

## 1A Standard Positive Voltage Regulator

### General Description

- The LM78xx series is three terminal standard positive voltage regulator designed for a wide range of applications that required supply current up to 1A.
- The LM78xx series is available in 10 fixed output voltage:4.7V,5V,6V,7V,8V,9V,10V, 12V,15V,18V and 24V.
- The LM78xx series provides internal current limiting, thermal shutdown protection and Safe-area operation compensation which make them virtually immune from output load, and the output current could up to 1A if adequate heat sinking provide
- The LM78xx is available in TO-220,TO-220F,DPAK (TO-252) ,D<sup>2</sup>PAK(TO-263)packages.



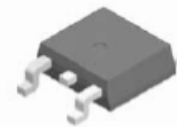
TO-220



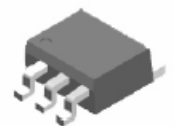
TO-220F



DPAK  
(TO-252)



D<sup>2</sup>PAK  
(TO-263-2)



D<sup>2</sup>PAK  
(TO-263-3)

### Features

- Output Current up to 1A
- Maximum Input voltage up to 36V
- Output Voltage Accuracy of  $\pm 4\%$  at 25°C
- Thermal Overload Protection
- Short Circuit Current Limiting
- Output Transistor safe operation area (SOA) Protection
- RoHS Compliance and Halogen Free



HALOGEN  
**FREE**

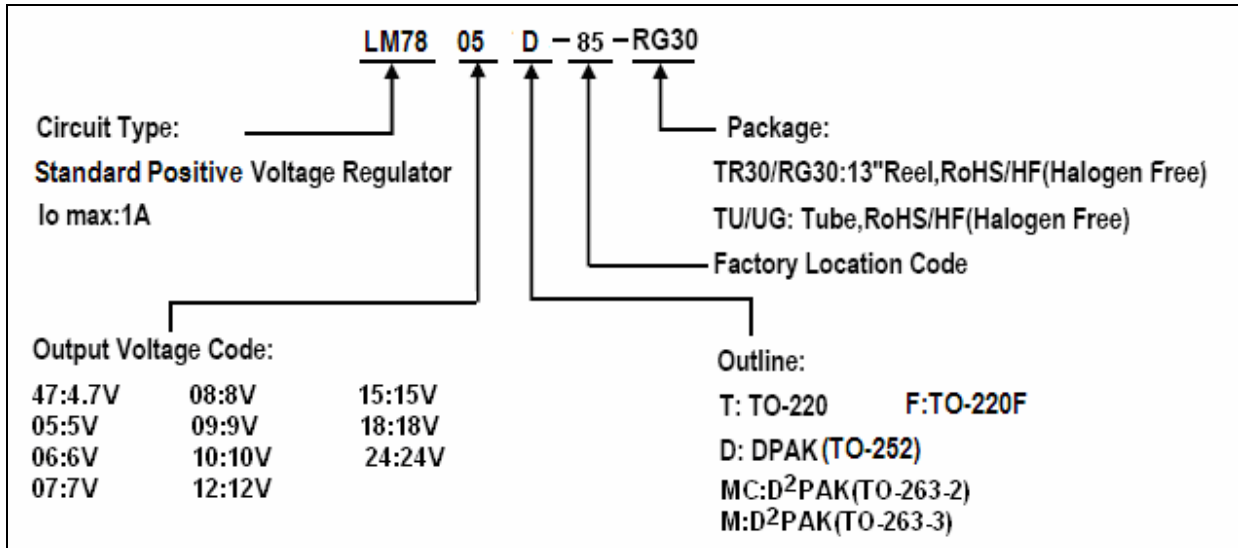
### Applications

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

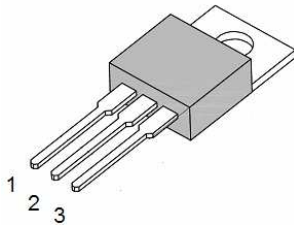
# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

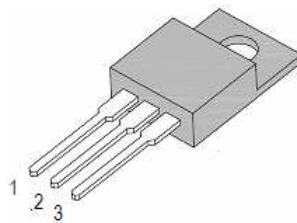
### Ordering Information



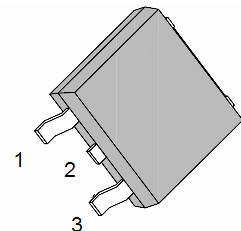
### Pin Configuration



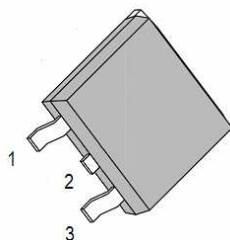
1: INPUT 2: GND 3: OUTPUT  
**TO-220**



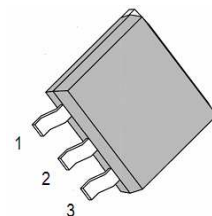
1: INPUT 2: GND 3: OUTPUT  
**TO-220F**



1: INPUT 2: GND 3: OUTPUT  
**DPAK (TO-252)**



**D<sup>2</sup>PAK (TO-263-2)**

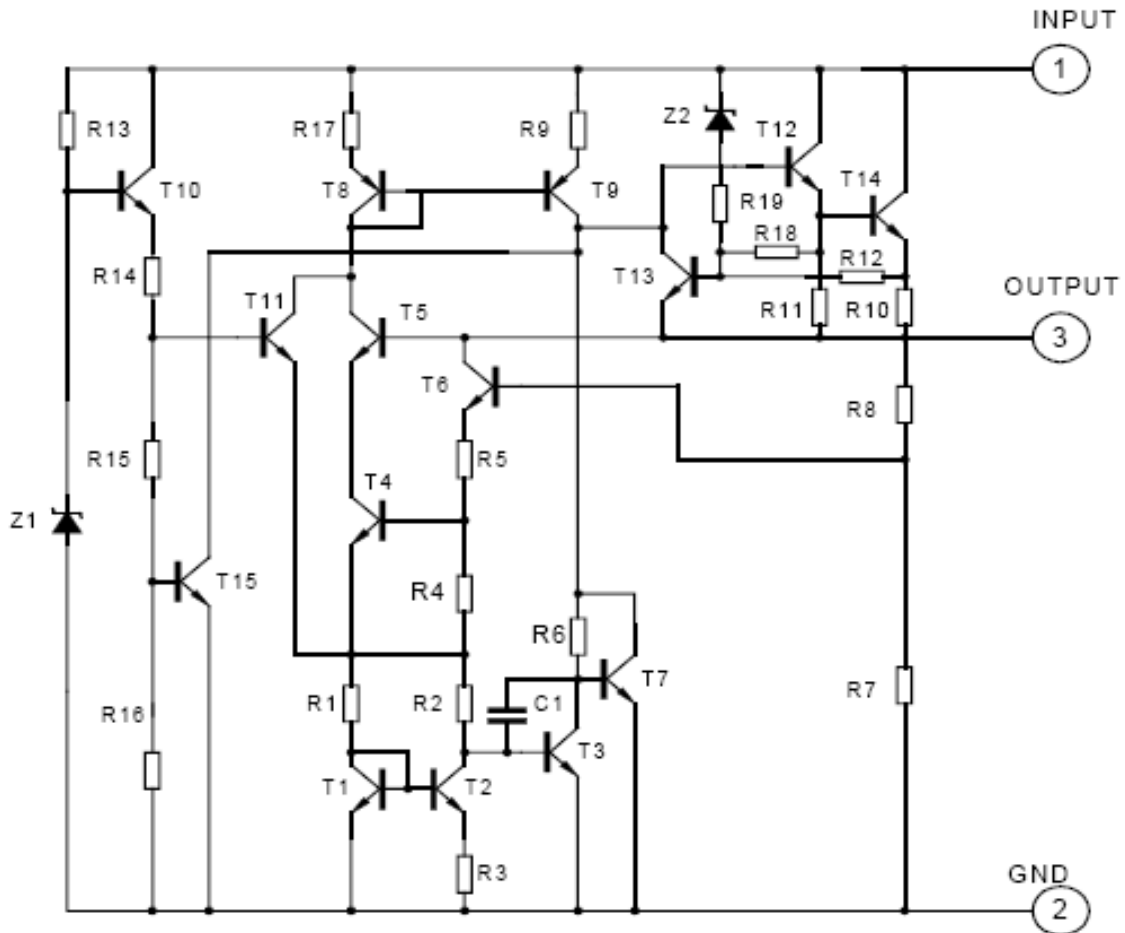


**D<sup>2</sup>PAK (TO-263-3)**

# 1A Standard Positive Voltage Regulator

LM7847 ~ LM7824

## Functional Block Diagram



# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

### Absolute Maximum Ratings (Note 1)

Symbol	Description	Ratings	Unit
$V_{IN}$	Input Voltage	$V_O=4.7\sim 18V$	V
		$V_O=20\sim 24V$	
$I_O$	Output Current	1	A
$P_D$	Power Dissipation	Internally Limited	W
$T_{LEAD}$	Lead Temperature (Soldering 10sec)	260	°C
$T_J$	Operating Junction Temperature	D <sup>2</sup> PAK	
		others	
$T_{STG}$	Storage Temperature Range	D <sup>2</sup> PAK	
		others	
$\theta_{JA}$	Thermal Resistance (Junction to Ambient)	TO-220	°C/W
		TO-220F	
		DPAK (TO-252)	
$\theta_{JC}$	Thermal Resistance (Junction to Case)	TO-220	5
		TO-220F	
		DPAK (TO-252)	

Note1: Absolute maximum ratings indicate limits beyond which damage to the device may occur. For guarantee specification and test conditions, see the Electrical Characteristics. the guarantee specification apply only for the test conditions listed. Some performance characteristics may degrade when the device is not operated under the listed test conditions.

# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

**Electrical Characteristics** ( $I_o=0.5A, T_j=0\sim 125^{\circ}C, C_{IN}=0.33\mu F, C_O=0.1\mu F$ , unless otherwise specified, Note2)

For LM7847 ( $V_{IN}=9.7V, T_J = 25^{\circ}C$ )

Symbol	Description	LM7847			Unit	Test Conditions
		Min.	Typ.	Max.		
V <sub>o</sub>	Output Voltage	4.512	4.70	4.888	V	5mA ≤ I <sub>o</sub> ≤ 1.0A
		4.465	-	4.935	V	7.2V ≤ V <sub>IN</sub> ≤ 19.7V, 5mA ≤ I <sub>o</sub> ≤ 1.0A
ΔV <sub>LOAD</sub>	Load Regulation	-	-	47	mV	5mA ≤ I <sub>o</sub> ≤ 1.0A
		-	-	24	mV	0.25A ≤ I <sub>o</sub> ≤ 0.75A
ΔV <sub>LINE</sub>	Line Regulation	-	-	47	mV	7.2V ≤ V <sub>IN</sub> ≤ 19.7V
		-	-	47	mV	7.2V ≤ V <sub>IN</sub> ≤ 19.7V, I <sub>o</sub> = 1.0A
V <sub>D</sub>	Dropout Voltage	-	2.0	-	V	-
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	7.2V ≤ V <sub>IN</sub> ≤ 19.7V
		-	-	0.5	mA	5.8V ≤ V <sub>IN</sub> ≤ 18.3V
e <sub>N</sub>	Output Noise Voltage	-	40	-	μV	10Hz ≤ f ≤ 100KHz
ΔV <sub>o</sub> /ΔT	Temperature coefficient of V <sub>out</sub>	-	-0.6	-	mV/°C	I <sub>o</sub> = 5mA
PSRR	Power Supply Ripple Rejection Ratio	62	80	-	dB	7.7V ≤ V <sub>IN</sub> ≤ 17.7V, 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

For LM7805 ( $V_{IN}=10V, T_J = 25^{\circ}C$ )

Symbol	Description	LM7805			Unit	Test Conditions
		Min.	Typ.	Max.		
V <sub>o</sub>	Output Voltage	4.80	5.0	5.20	V	5mA ≤ I <sub>o</sub> ≤ 1.0A
		4.75	-	5.25	V	7.5V ≤ V <sub>IN</sub> ≤ 20V, 5mA ≤ I <sub>o</sub> ≤ 1.0A
ΔV <sub>LOAD</sub>	Load Regulation	-	-	50	mV	5mA ≤ I <sub>o</sub> ≤ 1.0A
		-	-	25	mV	0.25A ≤ I <sub>o</sub> ≤ 0.75A
ΔV <sub>LINE</sub>	Line Regulation	-	-	50	mV	7.0V ≤ V <sub>IN</sub> ≤ 25V
		-	-	50	mV	7.5V ≤ V <sub>IN</sub> ≤ 20V, I <sub>o</sub> = 1.0A
V <sub>D</sub>	Dropout Voltage	-	2.0	-	V	-
I <sub>q</sub>	Quiescent Current	-	-	8.0	mA	I <sub>o</sub> ≤ 1.0A
ΔI <sub>q</sub>	Quiescent Current Change	-	-	1.0	mA	7.5V ≤ V <sub>IN</sub> ≤ 20V
		-	-	0.5	mA	5mA ≤ I <sub>o</sub> ≤ 1.0A
e <sub>N</sub>	Output Noise Voltage	-	40	-	μV	10Hz ≤ f ≤ 100KHz
ΔV <sub>o</sub> /ΔT	Temperature coefficient of V <sub>OUT</sub>	-	-0.6	-	mV/°C	I <sub>OUT</sub> = 5mA

# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

<b>PSRR</b>	Power Supply Ripple Rejection Ratio	62	80	-	dB	$8V \leq V_{IN} \leq 18V, f=120\text{Hz}$
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	$V_{IN}=35V$

For LM7806 ( $V_{IN}=11V, T_J = 25^\circ\text{C}$ )

Symbol	Description	LM7806			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	5.76	6.0	6.24	V	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		5.7	-	6.3	V	$8.5V \leq V_{IN} \leq 21V, 5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	60	mV	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		-	-	30	mV	$0.25\text{A} \leq I_o \leq 0.75\text{A}$
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	60	mV	$8.0V \leq V_{IN} \leq 25V$
		-	-	60	mV	$8.5V \leq V_{IN} \leq 21V, I_o=1.0\text{A}$
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	$I_{OUT} \leq 1.0\text{A}$
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	$7.5V \leq V_{IN} \leq 20V$
		-	-	0.5	mA	$I_o=5\text{mA}-1.0\text{A}$
<b>e<sub>N</sub></b>	Output Noise Voltage	-	40	-	μV	$10\text{Hz} \leq f \leq 100\text{KHz}$
<b>ΔV<sub>o</sub>/ΔT</b>	Temperature coefficient of V <sub>OUT</sub>	-	-0.7	-	mV/°C	$I_o=5\text{mA}$
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	62	80	-	dB	$9V \leq V_{IN} \leq 19V, f=120\text{Hz}$
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	$V_{IN}=35V$
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-

For LM7807 ( $V_{IN}=13V, T_J = 25^\circ\text{C}$ )

Symbol	Description	LM7807			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	6.72	7.0	7.28	V	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		6.65	-	7.35	V	$9.5V \leq V_{IN} \leq 22V, 5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	70	mV	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		-	-	35	mV	$0.25\text{A} \leq I_o \leq 0.75\text{A}$
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	70	mV	$9.0V \leq V_{IN} \leq 25V$
		-	-	70	mV	$9.5V \leq V_{IN} \leq 22V, I_o=1.0\text{A}$
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	$I_o \leq 1.0\text{A}$
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	$9.5V \leq V_{IN} \leq 22V$
		-	-	0.5	mA	$I_o=5\text{mA}-1.0\text{A}$
<b>e<sub>N</sub></b>	Output Noise Voltage	-	50	-	μV	$10\text{Hz} \leq f \leq 100\text{KHz}$
<b>ΔV<sub>o</sub>/ΔT</b>	Temperature coefficient of V <sub>OUT</sub>	-	-0.8	-	mV/°C	$I_o=5\text{mA}$

# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

<b>PSRR</b>	Power Supply Ripple Rejection Ratio	59	75	-	dB	$9V \leq V_{IN} \leq 19V, f=120\text{Hz}$
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	$V_{IN}=35V$

For LM7808 ( $V_{IN}=14V, T_J = 25^\circ\text{C}$ )

Symbol	Description	LM7808			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	7.68	8.0	8.32	V	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		7.6	-	8.4	V	$10.5V \leq V_{IN} \leq 23V, 5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	80	mV	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		-	-	40	mV	$0.25\text{A} \leq I_o \leq 0.75\text{A}$
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	80	mV	$10.5V \leq V_{IN} \leq 25V$
		-	-	80	mV	$10.5V \leq V_{IN} \leq 23V, I_o=1.0\text{A}$
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	$I_o \leq 1.0\text{A}$
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	$9.5V \leq V_{IN} \leq 22V$
		-	-	0.5	mA	$5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>e<sub>N</sub></b>	Output Noise Voltage	-	58	-	μV	$10\text{Hz} \leq f \leq 100\text{KHz}$
<b>ΔV<sub>o</sub>/ΔT</b>	Temperature coefficient of V <sub>out</sub>	-	-0.9	-	mV/°C	$I_o=5\text{mA}$
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	56	72	-	dB	$11.5V \leq V_{IN} \leq 21.5V, f=120\text{Hz}$
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	$V_{IN}=35V$

For LM7809 ( $V_{IN}=15V, T_J = 25^\circ\text{C}$ )

Symbol	Description	LM7809			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	8.64	9.0	9.36	V	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		8.55	-	9.45	V	$10.5V \leq V_{IN} \leq 23V, 5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	90	mV	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		-	-	45	mV	$0.25\text{A} \leq I_o \leq 0.75\text{A}$
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	90	mV	$11.5V \leq V_{IN} \leq 25V$
		-	-	90	mV	$11.5V \leq V_{IN} \leq 24V, I_o=1.0\text{A}$
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	$I_o \leq 1.0\text{A}$
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	$11.5V \leq V_{IN} \leq 24V$
		-	-	0.5	mA	$5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>e<sub>N</sub></b>	Output Noise Voltage	-	58	-	μV	$10\text{Hz} \leq f \leq 100\text{KHz}$
<b>ΔV<sub>o</sub>/ΔT</b>	Temperature coefficient of V <sub>out</sub>	-	-1.1	-	mV/°C	$I_o=5\text{mA}$

# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

<b>PSRR</b>	Power Supply Ripple Rejection Ratio	56	72	-	dB	$12.5V \leq V_{IN} \leq 22.5V, f=120\text{Hz}$
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	$V_{IN}=35V$

For LM7810 ( $V_{IN}=16V, T_J = 25^\circ\text{C}$ )

Symbol	Description	LM7810			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	9.60	10.0	10.40	V	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		9.5	-	10.5	V	$12.5V \leq V_{IN} \leq 25V, I_o=5\text{mA}-1.0\text{A}$
<b><math>\Delta V_{LOAD}</math></b>	Load Regulation	-	-	100	mV	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		-	-	50	mV	$0.25\text{A} \leq I_o \leq 0.75\text{A}$
<b><math>\Delta V_{LINE}</math></b>	Line Regulation	-	-	100	mV	$13V \leq V_{IN} \leq 25V$
		-	-	100	mV	$13V \leq V_{IN} \leq 25V, I_o=1.0\text{A}$
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	$I_o \leq 1.0\text{A}$
<b><math>\Delta I_q</math></b>	Quiescent Current Change	-	-	1.0	mA	$12.6V \leq V_{IN} \leq 25V$
		-	-	0.5	mA	$5\text{mA} \leq I_o \leq 1.0\text{A}$
<b>e<sub>N</sub></b>	Output Noise Voltage	-	58	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$
<b><math>\Delta V_o/\Delta T</math></b>	Temperature coefficient of V <sub>out</sub>	-	-1.1	-	mV/°C	$I_o=5\text{mA}$
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	56	72	-	dB	$12.5V \leq V_{IN} \leq 22.5V, f=120\text{Hz}$
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	$V_{IN}=35V$
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-

For LM7812 ( $V_{IN}=19V, T_J = 25^\circ\text{C}$ )

Symbol	Description	LM7812			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	11.52	12.0	12.48	V	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		11.4	-	12.6	V	$14.5V \leq V_{IN} \leq 27V, 5\text{mA} \leq I_o \leq 1.0\text{A}$
<b><math>\Delta V_{LOAD}</math></b>	Load Regulation	-	-	120	mV	$5\text{mA} \leq I_o \leq 1.0\text{A}$
		-	-	60	mV	$0.25\text{A} \leq I_o \leq 0.75\text{A}$
<b><math>\Delta V_{LINE}</math></b>	Line Regulation	-	-	120	mV	$14.5V \leq V_{IN} \leq 30V$
		-	-	120	mV	$14.5V \leq V_{IN} \leq 27V, I_o=1.0\text{A}$
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	$I_o \leq 1.0\text{A}$
<b><math>\Delta I_q</math></b>	Quiescent Current Change	-	-	1.0	mA	$14.5V \leq V_{IN} \leq 30V$
		-	-	0.5	mA	$5\text{mA} \leq I_o \leq 1.0\text{A}$



# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

<b>eN</b>	Output Noise Voltage	-	75	-	μV	10Hz≤f≤100KHz
<b>ΔVo/ΔT</b>	Temperature coefficient of V <sub>OUT</sub>	-	-1.5	-	mV/°C	I <sub>o</sub> =5mA
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	56	72	-	dB	15V≤V <sub>IN</sub> ≤25V, f=120Hz
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	V <sub>IN</sub> =35V

For LM7815 (V<sub>IN</sub>=23V, T<sub>J</sub>= 25°C)

Symbol	Description	LM7815			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	14.40	15.0	15.60	V	5mA ≤ I <sub>o</sub> ≤ 1.0A
		14.25	-	15.75	V	17.5V ≤ V <sub>IN</sub> ≤ 30V, 5mA ≤ I <sub>o</sub> ≤ 1.0A
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	150	mV	5mA ≤ I <sub>o</sub> ≤ 1.0A
		-	-	75	mV	0.25A ≤ I <sub>o</sub> ≤ 0.75A
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	150	mV	18.5V ≤ V <sub>IN</sub> ≤ 30V
		-	-	150	mV	17.8V ≤ V <sub>IN</sub> ≤ 30V, I <sub>o</sub> =1.0A
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	I <sub>o</sub> ≤ 1.0A
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	17.5V ≤ V <sub>IN</sub> ≤ 30V
		-	-	0.5	mA	5mA ≤ I <sub>o</sub> ≤ 1.0A
<b>eN</b>	Output Noise Voltage	-	90	-	μV	10Hz≤f≤100KHz
<b>ΔVo/ΔT</b>	Temperature coefficient of V <sub>OUT</sub>	-	-1.8	-	mV/°C	I <sub>o</sub> =5mA
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	54	70	-	dB	15V≤V <sub>IN</sub> ≤25V, f=120Hz
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	V <sub>IN</sub> =35V

For LM7818 (V<sub>IN</sub>=27V, T<sub>J</sub>= 25°C)

Symbol	Description	LM7818			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	17.28	18.0	18.72	V	5mA ≤ I <sub>o</sub> ≤ 1.0A
		17.1	-	18.9	V	21V ≤ V <sub>IN</sub> ≤ 33V, 5mA ≤ I <sub>o</sub> ≤ 1.0A
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	180	mV	5mA ≤ I <sub>o</sub> ≤ 1.0A
		-	-	90	mV	0.25A ≤ I <sub>o</sub> ≤ 0.75A
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	180	mV	21V ≤ V <sub>IN</sub> ≤ 33V
		-	-	180	mV	21V ≤ V <sub>IN</sub> ≤ 33V, I <sub>o</sub> =1.0A
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	I <sub>o</sub> ≤ 1.0A
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	21.5V ≤ V <sub>IN</sub> ≤ 33V
		-	-	0.5	mA	5mA ≤ I <sub>o</sub> ≤ 1.0A

# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

<b>eN</b>	Output Noise Voltage	-	110	-	μV	10Hz≤f≤100KHz
<b>ΔVo/ΔT</b>	Temperature coefficient of V <sub>OUT</sub>	-	-2.2	-	mV/°C	I <sub>o</sub> =5mA
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	53	69	-	dB	22V≤V <sub>IN</sub> ≤32V, f=120Hz
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	V <sub>IN</sub> =35V

For LM7824 (V<sub>IN</sub>=33V, T<sub>j</sub>= 25°C)

Symbol	Description	LM7824			Unit	Test Conditions
		Min.	Typ.	Max.		
<b>V<sub>o</sub></b>	Output Voltage	23.04	24.0	24.9 6	V	5mA ≤ I <sub>o</sub> ≤ 1.0A
		22.80	-	25.2 0	V	27V ≤ V <sub>IN</sub> ≤ 38V, 5mA ≤ I <sub>o</sub> ≤ 1.0A
<b>ΔV<sub>LOAD</sub></b>	Load Regulation	-	-	240	mV	5mA ≤ I <sub>o</sub> ≤ 1.0A
		-	-	120	mV	0.25A ≤ I <sub>o</sub> ≤ 0.75A
<b>ΔV<sub>LINE</sub></b>	Line Regulation	-	-	240	mV	21V ≤ V <sub>IN</sub> ≤ 33V
		-	-	240	mV	27V ≤ V <sub>IN</sub> ≤ 38V, I <sub>o</sub> =1.0A
<b>V<sub>D</sub></b>	Dropout Voltage	-	2.0	-	V	-
<b>I<sub>q</sub></b>	Quiescent Current	-	-	8.0	mA	I <sub>o</sub> ≤ 1.0A
<b>ΔI<sub>q</sub></b>	Quiescent Current Change	-	-	1.0	mA	28V ≤ V <sub>IN</sub> ≤ 38V
		-	-	0.5	mA	5mA ≤ I <sub>o</sub> ≤ 1.0A
<b>eN</b>	Output Noise Voltage	-	170	-	μV	10Hz≤f≤100KHz
<b>ΔVo/ΔT</b>	Temperature coefficient of V <sub>OUT</sub>	-	-2.8	-	mV/°C	I <sub>o</sub> =5mA
<b>PSRR</b>	Power Supply Ripple Rejection Ratio	50	66	-	dB	28V ≤ V <sub>IN</sub> ≤ 38V, f=120Hz
<b>I<sub>PEAK</sub></b>	Peak Output Current	-	1.8	-	A	-
<b>I<sub>sc</sub></b>	Short-Circuit Current	-	250	-	mA	V <sub>IN</sub> =35V

Note2: The Maximum steady state usable output current are dependent on the input voltage, heat sinking, lead length of the package and the copper pattern of the PCB. The data above represents pulse test conditions with junction temperature specified at the initiation of test.

# 1A Standard Positive Voltage Regulator

LM7847 ~ LM7824

## Typical Characteristics Curves

Fig.1- Dropout Voltage vs. Junction Temperature

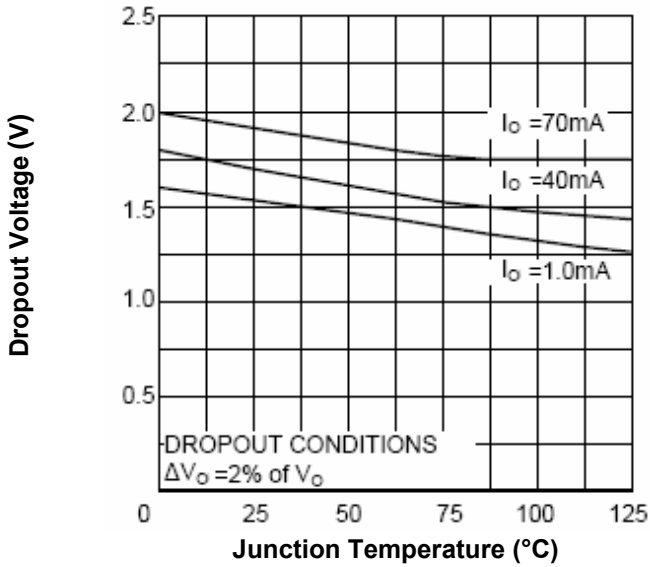


Fig.2- Output Voltage vs. Junction Temperature

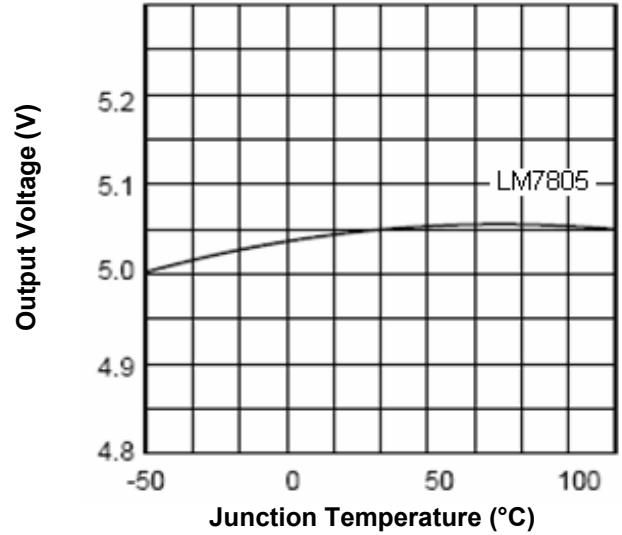


Fig.3- Power Dissipation vs. Junction Temperature

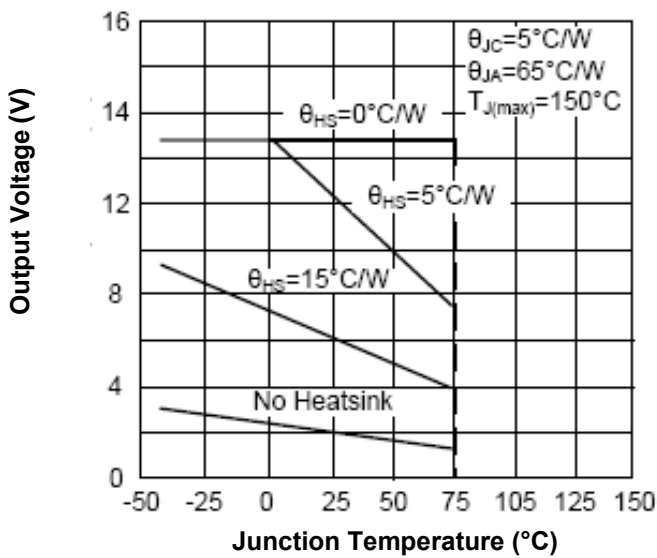
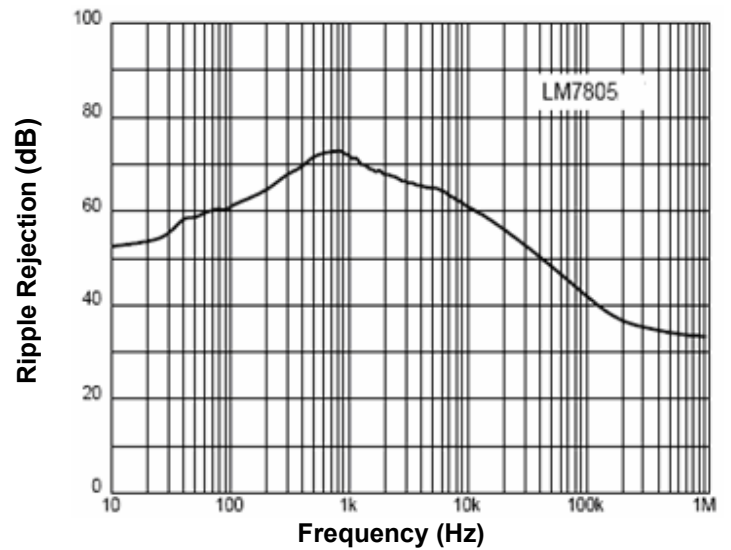


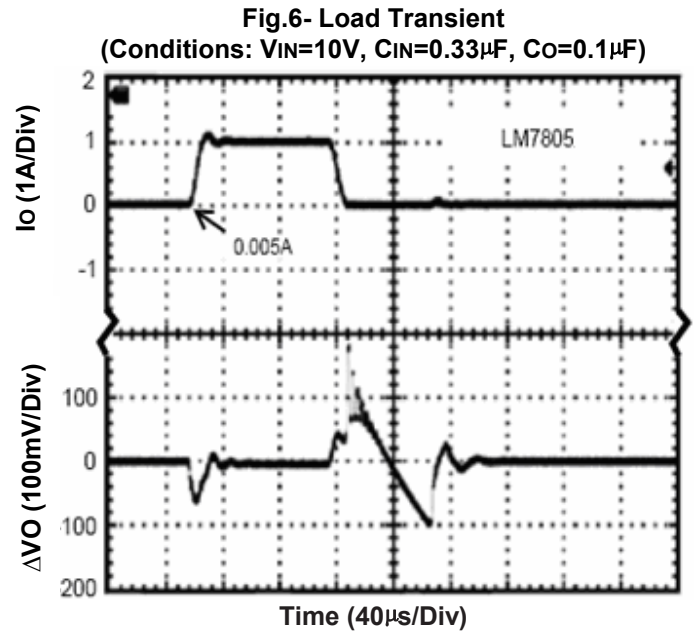
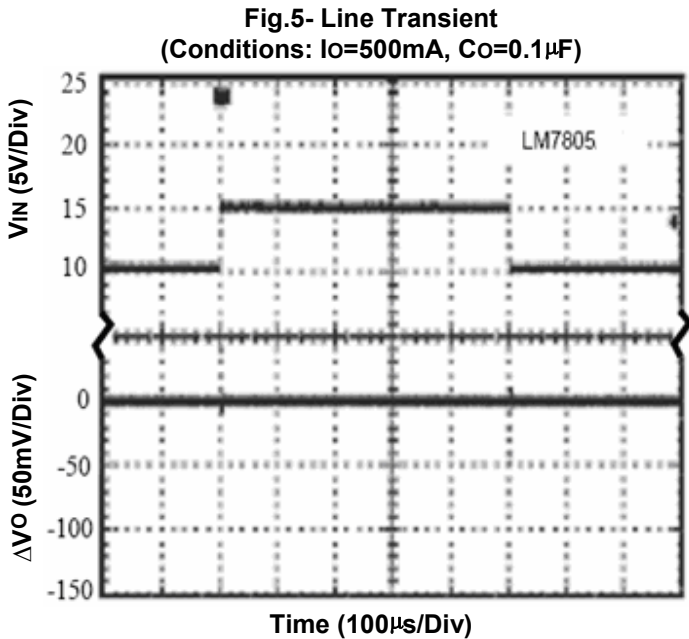
Fig.4- Ripple Rejection vs. Frequency



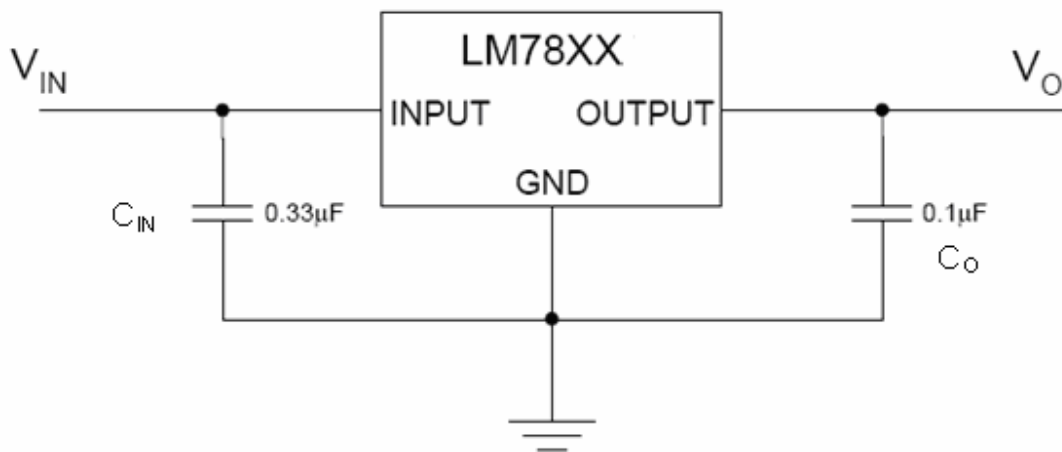
# 1A Standard Positive Voltage Regulator

LM7847 ~ LM7824

## Typical Characteristics Curves (Continued)



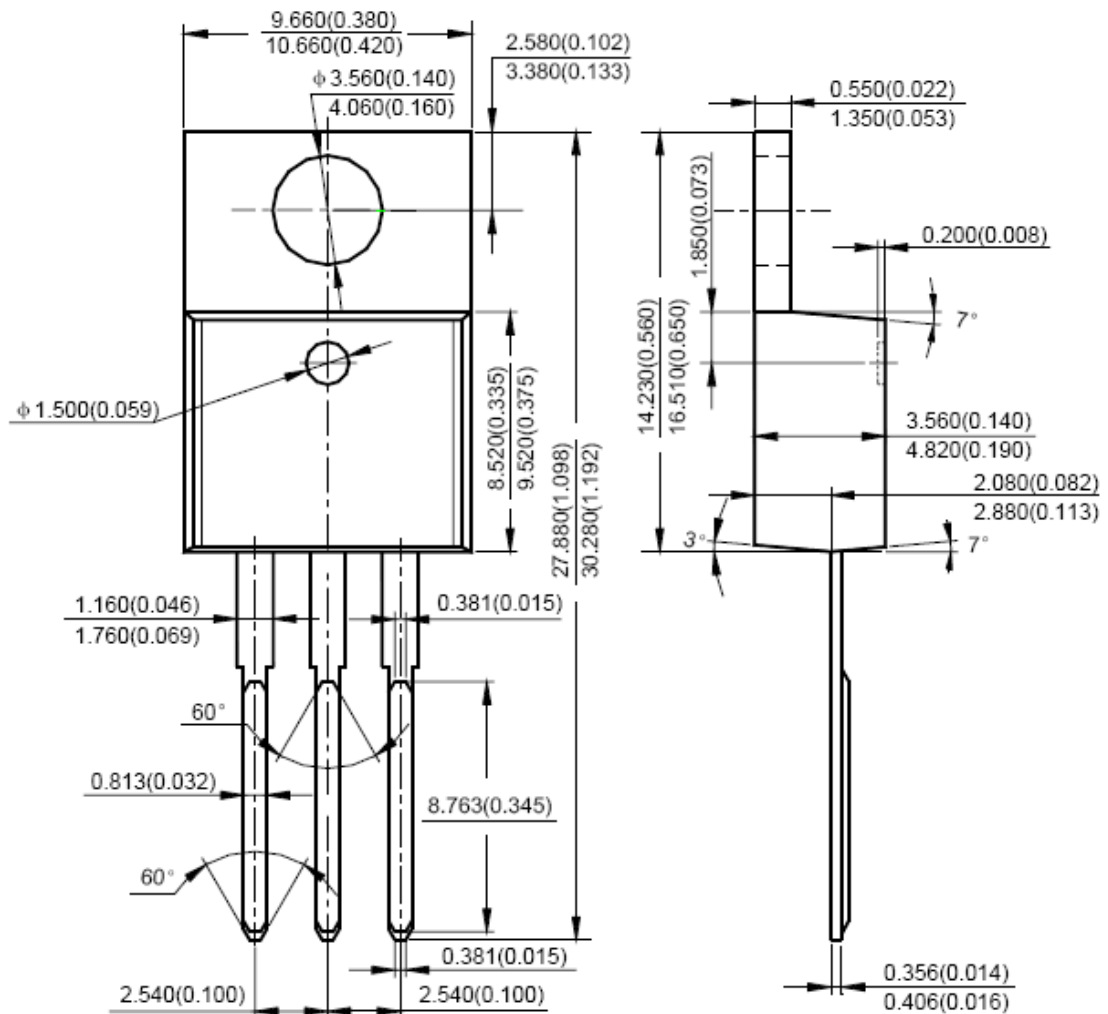
## Typical Application



# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824

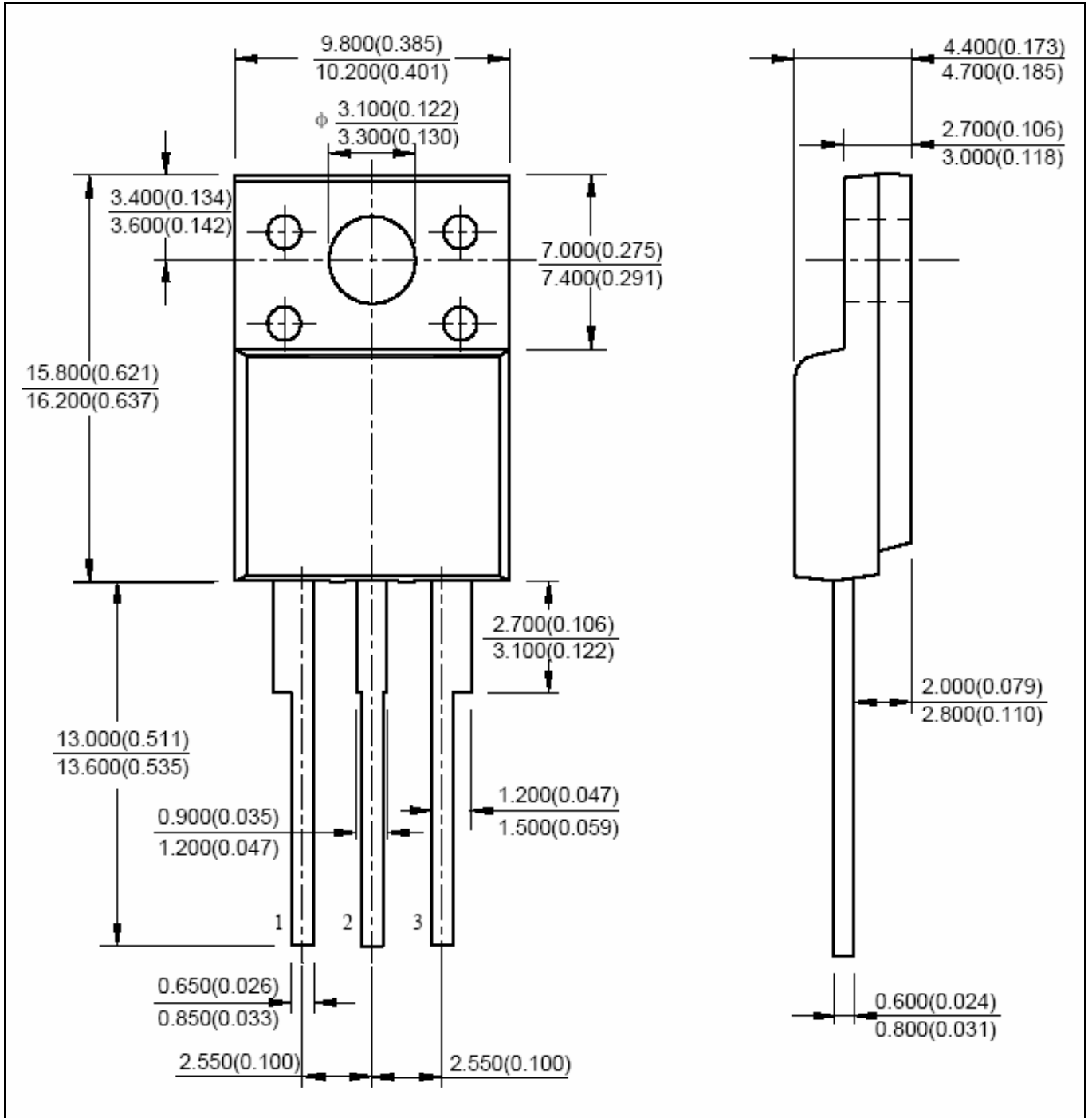
Dimensions in mm (inches)



TO-220

# 1A Standard Positive Voltage Regulator

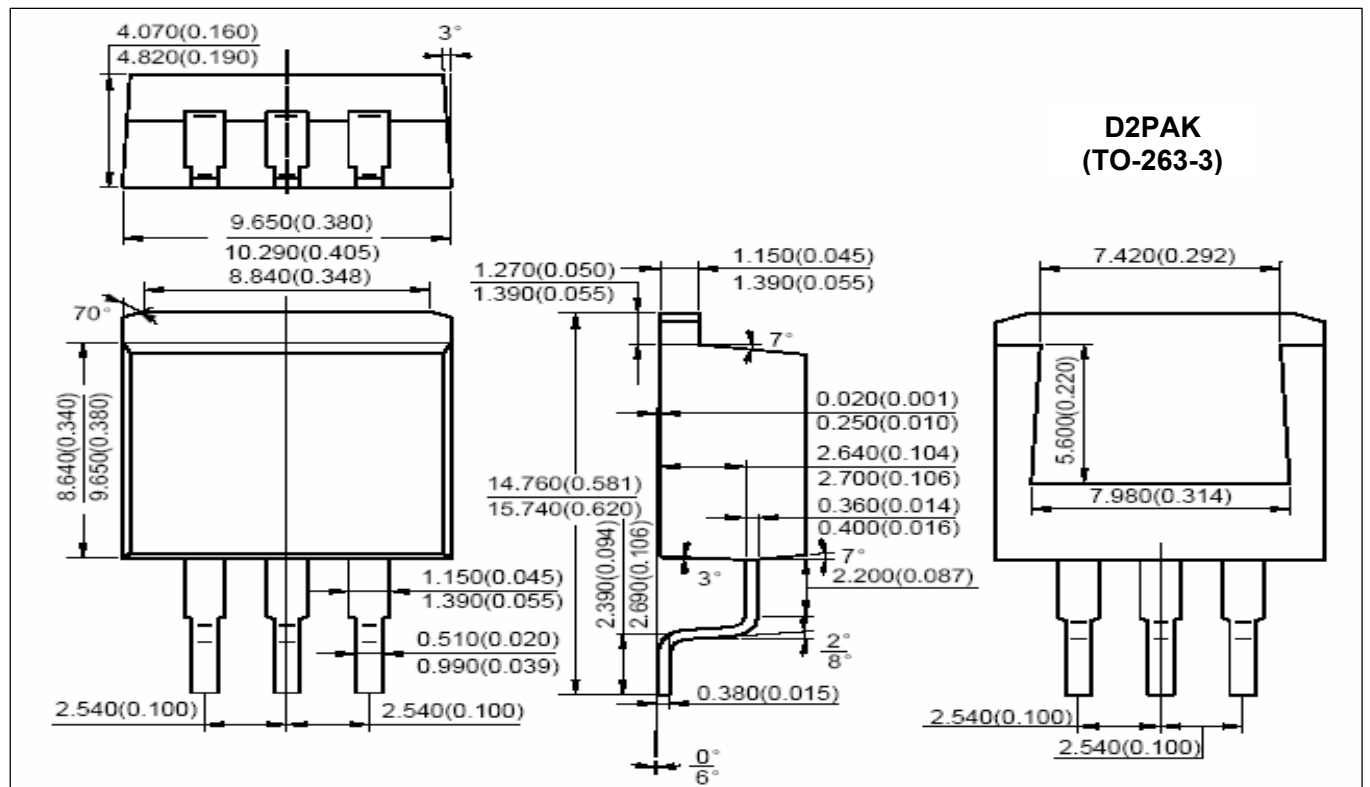
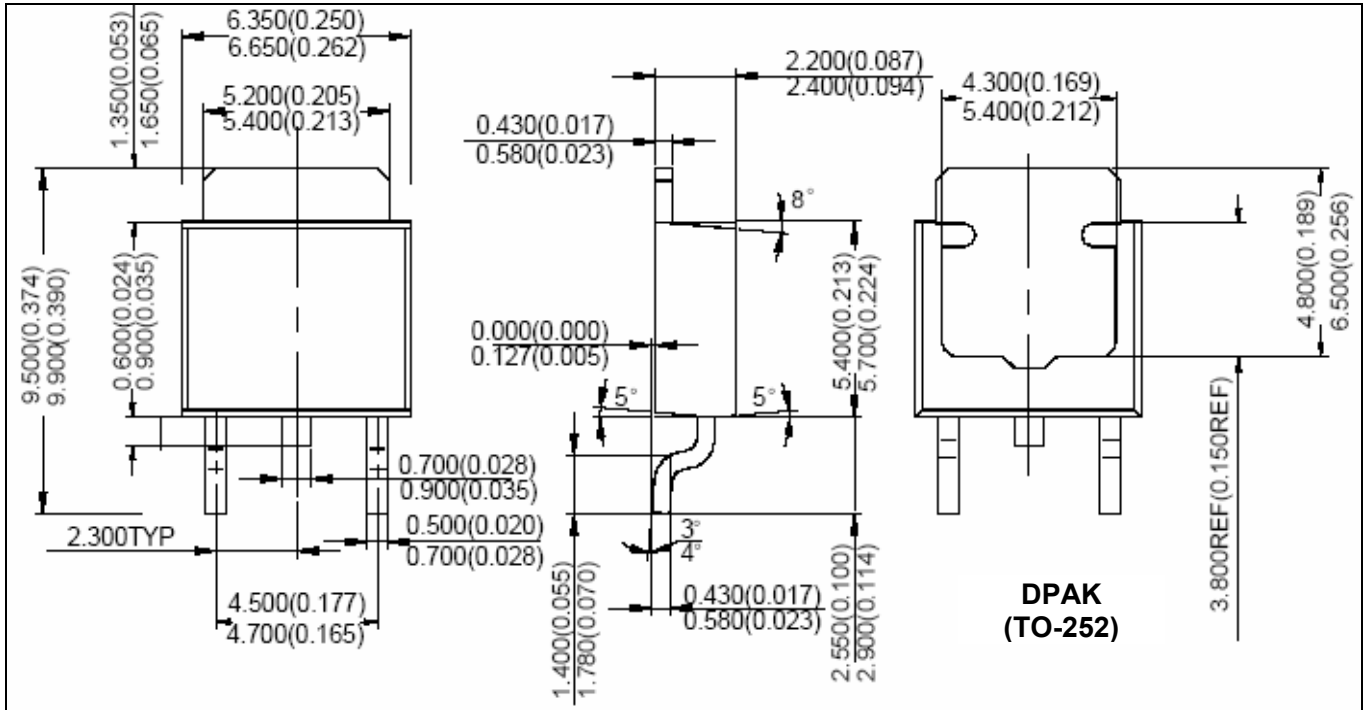
## LM7847 ~ LM7824



TO-220F

# 1A Standard Positive Voltage Regulator

## LM7847 ~ LM7824



# 1A Standard Positive Voltage Regulator

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LM7847 ~ LM7824

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