

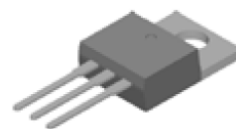
## 1A Positive Voltage Regulator

### General Description

- The TCI LM78XX family is monolithic fixed voltage regulator integrated circuit. They are suitable for applications that required supply current up to 1A.
- The LM78M is available in D-PACK (TO-252) and TO-220 packages.



**D-PACK  
(TO-252)**



**TO-220**



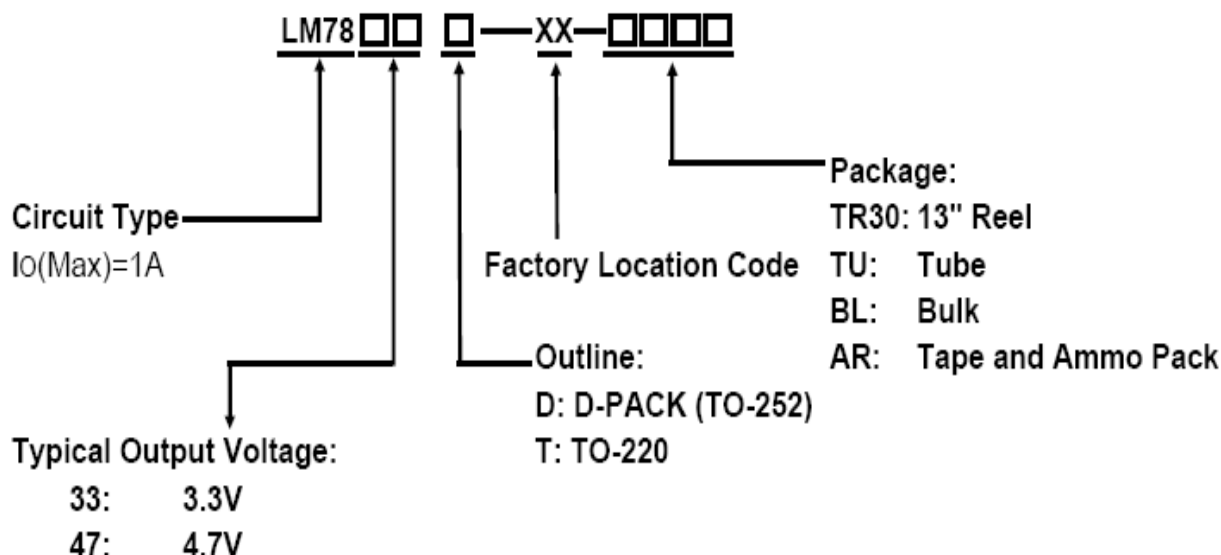
### Features

- Output Current up to 1A
- Fixed output voltage of 3.3V and 4.7V available
- Thermal overload shutdown protection
- Short circuit current limiting
- Output transistor SOA protection
- RoHS Compliance

### Applications

- High Efficiency Linear Regulator
- Post Regulation for Switching Supply
- Microprocessor Power Supply
- Mother Board

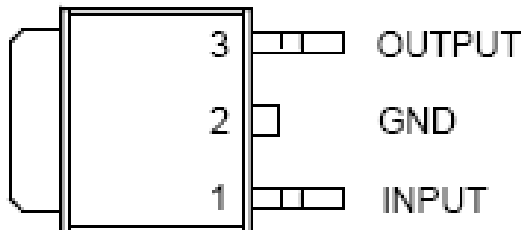
### Ordering Information



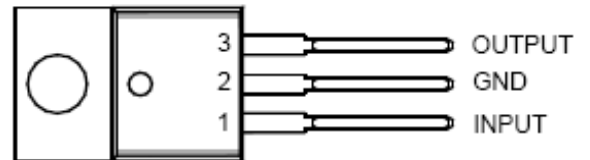
## 1A Positive Voltage Regulator

LM7833/LM7847

### Pin Configuration

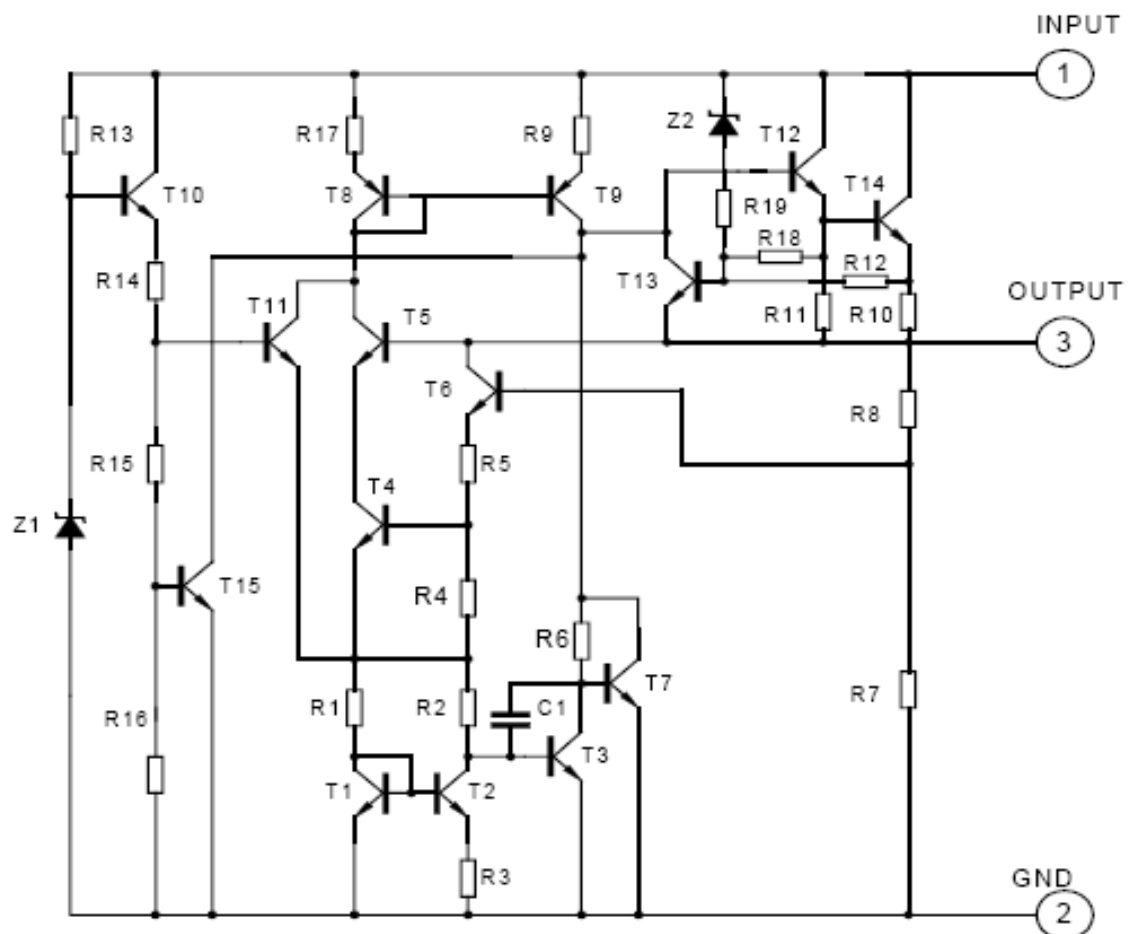


Outline: D  
D-PACK  
(TO-252)



Outline: T  
TO-220

### Block Diagram



# 1A Positive Voltage Regulator

## LM7833/LM7847

### Absolute Maximum Ratings

| Symbol           | Description                 |                           | Ratings            | Unit |
|------------------|-----------------------------|---------------------------|--------------------|------|
| V <sub>IN</sub>  | Input Voltage               | V <sub>OUT</sub> =3.3~18V | 35                 | V    |
|                  |                             | V <sub>OUT</sub> =20~24V  | 40                 |      |
| I <sub>OUT</sub> | Output Current              |                           | 1                  | A    |
| P <sub>D</sub>   | Power Dissipation           | D-PACK (TO-252)           | Internally Limited | mW   |
|                  |                             | TO-220                    |                    |      |
| T <sub>J</sub>   | Junction Temperature        |                           | 150                |      |
| T <sub>OPR</sub> | Operating Temperature Range |                           | -20 ~ 150          | ° C  |
| T <sub>STG</sub> | Storage Temperature Range   |                           | -55 ~ 150          | ° C  |

- Note:** 1. Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond Absolute maximum ratings.
2. The maximum steady state usable output current are dependent on input voltage, heat sinking, lead length of the package and copper pattern of PCB. The data are showed as electrical characteristics table represents pulse test conditions with junction temperatures specified at the initiation of test.

### Electrical Characteristics (T<sub>J</sub>=25° C, P<sub>D</sub> ≤ 15W, unless otherwise specified)

For LM7833 (V<sub>IN</sub>=5.8V, I<sub>OUT</sub>=0.5A, C<sub>1</sub>=0.33μF, C<sub>O</sub>=0.1μF)

| Symbol              | Description                                 | LM7833 |      |       | Unit  | Test Conditions                                            |
|---------------------|---------------------------------------------|--------|------|-------|-------|------------------------------------------------------------|
|                     |                                             | Min.   | Typ. | Max.  |       |                                                            |
| V <sub>OUT</sub>    | Output Voltage                              | 3.168  | 3.30 | 3.432 | V     | I <sub>OUT</sub> =5mA-1.0A                                 |
|                     |                                             | 3.135  | -    | 3.465 | V     | 5.8V ≤ V <sub>IN</sub> ≤ 18.3V, I <sub>OUT</sub> =5mA-1.0A |
| ΔV <sub>OUT</sub>   | Load Regulation                             | -      | -    | 33    | mV    | I <sub>OUT</sub> =5mA-1.0A                                 |
|                     |                                             | -      | -    | 17    | mV    | I <sub>OUT</sub> =0.25A-0.75A                              |
| ΔV <sub>OUT</sub>   | Line Regulation                             | -      | -    | 33    | mV    | 5.8V ≤ V <sub>IN</sub> ≤ 18.3V                             |
|                     |                                             | -      | -    | 33    | mV    | 5.8V ≤ V <sub>IN</sub> ≤ 18.3V, I <sub>OUT</sub> =1.0A     |
| I <sub>Q</sub>      | Quiescent Current                           | -      | -    | 8.0   | mA    | I <sub>OUT</sub> ≤ 1.0A                                    |
| ΔI <sub>Q</sub>     | Quiescent Current Change                    | -      | -    | 1.0   | mA    | 5.8V ≤ V <sub>IN</sub> ≤ 18.3V                             |
|                     |                                             | -      | -    | 0.5   | mA    | I <sub>OUT</sub> =5mA-1.0A                                 |
| e <sub>N</sub>      | Output Noise Voltage                        | -      | 55   | -     | μV    | 10Hz ≤ f ≤ 100KHz                                          |
| ΔV <sub>O</sub> /ΔT | Temperature coefficient of V <sub>OUT</sub> | -      | -0.4 | -     | mV/°C | I <sub>OUT</sub> =5mA                                      |
| RR                  | Ripple Rejection                            | -      | 57   | -     | dB    | 6.3V ≤ V <sub>IN</sub> ≤ 16.3V, f=120Hz                    |
| I <sub>PEAK</sub>   | Peak Output Current                         | -      | 1.8  | -     | A     | -                                                          |
| I <sub>SC</sub>     | Short-Circuit Current                       | -      | 250  | -     | mA    | V <sub>IN</sub> =35V                                       |
| V <sub>D</sub>      | Dropout Voltage                             | -      | 2.0  | -     | V     | -                                                          |

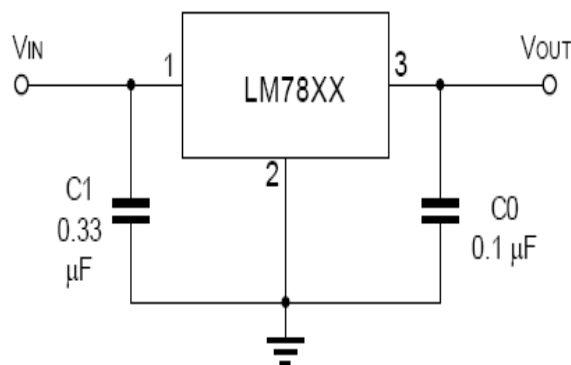
# 1A Positive Voltage Regulator

## LM7833/LM7847

For LM7847 ( $V_{IN}=9.7V$ ,  $I_{OUT}=0.5A$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7847 |      |       | Unit          | Test Conditions                                    |
|-----------------------|--------------------------------------|--------|------|-------|---------------|----------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max.  |               |                                                    |
| $V_{OUT}$             | Output Voltage                       | 4.512  | 4.70 | 4.888 | V             | $I_{OUT}=5mA-1.0A$                                 |
|                       |                                      | 4.465  | -    | 4.935 | V             | $7.2V \leq V_{IN} \leq 19.7V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 47    | mV            | $I_{OUT}=5mA-1.0A$                                 |
|                       |                                      | -      | -    | 24    | mV            | $I_{OUT}=0.25A-0.75A$                              |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 47    | mV            | $7.2V \leq V_{IN} \leq 19.7V$                      |
|                       |                                      | -      | -    | 47    | mV            | $7.2V \leq V_{IN} \leq 19.7V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0   | mA            | $I_{OUT} \leq 1.0A$                                |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0   | mA            | $7.2V \leq V_{IN} \leq 19.7V$                      |
|                       |                                      | -      | -    | 0.5   | mA            | $I_{OUT}=5mA-1.0A$                                 |
| $e_N$                 | Output Noise Voltage                 | -      | 40   | -     | $\mu V$       | $10Hz \leq f \leq 100KHz$                          |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -0.6 | -     | $mV/^\circ C$ | $I_{OUT}=5mA$                                      |
| $RR$                  | Ripple Rejection                     | 62     | 80   | -     | dB            | $7.7V \leq V_{IN} \leq 17.7V$ , $f=120Hz$          |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -     | A             | -                                                  |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -     | mA            | $V_{IN}=35V$                                       |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -     | V             | -                                                  |

### Typical Application

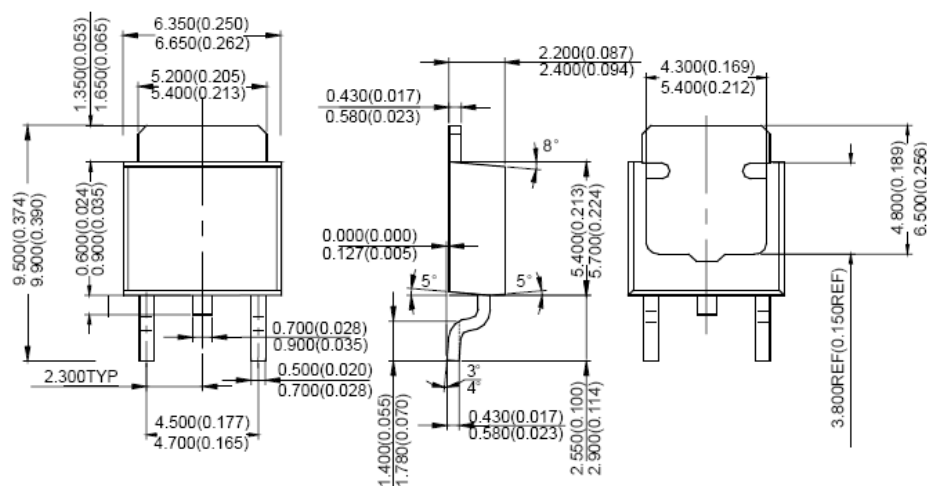


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

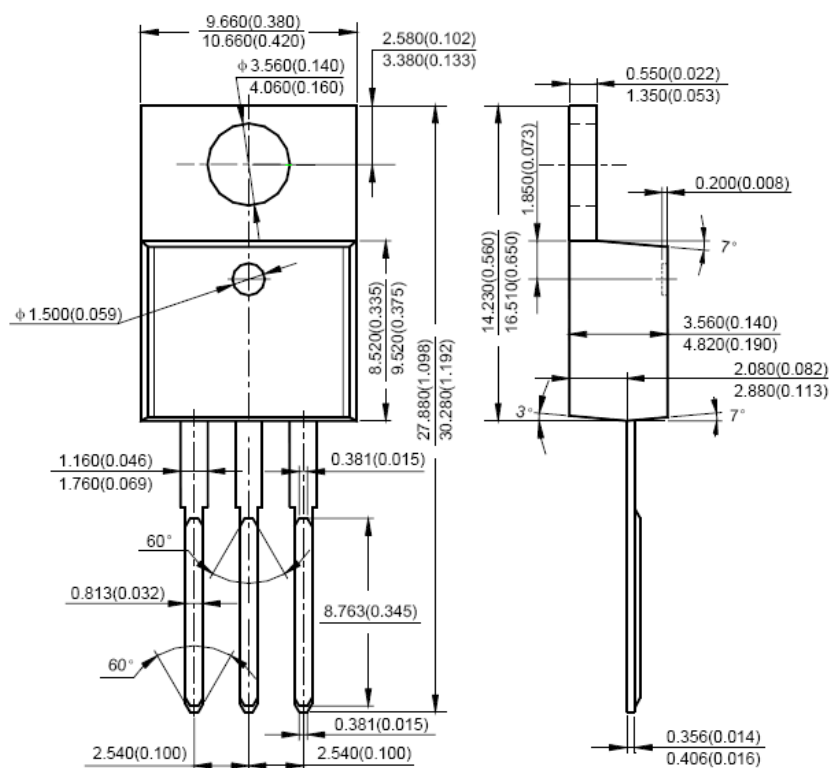
## 1A Positive Voltage Regulator

# LM7833/LM7847

### Dimensions in mm (inches)



**D-PACK  
(TO-252)**



## TO-220

## 1A Positive Voltage Regulator

LM7833/LM7847

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