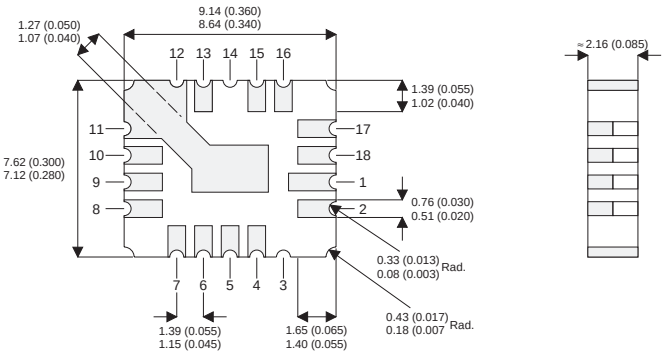
LM7905XE

1.5 AMP NEGATIVE VOLTAGE REGULATOR

MECHANICAL DATA
Dimensions in mm (inches)



FEATURES

- **OUTPUT VOLTAGE OF -5V**
- **THERMAL OVERLOAD PROTECTION**
- **SHORT CIRCUIT PROTECTION**[3]
- **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°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

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LM7905XE

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

1) All characteristics are measured with a capacitor across the input of 0.22µF and a capacitor across the output of 0.1µF.

2) All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques ($t_p \le$ 10ms, $\delta \le$ 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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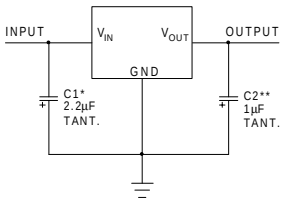
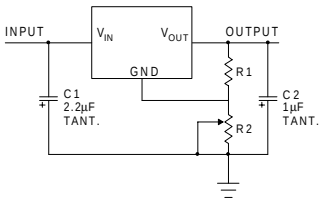
APPLICATIONS INFORMATION



Fixed Output Regulator

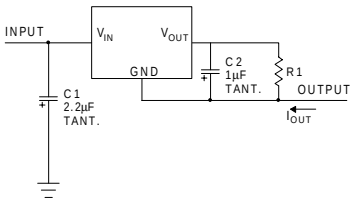
* Required if the regulator is located far from the power supply.

** Required for stability. 25µF electrolytic may be substituted.



Adjustable Output Regulator

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



Current Regulator

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

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