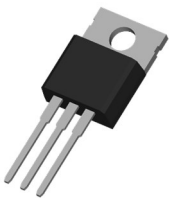
3-Terminal 1.5A Negative Voltage Regulator LM7905

FEATURES

- Output Current Up to 1.5A
- Internal Thermal Overload Protection
- Internal Short-Circuit Current Limiting
- Output Transistor Safe-Area Compensation
- Output Voltage of −5V



TO-220-3

DESCRIPTION

This LM7905 series of fixed-negative voltage monolithic integrated circuit voltage regulator is designed to complement LM7805 series in a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation.

Each of these regulators can deliver up to 1.5A of output current. The internal limiting and thermal shutdown features of these regulators make them essentially immune to overload. In addition to use as fixed-voltage regulators, these devices can be used with external components to obtain adjustable output voltages and current and also as the power pass element in precision regulators.

ORDERING INFORMATION

Device	Package
LM7905T	TO-220-3L

xx: Output Voltage

ABSOLUTE MAXIMUM RATINGS (Note 1)

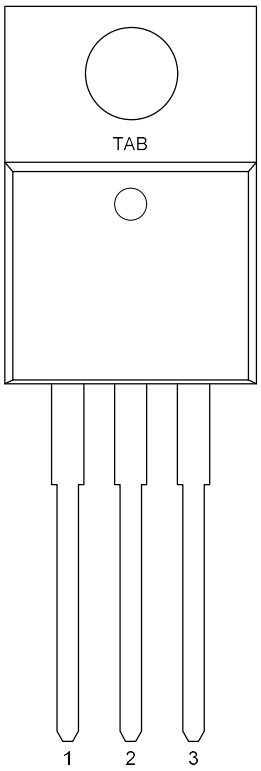
CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
Input Voltage	V_{IN}	-	−35	V
Maximum Operating Junction Temperature	T_J	−40	125	°C
Storage Temperature	T_{STG}	−65	150	°C

Note 1. Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

ORDERING INFORMATION

VOUT	Package	Order No.	Description	Supplied As	Status
−5.0V	TO-220-3L	LM7905T	1.5A, Fixed	Tube	Active

PIN CONFIGURATION

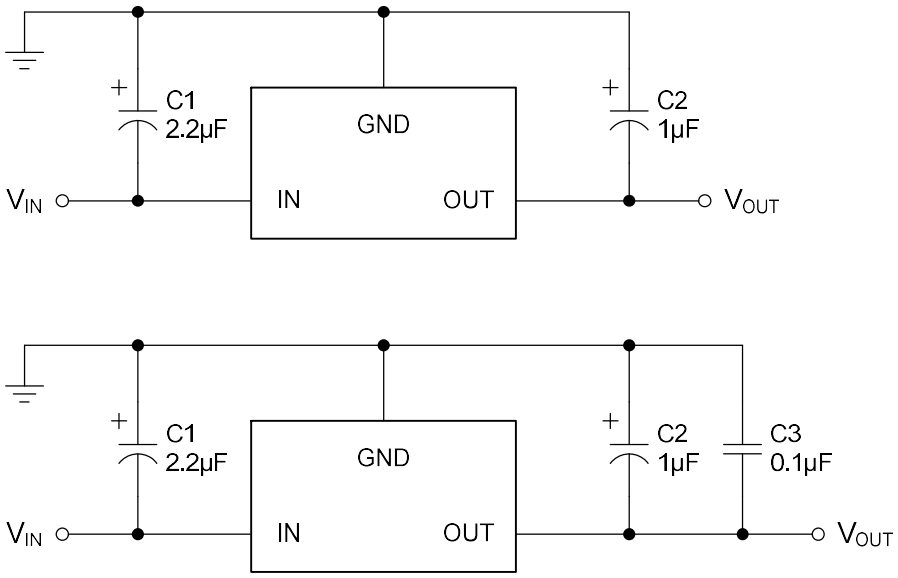


TO-220

PIN DESCRIPTION

Pin No.	Pin Name	Pin Function
1	GND	Ground
2	IN	Input Voltage
3	OUT	Output Voltage
TAB	TAB	Input Voltage

TYPICAL APPLICATION CIRCUITS



* C1 required for stability. Value given may be increased.

** C2 required for stability. Value given may be increased.

*** C3 considered improving the transient response.

ELECTRICAL CHARACTERISTICS: LM7905

Specifications with standard type face are for T_J = 25°C, and those with **boldface type** apply over full operating temperature range In the *Recommended Operating Ratings*. Conditions are V_{IN} = −10V, I_{OUT} = 500mA, C_{IN} = 2.2μF, C_{OUT} = 1μF, unless otherwise noted.

PARAMETER	SYMBOL	TEST CONDITIONS (Note 3)	MIN	TYP	MAX	UNIT
Output Voltage (Note 4)	V_{OUT}		−4.80	−5.0	−5.20	V
		−20V ≤ V_{IN} ≤ −7.0V, 5.0mA ≤ I_{OUT} ≤ 1.0A	**−4.75**	**−5.0**	**−5.25**	
Line Regulation	ΔV_{LINE}	−25V ≤ V_{IN} ≤ −7.0V, I_{OUT} = 100mA	-	-	47.5	mV
		−12V ≤ V_{IN} ≤ −8.0V, I_{OUT} = 100mA	-	-	23.5	
		−25V ≤ V_{IN} ≤ −7.0V, I_{OUT} = 500mA	-	-	95.0	
		−12V ≤ V_{IN} ≤ −8.0V, I_{OUT} = 500mA	-	-	47.5	
Load Regulation	ΔV_{LOAD}	5.0mA ≤ I_{OUT} ≤ 1.5A	-	-	95	mV
		250mA ≤ I_{OUT} ≤ 750mA	-	-	47.5	
Dropout Voltage	V_D	I_{OUT} = 1.0A	-	2.0	-	V
Bias Current	I_B		-	-	7.8	mA
Bias Current Change	ΔI_B	−25V ≤ V_{IN} ≤ −7.0V	-	-	1.25	mA
		5.0mA ≤ I_{OUT} ≤ 1.5A	-	-	0.48	
Peak Output Current	I_{OMAX}		-	2.2	-	A
Ripple Rejection	RR	I_{OUT} = 0.2A, Frequency = 100Hz -8.0V ≤ V_{IN} ≤ -18.0V	-	70	-	dB

Note 3. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately.

Note 4. This specification applies only for DC power dissipation permitted by absolute maximum ratings.

TYPICAL OPERATING CHARACTERISTICS

T.B.D.

APPLICATION INFORMATION

T.B.D.

REVISION NOTICE

The description in this datasheet is subject to change without any notice to describe its electrical characteristics properly.