



## 800mA, Ultra-low Noise LDO Regulator

### General Description

The LP1116 is designed for portable applications with demanding performance and space requirements. The LP1116 performance is optimized for battery-powered systems to deliver ultra low noise and low quiescent current. Regulator ground current increases only slightly in dropout, further prolonging the battery life. The LP1116 also works with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications, critical in hand-held wireless devices. The other features include ultra low dropout voltage, high output accuracy, current limiting protection, and high ripple rejection ratio. Available in the 3-lead of SOT-223 packages.

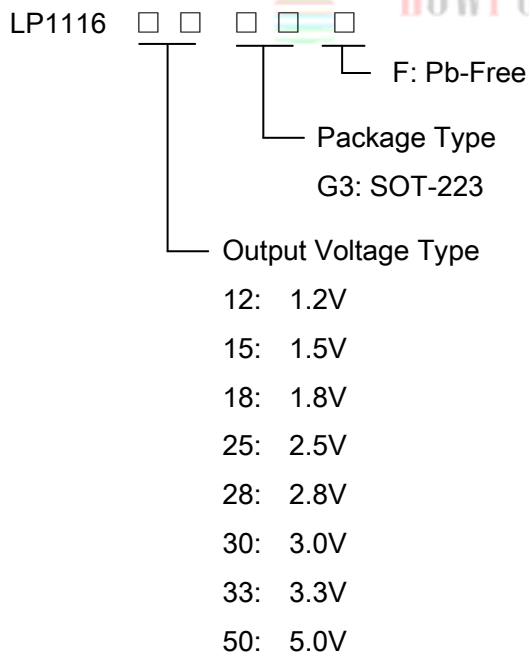
### Features

- ◆ Ultra-Low-Noise for RF Application
- ◆ 2.5V- 6.5V Input Voltage Range
- ◆ Low Dropout : 480mV @ 600mA
- ◆ Ultra-Fast Response in Line/Load Transient
- ◆ Current Limiting and Thermal Shutdown Protection

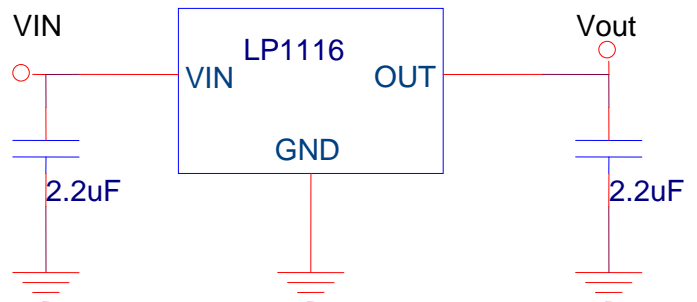
### Applications

- ◇ PMP/PDA/MP3 players
- ◇ Cellular and Mobile phone
- ◇ RF Module
- ◇ Sensor Module

### Order Information



### Typical Application Circuit





### Marking Information

Device	Marking	Package	Shipping
LP1116-12G3F	LPS LP1116 12YW	SOT-223	2.5K/REEL
LP1116-15G3F	LPS LP1116 15YW		
LP1116-18G3F	LPS LP1116 18YW		
LP1116-25G3F	LPS LP1116 25YW		

Device	Marking	Package	Shipping
LP1116-28G3F	LPS LP1116 28YW	SOT-223	2.5K/REEL
LP1116-30G3F	LPS LP1116 30YW		
LP1116-33G3F	LPS LP1116 33YW		
LP1116-50G3F	LPS LP1116 50YW		

Marking indication:

Y:Year code .W: W is week code.

### Functional Pin Description

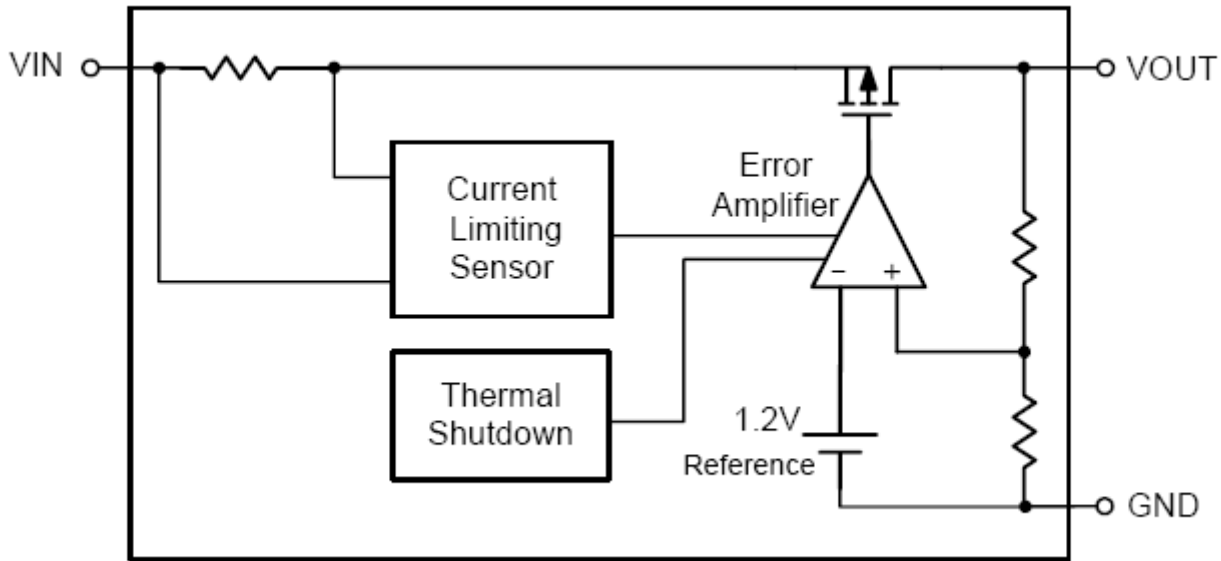
Package Type	Pin Configurations
SOT-223	<p style="text-align: center;">TOP VIEW</p>

### Pin Description

Pin	Name	Description
1	GND	Ground.
3	VIN	Power Input Pin.
2	OUT	Output Pin.



### Function Diagram



### Absolute Maximum Ratings <sup>Note 1</sup>

- ✧ Input to GND ----- 7V
- ✧ Output Voltage to GND ----- 6.5V
- ✧ Maximum Junction Temperature ----- 150°C
- ✧ Operating Ambient Temperature Range (Ta) ----- -40°C to 85°C
- ✧ Maximum Soldering Temperature (at leads, 10 sec) ----- 260°C

**Note 1.** Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### Thermal Information

- ✧ Maximum Power Dissipation (SOT-223, PD,TA=25°C) ----- 1.25W
- ✧ Thermal Resistance (SOT-223, JA) ----- 80°C/W

### ESD Susceptibility

- ✧ HBM(Human Body Mode) ----- 2KV
- ✧ MM(Machine Mode) ----- 200V



## Electrical Characteristics

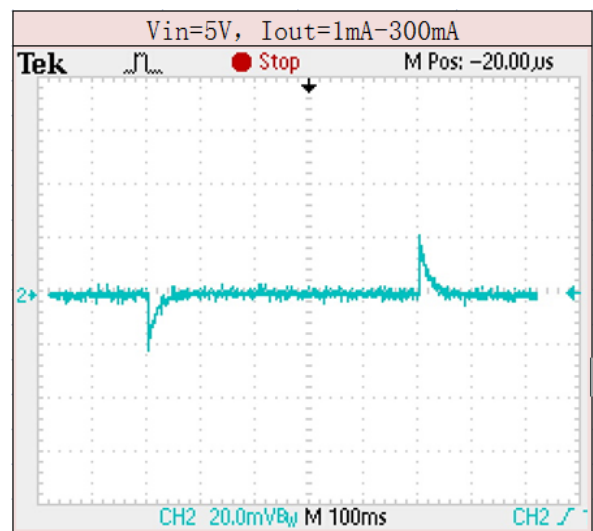
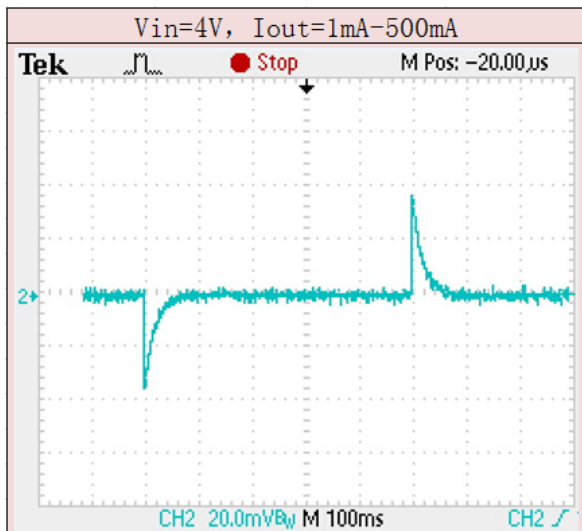
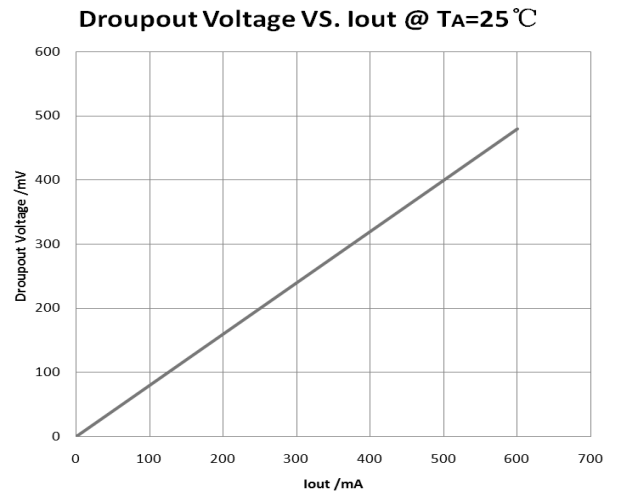
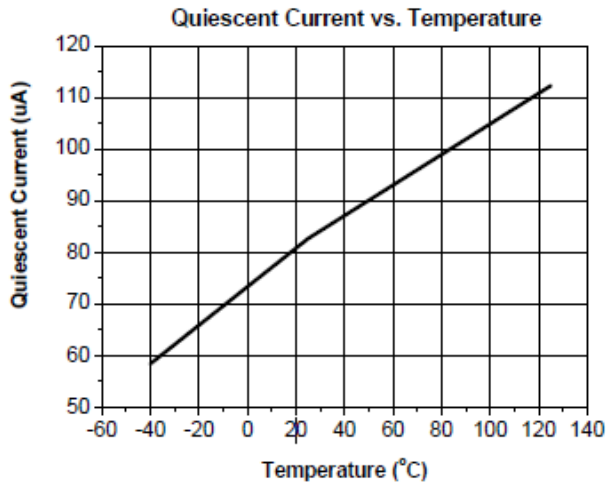
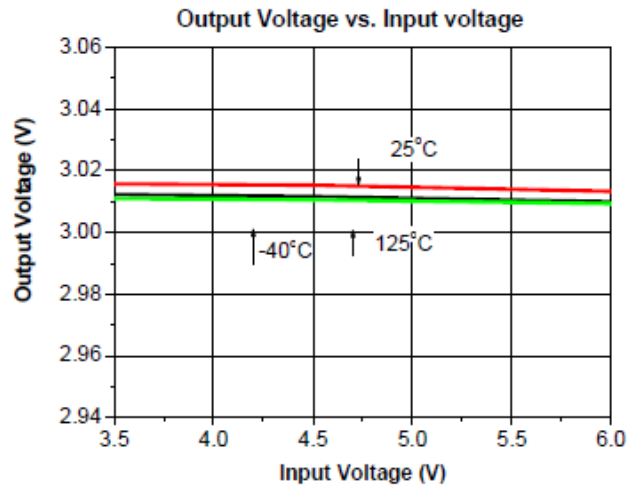
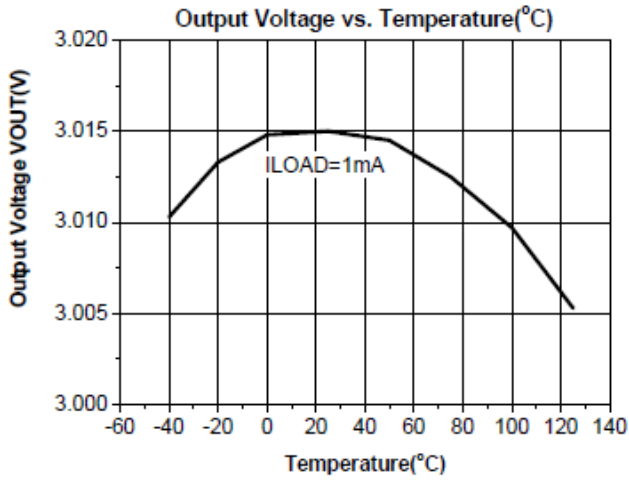
( $V_{IN} = V_{OUT} + 1V$ ,  $C_{IN} = C_{OUT} = 2.2\mu F$ ,  $T_A = 25^\circ C$ , unless otherwise specified)

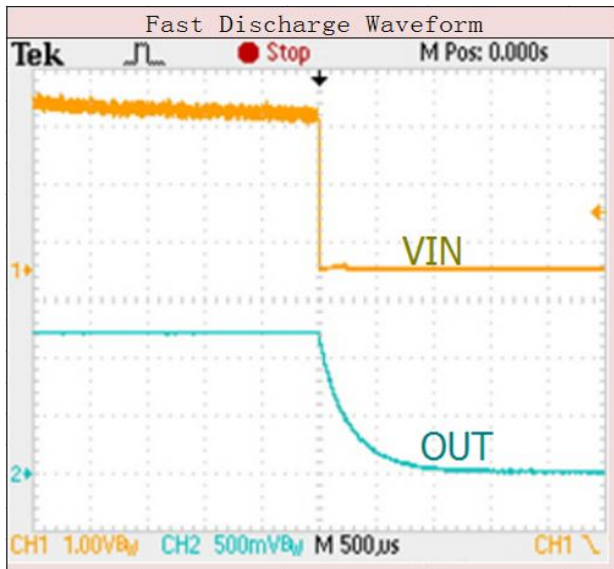
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Output Voltage Accuracy	$\Delta V_{OUT}/V_{OUT}$	$I_{OUT} = 1mA$	-3	--	+3	%
Current Limit	$I_{LIM}$	$R_{LOAD} = 1\Omega$	800			mA
Quiescent Current	$I_Q$	$I_{OUT} = 0mA$		90		$\mu A$
Dropout Voltage	$V_{DROP}$	$I_{OUT} = 600mA$ , $V_{OUT} > 2.8V$		480		mV
Linear Regulation	$\Delta V_{OUT}/V_{OUT}$	$V_{IN} = (V_{OUT} + 1V)$ to 5.5V, $I_{OUT} = 1mA$			0.2	%
Load Regulation	$\Delta V_{LOAD}$	$1mA < I_{OUT} < 300mA$		15	35	mV
Thermal Shutdown Temperature	$T_{SD}$			150		$^\circ C$
Thermal Shutdown Hysteresis	THYS			20		$^\circ C$





## Typical Operating Characteristics

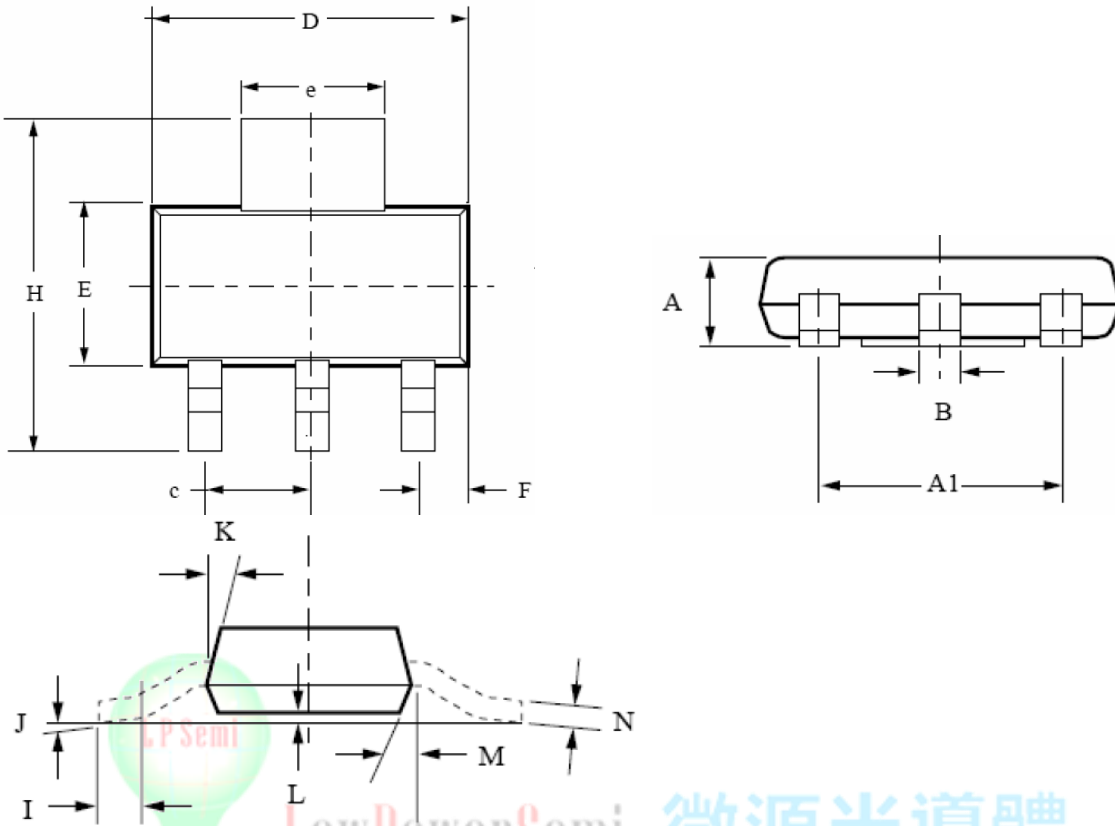






### Packaging Information

SOT-223



Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A		.071		1.80
A1		.181		4.80
B	.025	.033	.064	.840
c		0.90		2.29
D	.248	.264	6.30	6.71
E	.130	.148	3.30	3.71
e	.115	.124	2.95	3.15
F	.033	.041	.840	1.04
H	.264	.287	6.71	7.29
I	.0121		.310	
J		10°		10°
K	10°	16°	10°	16°
L	.0008	.0040	.0203	.1018
M	10°	16°	10°	16°
N	.010	.014	.250	.360