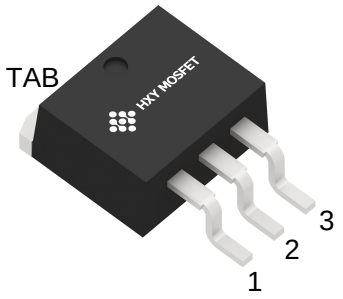
## Description

The LM1084ISX-xx/NOPB is alow dropout three terminal regulator with 5A output current capability. The output voltage is adjustable with the use of aresistor divider or fixed 1.5V,1.8V,and 3.3V. Dropoutis guaranteed at amaximum of 1.5V at maximum output current. Its low dropout voltage and fast transient response make it ideal for low voltage microprocess o rapplications. 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.




1 GND/ADJ
2 OUT
3 IN

**TO-263-3L**

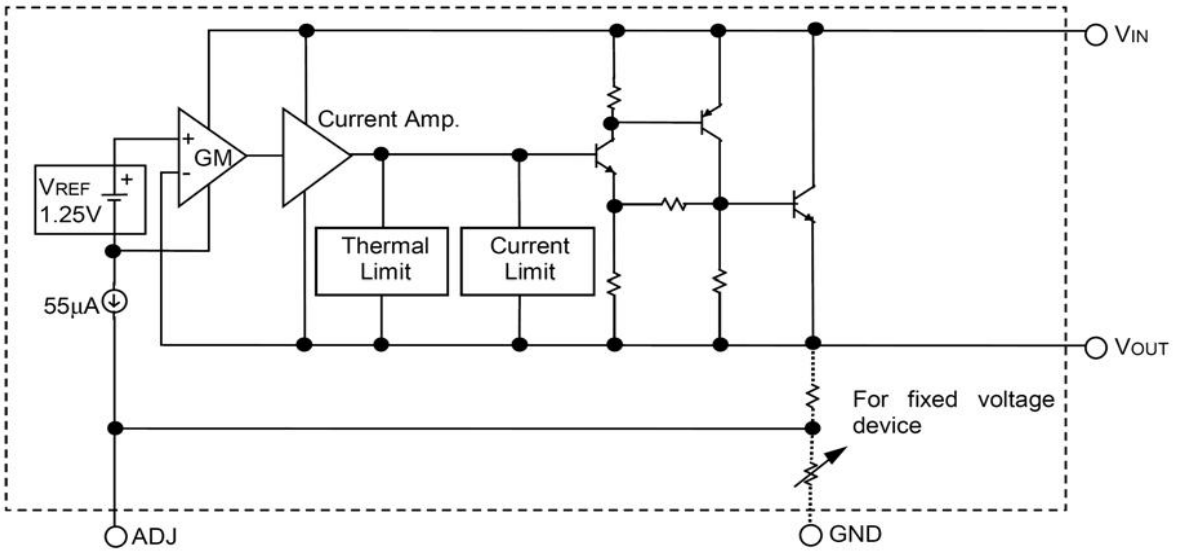
## Application

- Mother Board I/O Power Supplis.
- 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 $I_{ADJ}$ =55μA (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

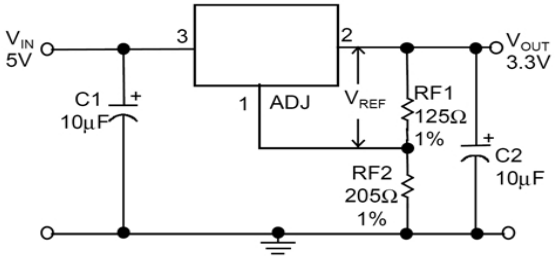
| Characteristics | Value | Unit |
|---|---|---|
| Vin pin to ADJ/GND pin | 12 | V |
| Operating Junction Temperature | 0～125 | °C |

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

| Characteristics | | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Reference voltage | | $V_{REF}$ | B1084(Adj.) $T_J$=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 | $V_{IN}$=5V | 1.48 | 1.5 | 1.52 | V |
| | B1084-1.8 | | $V_{IN}$=5V | 1.78 | 1.8 | 1.82 | |
| | B1084-3.3 | | $V_{IN}$=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) | $T_J$=25°C | | 0.1 | 0.3 | % |
| | | | 0°C≤TJ≤125°C | | 0.2 | 0.4 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Dropout voltage | $V_D$ | VOUT, VREF = 1%, 10mA≤Io≤5A 0°C≤TJ≤125°C | | 1.3 | 1.5 | V |
| Current limit | $I_{CL}$ | 4.75≤VIN≤5.25 0°C≤TJ≤125°C | 6.0 | 7.5 | | A |
| Adjust pin current | $I_{ADJ}$ | 4.75≤VIN≤5.25 10mA≤Io≤5A 0°C≤TJ≤125°C | | 55 | 120 | μA |
| Temperature stability | | Io=0.5A 0°C≤TJ≤125°C | | 0.5 | | % |
| Adjusted pin current change | $I_{ADJ}$ | 4.75≤VIN≤5.25 10mA≤Io≤5A 0°C≤TJ≤125°C | | 0.2 | 5.0 | μA |
| Minimum load current | $I_O$ | 0°C≤$T_J$ ≤125°C | | 5 | 10 | mA |
| RMS output noise | $V_N$ | 10Hz≤f≤10kHz | | 0.003 of Vout | | % |
| Ripple rejection ratio | $R_A$ | 120Hz input ripple, 60 COUT = 25μF VIN - VOUT = 3V | 60 | 72 | | dB |

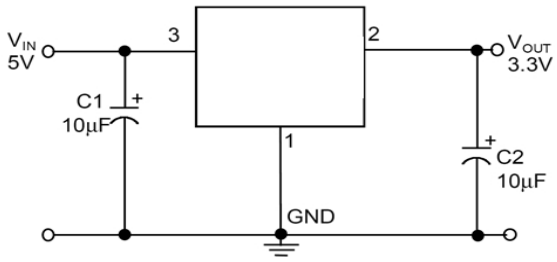
**Application Circuit**




**Adjustable Voltage Regulator**

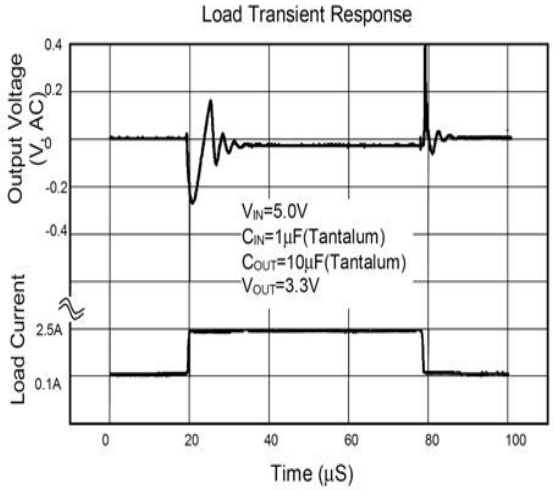
$V_{REF}=V_{OUT}-V_{ADJ}=1.25V$ (typ.)
$V_{OUT}=V_{REF}$ x (1+RF2/RF1)+ $I_{ADJ}$ x RF2
$I_{ADJ}=55\mu A$ (typ.)

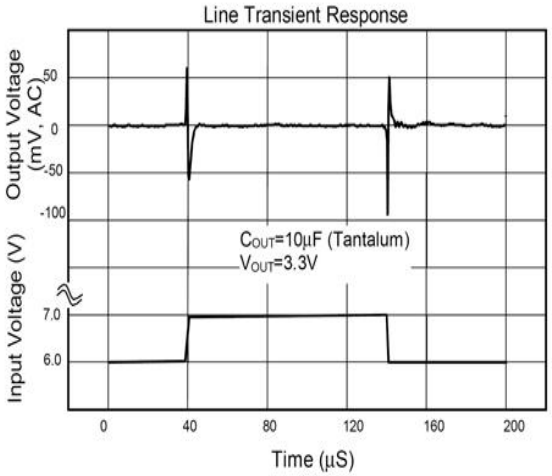
(1) C1 needed if device is far away from filter capacitors.
(2) C2 required for stability.

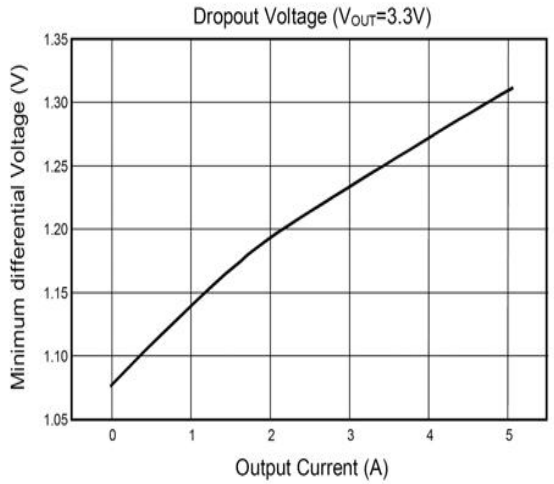


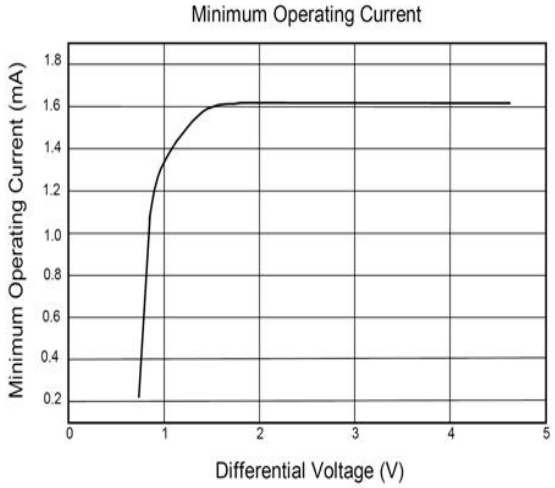

**Fixed Voltage Regulator**

## Chara Cteristics Curve



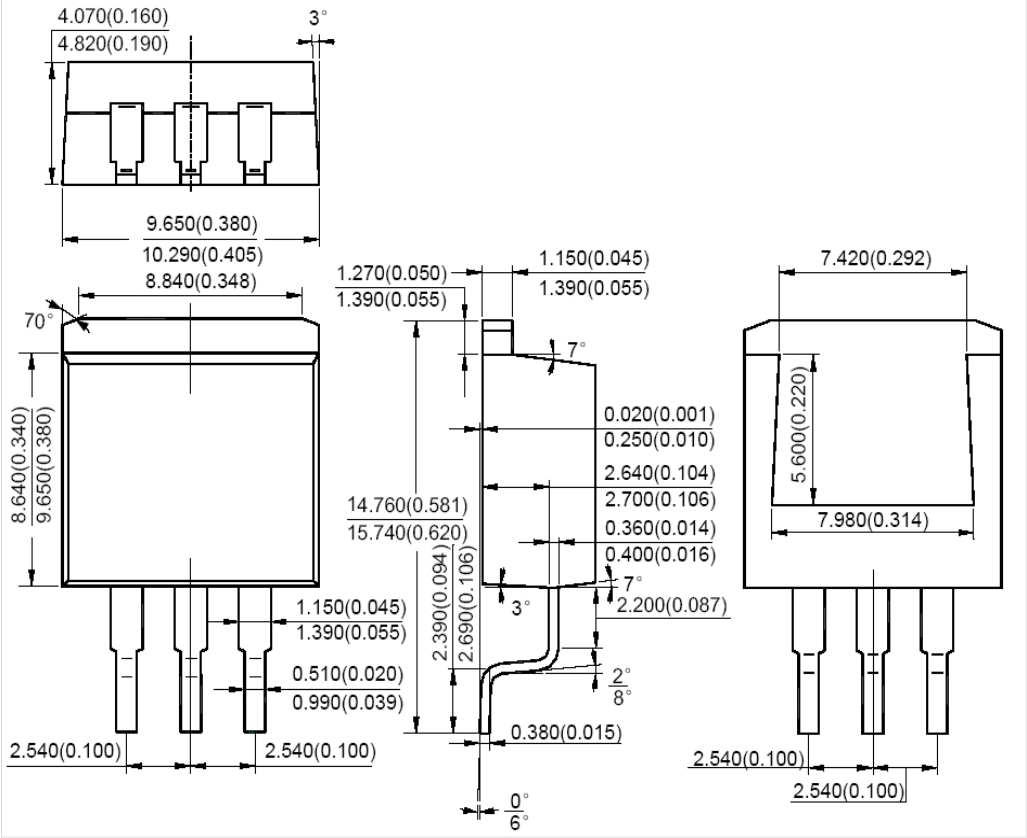



## Outline Drawing

TO-263-3L

Unit: mm



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AQ15C-01FTG BV05C-H HESDSLC3V3D3B HLY323BC1524L PESDSC2FD5VU RLSD32A121V AZ4007-01H AZ4836-01L PJEC5V0M1FN2 ESD5L5.0C-HXY HACPDQC5V0-HF HESD36VD3B HSEN2411D3 HSG3D15B3.3MA PESDNC2XD5VBF 60N06 HSTS521050B331 PJSD24CW_R1 TPSMB100CA-VR HRCLAMP3371ZCTFT PESDNC2XD5VBL ESD5LM5.0C-HXY HAZ4007-01H HPTVSUC3D5VB HSEN3611D3 TPSMB28A-VR HCEZ36V,L3F HSD15C.TCT LM393DR-HXY PESDLC2FD3V3BH