



Description

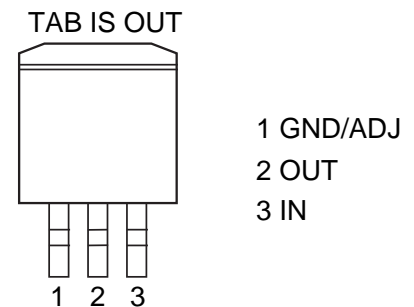
The LM1084ISX-xx/NOPB is a low dropout three terminal regulator with 5A output current capability.

The output voltage is adjustable with the use of a resistor divider or fixed 1.5V, 1.8V, and 3.3V.

Dropout is guaranteed at a maximum of 1.5V at maximum output current. Its 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 temperatures.

Features

- Dropout Voltage 1.4V at 5A Output Current.
- Fast Transient Response.
- Line Regulation typically at 0.015%
- Load Regulation typically at 0.1%.
- Internal Thermal and Current Limiting.
- Adjustable Output Voltage or Fixed 1.5V, 1.8V, 3.3V.



TO-263-3L

Application

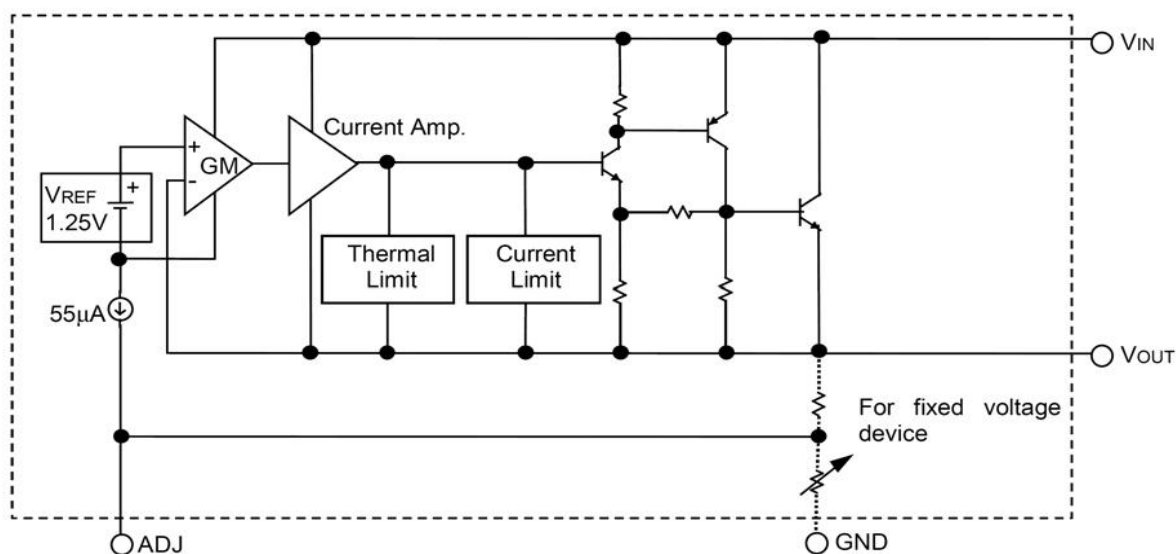
- Mother Board I/O Power Supplies.
- Microprocessor Power Supplies.
- High Current Regulator.
- Post Regulator for Switching Supply.

Pin Configuration

- **ND (Adj.)** : Power Ground (Providing $V_{REF} = 1.25V$ (typ.)
for adjustable V_{OUT} . $V_{REF} = V_{OUT} - V_{ADJ}$ and $I_{ADJ} = 55\mu A$
(typ.))
- **Output** :Adjustable output voltage
- **Input** :Power input



Block Diagram



Ordering Information

Package Marking	Output Voltage	Package Type
LM1084ISX-ADJ/NOPB	Adj.	TO-263-3L
LM1084ISX-1.5/NOPB	1.5V	TO-263-3L
LM1084ISX-1.8/NOPB	1.8V	TO-263-3L
LM1084ISX-2.5/NOPB	2.5V	TO-263-3L
LM1084ISX-3.3/NOPB	3.3V	TO-263-3L
LM1084ISX-5.0/NOPB	5.0V	TO-263-3L



Absolute Maximum Ratings (Ta=25°C) *

Characteristics	Value	Unit
Vin pin to ADJ/GND pin	15	V
Thermal Resistance Junction to Case,θJC	3	°C/W
Thermal Resistance Junction to Ambient,θJA	60	°C/W
Lead Temperature (Soldering,10 Seconds)	260	°C
Storage Temperature	-65~+150	°C

Recommended Operating Conditions

Characteristics	Value	Unit
Vin pin to ADJ/GND pin	12	V
Operating Junction Temperature	0~125	°C

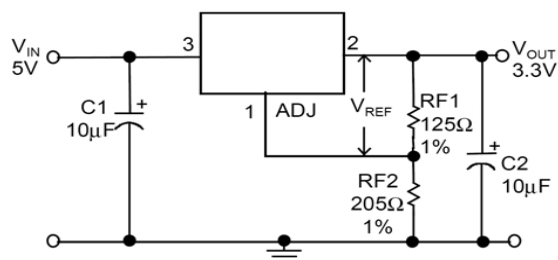
Electrical Characteristics (unless otherwise specified :Vin=5V,T=25°C
Io=10mA)

Characteristics		Symbol	Test conditions	Min	Typ	Max	Unit
Reference voltage		VREF	B1084(Adj.) TJ=25°C	1.238	1.25	1.262	V
			B1084(Adj.) 0°C≤TJ≤125°C	1.225	1.25	1.275	
Output Voltage	B1084-1.5	Vout	VIN=5V	1.48	1.5	1.52	V
	B1084-1.8		VIN=5V	1.78	1.8	1.82	
	B1084-3.3		VIN=5V	3.27	3.3	3.33	
Line regulation		REG (LINE)	4.75≤VIN≤5.25, TJ=25°C		0.015	0.2	%
			0°C≤TJ≤125°C		0.035	0.2	
Load regulation		REG (LOAD)	TJ=25°C		0.1	0.3	%
			0°C≤TJ≤125°C		0.2	0.4	



Dropout voltage	V_D	$V_{OUT}, V_{REF} = 1\%,$ $10mA \leq I_o \leq 5A$ $0^\circ C \leq T_J \leq 125^\circ C$		1.3	1.5	V
Current limit	I_{CL}	$4.75 \leq V_{IN} \leq 5.25$ $0^\circ C \leq T_J \leq 125^\circ C$	6.0	7.5		A
Adjust pin current	I_{ADJ}	$4.75 \leq V_{IN} \leq 5.25$ $10mA \leq I_o \leq 5A$ $0^\circ C \leq T_J \leq 125^\circ C$		55	120	μA
Temperature stability		$I_o = 0.5A$ $0^\circ C \leq T_J \leq 125^\circ C$		0.5		%
Adjusted pin current change	I_{ADJ}	$4.75 \leq V_{IN} \leq 5.25$ $10mA \leq I_o \leq 5A$ $0^\circ C \leq T_J \leq 125^\circ C$		0.2	5.0	μA
Minimum load current	I_o	$0^\circ C \leq T_J \leq 125^\circ C$		5	10	mA
RMS output noise	V_N	$10Hz \leq f \leq 10kHz$		0.003 of V_{out}		%
Ripple rejection ratio	R_A	120Hz input ripple, 60 $C_{OUT} = 25\mu F$ $V_{IN} -$ $V_{OUT} = 3V$	60	72		dB

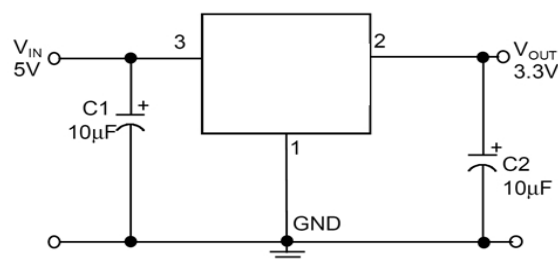
Application Circuit



Adjustable Voltage Regulator

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

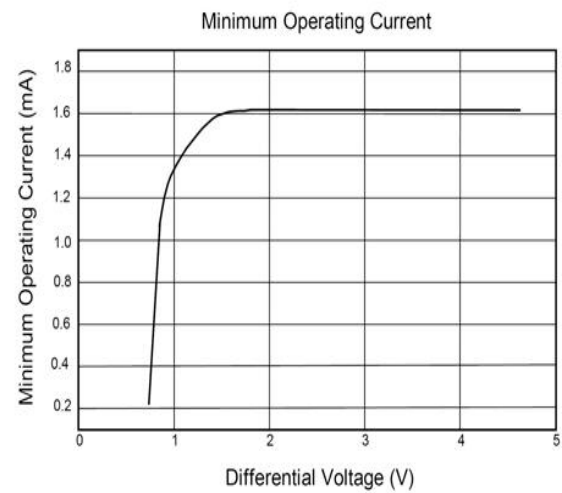
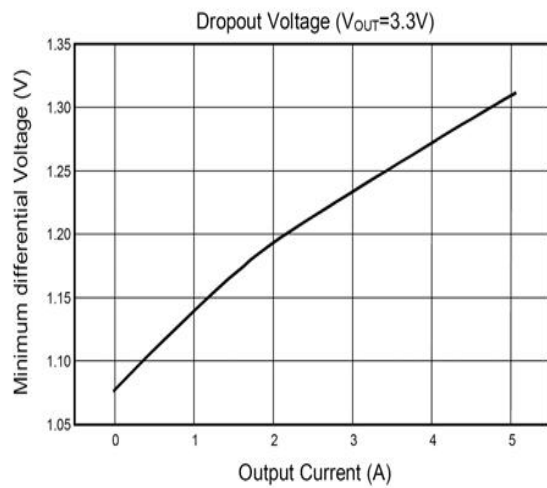
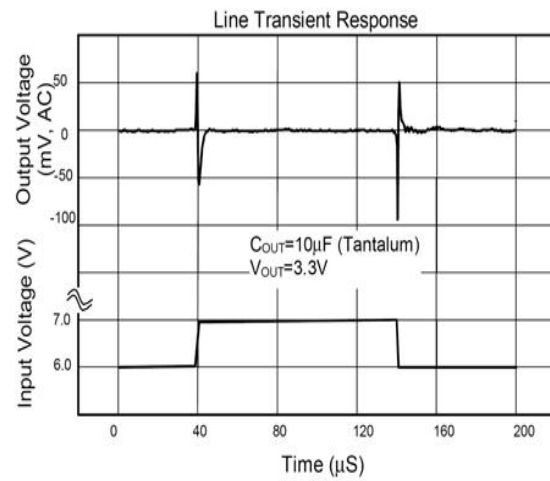
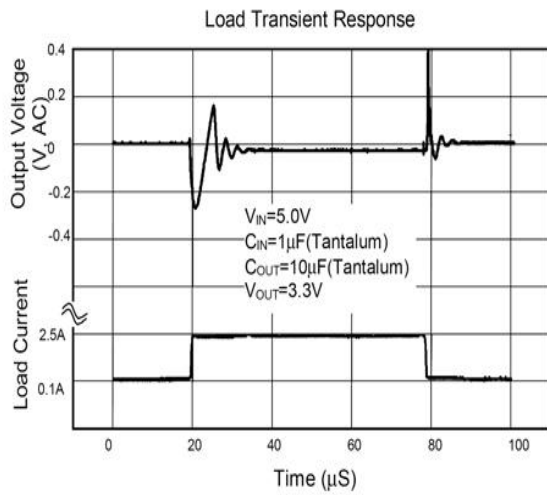
- (1) C1 needed if device is far away from filter capacitors.
- (2) C2 required for stability.



Fixed Voltage Regulator



Chara Cteristics Curve

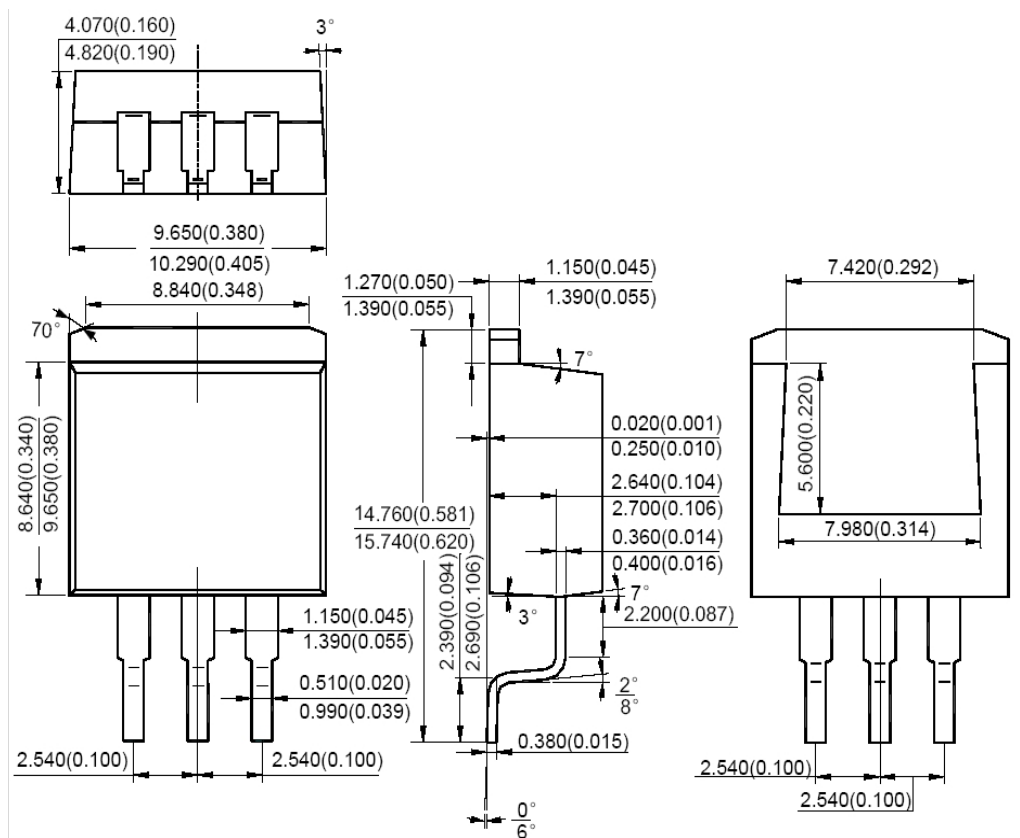




Outline Drawing

TO-263-3L

Unit: mm





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