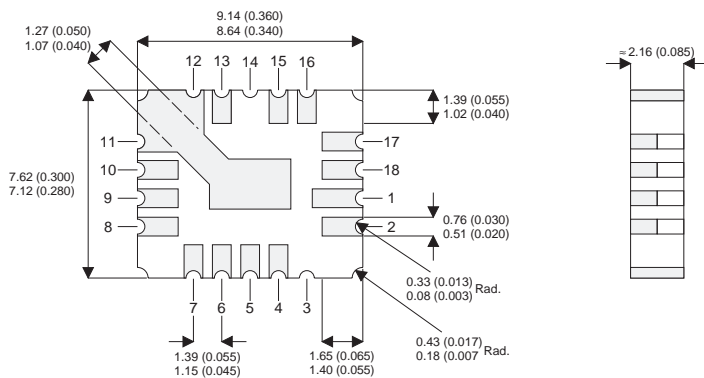


1.5 AMP NEGATIVE VOLTAGE REGULATOR

MECHANICAL DATA

Dimensions in mm (inches)



FEATURES

- OUTPUT VOLTAGE OF -5V
- THERMAL OVERLOAD PROTECTION
- SHORT CIRCUIT PROTECTION³
- OUTPUT TRANSISTOR SOA PROTECTION

LCC4 CERAMIC SURFACE MOUNT

Pins 4,5	- V_{OUT}
Pins 6,7,8,9,10,11,12,13	- GND
Pins 15,16,17,18,1,2	- V_{IN}

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_I	DC Input Voltage	35V
P_D	Power Dissipation	Internally limited
T_j	Operating Junction Temperature Range	-55 to 150°C
T_{stg}	Storage Temperature	-65 to 150°C

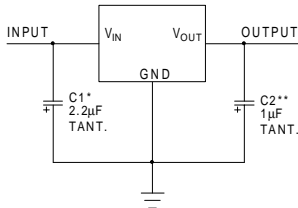
Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

Parameter	Test Conditions	LM7905XE			Units
		Min.	Typ.	Max.	
V_O Output Voltage	$I_O = 500\text{mA}$ $V_{IN} = -10\text{V}$	-4.9	-5	-5.1	V
	$I_O = 5\text{mA to } I_{MAX}$ $V_{IN} = -7.5\text{V to } -20\text{V}$	-4.8		-5.2	
	$P_D \leq P_{MAX}$ $T_J = -55 \text{ to } 150^\circ\text{C}$				
ΔV_O Line Regulation	$I_O = 0.5 I_{MAX}$	$V_{IN} = -7\text{V to } -25\text{V}$	3	25	mV
		$V_{IN} = -7.5\text{V to } -20\text{V}$	3	50	
	$V_{IN} = -8\text{V to } -12\text{V}$	1	25		
ΔV_O Load Regulation	$V_{IN} = -10\text{V}$	$T_J = -55 \text{ to } 150^\circ\text{C}$	2	50	mV
		$I_O = 5\text{mA to } 1.5\text{A}$	25	100	
		$I_O = 5\text{mA to } I_{MAX}$ $T_J = -55 \text{ to } 150^\circ\text{C}$	25	100	
I_Q Quiescent Current	$I_O \leq 0.5 I_{MAX}$ $V_{IN} = -10\text{V}$	$T_J = -55 \text{ to } 150^\circ\text{C}$	1	1.9	mA
			1	2	
ΔI_Q Quiescent Current Change	$I_O = 5\text{mA to } I_{MAX}$ $V_{IN} = -10\text{V}$	$T_J = -55 \text{ to } 150^\circ\text{C}$	0.2	0.4	mA
			0.2	0.5	
V_N Output Noise Voltage	$f = 10\text{Hz to } 100\text{kHz}$ $V_{IN} = -10\text{V}$		100		μV
$\frac{\Delta V_{IN}}{\Delta V_O}$ Ripple Rejection	$f = 120\text{Hz}$ $V_{IN} = -8\text{V to } -18\text{V}$	$I_O \leq I_{MAX}$	54		dB
		$I_O \leq 0.5 I_{MAX}$ $T_J = -55 \text{ to } 150^\circ\text{C}$	54		
Dropout Voltage	$I_O = I_{MAX}$		1.4		V
R_O Output Resistance	$f = 1 \text{ kHz}$		5		$\text{m}\Omega$
I_{sc} Short Circuit Current	$V_{IN} = -35\text{V}$		0.6	1.2	A
I_{pk} Peak Output Current Average	$V_{IN} = -10\text{V}$		2.4	3.3	
Temperature Coefficient of V_O	$I_O = 5\text{mA}$		0.2		$\frac{\text{mV}}{^\circ\text{C}}$
Input Voltage required to maintain line regulation	$I_O \leq I_{MAX}$	-7.3			V

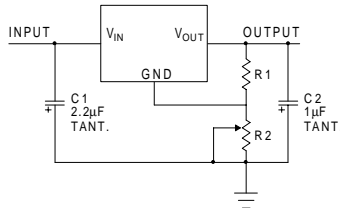
- 1) All characteristics are measured with a capacitor across the input of $0.22\mu\text{F}$ and a capacitor across the output of $0.1\mu\text{F}$.
- 2) All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques ($t_p \leq 10\text{ms}$, $\delta \leq 5\%$). Output voltage changes due to changes in internal temperature must be taken into account separately.
- 3) External current limiting circuitry may be required in order to maintain safe area of operation.

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APPLICATIONS INFORMATION

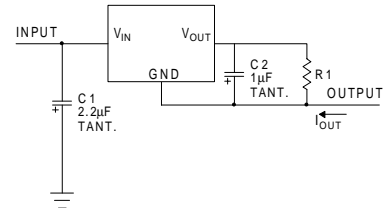


Fixed Output Regulator



Adjustable Output Regulator

$$V_{OUT} \approx V_{REG} \frac{(R1+R2)}{R1}$$



Current Regulator

$$I_{OUT} = \frac{V_{REG}}{R1} + I_Q$$

- * Required if the regulator is located far from the power supply.
- ** Required for stability. 25µF electrolytic may be substituted.