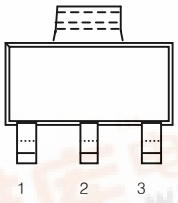
5A LOW DROPOUT VOLTAGE REGULATOR (Adjustable & Fixed) LM1084

FEATURES

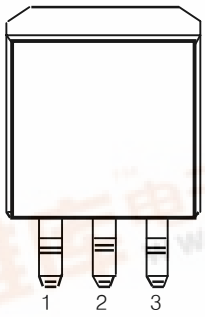
- Low Dropout Voltage 500mV at 5A Output Current
- Fast Transient Response
- 0.015% Line Regulation
- 0.1% Load Regulation
- Internal Thermal and Current Limiting
- Adjustable or Fixed Output Voltage(1.5, 2.5, 2.85, 3.0, 3.3, 5.0V)
- Surface Mount Package SOT-223 & TO-263 (D2 Package)
- 100% Thermal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

SOT-223 PKG (FRONT VIEW)



PIN FUNCTION
1. Adj/Gnd
2. Vout
3. Vin

TO-263 (D2 PKG, FRONT VIEW)



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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

ORDERING INFORMATION

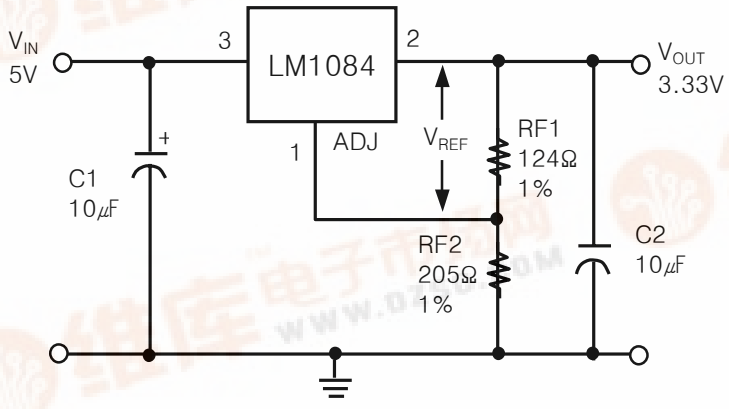
Device & Marking	Package
LM1084S-XX	SOT 223
LM1084T-XX	TO263 (D2)

(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



$V_{REF}=V_{OUT}-V_{ADJ}=1.25V(Typ.)$
$V_{OUT}=V_{REF}x(1+RF2/RF1)+I_{ADJ}xRF2$
$I_{ADJ}=55\mu A(Typ.)$

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

(2) C2 Required for stability

Adjustable Voltage Regulator

ABSOULTE MAXIMUM RATINS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Supply Voltage	Vin	7	V
Operating Junction Temperature Range	Topr	0~125	℃
Storage Temperature Range	Tstg	-65~150	℃
Thermal Resistance Junction to Case TO-263	Tjc	3	C/W
Thermal Resistance Junction to Ambient TO-263	Tja	60	C/W
Lead Temperature (Soldering) 10 sec.	Tsol	300	℃
Maximum Output Current	Imax	5	A

ELECTRICAL CHARACTERISTICS I $_{OUT}$=100㎃, T$_A$=25℃, unless otherwise specified

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