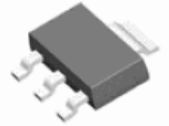


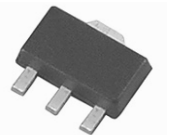
## 1A Low Dropout Positive Voltage Regulator

### General Description

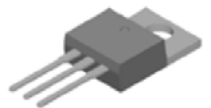
- LD1117A is a three terminal low dropout positive voltage regulator with a dropout of 1.15V at 1A output current.
- LD1117A is available in an adjustable version which can set the output voltage 1.25V to 12V with only 2 external resistors. In addition, it is also available in 7 Fixed output voltages: 1.2V, 1.5V, 1.8V, 2.5V, 2.85V, 3.3V and 5.0V
- LD1117A provides current limiting and thermal shutdown. Its circuit includes a trimmed Bandgap reference to assure output voltage accuracy to be within  $\pm 1.0\%$  for fixed output voltage version and  $\pm 2.0\%$  for adjustable output voltage version. Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal shutdown provides protection against any combination of overload and ambient temperature that would create excessive junction temperature
- LD1117A series are available in SOT-223, SOT-89, TO-220, DPAK (TO-252) and D<sup>2</sup>PAK (TO-263-3) Packages



SOT-223



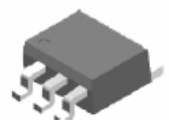
SOT-89



TO-220



DPAK  
(TO-252)



D<sup>2</sup>PAK  
(TO-263-3)

### Features

- Input Voltage up to 20V
- Output Current up to 1A
- Low Drop Output Voltage: Typical 1.15V at 1A output current
- Trimmed Current Limit and On-Chip Thermal Shutdown
- Operation Junction Temperature: -40°C to 125°C
- RoHS Compliance and Halogen Free

### Applications

- PC Mother Board
- Graphic Card
- NIC/Switch
- LCD Monitor, DVD Video Player and Printer
- Telecom Equipment and other Peripheral Equipment

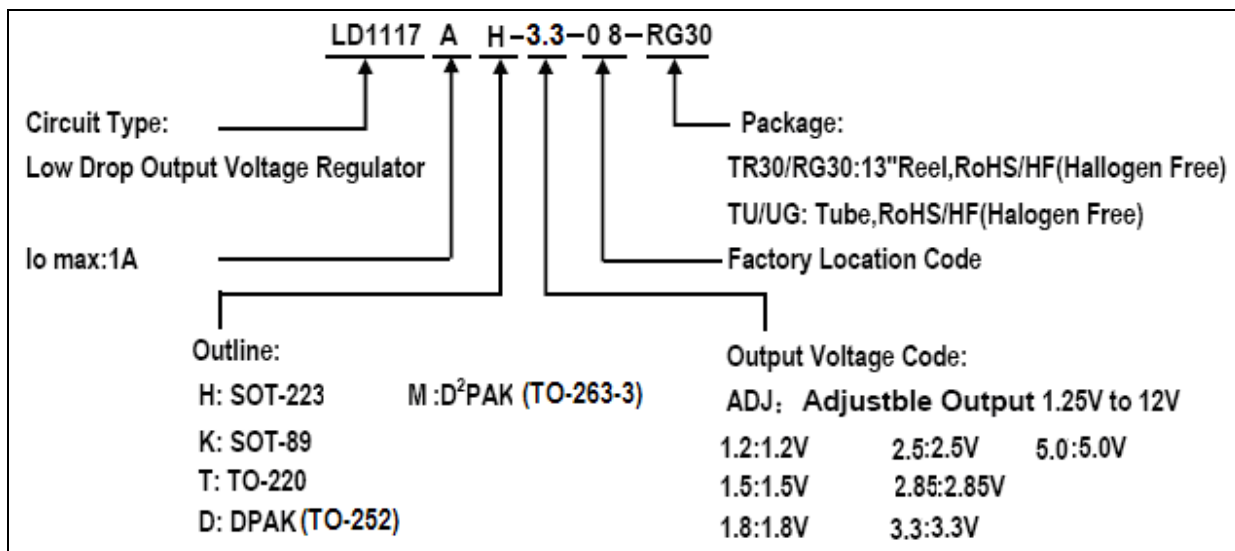


HALOGEN  
**FREE**

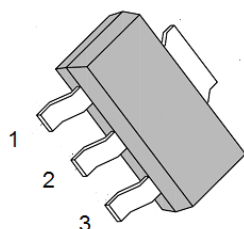
# 1A Low Dropout Positive Voltage Regulator

LD1117A

## Ordering Information

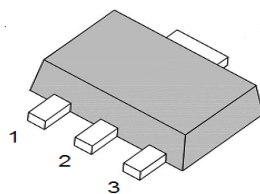


## Pin Configuration



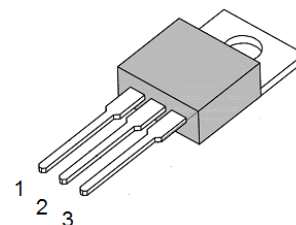
1: GND/ADJ 2: OUTPUT 3: INPUT

**SOT-223**



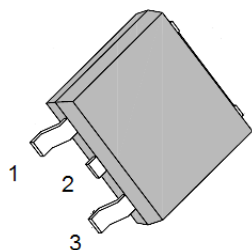
1: GND/ADJ 2: OUTPUT 3: INPUT

**SOT-89**



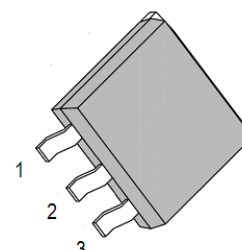
1: GND/ADJ 2: OUTPUT 3: INPUT

**TO-220**



1: GND/ADJ 2: OUTPUT 3: INPUT

**DPAK  
(TO-252)**



1: GND/ADJ 2: OUTPUT 3: INPUT

**D<sup>2</sup>PAK  
(TO-263-3)**

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

### Marking information:

Outline	Temperature Range	PN		Marking Code		Packing Type
		ROHS	Halogen Free	ROHS	Halogen Free	
SOT-223	-40°C to 125°C	LD1117AH-ADJ-08-TR30	LD1117AH-ADJ-08-RG30	EH11A	GH11A	Tape & Reel
		LD1117AH-1.2-08-TR30	LD1117AH-1.2-08-RG30	EH18A	GH18A	
		LD1117AH-1.5-08-TR30	LD1117AH-1.5-08-RG30	EH12A	GH12A	
		LD1117AH-1.8-08-TR30	LD1117AH-1.8-08-RG30	EH13A	GH13A	
		LD1117AH-2.5-08-TR30	LD1117AH-2.5-08-RG30	EH14A	GH14A	
		LD1117AH-2.85-08-TR30	LD1117AH-2.85-08-RG30	EH15A	GH15A	
		LD1117AH-3.3-08-TR30	LD1117AH-3.3-08-RG30	EH16A	GH16A	
		LD1117AH-5.0-08-TR30 LD1	117AH-5.0-08-RG30	EH17A	GH17A	
SOT-89	-40°C to 125°C	LD1117AK-ADJ-08-TR30	LD1117AK-ADJ-08-RG30	E17A	G17A	Tape & Reel
		LD1117AK-1.2-08-TR30	LD1117AK-1.2-08-RG30	E17G	G17G	
		LD1117AK-1.5-08-TR30	LD1117AK-1.5-08-RG30	E17B	G17B	
		LD1117AK-1.8-08-TR30	LD1117AK-1.8-08-RG30	E17C	G17C	
		LD1117AK-2.5-08-TR30	LD1117AK-2.5-08-RG30	E17D	G17D	
		LD1117AK-2.85-08-TR30	LD1117AK-2.85-08-RG30	E17H	G17H	
		LD1117AK-3.3-08-TR30	LD1117AK-3.3-08-RG30	E17E	G17E	
		LD1117AK-5.0-08-TR30 LD1	117AK-5.0-08-RG30	E17F	G17F	
TO-220	-40°C to 125°C	LD1117AT-ADJ-08-TU LD1	117AT-ADJ-08-UG	AZ1117T-ADJEA	AZ1117T-ADJGA	Tube
		LD1117AT-1.2-08-TU LD1	117AT-1.2-08-UG	AZ1117T-1.2EA	AZ1117T-1.2GA	
		LD1117AT-1.5-08-TU	LD1117AT-1.5-08-UG	AZ1117T-1.5EA	AZ1117T-1.5GA	
		LD1117AT-1.8-08-TU	LD1117AT-1.8-08-UG	AZ1117T-1.8EA	AZ1117T-1.8GA	
		LD1117AT-2.5-08-TU	LD1117AT-2.5-08-UG	AZ1117T-2.5EA	AZ1117T-2.5GA	
		LD1117AT-2.85-08-TU LD1	117AT-2.85-08-UG	AZ1117T-2.85EA	AZ1117T-2.85GA	
		LD1117AT-3.3-08-TU	LD1117AT-3.3-08-UG	AZ1117T-3.3EA	AZ1117T-3.3GA	
		LD1117AT-5.0-08-TU LD1	117AT-5.0-08-UG	AZ1117T-5.0EA	AZ1117T-5.0GA	

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

Outline	Temperature Range	PN		Marking Code		Packing Type
		RoHS	Halogen Free	RoHS	Halogen Free	
DPAK (TO-252)	-40°C to 125°C	LD1117AD-ADJ-08-TR30	LD1117AD-ADJ-08-RG30	AZ1117D -ADJEA	AZ1117D -ADJGA	Tape & Reel
		LD1117AD-ADJ-08-TU LD	LD1117AD-ADJ-08-UG	AZ1117D -ADJEA	AZ1117D -ADJGA	Tube
		LD1117AD-1.2-08-TR30 LD	LD1117AD-1.2-08-RG30	AZ1117D -1.2EA	AZ1117D -1.2GA	Tape & Reel
		LD1117AD-1.2-08-TU	LD1117AD-1.2-08-UG	AZ1117D -1.2EA	AZ1117D -1.2GA	Tube
		LD1117AD-1.5-08-TR30 LD	LD1117AD-1.5-08-RG30	AZ1117D -1.5EA	AZ1117D -1.5GA	Tape & Reel
		LD1117AD-1.5-08-TU	LD1117AD-1.5-08-UG	AZ1117D -1.5EA	AZ1117D -1.5GA	Tube
		LD1117AD-1.8-08-TR30 LD	LD1117AD-1.8-08-RG30	AZ1117D -1.8EA	AZ1117D -1.8GA	Tape & Reel
		LD1117AD-1.8-08-TU	LD1117AD-1.8-08-UG	AZ1117D -1.8EA	AZ1117D -1.8GA	Tube
		LD1117AD-2.5-08-TR30 LD	LD1117AD-2.5-08-RG30	AZ1117D -2.5EA	AZ1117D -2.5GA	Tape & Reel
		LD1117AD-2.5-08-TU	LD1117AD-2.5-08-UG	AZ1117D -2.5EA	AZ1117D -2.5GA	Tube
		LD1117AD-2.85-08-TR30	LD1117AD-2.85-08-RG30	AZ1117D -2.85EA	AZ1117D -2.85GA	Tape & Reel
		LD1117AD-2.85-08-TU L	LD1117AD-2.85-08-UG	AZ1117D -2.85EA	AZ1117D -2.85GA	Tube
		LD1117AD-3.3-08-TR30 LD	LD1117AD-3.3-08-RG30	AZ1117D -3.3EA	AZ1117D -3.3GA	Tape & Reel
		LD1117AD-3.3-08-TU	LD1117AD-3.3-08-UG	AZ1117D -3.3EA	AZ1117D -3.3GA	Tube
		LD1117AD-5.0-08-TR30 LD	LD1117AD-5.0-08-RG30	AZ1117D -5.0EA	AZ1117D -5.0GA	Tape & Reel
		LD1117AD-5.0-08-TU	LD1117AD-5.0-08-UG	AZ1117D -5.0EA	AZ1117D -5.0GA	Tube

# 1A Low Dropout Positive Voltage Regulator

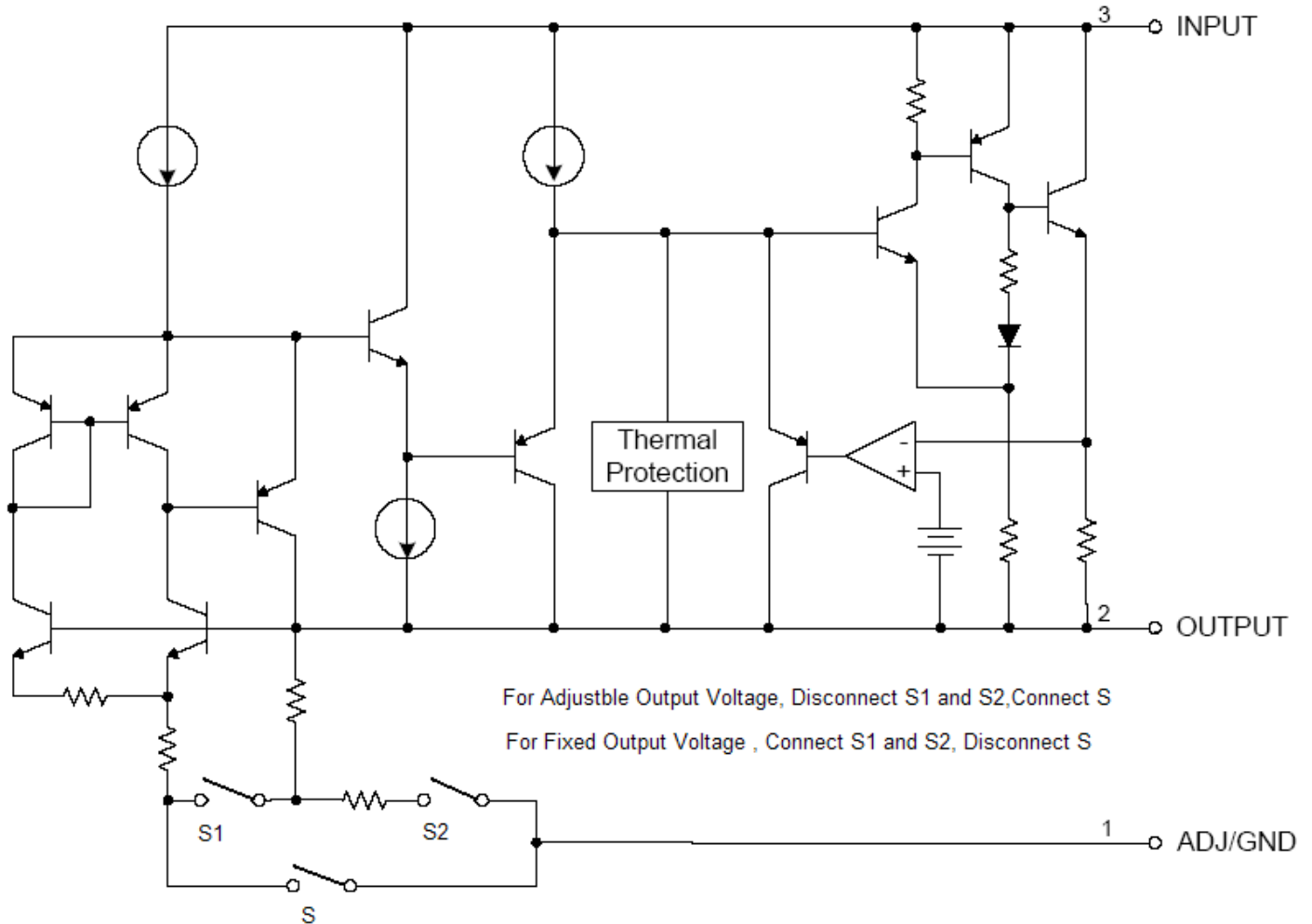
## LD1117A

Outline	Temperature Range	PN		Marking Code		Packing Type
		RoHS	Halogen Free	RoHS	Halogen Free	
D <sup>2</sup> PAK (TO-263-3)	-40°C to 125°C	LD1117AM-ADJ-08-TR30 L	D1117AM-ADJ-08-RG30	AZ1117S -ADJEA	AZ1117S -ADJGA	Tape & Reel
		LD1117AM-ADJ-08-TU L	D1117AM-ADJ-08-UG	AZ1117S -ADJEA	AZ1117S -ADJGA	Tube
		LD1117AM-1.2-08-TR30 L	D1117AM-1.2-08-RG30	AZ1117S -1.2EA	AZ1117S -1.2GA	Tape & Reel
		LD1117AM-1.2-08-TU	LD1117AM-1.2-08-UG	AZ1117S -1.2EA	AZ1117S -1.2GA	Tube
		LD1117AM-1.5-08-TR30 L	D1117AM-1.5-08-RG30	AZ1117S -1.5EA	AZ1117S -1.5GA	Tape & Reel
		LD1117AM-1.5-08-TU L	D1117AM-1.5-08-UG	AZ1117S -1.5EA	AZ1117S -1.5GA	Tube
		LD1117AM-1.8-08-TR30 L	D1117AM-1.8-08-RG30	AZ1117S -1.8EA	AZ1117S -1.8GA	Tape & Reel
		LD1117AM-1.8-08-TU L	D1117AM-1.8-08-UG	AZ1117S -1.8EA	AZ1117S -1.8GA	Tube
		LD1117AM-2.5-08-TR30 L	D1117AM-2.5-08-RG30	AZ1117S -2.5EA	AZ1117S -2.5GA	Tape & Reel
		LD1117AM-2.5-08-TU L	D1117AM-2.5-08-UG	AZ1117S -2.5EA	AZ1117S -2.5GA	Tube
		LD1117AM-2.85-08-TR30	LD1117AM-2.85-08- RG30	AZ1117S -2.85EA	AZ1117S -2.85GA	Tape & Reel
		LD1117AM-2.85-08-TU L	D1117AM-2.85-08-UG	AZ1117S -2.85EA	AZ1117S -2.85GA	Tube
		LD1117AM-3.3-08-TR30 L	D1117AM-3.3-08-RG30	AZ1117S -3.3EA	AZ1117S -3.3GA	Tape & Reel
		LD1117AM-3.3-08-TU L	D1117AM-3.3-08-UG	AZ1117S -3.3EA	AZ1117S -3.3GA	Tube
		LD1117AM-5.0-08-TR30 L	D1117AM-5.0-08-RG30	AZ1117S -5.0EA	AZ1117S -5.0GA	Tape & Reel
		LD1117AM-5.0-08-TU L	D1117AM-5.0-08-UG	AZ1117S -5.0EA	AZ1117S -5.0GA	Tube

# 1A Low Dropout Positive Voltage Regulator

LD1117A

## Block Diagram



# 1A Low Dropout Positive Voltage Regulator

LD1117A

## Absolute Maximum Ratings (Note1)

Symbol	Description	Ratings		Unit
V <sub>IN</sub>	Input Voltage	20		V
T <sub>J</sub>	Junction Temperature	150		°C
T <sub>STG</sub>	Storage Temperature Range	-65 to 150		°C
T <sub>LEAD</sub> (10 sec)	Lead Soldering Temperature	260		°C
θ <sub>JA</sub>	Thermal Resistance (No Heat sink) (Not2)	SOT-223	120	°C/W
		SOT-89	165	
		TO-220	60	
		DPAK (TO-252)	100	
		D2PAK (TO-263-3)	60	
ESD	ESD (Human body model)	2000		V
ESD	ESD (Machine model)	250		V

## Recommend Operating Ratings (Note1)

Symbol	Description	Ratings		Unit
		Min	Max	
V <sub>IN</sub>	Input Voltage	-	15	V
T <sub>J</sub>	Operating Junction Temperature	-40	125	°C

Note1: Absolute maximum ratings indicate limits beyond which damage to the device may occur. Recommend operating ratings indicate conditions for which the device is functional, but do not guarantee specific specification limits. For guarantee specification and test conditions, see the Electrical Characteristics, the guarantee specification apply only for the test conditions listed. Some performance characteristics may degrade when the device is not operated under the listed test conditions.

Note2: The Max power dissipation is a function of T<sub>J</sub>(max), θ<sub>JA</sub> and T<sub>A</sub>. The maximum allowable power dissipation at any temperature is P<sub>D</sub>(Max)=(T<sub>J</sub>(max)-T<sub>A</sub>)/ θ<sub>JA</sub>, Exceeding the maximum allowable power dissipation will result in die temperature and the Regulator will go into thermal shutdown

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

### Electrical Characteristics

For LD1117A-ADJ ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

Symbol	Description	LD1117A-ADJ			Unit	Test Conditions	
		Min.	Type.	Max.			
V <sub>REF</sub>	Reference Voltage	1.238	1.250	1.262	V	$V_{IN} - V_O = 2V$ , $I_O = 10mA$	
		1.225	1.250	1.270	V	$1.4V \leq V_{IN} - V_O \leq 8V$ , $10mA \leq I_O \leq 1A$ $P_D \leq P_{D(max)}$ ,	
$\Delta V_{LINE}$	Line Regulation	-	0.035	0.2	%	$1.5V \leq V_{IN} - V_O \leq 10V$ , $I_O = 10mA$	
$\Delta V_{LOAD}$	Load Regulation	-	0.2	0.4	%	$V_{IN} - V_O = 2V$ , $10mA \leq I_O \leq 1A$	
I <sub>LIMIT</sub>	Current Limit	1.25	1.35	-	A	$V_{IN} - V_O = 2V$	
I <sub>ADJ</sub>	Adjust Pin Current	-	60	120	$\mu A$	-	
$\Delta I_{ADJ}$	Adjust Pin Current Change	-	0.2	5	$\mu A$	$1.4V \leq V_{IN} - V_O \leq 10V$ , $10mA \leq I_O \leq 1A$	
I <sub>LOAD</sub>	Minimum Load Current	-	1.7	5	mA	$1.5V \leq V_{IN} - V_O \leq 10V$ , (ADJ only)	
I <sub>Q</sub>	Quiescent Current	-	5	10	mA	$V_{IN} - V_O = 1.25V$	
V <sub>D</sub>	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{REF} = 1\%$ , $I_O = 100mA$	
		1.08		1.18	V	$\Delta V_{REF} = 1\%$ , $I_O = 500mA$	
		1.15		1.25	V	$\Delta V_{REF} = 1\%$ , $I_O = 1A$	
e <sub>N</sub>	Output Noise Voltage	-	0.003	-	%	$10Hz \leq f \leq 10KHz$ , $T_A = 25^\circ C$	
PSRR	Power Supply Ripple Rejection Ratio	60	75	-	dB	$V_{IN} - V_O = 3V$ , $I_O = 1A$ , $f = 120Hz$ $C_O = 22\mu F$ Tantalum	
-	Temperature Stability	- 0.	5	-	%	-	
-	Long-term Temperature Stability	-	0.3		%	$T_A = 125^\circ C$ , 1000hrs	
$\theta_{JC}$	Thermal Resistance	SOT-223 -		25	-	$^\circ C/W$	-
		SOT-89 -		30	-		-
		TO-220 -		10	-		-
		DPAK(TO-252) -		17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10		-		-

For LD1117A-1.2 ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

Symbol	Description	LD1117A-1.2			Unit	Test Conditions
		Min.	Type.	Max.		
V <sub>O</sub>	Output Voltage	1.176	1.2	1.224	V	$V_{IN} = 3.2V$ , $I_O = 10mA$
		1.152	1.2	1.248	V	$3.0V \leq V_{IN} \leq 10V$ , $10mA \leq I_O \leq 1A$
$\Delta V_{LINE}$	Line Regulation	-	1	6	mV	$1.5V \leq V_{IN} - V_O \leq 10V$ , $I_O = 10mA$
$\Delta V_{LOAD}$	Load Regulation	-	1	10	mV	$V_{IN} - V_O = 2V$ , $10mA \leq I_O \leq 1A$
I <sub>LIMIT</sub>	Current Limit	1.25	1.35	-	A	$V_{IN} - V_O = 2V$
I <sub>Q</sub>	Quiescent Current	-	5	10	mA	$V_{IN} - V_O = 1.25V$



# 1A Low Dropout Positive Voltage Regulator

## LD1117A

<b>V<sub>D</sub></b>	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_O = 100mA$	
		- 1.08		1.18	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_O = 500mA$	
		- 1.15		1.25	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_O = 1A$	
<b>e<sub>N</sub></b>	Output Noise Voltage	-	0.003	-	%	10Hz ≤ f ≤ 10KHz, T <sub>A</sub> = 25°C	
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	60	75	-	dB	V <sub>IN</sub> -V <sub>O</sub> =3V, I <sub>O</sub> =1A, f=120Hz C <sub>O</sub> =22uF Tantalum	
-	Thermal shutdown	-	150	-	°C	Junction Temperature	
-	Temperature Stability	- 0.	5	-	%	-	
-	Long-term Temperature Stability	-	0.3		%	T <sub>A</sub> =125°C, 1000hrs	
<b>θ<sub>JC</sub></b>	Thermal Resistance	SOT-223 -		25	-	°C/W	-
		SOT-89 -		30	-		-
		TO-220 -		10	-		-
		DPAK(TO-252) -		17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10		-		-

For LD1117A-1.5 (V<sub>IN</sub> ≤ 10V, T<sub>J</sub> = 25°C, unless otherwise specified)

Symbol	Description	LD1117A-1.5			Unit	Test Conditions	
		Min.	Type.	Max.			
<b>V<sub>O</sub></b>	Output Voltage	1.485	1.5	.515	V	V <sub>IN</sub> = 3.5V, I <sub>O</sub> = 10mA	
		1.470	1.5	.530	V	3.0V ≤ V <sub>IN</sub> ≤ 10V, 10mA ≤ I <sub>O</sub> ≤ 1A	
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	1	6	mV	1.5V ≤ V <sub>IN</sub> -V <sub>O</sub> ≤ 10V, I <sub>O</sub> = 10mA	
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	1	10	mV	V <sub>IN</sub> -V <sub>O</sub> = 2V, 10mA ≤ I <sub>O</sub> ≤ 1A	
<b>I<sub>LIMIT</sub></b>	Current Limit	1.25	1.35	-	A	V <sub>IN</sub> -V <sub>O</sub> = 2V	
<b>I<sub>Q</sub></b>	Quiescent Current	-	5	10	mA	V <sub>IN</sub> -V <sub>O</sub> = 1.25V	
<b>V<sub>D</sub></b>	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_O = 100mA$	
		- 1.08		1.18	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_O = 500mA$	
		- 1.15		1.25	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_O = 1A$	
<b>e<sub>N</sub></b>	Output Noise Voltage	-	0.003	-	%	10Hz ≤ f ≤ 10KHz, T <sub>A</sub> = 25°C	
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	60	75	-	dB	V <sub>IN</sub> -V <sub>O</sub> =3V, I <sub>O</sub> =1A, f=120Hz C <sub>O</sub> =22uF Tantalum	
-	Thermal shutdown	-	150	-	°C	Junction Temperature	
-	Temperature Stability	- 0.	5	-	%	-	
-	Long-term Temperature Stability	-	0.3		%	T <sub>A</sub> =125°C, 1000hrs	
<b>θ<sub>JC</sub></b>	Thermal Resistance	SOT-223 -		25	-	°C/W	-
		SOT-89 -		30	-		-
		TO-220 -		10	-		-
		DPAK(TO-252) -		17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10		-		-

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

For LD1117A-1.8 ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

Symbol	Description	LD1117A-1.8			Unit	Test Conditions	
		Min.	Type.	Max.			
Vo	Output Voltage	1.782	1.8 1	.818	V	$V_{IN} = 3.8V$ , $I_o = 10mA$	
		1.746	1.8 1	.854	V	$3.2V \leq V_{IN} \leq 10V$ , $10mA \leq I_o \leq 1A$	
$\Delta V_{LINE}$	Line Regulation	-	1	6	mV	$1.5V \leq V_{IN} - V_o \leq 10V$ , $I_o = 10mA$	
$\Delta V_{LOAD}$	Load Regulation	-	1	10	mV	$V_{IN} - V_o = 2V$ , $10mA \leq I_o \leq 1A$	
ILIMIT	Current Limit	1.25	1.35	-	A	$V_{IN} - V_o = 2V$	
Iq	Quiescent Current	-	5	10	mA	$V_{IN} - V_o = 1.25V$	
Vd	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}$ , $\Delta V_{LOAD} = 1\%$ , $I_o = 100mA$	
		- 1.08		1.18	V	$\Delta V_{LINE}$ , $\Delta V_{LOAD} = 1\%$ , $I_o = 500mA$	
		- 1.15		1.25	V	$\Delta V_{LINE}$ , $\Delta V_{LOAD} = 1\%$ , $I_o = 1A$	
eN	Output Noise Voltage	-	0.003	-	%	$10Hz \leq f \leq 10KHz$ , $T_A = 25^\circ C$	
PSRR	Power Supply Ripple Rejection Ratio	60 75		-	dB	$V_{IN} - V_o = 3V$ , $I_o = 1A$ , $f = 120Hz$ $C_o = 22\mu F$ Tantalum	
-	Thermal shutdown	-	150	-	$^\circ C$	Junction Temperature	
-	Temperature Stability	- 0.	5 -		%	-	
-	Long-term Temperature Stability	-	0.3		%	$T_A = 125^\circ C$ , 1000hrs	
$\theta_{JC}$	Thermal Resistance	SOT-223 -		25	-	$^\circ C/W$	-
		SOT-89 -		30	-		-
		TO-220 -		10	-		-
		DPAK(TO-252) -		17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10		-		-

For LD1117A-2.5 ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

Symbol	Description	LD1117A-2.5			Unit	Test Conditions
		Min.	Type.	Max.		
Vo	Output Voltage	2.475	2.5 2	.525	V	$V_{IN} = 4.5V$ , $I_o = 10mA$
		2.450	2.5 2	.550	V	$3.9V \leq V_{IN} \leq 10V$ , $10mA \leq I_o \leq 1A$
$\Delta V_{LINE}$	Line Regulation	-	1	6	mV	$1.5V \leq V_{IN} - V_o \leq 10V$ , $I_o = 10mA$
$\Delta V_{LOAD}$	Load Regulation	-	1	10	mV	$V_{IN} - V_o = 2V$ , $10mA \leq I_o \leq 1A$
ILIMIT	Current Limit	1.25	1.35	-	A	$V_{IN} - V_o = 2V$
Iq	Quiescent Current	-	5	10	mA	$V_{IN} - V_o = 1.25V$
Vd	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}$ , $\Delta V_{LOAD} = 1\%$ , $I_o = 100mA$
		- 1.08		1.18	V	$\Delta V_{LINE}$ , $\Delta V_{LOAD} = 1\%$ , $I_o = 500mA$
		- 1.15		1.25	V	$\Delta V_{LINE}$ , $\Delta V_{LOAD} = 1\%$ , $I_o = 1A$
eN	Output Noise Voltage	-	0.003	-	%	$10Hz \leq f \leq 10KHz$ , $T_A = 25^\circ C$
PSRR	Power Supply Ripple Rejection Ratio	60 75		-	dB	$V_{IN} - V_o = 3V$ , $I_o = 1A$ , $f = 120Hz$ $C_o = 22\mu F$ Tantalum

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

-	Thermal shutdown	-	150	-	°C	Junction Temperature
-	Temperature Stability	- 0.	5	-	%	-
-	Long-term Temperature Stability	-	0.3		%	TA=125°C,1000hrs
$\theta_{JC}$	Thermal Resistance	SOT-223 -	25	-	°C/W	-
		SOT-89 -	30	-		-
		TO-220 -	10	-		-
		DPAK(TO-252) -	17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10	-		-

For LD1117A-2.85 ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

Symbol	Description	LD1117A-2.85			Unit	Test Conditions
		Min.	Type.	Max.		
$V_o$	Output Voltage	2.822	2.85	2.878	V	$I_N = 4.85V, I_o = 10mA$
		2.793	2.85	2.907	V	$4.25V \leq V_{IN} \leq 10V, 10mA \leq I_o \leq 1A$
$\Delta V_{LINE}$	Line Regulation	-	1	6	mV	$1.5V \leq V_{IN} - V_o \leq 10V, I_o = 10mA$
$\Delta V_{LOAD}$	Load Regulation	-	1	10	mV	$V_{IN} - V_o = 2V, 10mA \leq I_o \leq 1A$
$I_{LIMIT}$	Current Limit	1.25	1.35	-	A	$V_{IN} - V_o = 2V$
$I_q$	Quiescent Current	-	5	10	mA	$V_{IN} - V_o = 1.25V$
$V_D$	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_o = 100mA$
		- 1.08		1.18	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_o = 500mA$
		- 1.15		1.25	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%, I_o = 1A$
$e_N$	Output Noise Voltage	-	0.003	-	%	$10Hz \leq f \leq 10KHz, T_A = 25^\circ C$
$PSRR$	Power Supply Ripple Rejection Ratio	60	75	-	dB	$V_{IN} - V_o = 3V, I_o = 1A, f = 120Hz$ $C_o = 22\mu F$ Tantalum
-	Thermal shutdown	-	150	-	°C	Junction Temperature
-	Temperature Stability	- 0.	5	-	%	-
-	Long-term Temperature Stability	-	0.3		%	TA=125°C,1000hrs
$\theta_{JC}$	Thermal Resistance	SOT-223 -	25	-	°C/W	-
		SOT-89 -	30	-		-
		TO-220 -	10	-		-
		DPAK(TO-252) -	17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10	-		-

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

For LD1117A-3.3 ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

Symbol	Description	LD1117A-3.3			Unit	Test Conditions	
		Min.	Type.	Max.			
Vo	Output Voltage	3.267	3.3	.333	V	$V_{IN} = 5.0V$ , $I_o = 10mA$	
		3.235	3.3	.365	V	$4.75V \leq V_{IN} \leq 10V$ , $10mA \leq I_o \leq 1A$	
$\Delta V_{LINE}$	Line Regulation	-	1	6	mV	$1.5V \leq V_{IN} - V_o \leq 10V$ , $I_o = 10mA$	
$\Delta V_{LOAD}$	Load Regulation	-	1	10	mV	$V_{IN} - V_o = 2V$ , $10mA \leq I_o \leq 1A$	
ILIMIT	Current Limit	1.25	1.35	-	A	$V_{IN} - V_o = 2V$	
Iq	Quiescent Current	-	5	10	mA	$V_{IN} - V_o = 1.25V$	
Vd	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%$ , $I_o = 100mA$	
		- 1.08		1.18	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%$ , $I_o = 500mA$	
		- 1.15		1.25	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%$ , $I_o = 1A$	
eN	Output Noise Voltage	-	0.003	-	%	$10Hz \leq f \leq 10KHz$ , $T_A = 25^\circ C$	
PSRR	Power Supply Ripple Rejection Ratio	60	75	-	dB	$V_{IN} - V_o = 3V$ , $I_o = 1A$ , $f = 120Hz$ $C_o = 22\mu F$ Tantalum	
-	Thermal shutdown	-	150	-	$^\circ C$	Junction Temperature	
-	Temperature Stability	- 0.	5	-	%	-	
-	Long-term Temperature Stability	-	0.3		%	$T_A = 125^\circ C$ , 1000hrs	
$\theta_{JC}$	Thermal Resistance	SOT-223 -		25	-	$^\circ C/W$	-
		SOT-89 -		30	-		-
		TO-220 -		10	-		-
		DPAK(TO-252) -		17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10		-		-

For LD1117A-5.0 ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$ , unless otherwise specified)

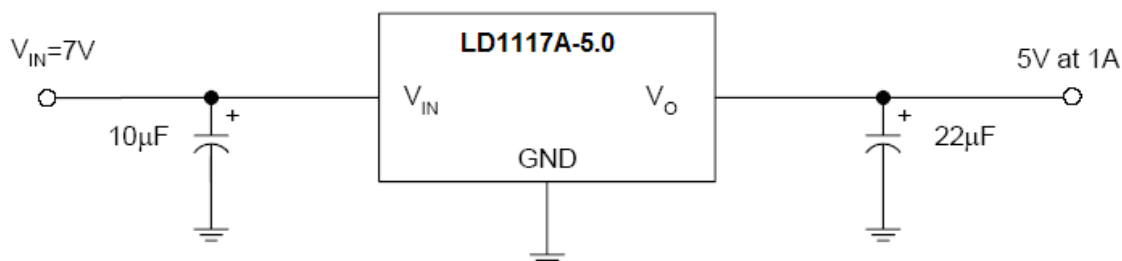
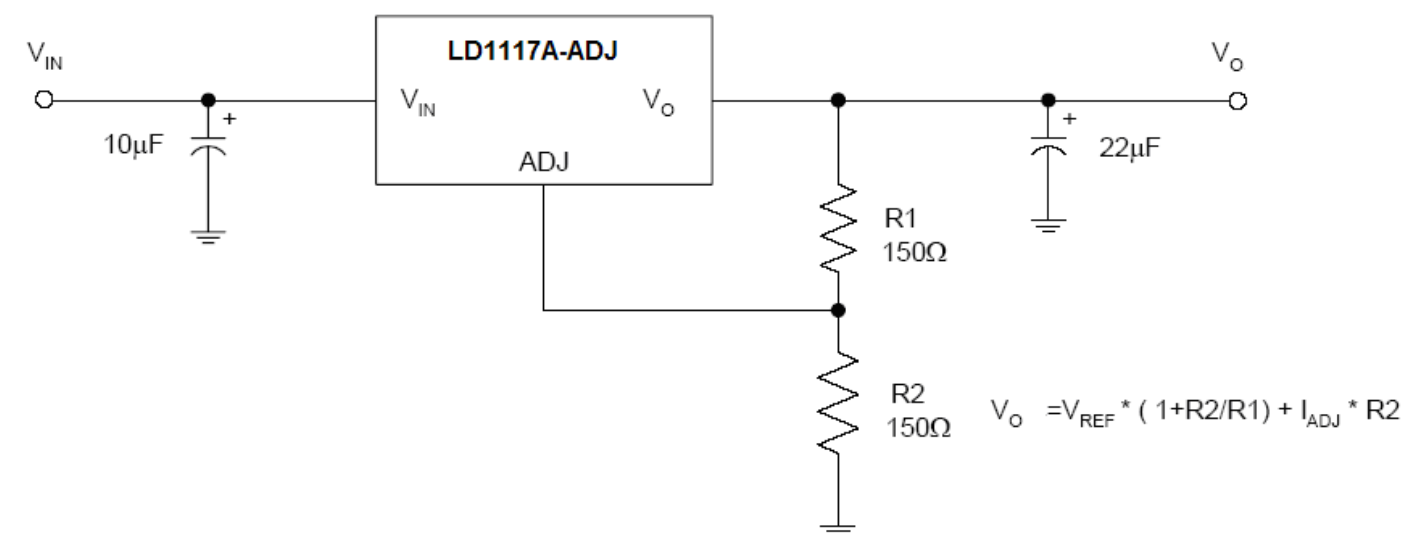
Symbol	Description	LD1117A-5.0			Unit	Test Conditions
		Min.	Type.	Max.		
Vo	Output Voltage	4.95	5.0	5.05	V	$V_{IN} = 7.0V$ , $I_o = 10mA$
		4.9	5.	1	V	$6.5V \leq V_{IN} \leq 12V$ , $10mA \leq I_o \leq 1A$
$\Delta V_{LINE}$	Line Regulation	-	1	10	mV	$1.5V \leq V_{IN} - V_o \leq 10V$ , $I_o = 10mA$
$\Delta V_{LOAD}$	Load Regulation	-	1	15	mV	$V_{IN} - V_o = 2V$ , $10mA \leq I_o \leq 1A$
ILIMIT	Current Limit	1.25	1.35	-	A	$V_{IN} - V_o = 2V$
Iq	Quiescent Current	-	5	10	mA	$V_{IN} - V_o = 1.25V$
Vd	Dropout Voltage	- 1	.0	1.1	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%$ , $I_o = 100mA$
		- 1.08		1.18	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%$ , $I_o = 500mA$
		- 1.15		1.25	V	$\Delta V_{LINE}, \Delta V_{LOAD} = 1\%$ , $I_o = 1A$
eN	Output Noise Voltage	-	0.003	-	%	$10Hz \leq f \leq 10KHz$ , $T_A = 25^\circ C$
PSRR	Power Supply Ripple Rejection Ratio	60	75	-	dB	$V_{IN} - V_o = 3V$ , $I_o = 1A$ , $f = 120Hz$ $C_o = 22\mu F$ Tantalum

# 1A Low Dropout Positive Voltage Regulator

## LD1117A

-	Thermal shutdown	-	150	-	°C	Junction Temperature
-	Temperature Stability	- 0.	5 -		%	-
-	Long-term Temperature Stability	-	0.3		%	T <sub>A</sub> =125°C,1000hrs
θ <sub>JC</sub>	Thermal Resistance	SOT-223 -	25	-	°C/W	-
		SOT-89 -	30	-		-
		TO-220 -	10	-		-
		DPAK(TO-252) -	17	-		-
		D <sup>2</sup> PAK (TO-263-3)	- 10	-		-

### Typical Application



# 1A Low Dropout Positive Voltage Regulator

## LD1117A

### Typical Characteristics Curves

Fig.1  $V_D-I_o$

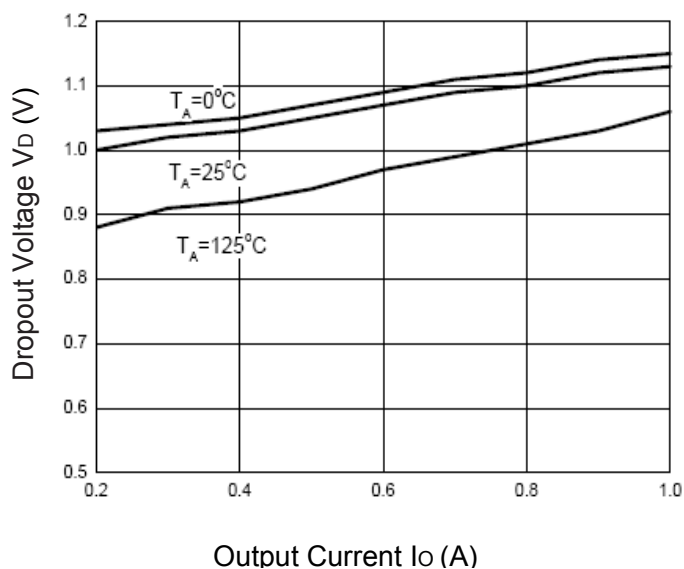


Fig.2  $V_D-T_J$

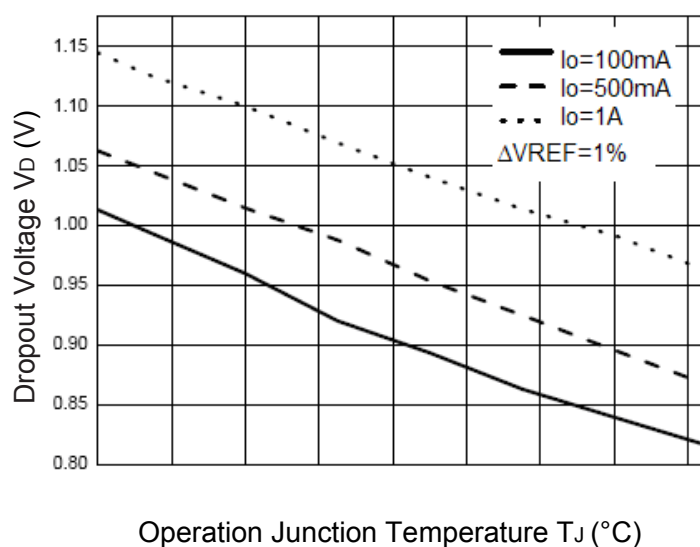


Fig.3  $\Delta V_{LOAD}-T_J$

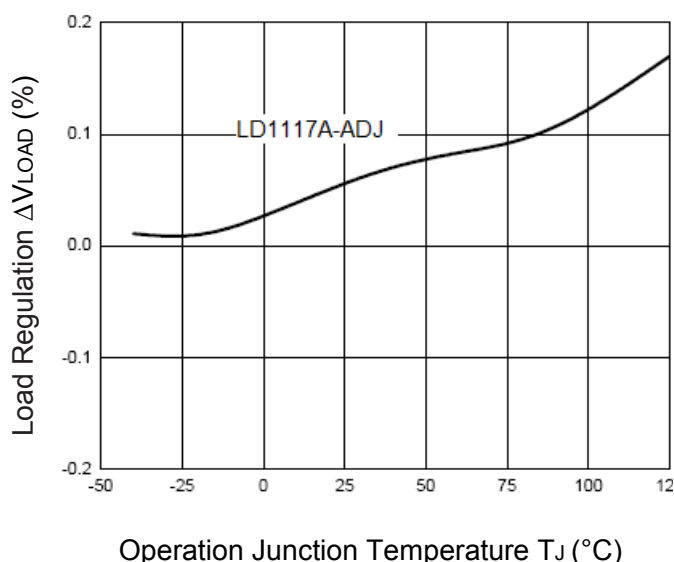
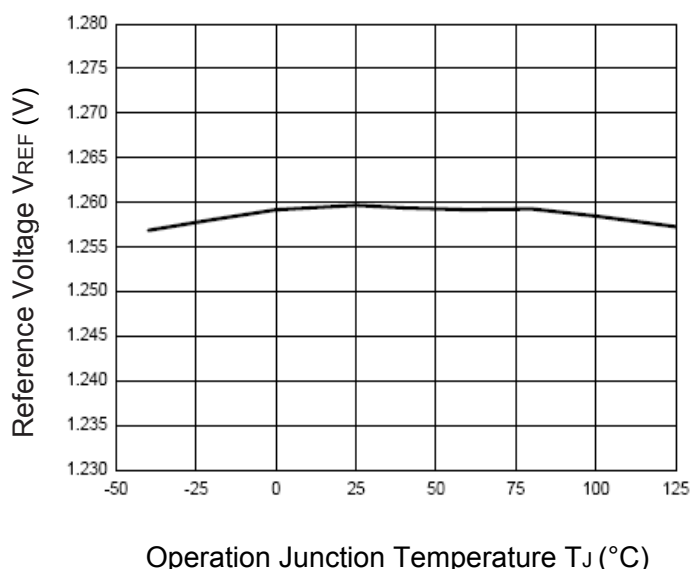


Fig.4  $V_{REF}-T_J$



# 1A Low Dropout Positive Voltage Regulator

## LD1117A

Fig.5  $V_o$ - $T_J$

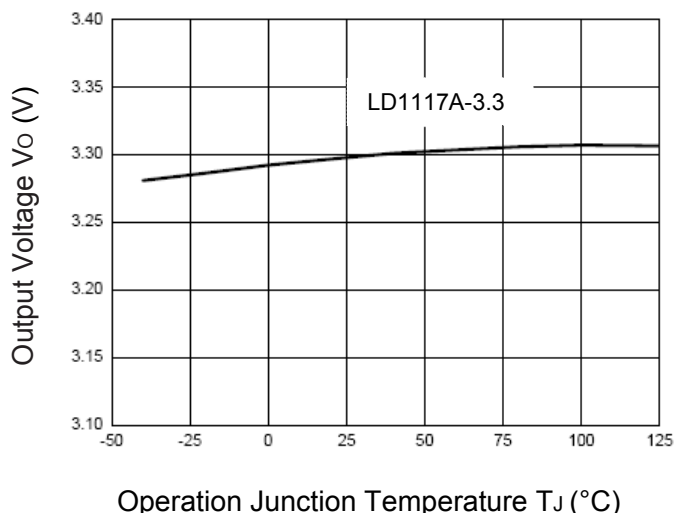


Fig.6  $I_{LOAD}$ - $T_J$

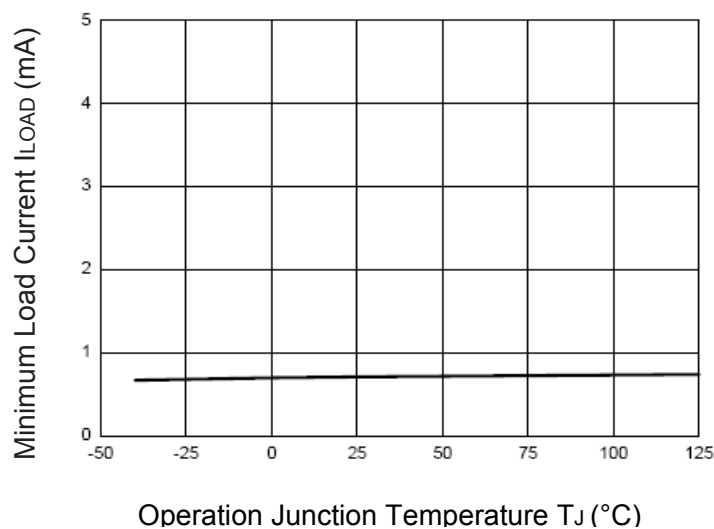


Fig.7  $I_{ADJ}$ - $T_J$

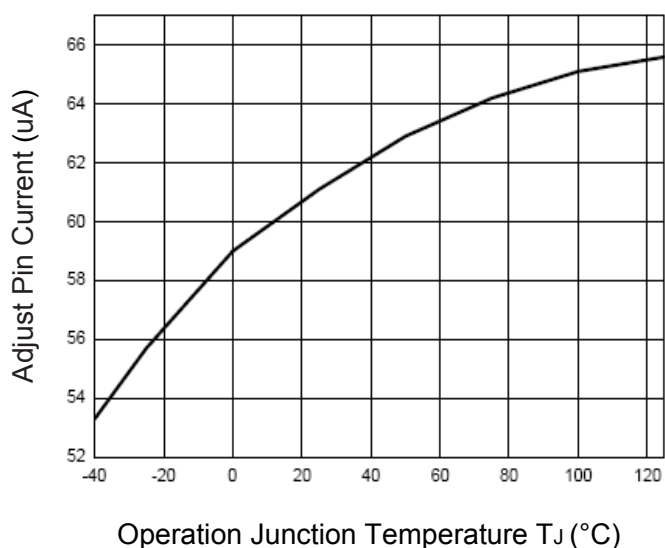
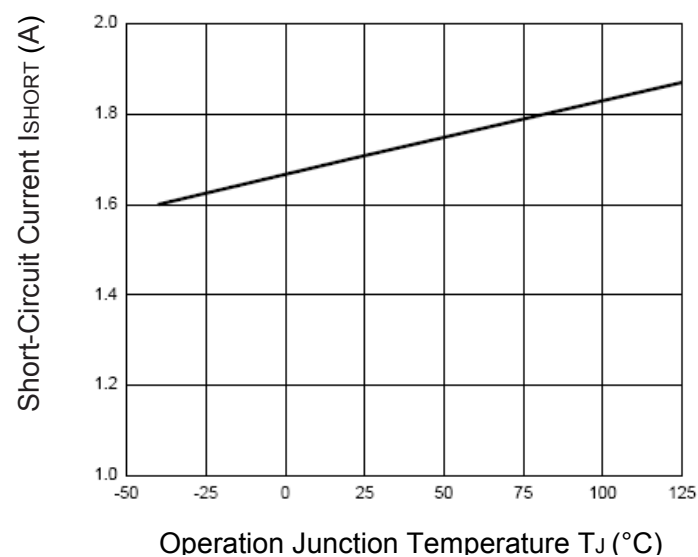


Fig.8  $I_{SHORT}$ - $T_J$



# 1A Low Dropout Positive Voltage Regulator

## LD1117A

Fig.9 Pd-Tc

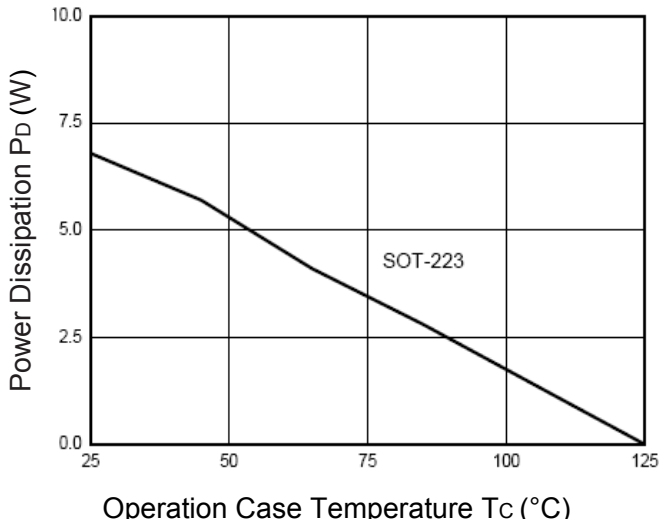


Fig.10 PSRR-f

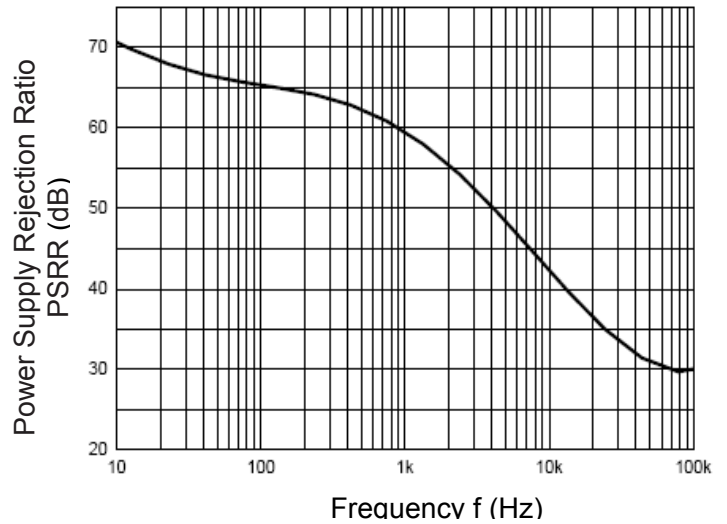


Fig.11 Line Transient Response

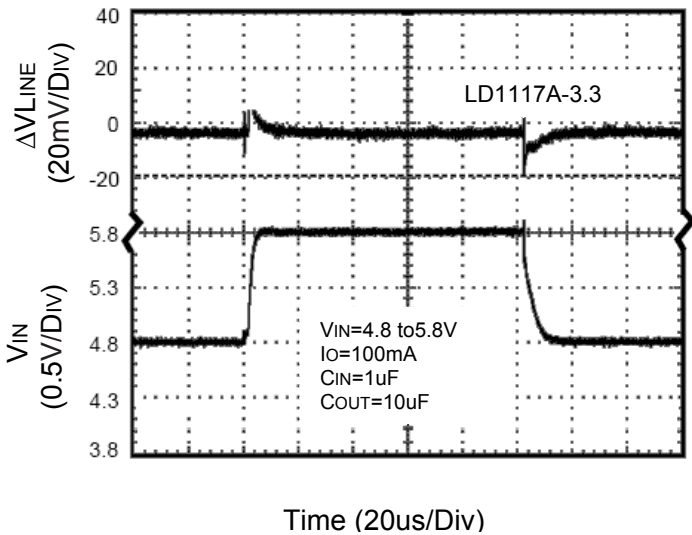
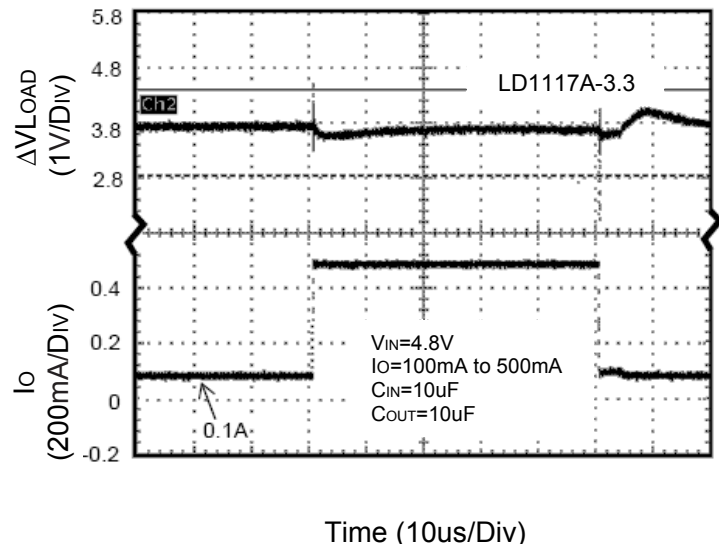


Fig.12 Load Transient Response

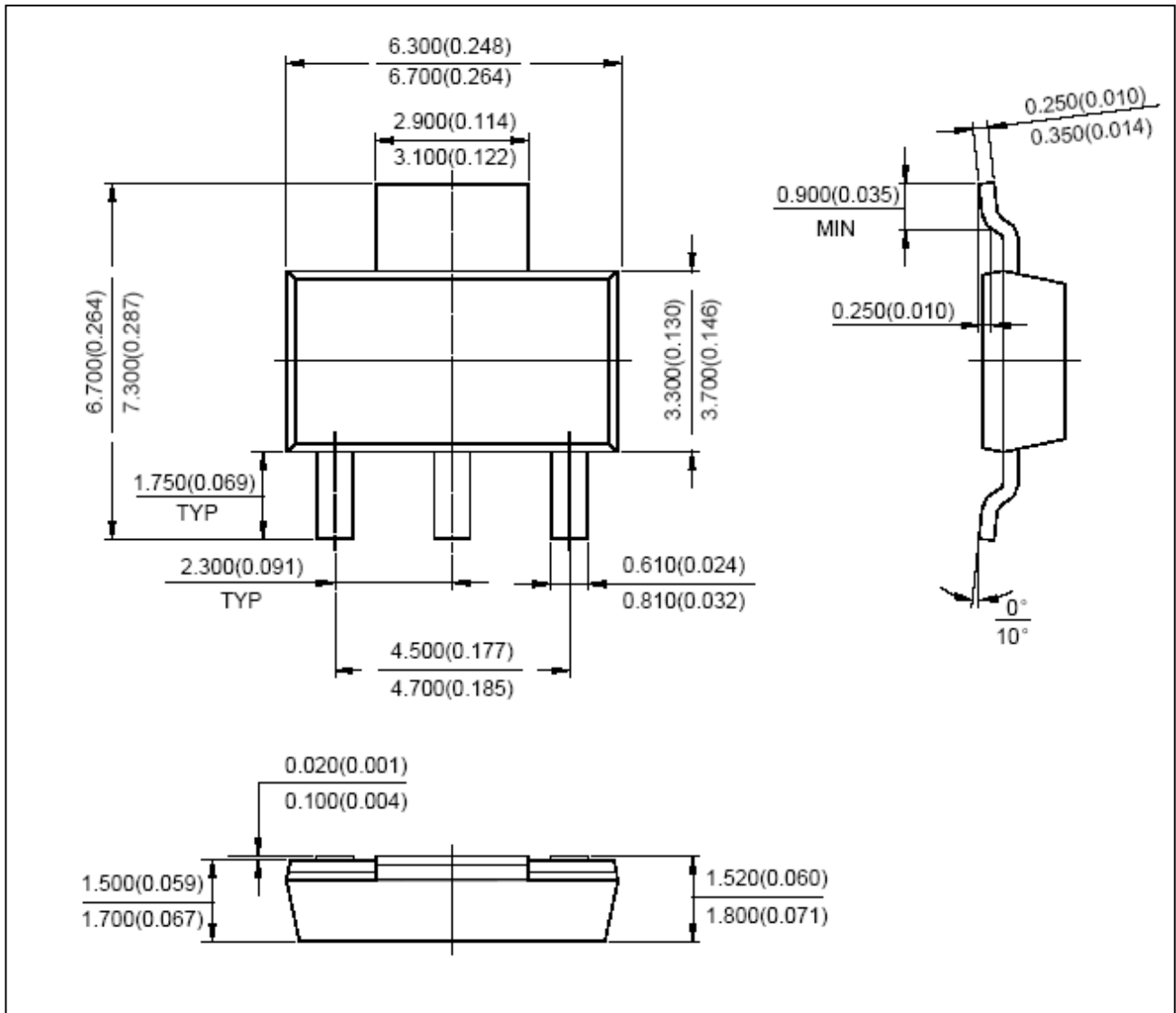




# 1A Low Dropout Positive Voltage Regulator

LD1117A

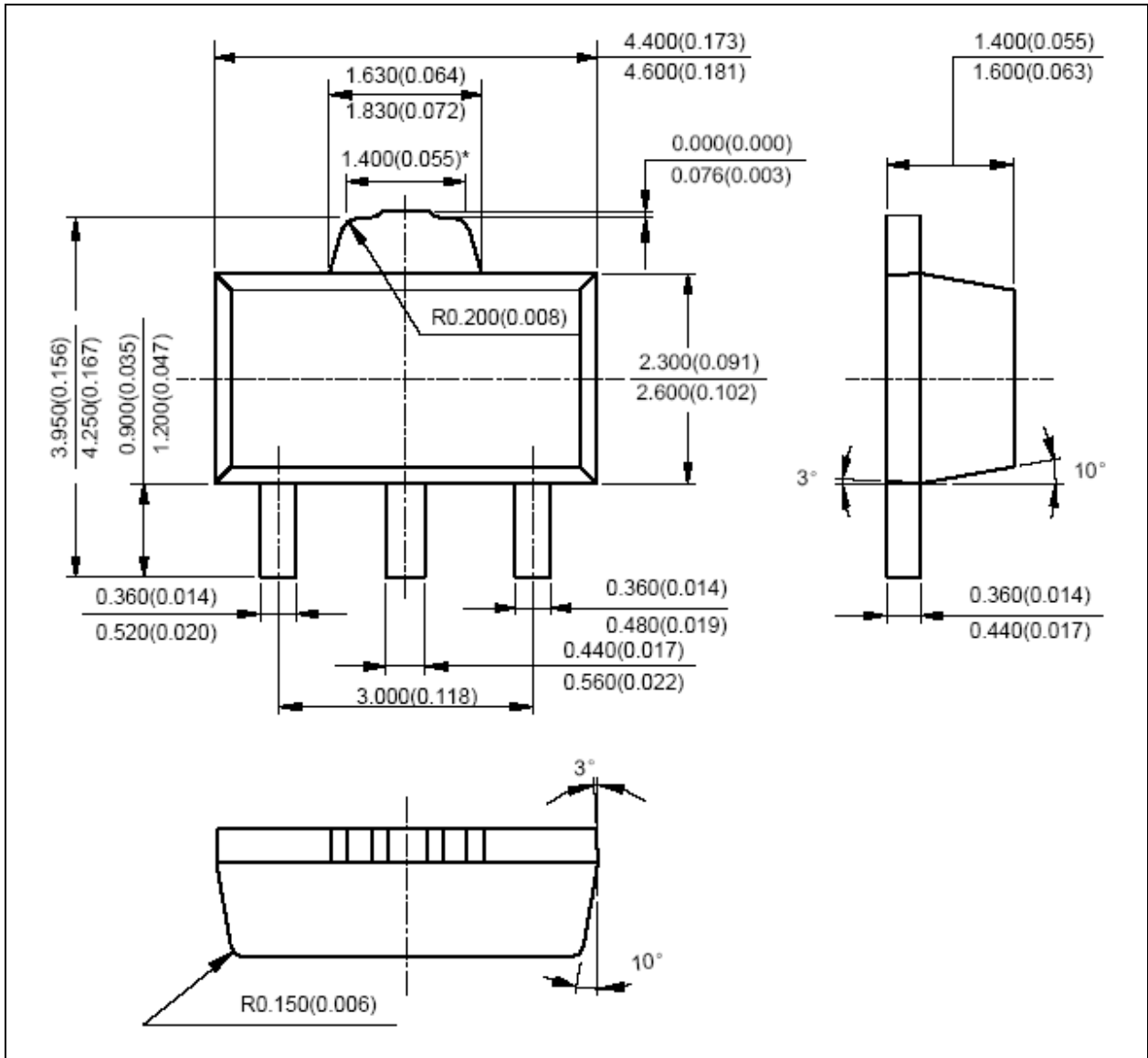
Dimensions in mm (inch)



SOT-223

# 1A Low Dropout Positive Voltage Regulator

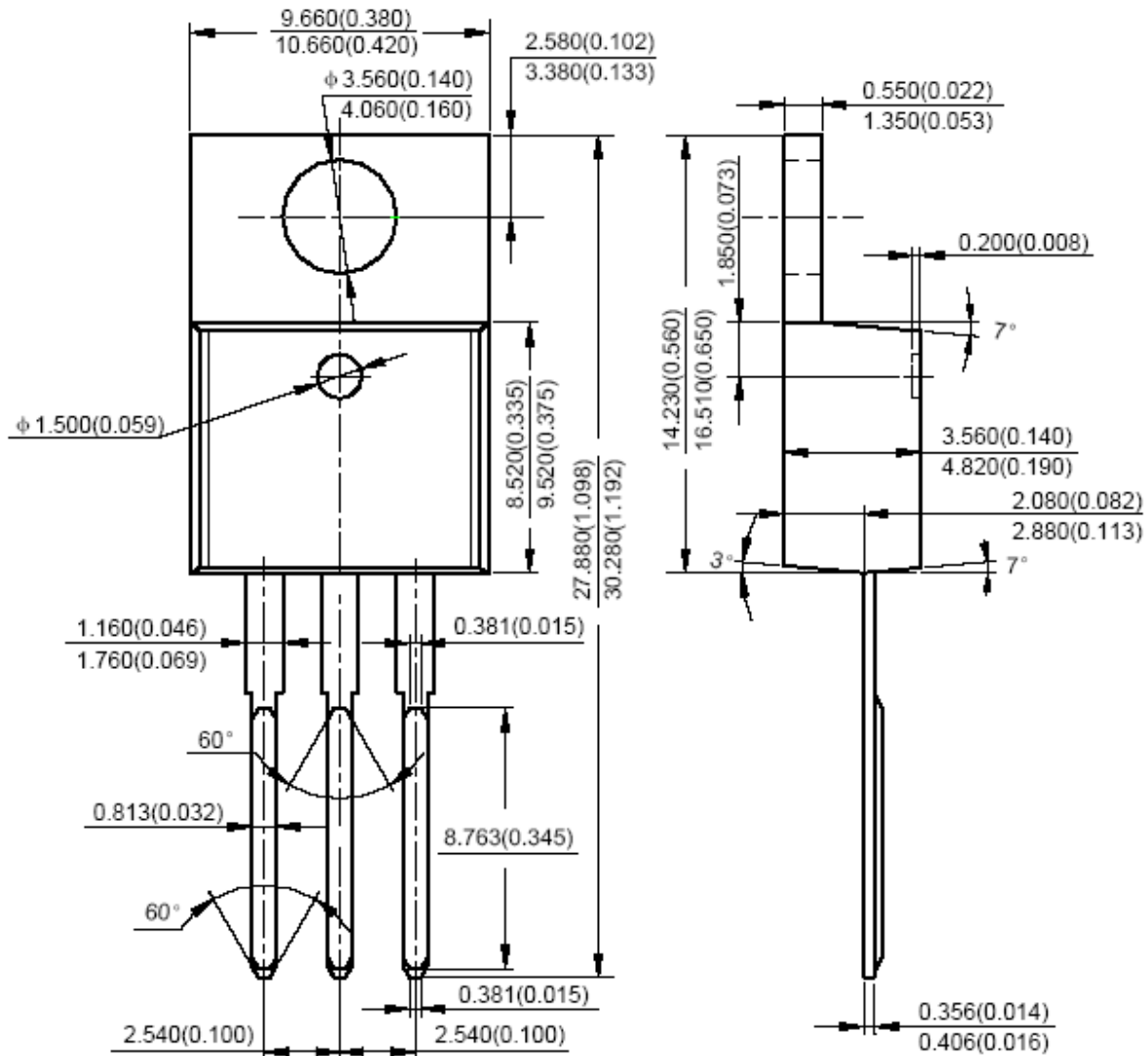
## LD1117A



SOT-89

# 1A Low Dropout Positive Voltage Regulator

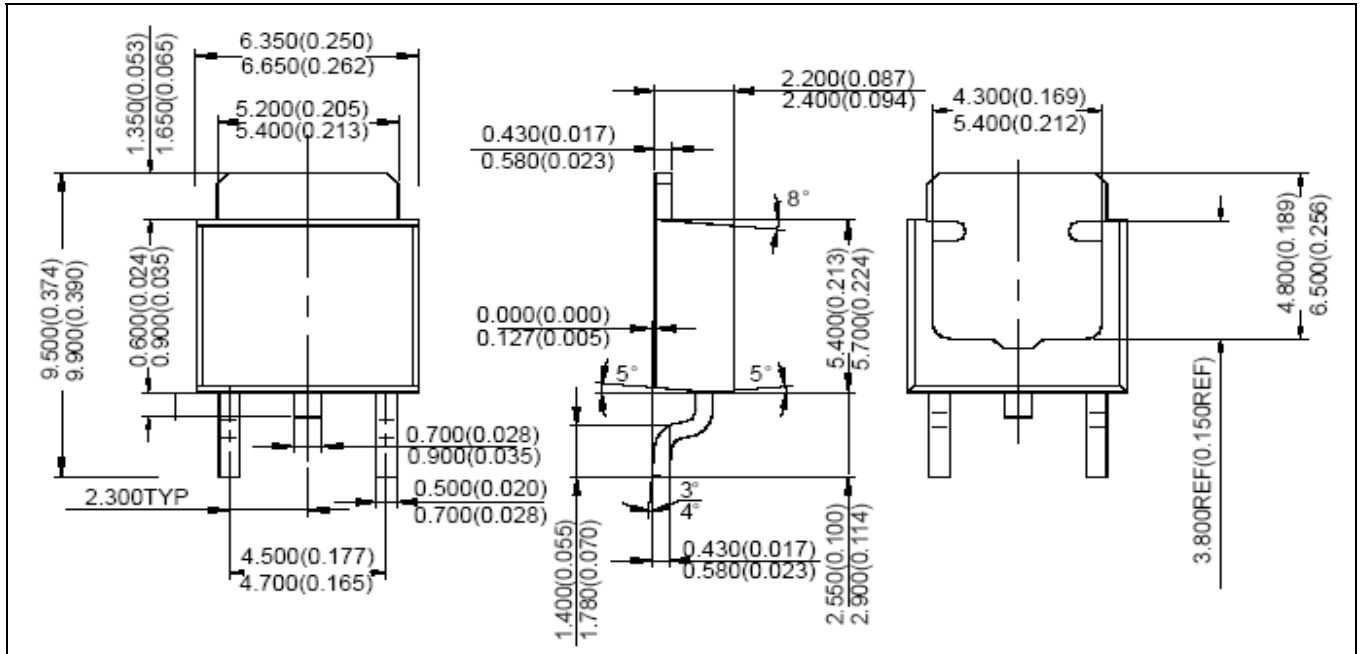
LD1117A



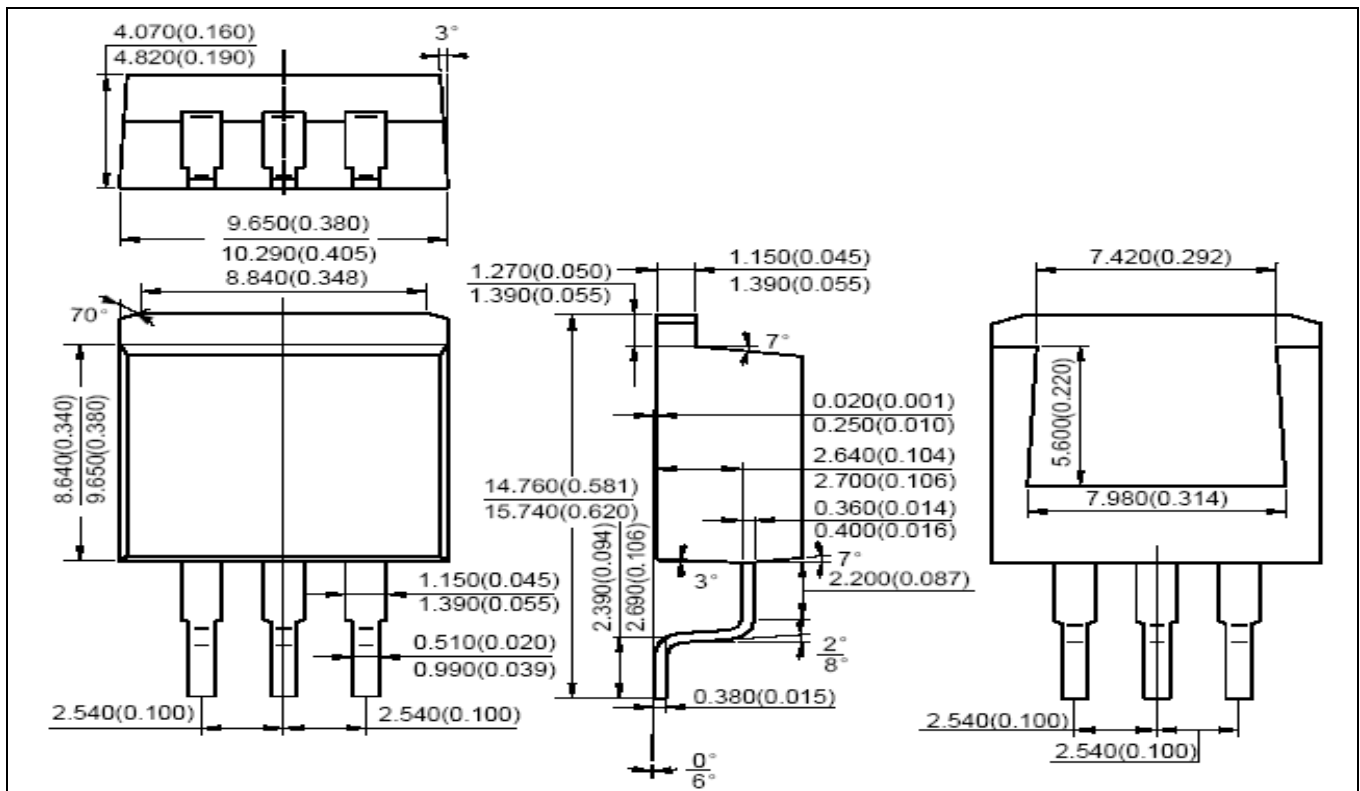
TO-220

# 1A Low Dropout Positive Voltage Regulator

## LD1117A



DPAK (TO-252)



D<sup>2</sup>PAK (TO-263-3)

# 1A Low Dropout Positive Voltage Regulator

LD1117A

## How to contact us:

### US HEADQUARTERS

28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162

Tel: (800) TAITRON (800) 824-8766 (661) 257-6060

Fax: (800) TAITFAX (800) 824-8329 (661) 257-6415

Email: [taitron@taitroncomponents.com](mailto:taitron@taitroncomponents.com)

Http://[www.taitroncomponents.com](http://www.taitroncomponents.com)

### TAITRON COMPONENTS MEXICO, S.A .DE C.V.

BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO C.P.  
42970 MEXICO

Tel: +52-55-5560-1519

Fax: +52-55-5560-2190

### TAITRON COMPONETS INCORPORATED E REPRESENTAÇÕES DO BRASIL LTDA

RUA DOMINGOS DE MORAIS, 2777, 2.ANDAR, SALA 24 SAÚDE - SÃO PAULO-SP 04035-001 BRAZIL

Tel: +55-11-5574-7949

Fax: +55-11-5572-0052

### TAITRON COMPONETS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE

METROBANK PLAZA, 1160 WEST YAN' AN ROAD, SUITE 1503, SHANGHAI, 200052, CHINA

Tel: +86-21-5424-9942

Fax: +86-21-5424-9931