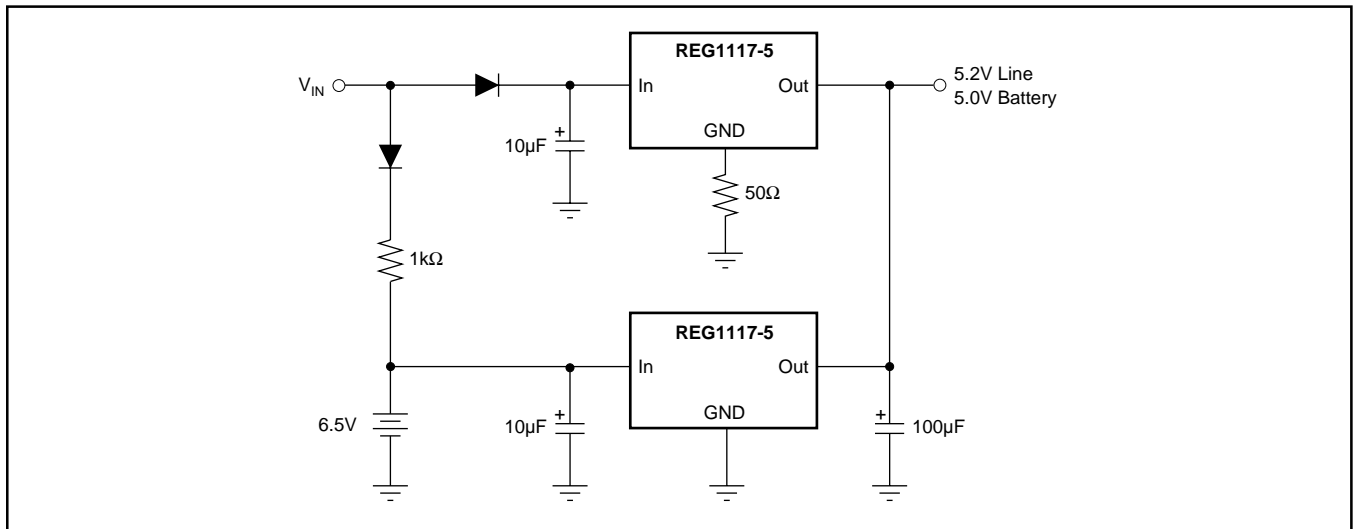FIGURE 9. Regulator with Reference.



FIGURE 10. Battery Backed-Up Regulated Supply.
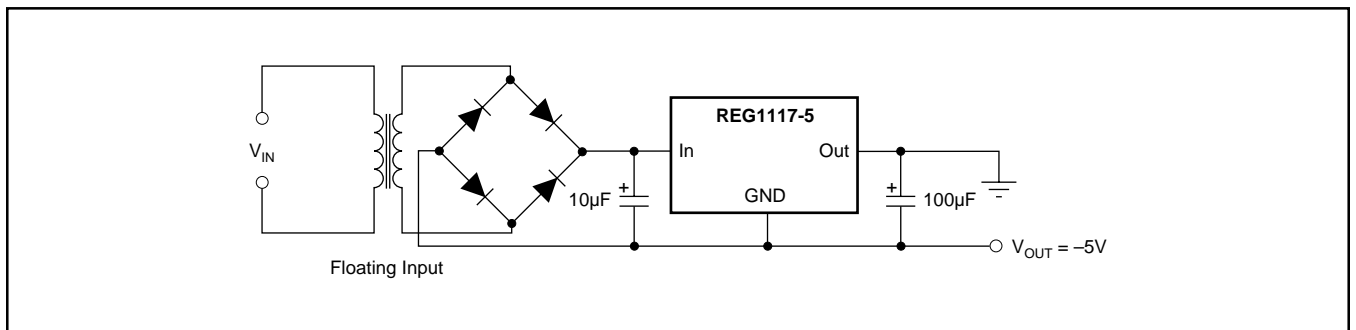


FIGURE 11. Low Dropout Negative Supply.

**DCY (R-PDSO-G4)**　　　　　　　　　　　　　　　　　　　**PLASTIC SMALL-OUTLINE**



$\dfrac{0.264\ (6,70)}{0.248\ (6,30)}$

$\dfrac{0.124\ (3,15)}{0.116\ (2,95)}$

$\dfrac{0.287\ (7,30)}{0.264\ (6,70)}$

$\dfrac{0.146\ (3,70)}{0.130\ (3,30)}$

0.0905 (2,30) NOM

$\dfrac{0.041\ (1,05)}{0.033\ (0,85)}$

0.181 (4,60)
NOM

$\dfrac{0.067\ (1,70)}{0.060\ (1,50)}$

$\dfrac{0.051\ (1,30)}{0.043\ (1,09)}$

10° MAX

$\dfrac{0.014\ (0,36)}{0.010\ (0,25)}$

$\dfrac{0.004\ (0,10)}{0.0008\ (0,02)}$

$\dfrac{0.033\ (0,84)}{0.026\ (0,66)}$

0.012 (0,30) MIN

**4202506/A 03/01**
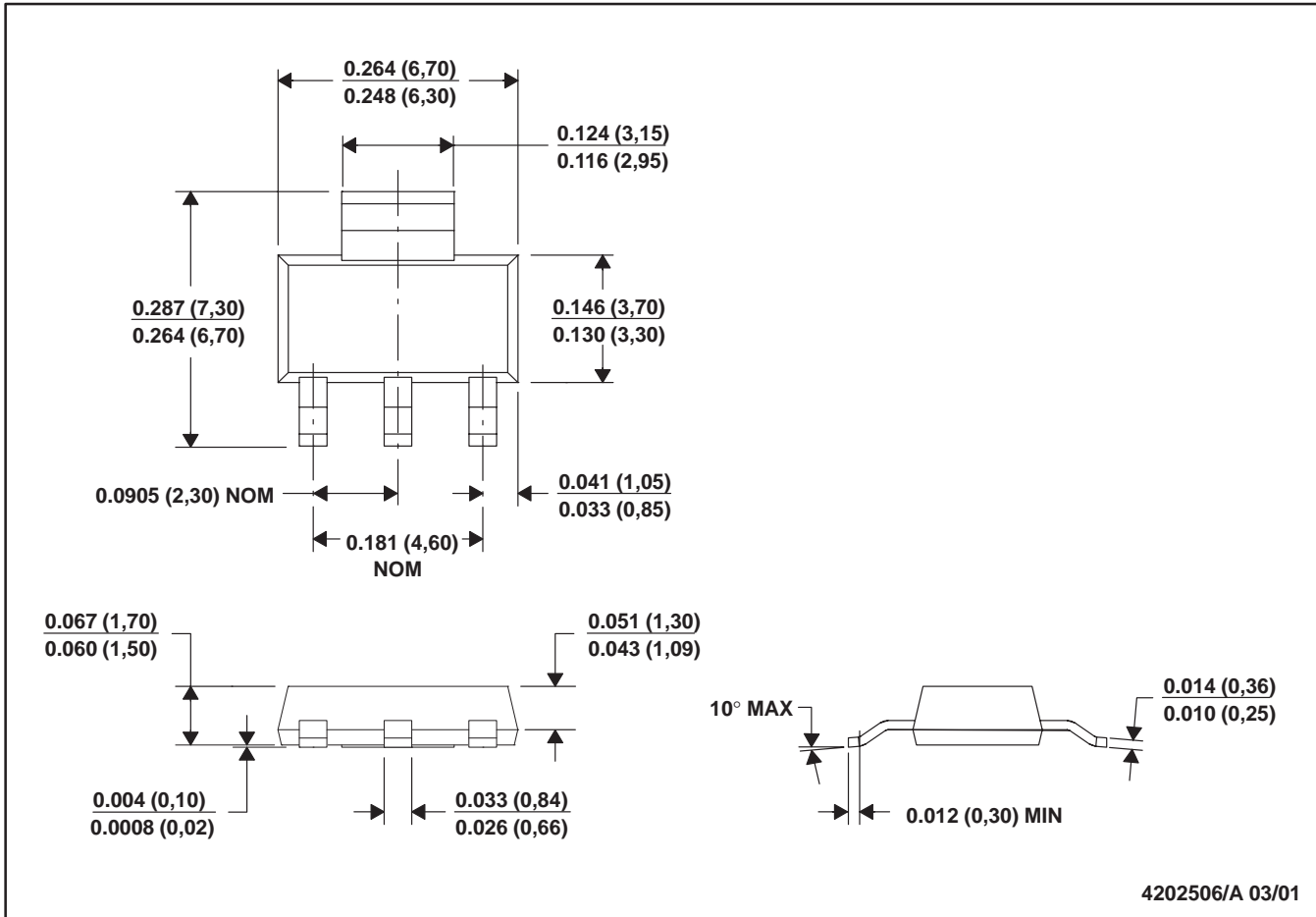
NOTES:　A.　All linear dimensions are in inches (millimeters).
　　　　　B.　This drawing is subject to change without notice.

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**KTT (R-PSFM-G3)**                                   **PLASTIC FLANGE-MOUNT**



0.396 (10,05)
0.406 (10,31)

0.055 (1,40)
0.066 (1,68)

0.326 (8,28)
0.336 (8,53)

0.580 (14,73)
0.620 (15,75)

0.026 (0,66)
0.036 (0,91)

0.100 (2,54)

0.170 (4,31)
0.180 (4,57)

0.045 (1,14)
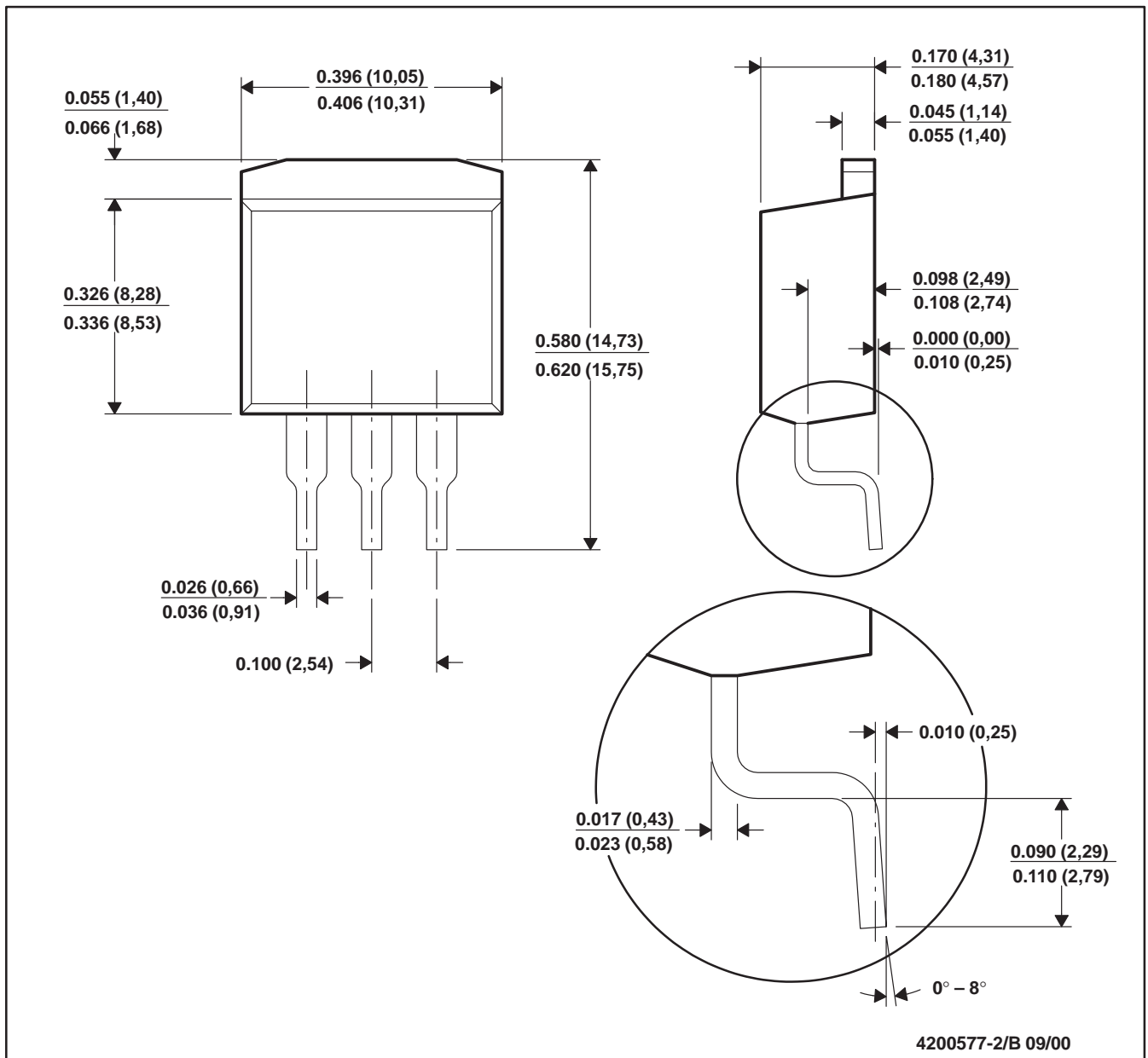0.055 (1,40)

0.098 (2,49)
0.108 (2,74)

0.000 (0,00)
0.010 (0,25)

0.010 (0,25)

0.017 (0,43)
0.023 (0,58)

0.090 (2,29)
0.110 (2,79)

0° − 8°

4200577-2/B 09/00

NOTES:  A.  All linear dimensions are in millimeters.
        B.  This drawing is subject to change without notice.
        C.  Dimensions do not include mold protrusions, not to exceed 0.006 (0,15).

**REG1117, REG1117A**

SBVS001B

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## PACKAGING INFORMATION

| ORDERABLE DEVICE | STATUS(1) | PACKAGE TYPE | PACKAGE DRAWING | PINS | PACKAGE QTY |
|---|---|---|---|---|---|
| REG1117 | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117-2.85 | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117-2.85/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117-3.3 | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117-3.3/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117-5 | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117-5/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117A | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117A-1.8 | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117A-1.8/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117A-2.5 | ACTIVE | SOP | DCY | 4 | 80 |
| REG1117A-2.5/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117A/2K5 | ACTIVE | SOP | DCY | 4 | 2500 |
| REG1117F-3.3 | OBSOLETE | PFM | KTT | 3 | |
| REG1117F-3.3/500 | ACTIVE | PFM | KTT | 3 | 500 |
| REG1117F-3.3KTTT | ACTIVE | PFM | KTT | 3 | 50 |
| REG1117FA | OBSOLETE | PFM | KTT | 3 | |
| REG1117FA-1.8 | OBSOLETE | PFM | KTT | 3 | |
| REG1117FA-1.8/500 | ACTIVE | PFM | KTT | 3 | 500 |
| REG1117FA-2.5 | OBSOLETE | PFM | KTT | 3 | |
| REG1117FA-2.5/500 | ACTIVE | PFM | KTT | 3 | 500 |
| REG1117FA-5.0 | OBSOLETE | PFM | KTT | 3 | |
| REG1117FA-5.0/500 | ACTIVE | PFM | KTT | 3 | 500 |
| REG1117FA/500 | ACTIVE | PFM | KTT | 3 | 500 |

(1) The marketing status values are defined as follows:
**ACTIVE:** Product device recommended for new designs.
**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.
**OBSOLETE:** TI has discontinued the production of the device.

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Mailing Address:     Texas Instruments

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