

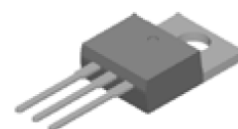
1A Positive Voltage Regulator

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



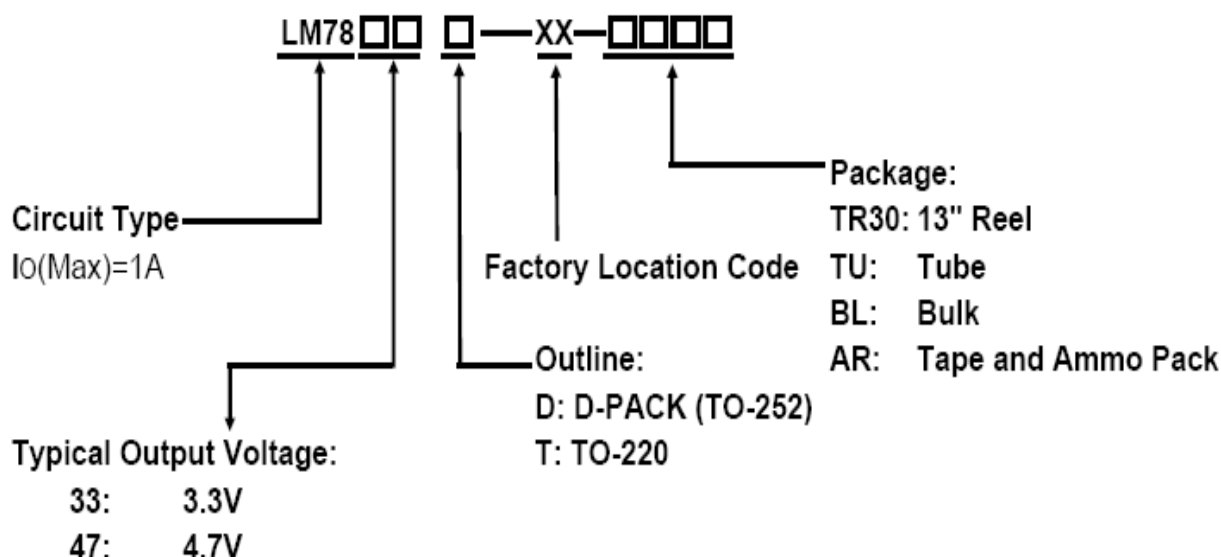
Features

- 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

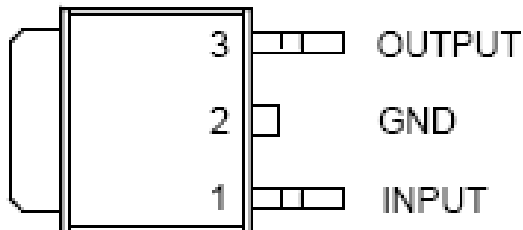
Ordering Information



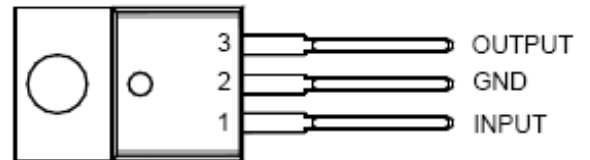
1A Positive Voltage Regulator

LM7833/LM7847

Pin Configuration

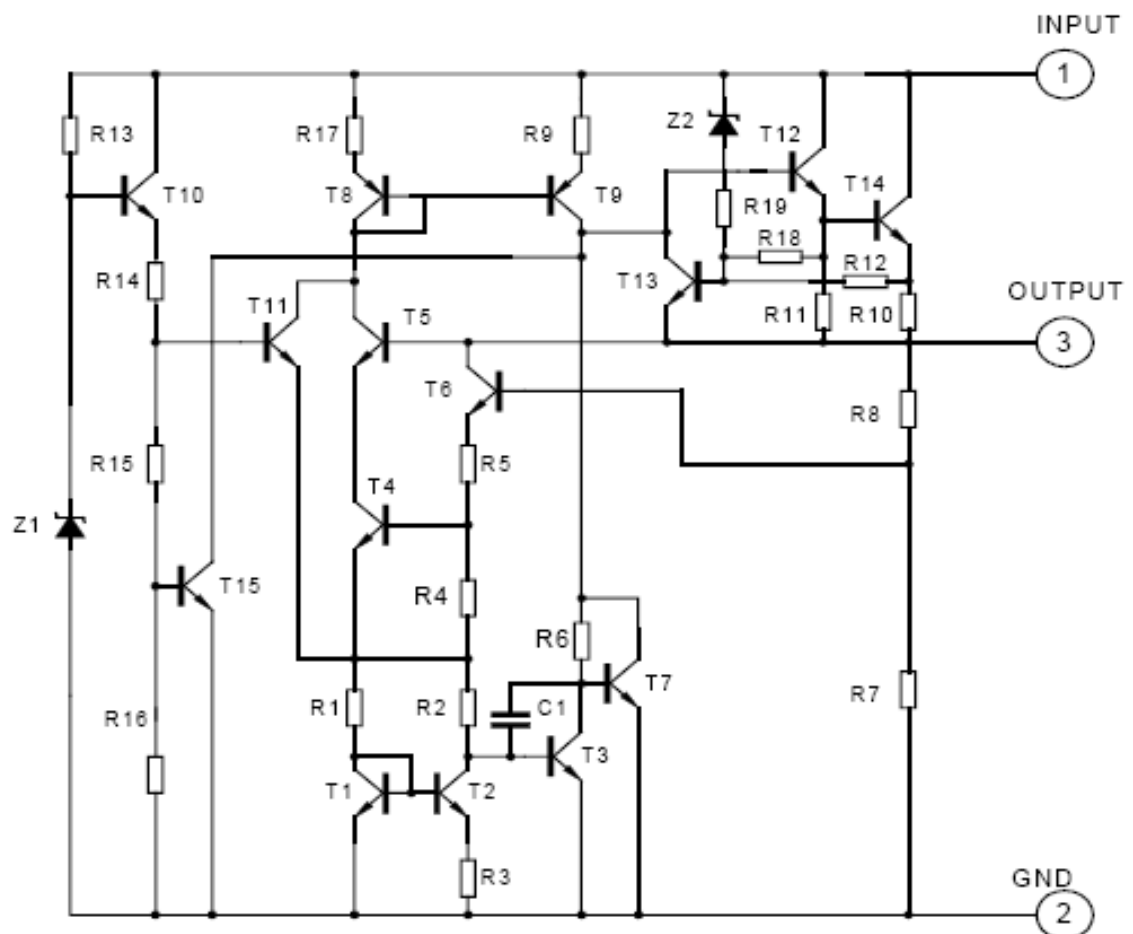


Outline: D
D-PACK
(TO-252)



Outline: T
TO-220

Block Diagram



1A Positive Voltage Regulator

LM7833/LM7847

Absolute Maximum Ratings

Symbol	Description		Ratings	Unit
V _{IN}	Input Voltage	V _{OUT} =3.3~18V	35	V
		V _{OUT} =20~24V	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° C, P_D ≤ 15W, unless otherwise specified)

For LM7833 (V_{IN}=5.8V, I_{OUT}=0.5A, C₁=0.33μF, C_O=0.1μF)

Symbol	Description	LM7833			Unit	Test Conditions
		Min.	Typ.	Max.		
V _{OUT}	Output Voltage	3.168	3.30	3.432	V	I _{OUT} =5mA-1.0A
		3.135	-	3.465	V	5.8V ≤ V _{IN} ≤ 18.3V, I _{OUT} =5mA-1.0A
ΔV _{OUT}	Load Regulation	-	-	33	mV	I _{OUT} =5mA-1.0A
		-	-	17	mV	I _{OUT} =0.25A-0.75A
ΔV _{OUT}	Line Regulation	-	-	33	mV	5.8V ≤ V _{IN} ≤ 18.3V
		-	-	33	mV	5.8V ≤ V _{IN} ≤ 18.3V, I _{OUT} =1.0A
I _Q	Quiescent Current	-	-	8.0	mA	I _{OUT} ≤ 1.0A
ΔI _Q	Quiescent Current Change	-	-	1.0	mA	5.8V ≤ V _{IN} ≤ 18.3V
		-	-	0.5	mA	I _{OUT} =5mA-1.0A
e _N	Output Noise Voltage	-	55	-	μV	10Hz ≤ f ≤ 100KHz
ΔV _O /ΔT	Temperature coefficient of V _{OUT}	-	-0.4	-	mV/°C	I _{OUT} =5mA
RR	Ripple Rejection	-	57	-	dB	6.3V ≤ V _{IN} ≤ 16.3V, 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	-

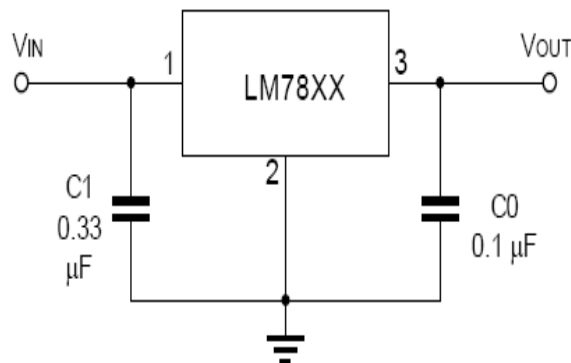
1A Positive Voltage Regulator

LM7833/LM7847

For LM7847 ($V_{IN}=9.7V$, $I_{OUT}=0.5A$, $C1=0.33\mu F$, $C0=0.1\mu F$)

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	$7.2V \leq V_{IN} \leq 19.7V$, $I_{OUT}=5mA-1.0A$
ΔV_{OUT}	Load Regulation	-	-	47	mV	$I_{OUT}=5mA-1.0A$
		-	-	24	mV	$I_{OUT}=0.25A-0.75A$
ΔV_{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	$I_{OUT} \leq 1.0A$
ΔI_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	-	μV	$10Hz \leq f \leq 100KHz$
$\Delta V_O/\Delta T$	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.

LM7833/LM7847

[illegible]

Technical drawing of a mechanical part, showing a front view (left) and a side view (right). Dimensions are provided in millimeters (mm) and inches (in).

Front View (Left):

- Overall width: 9.660 (0.380) / 10.660 (0.420)
- Top section width: 2.580 (0.102) / 3.380 (0.133)
- Top section height: 4.060 (0.160)
- Top section diameter: $\phi 3.560 (0.140)$
- Bottom section height: 8.520 (0.335) / 9.520 (0.375)
- Bottom section height: 27.880 (1.098) / 30.280 (1.192)
- Bottom section diameter: $\phi 1.500 (0.059)$
- Bottom section width: 1.160 (0.046) / 1.760 (0.069)
- Bottom section width: 0.381 (0.015)
- Bottom section height: 8.763 (0.345)
- Bottom section diameter: $\phi 0.813 (0.032)$
- Bottom section width: 2.540 (0.100)
- Bottom section width: 2.540 (0.100)
- Bottom section diameter: $\phi 0.381 (0.015)$
- Bottom section height: 0.813 (0.032)
- Bottom section angle: 60°
- Bottom section angle: 60°

Side View (Right):

- Overall height: 14.230 (0.560) / 16.510 (0.650)
- Top section height: 0.550 (0.022) / 1.350 (0.053)
- Top section width: 0.200 (0.008)
- Top section angle: 7°
- Top section height: 1.850 (0.073)
- Top section width: 3.560 (0.140) / 4.820 (0.190)
- Top section height: 2.080 (0.082) / 2.880 (0.113)
- Top section angle: 3°
- Top section angle: 7°
- Top section width: 0.356 (0.014) / 0.406 (0.016)

Page 5 of 6

1A Positive Voltage Regulator

LM7833/LM7847

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