

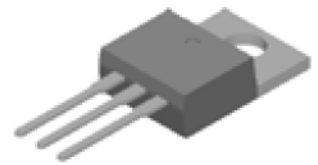
## 1A Positive Voltage Regulator

### 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**



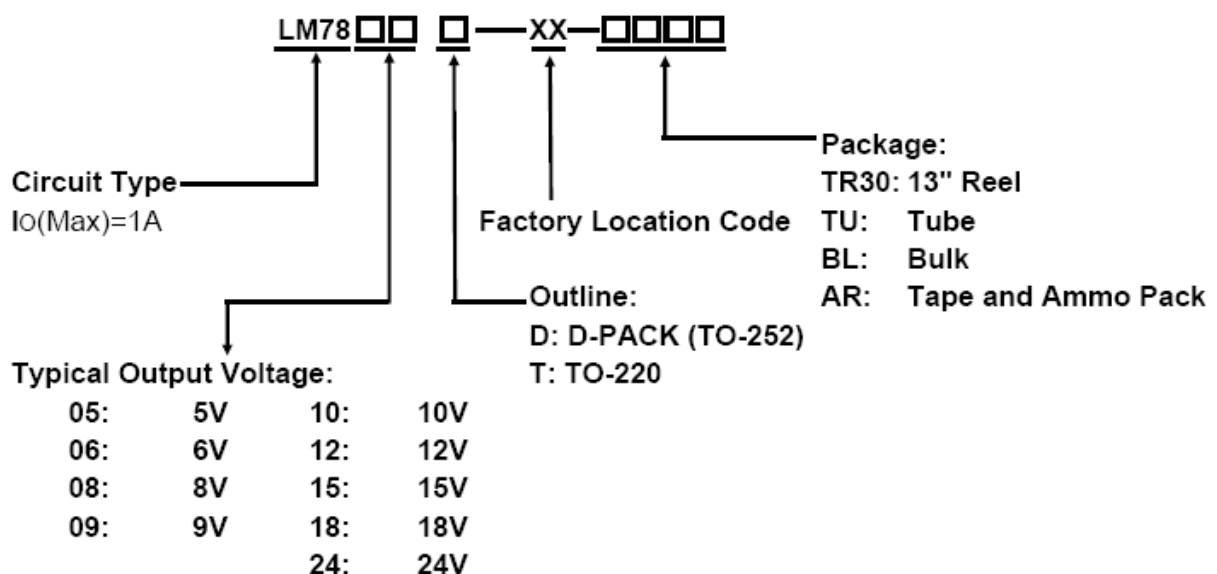
### Features

- Output Current up to 1A
- Fixed output voltage of 5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V and 24V 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

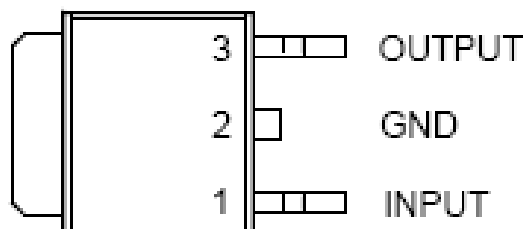
### Ordering Information



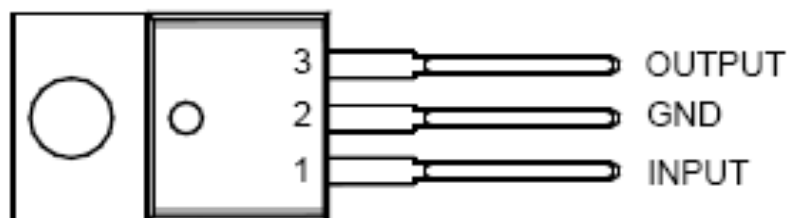
## 1A Positive Voltage Regulator

LM78xx

### Pin Configuration

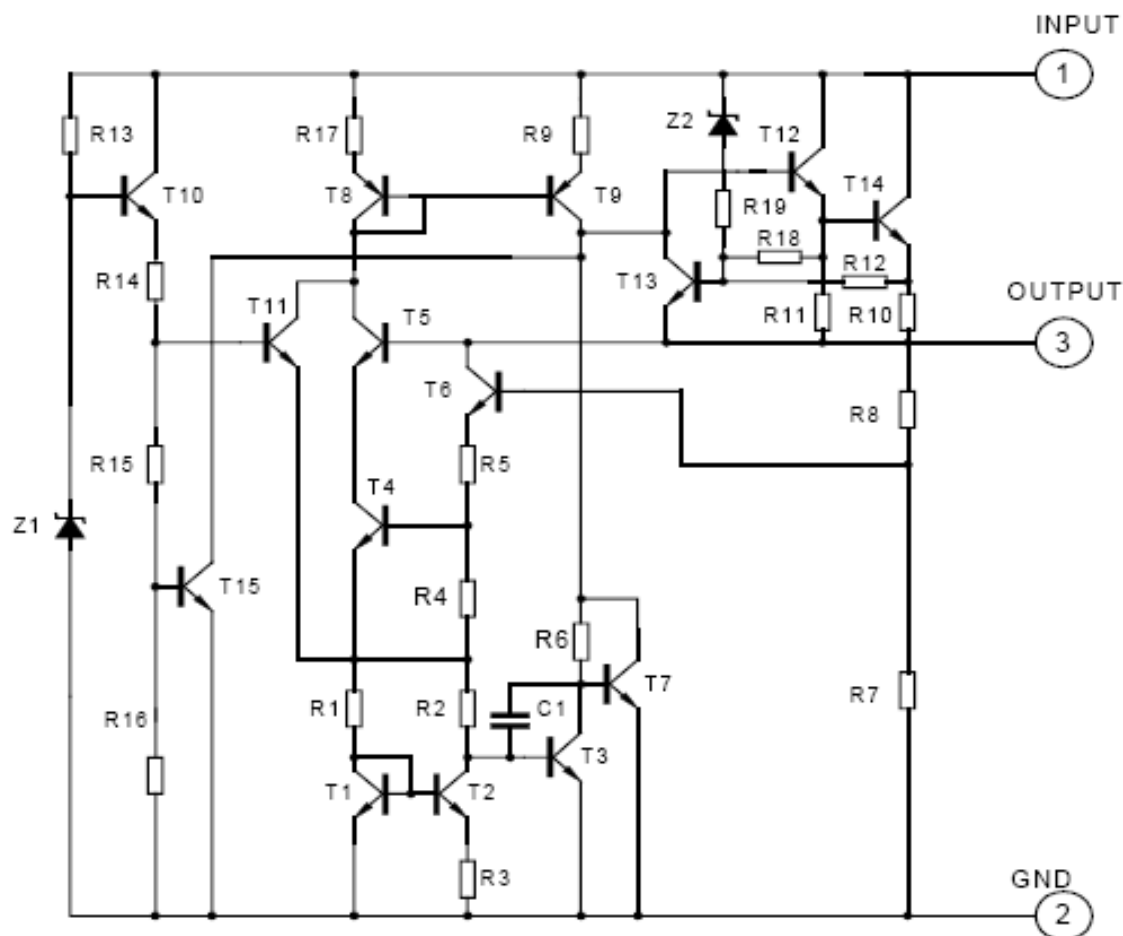


Outline: D  
D-PACK  
(TO-252)



Outline: T  
TO-220

### Block Diagram



# 1A Positive Voltage Regulator

## LM78xx

### Absolute Maximum Ratings

| Symbol    | Description                 |                      | Ratings            | Unit |
|-----------|-----------------------------|----------------------|--------------------|------|
| $V_{IN}$  | Input Voltage               | $V_{OUT}=3.3\sim18V$ | 35                 | V    |
|           |                             | $V_{OUT}=20\sim24V$  | 40                 |      |
| $I_{OUT}$ | Output Current              |                      | 1                  | A    |
| $P_D$     | Power Dissipation           | D-PACK (TO-252)      | Internally Limited | mW   |
|           |                             | TO-220               |                    |      |
| $T_J$     | Junction Temperature        |                      | 150                |      |
| $T_{OPR}$ | Operating Temperature Range |                      | -20 ~ 150          | ° C  |
| $T_{STG}$ | 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 ( $T_J=25^\circ\text{C}$ , $P_D\leq 15W$ , unless otherwise specified)

For LM7805 ( $V_{IN}=10V$ ,  $I_{OUT}=0.5A$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7805 |      |      | Unit    | Test Conditions                                |
|-----------------------|--------------------------------------|--------|------|------|---------|------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max. |         |                                                |
| $V_{OUT}$             | Output Voltage                       | 4.80   | 5.0  | 5.20 | V       | $I_{OUT}=5mA-1.0A$                             |
|                       |                                      | 4.75   | -    | 5.25 | V       | $7.5V\leq V_{IN}\leq 20V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 50   | mV      | $I_{OUT}=5mA-1.0A$                             |
|                       |                                      | -      | -    | 25   | mV      | $I_{OUT}=0.25A-0.75A$                          |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 50   | mV      | $7V\leq V_{IN}\leq 25V$                        |
|                       |                                      | -      | -    | 50   | mV      | $7.5V\leq V_{IN}\leq 20V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0  | mA      | $I_{OUT}\leq 1.0A$                             |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0  | mA      | $7.5V\leq V_{IN}\leq 20V$                      |
|                       |                                      | -      | -    | 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/°C   | $I_{OUT}=5mA$                                  |
| $RR$                  | Ripple Rejection                     | 62     | 80   | -    | dB      | $8V\leq V_{IN}\leq 18V$ , $f=120Hz$            |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -    | A       | -                                              |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -    | mA      | $V_{IN}=35V$                                   |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -    | V       | -                                              |

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For LM7806 ( $V_{IN}=11V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7806 |      |      | Unit          | Test Conditions                                  |
|-----------------------|--------------------------------------|--------|------|------|---------------|--------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max. |               |                                                  |
| $V_{OUT}$             | Output Voltage                       | 5.76   | 6.0  | 6.24 | V             | $I_{OUT}=5mA-1.0A$                               |
|                       |                                      | 5.70   | -    | 6.30 | V             | $8.5V \leq V_{IN} \leq 21V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 60   | mV            | $I_{OUT}=5mA-1.0A$                               |
|                       |                                      | -      | -    | 30   | mV            | $I_{OUT}=0.25A-0.75A$                            |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 60   | mV            | $8V \leq V_{IN} \leq 25V$                        |
|                       |                                      | -      | -    | 60   | mV            | $8.5V \leq V_{IN} \leq 21V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0  | mA            | $I_{OUT} \leq 1.0A$                              |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0  | mA            | $8.5V \leq V_{IN} \leq 21V$                      |
|                       |                                      | -      | -    | 0.5  | mA            | $I_{OUT}=5mA-1.0A$                               |
| $e_N$                 | Output Noise Voltage                 | -      | 45   | -    | $\mu V$       | $10Hz \leq f \leq 100KHz$                        |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -0.7 | -    | $mV/^\circ C$ | $I_{OUT}=5mA$                                    |
| $RR$                  | Ripple Rejection                     | 59     | 75   | -    | dB            | $9V \leq V_{IN} \leq 19V$ , $f=120Hz$            |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -    | A             | -                                                |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -    | mA            | $V_{IN}=35V$                                     |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -    | V             | -                                                |

For LM7808 ( $V_{IN}=14V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7808 |      |      | Unit          | Test Conditions                                   |
|-----------------------|--------------------------------------|--------|------|------|---------------|---------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max. |               |                                                   |
| $V_{OUT}$             | Output Voltage                       | 7.68   | 8.0  | 8.32 | V             | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | 7.60   | -    | 8.40 | V             | $10.5V \leq V_{IN} \leq 23V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 80   | mV            | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | -      | -    | 40   | mV            | $I_{OUT}=0.25A-0.75A$                             |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 80   | mV            | $10.5V \leq V_{IN} \leq 25V$                      |
|                       |                                      | -      | -    | 80   | mV            | $10.5V \leq V_{IN} \leq 23V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0  | mA            | $I_{OUT} \leq 1.0A$                               |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0  | mA            | $10.5V \leq V_{IN} \leq 23V$                      |
|                       |                                      | -      | -    | 0.5  | mA            | $I_{OUT}=5mA-1.0A$                                |
| $e_N$                 | Output Noise Voltage                 | -      | 58   | -    | $\mu V$       | $10Hz \leq f \leq 100KHz$                         |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -0.9 | -    | $mV/^\circ C$ | $I_{OUT}=5mA$                                     |
| $RR$                  | Ripple Rejection                     | 56     | 72   | -    | dB            | $11.5V \leq V_{IN} \leq 21.5V$ , $f=120Hz$        |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -    | A             | -                                                 |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -    | mA            | $V_{IN}=35V$                                      |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -    | V             | -                                                 |

# 1A Positive Voltage Regulator

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For LM7809 ( $V_{IN}=15V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7809 |      |      | Unit          | Test Conditions                                   |
|-----------------------|--------------------------------------|--------|------|------|---------------|---------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max. |               |                                                   |
| $V_{OUT}$             | Output Voltage                       | 8.64   | 9.0  | 9.36 | V             | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | 8.55   | -    | 9.45 | V             | $11.5V \leq V_{IN} \leq 24V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 90   | mV            | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | -      | -    | 45   | mV            | $I_{OUT}=0.25A-0.75A$                             |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 90   | mV            | $11.5V \leq V_{IN} \leq 25V$                      |
|                       |                                      | -      | -    | 90   | mV            | $11.5V \leq V_{IN} \leq 24V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0  | mA            | $I_{OUT} \leq 1.0A$                               |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0  | mA            | $11.5V \leq V_{IN} \leq 24V$                      |
|                       |                                      | -      | -    | 0.5  | mA            | $I_{OUT}=5mA-1.0A$                                |
| $e_N$                 | Output Noise Voltage                 | -      | 58   | -    | $\mu V$       | $10Hz \leq f \leq 100KHz$                         |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -1.1 | -    | $mV/^\circ C$ | $I_{OUT}=5mA$                                     |
| $RR$                  | Ripple Rejection                     | 56     | 72   | -    | dB            | $12.5V \leq V_{IN} \leq 22.5V$ , $f=120Hz$        |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -    | A             | -                                                 |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -    | mA            | $V_{IN}=35V$                                      |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -    | V             | -                                                 |

For LM7810 ( $V_{IN}=16V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7810 |      |       | Unit          | Test Conditions                                   |
|-----------------------|--------------------------------------|--------|------|-------|---------------|---------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max.  |               |                                                   |
| $V_{OUT}$             | Output Voltage                       | 9.60   | 10.0 | 10.40 | V             | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | 9.50   | -    | 10.50 | V             | $12.5V \leq V_{IN} \leq 25V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 100   | mV            | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | -      | -    | 50    | mV            | $I_{OUT}=0.25A-0.75A$                             |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 100   | mV            | $13V \leq V_{IN} \leq 25V$                        |
|                       |                                      | -      | -    | 100   | mV            | $13V \leq V_{IN} \leq 25V$ , $I_{OUT}=1.0A$       |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0   | mA            | $I_{OUT} \leq 1.0A$                               |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0   | mA            | $12.6V \leq V_{IN} \leq 25V$                      |
|                       |                                      | -      | -    | 0.5   | mA            | $I_{OUT}=5mA-1.0A$                                |
| $e_N$                 | Output Noise Voltage                 | -      | 58   | -     | $\mu V$       | $10Hz \leq f \leq 100KHz$                         |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -1.1 | -     | $mV/^\circ C$ | $I_{OUT}=5mA$                                     |
| $RR$                  | Ripple Rejection                     | 56     | 72   | -     | dB            | $13V \leq V_{IN} \leq 23V$ , $f=120Hz$            |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -     | A             | -                                                 |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -     | mA            | $V_{IN}=35V$                                      |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -     | V             | -                                                 |

# 1A Positive Voltage Regulator

## LM78xx

For LM7812 ( $V_{IN}=19V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7812 |      |       | Unit          | Test Conditions                                   |
|-----------------------|--------------------------------------|--------|------|-------|---------------|---------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max.  |               |                                                   |
| $V_{OUT}$             | Output Voltage                       | 11.52  | 12.0 | 12.48 | V             | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | 11.40  | -    | 12.60 | V             | $14.5V \leq V_{IN} \leq 27V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 120   | mV            | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | -      | -    | 60    | mV            | $I_{OUT}=0.25A-0.75A$                             |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 120   | mV            | $14.5V \leq V_{IN} \leq 30V$                      |
|                       |                                      | -      | -    | 120   | mV            | $14.6V \leq V_{IN} \leq 27V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0   | mA            | $I_{OUT} \leq 1.0A$                               |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0   | mA            | $14.5V \leq V_{IN} \leq 30V$                      |
|                       |                                      | -      | -    | 0.5   | mA            | $I_{OUT}=5mA-1.0A$                                |
| $e_N$                 | Output Noise Voltage                 | -      | 75   | -     | $\mu V$       | $10Hz \leq f \leq 100KHz$                         |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -1.5 | -     | $mV/^\circ C$ | $I_{OUT}=5mA$                                     |
| $RR$                  | Ripple Rejection                     | 55     | 72   | -     | dB            | $15V \leq V_{IN} \leq 25V$ , $f=120Hz$            |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -     | A             | -                                                 |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -     | mA            | $V_{IN}=35V$                                      |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -     | V             | -                                                 |

For LM7815 ( $V_{IN}=23V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7815 |      |       | Unit          | Test Conditions                                   |
|-----------------------|--------------------------------------|--------|------|-------|---------------|---------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max.  |               |                                                   |
| $V_{OUT}$             | Output Voltage                       | 14.40  | 15.0 | 15.60 | V             | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | 14.25  | -    | 15.75 | V             | $17.5V \leq V_{IN} \leq 30V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 150   | mV            | $I_{OUT}=5mA-1.0A$                                |
|                       |                                      | -      | -    | 75    | mV            | $I_{OUT}=0.25A-0.75A$                             |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 150   | mV            | $18.5V \leq V_{IN} \leq 30V$                      |
|                       |                                      | -      | -    | 150   | mV            | $17.7V \leq V_{IN} \leq 30V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0   | mA            | $I_{OUT} \leq 1.0A$                               |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0   | mA            | $17.5V \leq V_{IN} \leq 30V$                      |
|                       |                                      | -      | -    | 0.5   | mA            | $I_{OUT}=5mA-1.0A$                                |
| $e_N$                 | Output Noise Voltage                 | -      | 90   | -     | $\mu V$       | $10Hz \leq f \leq 100KHz$                         |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -1.8 | -     | $mV/^\circ C$ | $I_{OUT}=5mA$                                     |
| $RR$                  | Ripple Rejection                     | 54     | 70   | -     | dB            | $18.5V \leq V_{IN} \leq 28.5V$ , $f=120Hz$        |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -     | A             | -                                                 |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -     | mA            | $V_{IN}=35V$                                      |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -     | V             | -                                                 |

# 1A Positive Voltage Regulator

## LM78xx

For LM7818 ( $V_{IN}=27V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7818 |      |       | Unit          | Test Conditions                                 |
|-----------------------|--------------------------------------|--------|------|-------|---------------|-------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max.  |               |                                                 |
| $V_{OUT}$             | Output Voltage                       | 17.28  | 18.0 | 18.72 | V             | $I_{OUT}=5mA-1.0A$                              |
|                       |                                      | 17.10  | -    | 18.90 | V             | $21V \leq V_{IN} \leq 33V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 180   | mV            | $I_{OUT}=5mA-1.0A$                              |
|                       |                                      | -      | -    | 90    | mV            | $I_{OUT}=0.25A-0.75A$                           |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 180   | mV            | $21V \leq V_{IN} \leq 33V$                      |
|                       |                                      | -      | -    | 180   | mV            | $21V \leq V_{IN} \leq 33V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0   | mA            | $I_{OUT} \leq 1.0A$                             |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0   | mA            | $21.5V \leq V_{IN} \leq 33V$                    |
|                       |                                      | -      | -    | 0.5   | mA            | $I_{OUT}=5mA-1.0A$                              |
| $e_N$                 | Output Noise Voltage                 | -      | 110  | -     | $\mu V$       | $10Hz \leq f \leq 100KHz$                       |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -2.2 | -     | $mV/^\circ C$ | $I_{OUT}=5mA$                                   |
| $RR$                  | Ripple Rejection                     | 53     | 69   | -     | dB            | $22V \leq V_{IN} \leq 32V$ , $f=120Hz$          |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -     | A             | -                                               |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -     | mA            | $V_{IN}=35V$                                    |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -     | V             | -                                               |

For LM7824 ( $V_{IN}=33V$ ,  $I_{OUT}=0.5A$ ,  $C1=0.33\mu F$ ,  $C_o=0.1\mu F$ )

| Symbol                | Description                          | LM7824 |      |       | Unit          | Test Conditions                                 |
|-----------------------|--------------------------------------|--------|------|-------|---------------|-------------------------------------------------|
|                       |                                      | Min.   | Typ. | Max.  |               |                                                 |
| $V_{OUT}$             | Output Voltage                       | 23.04  | 24.0 | 24.96 | V             | $I_{OUT}=5mA-1.0A$                              |
|                       |                                      | 22.80  | -    | 25.20 | V             | $27V \leq V_{IN} \leq 38V$ , $I_{OUT}=5mA-1.0A$ |
| $\Delta V_{OUT}$      | Load Regulation                      | -      | -    | 240   | mV            | $I_{OUT}=5mA-1.0A$                              |
|                       |                                      | -      | -    | 120   | mV            | $I_{OUT}=0.25A-0.75A$                           |
| $\Delta V_{OUT}$      | Line Regulation                      | -      | -    | 240   | mV            | $27V \leq V_{IN} \leq 38V$                      |
|                       |                                      | -      | -    | 240   | mV            | $27V \leq V_{IN} \leq 38V$ , $I_{OUT}=1.0A$     |
| $I_Q$                 | Quiescent Current                    | -      | -    | 8.0   | mA            | $I_{OUT} \leq 1.0A$                             |
| $\Delta I_Q$          | Quiescent Current Change             | -      | -    | 1.0   | mA            | $28V \leq V_{IN} \leq 38V$                      |
|                       |                                      | -      | -    | 0.5   | mA            | $I_{OUT}=5mA-1.0A$                              |
| $e_N$                 | Output Noise Voltage                 | -      | 170  | -     | $\mu V$       | $10Hz \leq f \leq 100KHz$                       |
| $\Delta V_o/\Delta T$ | Temperature coefficient of $V_{OUT}$ | -      | -2.8 | -     | $mV/^\circ C$ | $I_{OUT}=5mA$                                   |
| $RR$                  | Ripple Rejection                     | 50     | 66   | -     | dB            | $28V \leq V_{IN} \leq 38V$ , $f=120Hz$          |
| $I_{PEAK}$            | Peak Output Current                  | -      | 1.8  | -     | A             | -                                               |
| $I_{SC}$              | Short-Circuit Current                | -      | 250  | -     | mA            | $V_{IN}=35V$                                    |
| $V_D$                 | Dropout Voltage                      | -      | 2.0  | -     | V             | -                                               |

# 1A Positive Voltage Regulator

## LM78xx

### Typical Characteristics Curves

Fig.1- Peak Output Current vs. Input/Output Differential Voltage

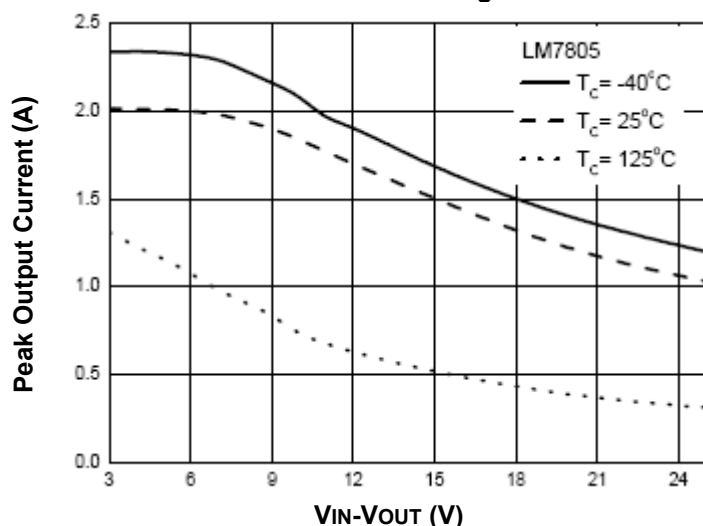


Fig.2- Output Voltage vs. Junction Temperature

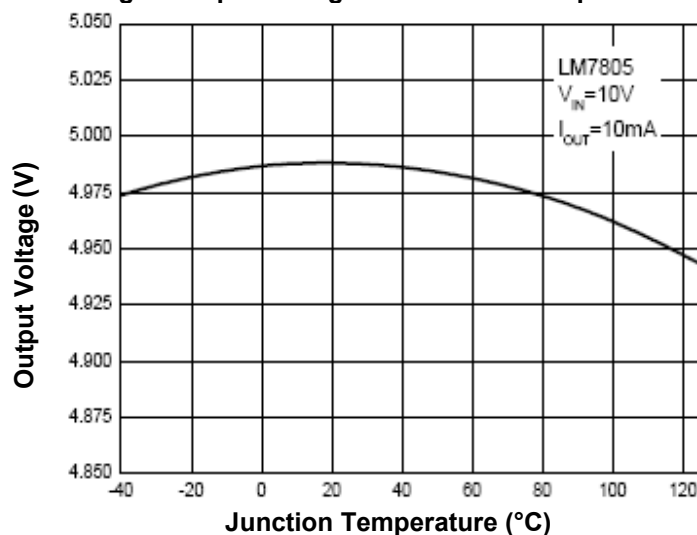


Fig.3- Quiescent Current vs. Junction Temperature

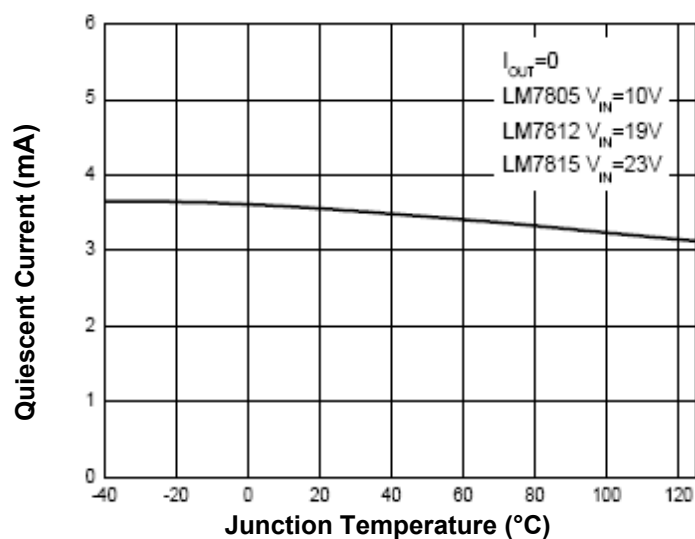
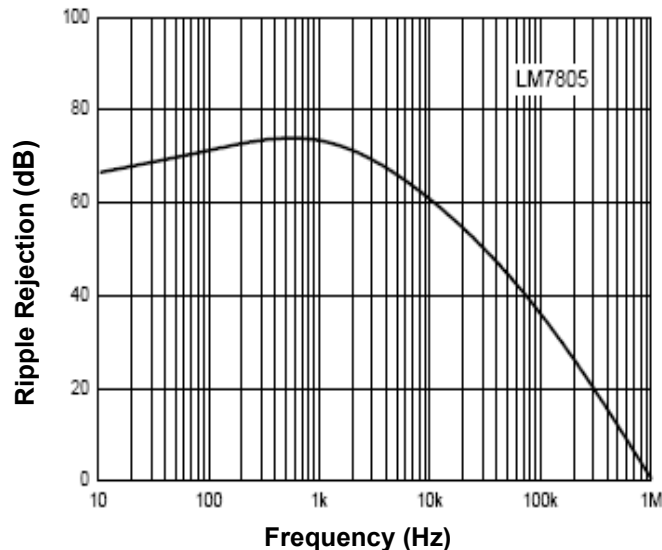


Fig.4- Ripple Rejection vs. Frequency



# 1A Positive Voltage Regulator

## LM78xx

### Typical Characteristics Curves (Continued)

Fig.5- Dropout Voltage vs. Junction Temperature

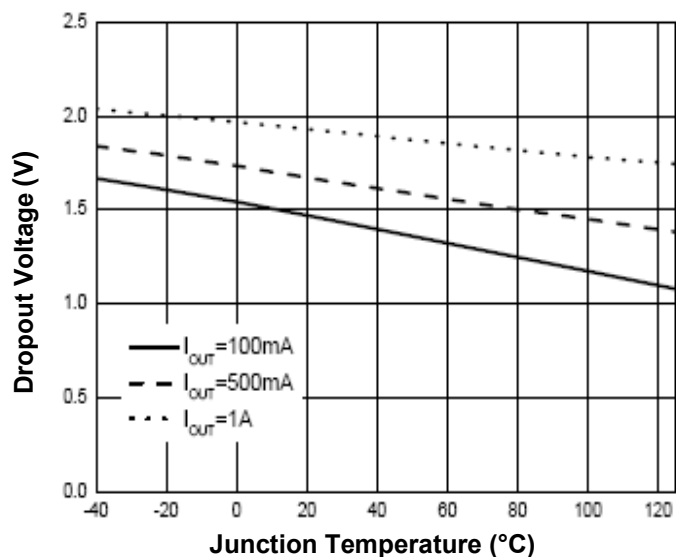


Fig.6- Power Dissipation vs. Case Temperature

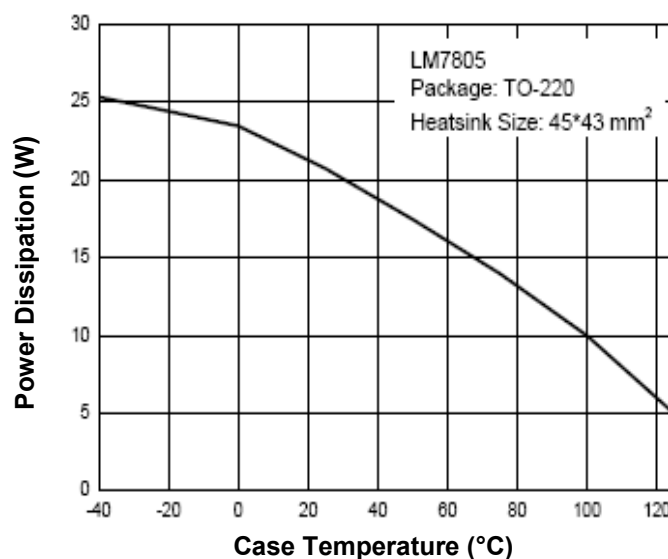


Fig.7- Power Dissipation vs. Case Temperature

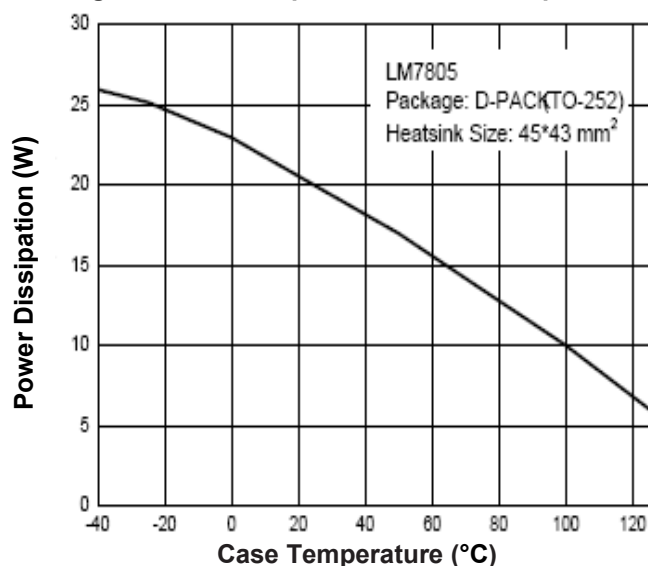
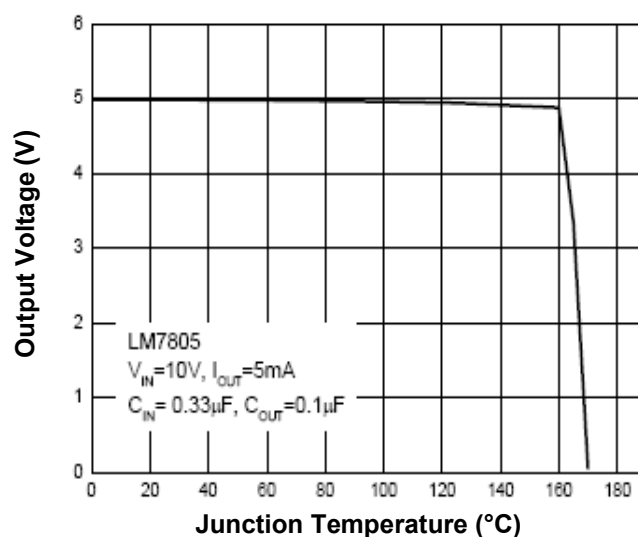


Fig.8- Thermal Shutdown Protection



## 1A Positive Voltage Regulator

LM78xx

### Typical Characteristics Curves (Continued)

Fig.9- Line Transient  
(Conditions:  $I_{OUT}=500mA$ ,  $C_{OUT}=0.1\mu F$ )

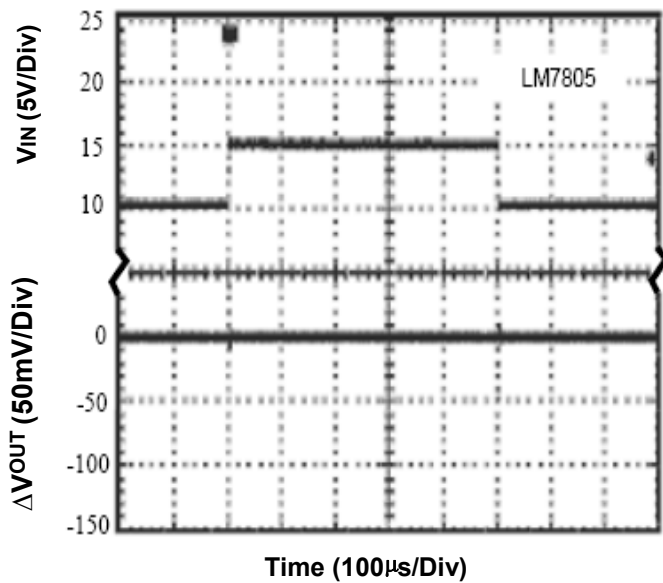
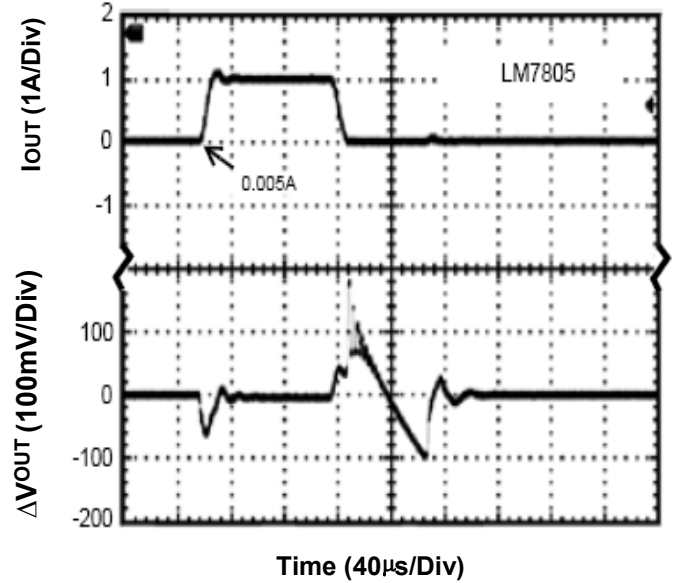
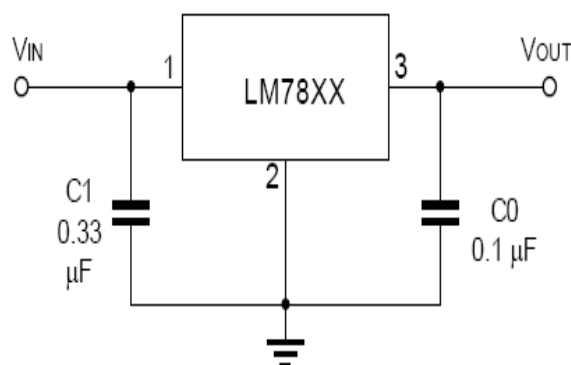


Fig.10- Load Transient  
(Conditions:  $V_{IN}=10V$ ,  $C_{IN}=0.33\mu F$ ,  $C_{OUT}=0.1\mu F$ )



### Typical Application

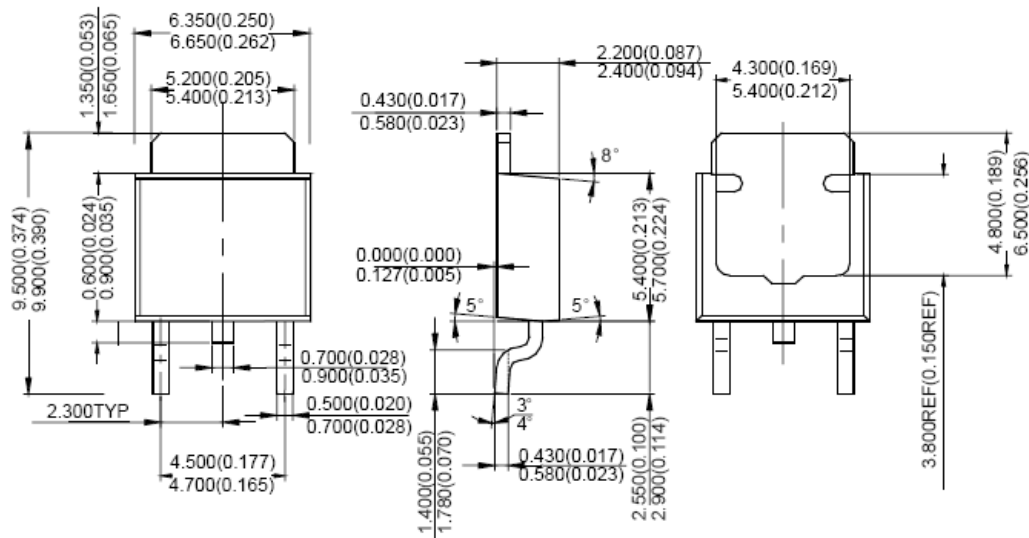


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

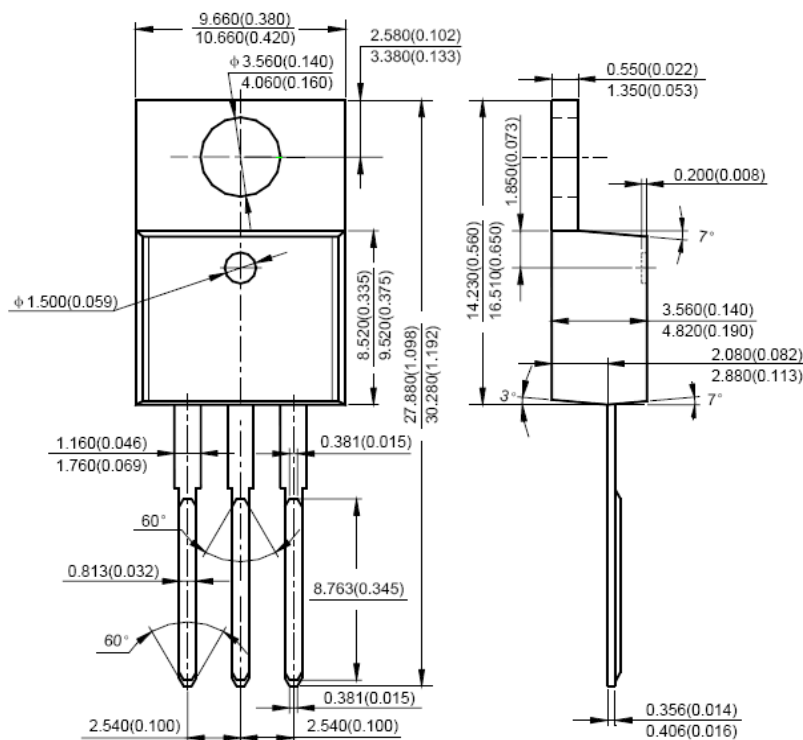
## 1A Positive Voltage Regulator

LM78xx

### Dimensions in mm (inches)



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



**TO-220**

**TAITRON**  
components incorporated

## 1A Positive Voltage Regulator

LM78xx

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