

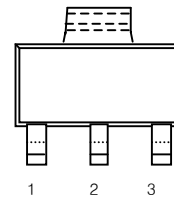
## FEATURES

- Low Dropout Voltage 500mV at 5A Output Current
- Fast Transient Response
- 0.015% Line Regulation
- 0.1% Load Regulation
- Internal Thermal and Current Limiting
- Adjustable or Fixed Output Voltage(1.5, 2.5, 2.85, 3.0, 3.3, 5.0V)
- Surface Mount Package SOT-223 & TO-263 (D2 Package)
- 100% Thermal Limit Burn-in

## APPLICATIONS

- Battery Charger
- Adjustable Power Supplies
- Constant Current Regulators
- Portable Instrumentation
- High Efficiency Linear Power Supplies
- High Efficiency "Green" Computer Systems
- SMPS Post-Regulator
- Power PC Supplies
- Powering VGA & Sound Card

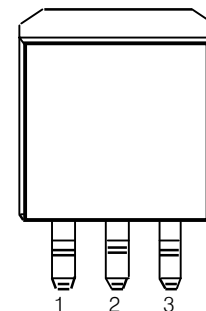
SOT-223 PKG (FRONT VIEW)



PIN FUNCTION

1. Adj/Gnd
2. Vout
3. Vin

TO-263 (D2 PKG, FRONT VIEW)



PIN FUNCTION

1. Adj/Gnd
2. Vout
3. Vin

## ORDERING INFORMATION

Device & Marking	Package
LM1084S-XX	SOT 223
LM1084T-XX	TO263 (D2)

(XX=Vout=1.5V, 2.5V, 2.85V, 3.0V, 3.3V, 5.0V

Adjustable= AD)

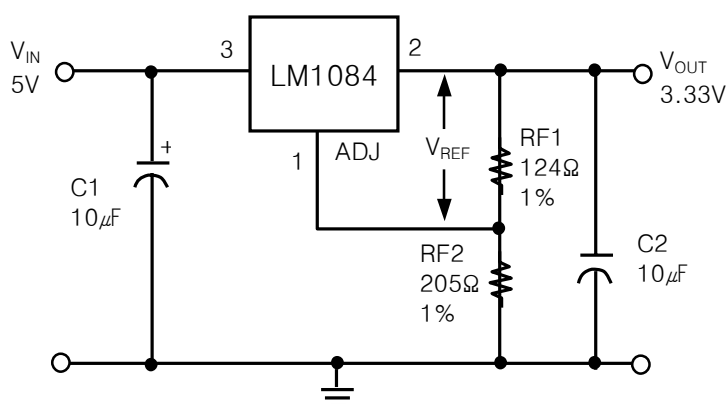
## DESCRIPTION

The LM1084 is a low dropout three terminal regulator with 5A output current capability.

The output voltage is adjustable with the use of a resistor divider. Dropout is guaranteed at a maximum of 500 mV at maximum output current.

It's low dropout voltage and fast transient response make it ideal for low voltage microprocessor applications. Internal current and thermal limiting provides protection against any overload condition that would create excessive junction temperature.

## TEST & TYPICAL APPLICATION CIRCUIT



Adjustable Voltage Regulator

$$V_{REF} = V_{OUT} - V_{ADJ} = 1.25V(Typ.)$$

$$V_{OUT} = V_{REF} \times (1 + RF2/RF1) + I_{ADJ} \times RF2$$

$$I_{ADJ} = 55\mu A(Typ.)$$

(1) C1 Needed if device is far away from filter capacitors.

(2) C2 Required for stability

## ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Supply Voltage	$V_{in}$	7	V
Operating Junction Temperature Range	$T_{opr}$	0~125	°C
Storage Temperature Range	$T_{stg}$	-65~150	°C
Thermal Resistance Junction to Case TO-263	$T_{jc}$	3	C/W
Thermal Resistance Junction to Ambient TO-263	$T_{ja}$	60	C/W
Lead Temperature (Soldering) 10 sec.	$T_{sol}$	300	°C
Maximum Output Current	$I_{max}$	5	A

ELECTRICAL CHARACTERISTICS  $I_{OUT}=100mA$ ,  $T_A=25^{\circ}C$ , unless otherwise specified

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>1.5V Version</b>					
Output Voltage	$0 < I_{OUT} < 5A$ , $3.3V < V_{IN} < 10V$	1.475	1.5	1.525	V
<b>2.5V Version</b>					
Output Voltage	$0 < I_{OUT} < 5A$ , $4.0V < V_{IN} < 10V$	2.46	2.5	2.54	V
<b>2.85V Version</b>					
Output Voltage	$0 < I_{OUT} < 5A$ , $4.35V < V_{IN} < 10V$	2.805	2.85	2.895	V
<b>3.0V Version</b>					
Output Voltage	$0 < I_{OUT} < 5A$ , $4.5V < V_{IN} < 10V$	2.95	3	3.05	V
<b>3.3V Version</b>					
Output Voltage	$0 < I_{OUT} < 5A$ , $4.8V < V_{IN} < 10V$	3.247	3.3	3.353	V
<b>5.0V Version</b>					
Output Voltage	$0 \leq I_{OUT} \leq 5A$ , $6.5V \leq V_{IN} < 12V$	4.92	5	5.08	V
<b>All Voltage Options</b>					
Reference Voltage ( $V_{REF}$ )	$V_{IN} \leq 7V, P \leq P_{MAX}$	1.23	1.25	1.27	V
	$1.5V \leq (V_{IN} - V_{OUT}) \leq 5.75V$ , $10mA \leq I_{OUT} \leq 5A$	1.235	1.25	1.265	
Min. Load Current(Note 3)	$1.5V \leq (V_{IN} - V_{OUT}) \leq 5.75V$		5	10	mA
Line Regulation ( $\Delta V_{REF}(V_{IN})$ )	$2.75V \leq V_{IN} \leq 7V$ , $I_{OUT}=10mA$ , $T_J=25^{\circ}C$		0.04	0.2	%
Load Regulation ( $\Delta V_{REF}(V_{OUT})$ )	$10mA \leq I_{OUT} \leq 5A$ , $(V_{IN} - V_{OUT})=3V$ , $T_J=25^{\circ}C$		0.08	0.4	%
Dropout Voltage	$\Delta V_{REF}=1\%$ , $I_{out}=5A$		0.45	0.5	V
Current Limit $I_{OUT}(MAX)$	$V_{in} - V_{out}=3V$	5.5	6.8		A
	$1.4V \leq (V_{IN} - V_{OUT})$ Adjustable Only				
Long Term Stability	$T_A=125^{\circ}C$ , 1000Hrs		0.3	1	%
Thermal Regulation ( $\Delta V_{OUT}(Pwr)$ )	$T_A=25^{\circ}C$ , 30ms pulse		0.003		%/W
Output Noise, RMS	10Hz to 10KHz $T_A=25^{\circ}C$	0.003			%/V <sub>o</sub>
Thermal Resistance	Junction to Tab			3	°C/W
	Junction to Ambient			60	