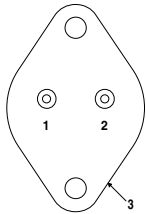
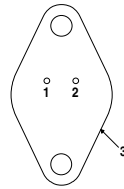


1.5 AMP NEGATIVE VOLTAGE REGULATOR



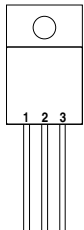
Pin 1 – Ground
Pin 2 – V_{OUT}
Case – V_{IN}

K Package – TO-3



Pin 1 – Ground
Pin 2 – V_{OUT}
Case – V_{IN}

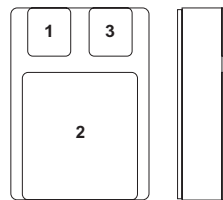
R Package – TO-66



Pin 1 – Ground
Pin 2 – V_{IN}
Pin 3 – V_{OUT}
Case – V_{IN}

G Package – TO-257
IG Package – TO-257*

* isolated Case on IG package



Pin 1 – Ground
Pin 2 – V_{IN}
Pin 3 – V_{OUT}

SMD Package – SMD1
Ceramic Surface Mount

FEATURES

- OUTPUT VOLTAGE OF -5V
- 0.7% / V LINE REGULATION AVAILABLE
- 0.5% / A LOAD REGULATION AVAILABLE
- THERMAL OVERLOAD PROTECTION
- SHORT CIRCUIT PROTECTION
- OUTPUT TRANSISTOR SOA PROTECTION
- 1% VOLTAGE TOLERANCE OPTION
(-A VERSIONS)

DESCRIPTION

The A suffix devices provide 0.7% / V line regulation, 0.5% / A load regulation and $\pm 1\%$ output voltage tolerance at room temperature.

Protection features include Safe Operating Area current limiting and thermal shutdown.

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

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Parameter	Test Conditions	LM7905A LM120A-05			LM7905, LM120-05 LM120-05			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
V _O Output Voltage	I _O = 500mA V _{IN} = -10V	-4.95	-5	-5.05	-4.9	-5	-5.1	V
	I _O = 5mA to I _{MAX} P _D ≤ P _{MAX} V _{IN} = -7.5V to -20V T _J = -55 to 150°C	-4.85		-5.15	-4.8		-5.2	
ΔV _O Line Regulation	I _O = 0.5 I _{MAX} V _{IN} = -7V to -25V	3		10	3		25	mV
		3		10	3		50	
	V _{IN} = -8V to -12V I _O ≤ I _{MAX} T _J = -55 to 150°C	1		4	1		25	
ΔV _O Load Regulation	V _{IN} = -10V I _O = 5mA to 1.5A	25		35	25		100	mV
		25		35	25		100	
I _Q Quiescent Current	I _O ≤ 0.5 I _{MAX} V _{IN} = -10V T _J = -55 to 150°C	1		1.9	1		1.9	mA
		1		2	1		2	
ΔI _Q Quiescent Current Change	I _O = 5mA to I _{MAX} V _{IN} = -10V T _J = -55 to 150°C	0.2		0.4	0.2		0.4	mA
		0.2		0.5	0.2		0.5	
V _N Output Noise Voltage	f = 10Hz to 100kHz V _{IN} = -10V	100			100			μV
ΔV _{IN} / ΔV _O Ripple Rejection	f = 120Hz I _O ≤ I _{MAX}	58			54			dB
	V _{IN} = -8V to -18V I _O ≤ 0.5 I _{MAX} T _J = -55 to 150°C	58			54			
Dropout Voltage	I _O = I _{MAX}	1.4			1.4			V
R _O Output Resistance	f = 1 kHz	5			5			mΩ
I _{sc} Short Circuit Current	V _{IN} = -35V	0.6		1.2	0.6		1.2	A
I _{pk} Peak Output Current Average	V _{IN} = -10V	2.4		3.3	2.4		3.3	
Temperature Coefficient of V _O	I _O = 5mA	0.2			0.2			mV/°C
Input Voltage required to maintain line regulation	I _O ≤ I _{MAX}	-7.3			-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.

All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques (t_p ≤ 10ms, δ ≤ 5%). Output voltage changes due to changes in internal temperature must be taken into account separately.

2) Test Conditions unless otherwise stated: P_{MAX} = 10W for SMD, P_{MAX} = 20W for all other package devices

$$I_{MAX} = 1.0A, T_J = 25^{\circ}C$$

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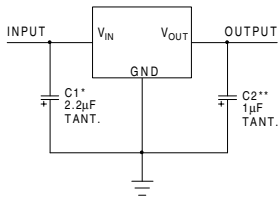
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E-mail: sales@semelab.co.uk Website: <http://www.semelab.co.uk>

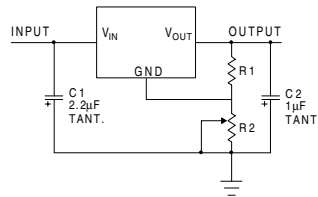
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APPLICATIONS INFORMATION

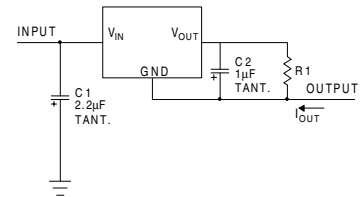


Fixed Output Regulator



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.

Order Information

Part Number	K-Pack (TO-3)	R-Pack (TO-66)	G/IG-Pack (TO-257)	SMD-Pack SMD1	Temp. Range	Note: To order, add the package identifier to the part number. eg. LM7905AK LM120SMD-05
LM7905A	✓	✓	✓	✓	-55 to +150°C	
LM7905	✓	✓	✓	✓	"	
LM120A-05	✓	✓	✓	✓	"	
LM120-05	✓	✓	✓	✓	"	

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