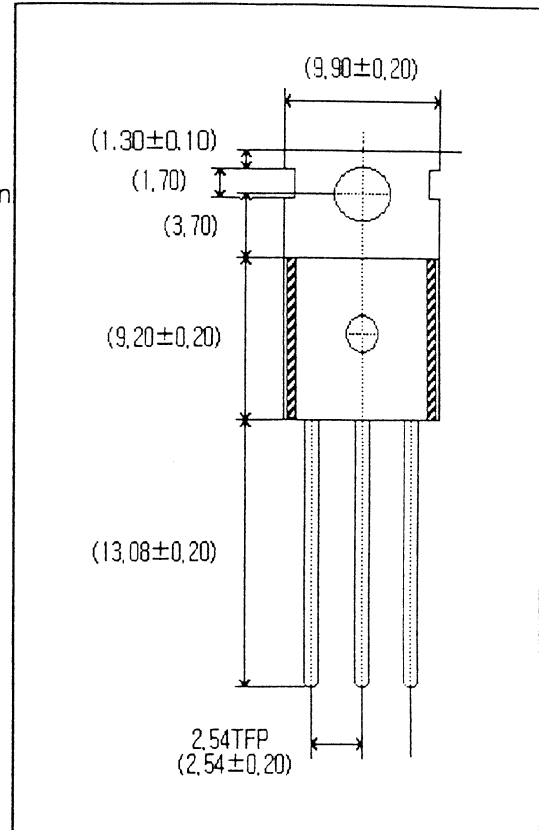


3-TERMINAL 1A NEGATIVE VOLTAGE REGULATORS

The LM79XX series of three-terminal negative regulators, are designed for a wide range of applications.

This series are available in TO-220 package and with several fixed output voltages.

Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible.



FEATURES

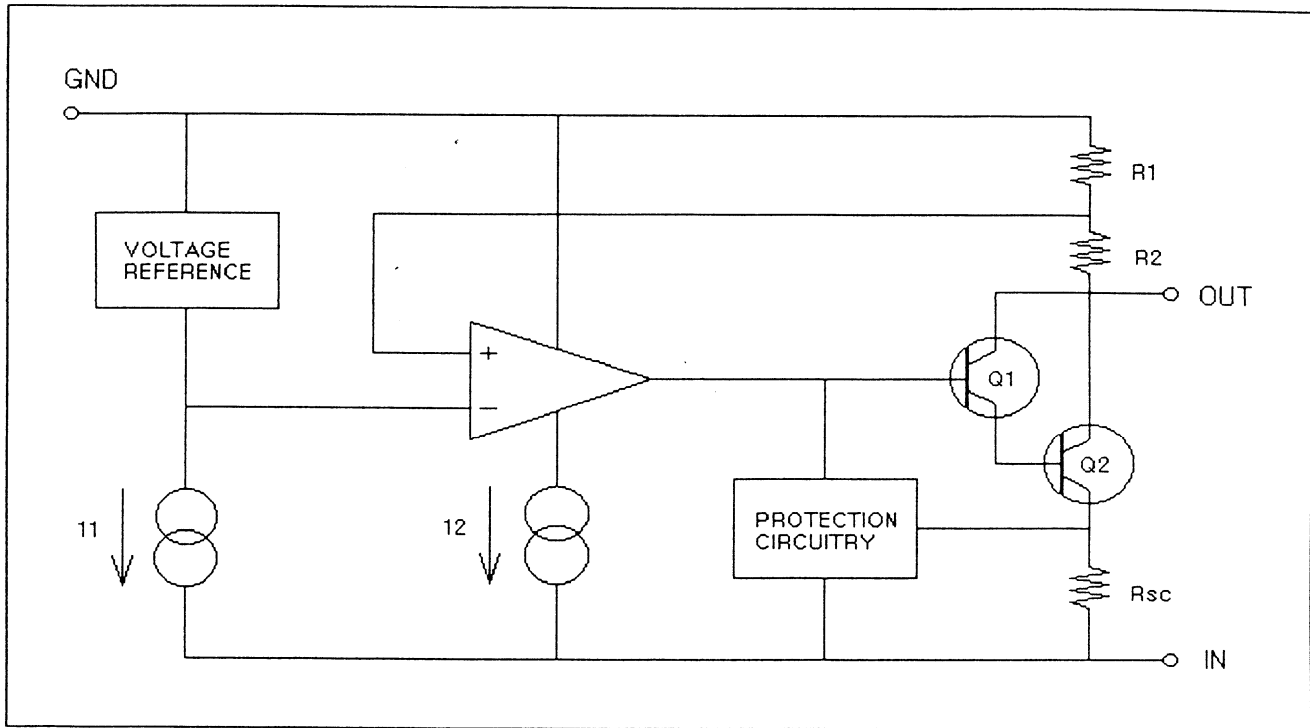
- ◇ Output current in excess of 1A
- ◇ Output voltages of -5, -6, -8, -12, -15, -18, -24V
- ◇ Internal thermal overload protection
- ◇ Short circuit protection
- ◇ Output transistor safe-area compensation

ABSOLUTE MAXIMUM RATINGS

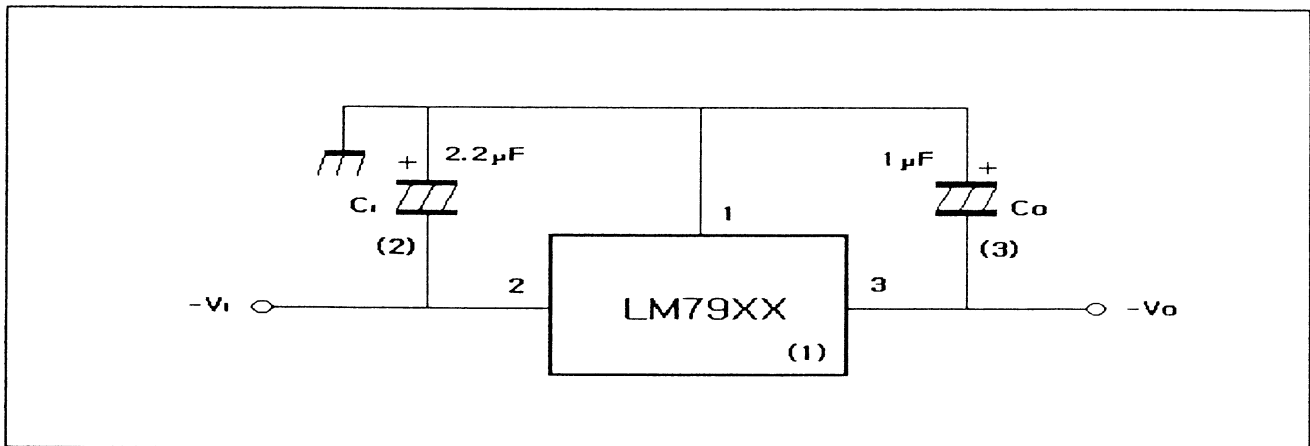
Characteristic	Symbol	Value	Unit
Input Voltage	V_i	-35	V
Thermal Resistance Junction-Cases	$R_{\theta JC}$	5	$^{\circ}\text{C}/\text{W}$
Junction-Air	$R_{\theta JA}$	65	$^{\circ}\text{C}/\text{W}$
Operating Temperature Range	T_{OPR}	0 ~ +125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-65 ~ +150	$^{\circ}\text{C}$

For more information, or to purchase call 1-800-214-8769

1. BLOCK DIAGRAM



2. TYPICAL APPLICATIONS



Notes :

- (1) To specify an output voltage, substitute voltage value for "XX"
- (2) C_i is required if regulator is located in appreciable distance from power supply filter.
- (3) C_o improves stability and transient response.

For more information, or to purchase call 1-800-214-8769

LM7905 ELECTRICAL CHARACTERISTICS

(V_i=10V, I_o=500mA, 0°C ≤ T_J ≤ 125°C, C_i=2.2μF, C_o=1μF, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit
Output Voltage	V _o	T _J =25°C	-4.9	-5	-5.1	V
		I _o =5mA to 1A, P _o ≤ 15W V _i =-7V to -20V	-4.8	-5	-5.2	
Line Regulation	ΔV _o	T _J =25°C	V _i =-7V to -20V I _o =1A	5	50	mV
		V _i =-8V to -12V I _o =1A		2	25	
		V _i =-7.5V to -25V	7	50		
		V _i =-8 to -12V, I _o =1A	7	50		
Load Regulation	ΔV _o	I _o =5mA to 1.5A		10	100	mV
		T _J =25°C I _o =250mA to 750mA		3	50	
Quiescent Current	I _q	T _J =25°C		3	6	mA
Quiescent Current Change	ΔI _q	I _o =5mA to 1A		0.05	0.5	mA
		V _i =-8 to -25V		0.1	0.8	
Temperature Coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-0.4		mV/°C
Output Noise Voltage	V _N	f=10Hz to 100Khz, T _A =25°C		40		μV
Ripple Rejection	RR	f=120Hz, I _o =-35V ΔV _i =10V	54	60		dB
Dropout Voltage	V _D	T _J =25°C, I _o =1A		2		V
Short Circuit Current	I _{sc}	T _J =25°C, V _i =-35V		300		mA
Peak Current	I _{PK}	T _J =25°C		2.2		A

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

For more information, or to purchase call 1-800-214-8769

LM7906 ELECTRICAL CHARACTERISTICS

(V_i=11V, I_o=500mA, 0°C ≤ T_J ≤ 125°C, C_i=2.2μF, C_o=1μF, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit
Output Voltage	V _o	T _J =25°C	-5.75	-6	-6.25	V
		I _o =5mA to 1A, P _o ≤ 15W V _i =-9V to -21V	-5.7	-6	-6.3	
Line Regulation	ΔV _o	T _J =25°C	V _i =-8V to -25V	10	120	mV
			V _i =-9V to -12V	5	60	
Load Regulation	ΔV _o	T _J =25°C		10	120	mV
		I _o =5mA to 1.5A				
		T _J =25°C		3	60	
		I _o =250mA to 750mA				
Quiescent Current	I _q	T _J =25°C		3	6	mA
Quiescent Current Change	ΔI _q	I _o =5mA to 1A			0.5	mA
		V _i =-9 to -25V			1.3	
Temperature Coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-0.5		mV/°C
Output Noise Voltage	V _N	f=10Hz to 100Khz, T _A =25°C		130		μV
Ripple Rejection	RR	f=120Hz, ΔV _i =10V	54	60		dB
Dropout Voltage	V _D	T _J =25°C, I _o =1A		2		V
Short Circuit Current	I _{sc}	T _J =25°C, V _i =-35V		300		mA
Peak Current	I _{PK}	T _J =25°C		2.2		A

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

LM7908 ELECTRICAL CHARACTERISTICS

(V_I=14V, I_o=500mA, 0°C ≤ T_J ≤ 125°C, C_i=2.2μF, C_o=1μF, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit	
Output Voltage	V _o	T _J =25°C	-7.7	-8	-8.3	V	
		I _o =5mA to 1A, P _o ≤ 15W V _I =-1.5V to -23V	-7.6	-8	-8.4		
Line Regulation	ΔV _o	T _J =25°C	V _I =-10.5V to -25V		10	100	mV
			V _I =-11V to -17V		5	80	
Load Regulation	ΔV _o	T _J =25°C	I _o =5mA to 1.5A		12	160	mV
			T _J =25°C I _o =250mA to 750mA		4	80	
Quiescent Current	I _q	T _J =25°C		3	6	mA	
Quiescent Current Change	ΔI _q	I _o =5mA to 1A V _I =-11.5 to -25V		0.05	0.5	mA	
				0.1	1		
Temperature Coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-0.6		mV/°C	
Output Noise Voltage	V _N	f=10Hz to 100KHz, T _A =25°C		175		μV	
Ripple Rejection	RR	f=120Hz, ΔV _I =10V	54	60		dB	
Dropout Voltage	V _D	T _J =25°C, I _o =1A		2		V	
Short Circuit Current	I _{sc}	T _J =25°C, V _I =-35V		300		mA	
Peak Current	I _{PK}	T _J =25°C		2.2		A	

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

LM7909 ELECTRICAL CHARACTERISTICS

($V_i=14V$, $I_o=500mA$, $0^\circ C \leq T_J \leq 125^\circ C$, $C_i=2.2\mu F$, $C_o=1\mu F$, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit	
Output Voltage	V_o	$T_J=25^\circ C$	-8.7	-9	-9.3	V	
		$I_o=5mA$ to 1A, $P_o \leq 15W$ $V_i=-1.5V$ to -23V	-8.6	-9	-9.4		
Line Regulation	ΔV_o	$T_J=25^\circ C$	$V_i=-10.5V$ to -25V		10	180	mV
			$V_i=-11V$ to -17V		5	90	
Load Regulation	ΔV_o	$T_J=25^\circ C$	$I_o=5mA$ to 1.5A		12	180	mV
			$I_o=250mA$ to 750mA		4	90	
Quiescent Current	I_q	$T_J=25^\circ C$		3	6	mA	
Quiescent Current Change	ΔI_q	$T_J=25^\circ C$	$I_o=5mA$ to 1A		0.05	0.5	mA
			$V_i=-11.5$ to -25V		0.1	1	
Temperature Coefficient of V_o	$\Delta V_o/\Delta T$	$I_o=5mA$		-0.6		mV/ $^\circ C$	
Output Noise Voltage	V_N	$f=10Hz$ to 100KHz, $T_A=25^\circ C$		175		μV	
Ripple Rejection	RR	$f=120Hz$, $\Delta V_i=10V$	54	60		dB	
Dropout Voltage	V_D	$T_J=25^\circ C$, $I_o=1A$		2		V	
Short Circuit Current	I_{sc}	$T_J=25^\circ C$, $V_i=-35V$		300		mA	
Peak Current	I_{PK}	$T_J=25^\circ C$		2.2		A	

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

LM7912 ELECTRICAL CHARACTERISTICS

(V_i=18V, I_o=500mA, 0°C ≤ T_J ≤ 125°C, C_i=2.2μF, C_o=1μF, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit
Output Voltage	V _o	T _J =25°C	-11.5	-12	-12.5	V
		I _o =5mA to 1A, P _o ≤ 15W	-11.4	-12	-12.6	
		V _i =-15.5V to -27V				
Line Regulation	ΔV _o	T _J =25°C	V _i =-14.5V to -30V	12	240	mV
			V _i =-16V to -22V	6	120	
Load Regulation	ΔV _o	T _J =25°C	I _o =5mA to 1.5A	12	240	mV
			I _o =250mA to 750mA	4	120	
		T _J =25°C				
Quiescent Current	I _q	T _J =25°C		3	6	mA
Quiescent Current Change	ΔI _q	I _o =5mA to 1A	V _i =-15 to -30V	0.05	0.5	mA
				0.1	1	
Temperature Coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-0.8		mV/°C
Output Noise Voltage	V _N	f=10Hz to 100KHz, T _A =25°C		200		μV
Ripple Rejection	RR	f=120Hz, ΔV _i =10V	54	60		dB
Dropout Voltage	V _D	T _J =25°C, I _o =1A		2		V
Short Circuit Current	I _{sc}	T _J =25°C, V _i =-35V		300		mA
Peak Current	I _{PK}	T _J =25°C		2.2		A

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

LM7915 ELECTRICAL CHARACTERISTICS

(V_i=23V, I_o=500mA, 0°C ≤ T_J ≤ 125°C, C_i=2.2μF, C_o=1μF, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit
Output Voltage	V _o	T _J =25°C	-14.4	-15	-15.6	V
		I _o =5mA to 1A, P _o ≤ 15W V _i =-18V to -30V	-14.25	-15	-15.75	
Line Regulation	ΔV _o	T _J =25°C	V _i =-17.5V to -30V	12	300	mV
			V _i =-20V to -26V	6	150	
Load Regulation	ΔV _o	T _J =25°C	I _o =5mA to 1.5A	12	300	mV
			I _o =250mA to 750mA	4	150	
Quiescent Current	I _q	T _J =25°C		3	6	mA
Quiescent Current Change	ΔI _q	I _o =5mA to 1A V _i =-18.5 to -30V		0.05	0.5	mA
				0.1	1	
Temperature Coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-0.9		mV/°C
Output Noise Voltage	V _N	f=10Hz to 100Khz, T _A =25°C		250		μV
Ripple Rejection	RR	f=120Hz, ΔV _i =10V	54	60		dB
Dropout Voltage	V _D	T _J =25°C, I _o =1A		2		V
Short Circuit Current	I _{sc}	T _J =25°C, V _i =-35V		300		mA
Peak Current	I _{PK}	T _J =25°C		2.2		A

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

LM7918 ELECTRICAL CHARACTERISTICS

(V_i=27V, I_o=500mA, 0°C ≤ T_J ≤ 125°C, C_i=2.2μF, C_o=1μF, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit
Output Voltage	V _o	T _J =25°C	-17.3	-18	-18.7	V
		I _o =5mA to 1A, P _o ≤ 15W	-17.1	-18	-18.9	
		V _i =-22.5V to -33V				
Line Regulation	ΔV _o	T _J =25°C	V _i =-21V to -33V	15	360	mV
			V _i =-24V to -30V	8	180	
Load Regulation	ΔV _o	T _J =25°C	I _o =5mA to 1.5A	15	360	mV
			T _J =25°C	5	180	
			I _o =250mA to 750mA			
Quiescent Current	I _q	T _J =25°C		3	6	mA
Quiescent Current Change	ΔI _q	I _o =5mA to 1A	V _i =-22 to -33V		0.5	mA
					1	
Temperature Coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-1		mV/°C
Output Noise Voltage	V _N	f=10Hz to 100KHz, T _A =25°C		300		μV
Ripple Rejection	RR	f=120Hz, ΔV _i =10V	54	60		dB
Dropout Voltage	V _D	T _J =25°C, I _o =1A		2		V
Short Circuit Current	I _{sc}	T _J =25°C, V _i =-35V		300		mA
Peak Current	I _{PK}	T _J =25°C		2.2		A

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.

LM7924 ELECTRICAL CHARACTERISTICS

($V_i=33V$, $I_o=500mA$, $0^\circ C \leq T_J \leq 125^\circ C$, $C_i=2.2\mu F$, $C_o=1\mu F$, unless otherwise specified.)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit	
Output Voltage	V_o	$T_J=25^\circ C$	-23	-24	-25	V	
		$I_o=5mA$ to 1A, $P_o \leq 15W$ $V_i=-27V$ to -38V	-22.8	-24	-25.2		
Line Regulation	ΔV_o	$T_J=25^\circ C$	$V_i=-27V$ to -38V		15	480	mV
			$V_i=-30V$ to -36V		8	180	
Load Regulation	ΔV_o	$T_J=25^\circ C$	$I_o=5mA$ to 1.5A		15	480	mV
			$I_o=250mA$ to 750mA		5	240	
Quiescent Current	I_q	$T_J=25^\circ C$		3	6	mA	
Quiescent Current Change	ΔI_q	$T_J=25^\circ C$	$I_o=5mA$ to 1A			0.5	mA
			$V_i=-27$ to -38V			1	
Temperature Coefficient of V_o	$\Delta V_o/\Delta T$	$I_o=5mA$		-1		mV/ $^\circ C$	
Output Noise Voltage	V_N	$f=10Hz$ to 100KHz, $T_A=25^\circ C$		400		μV	
Ripple Rejection	RR	$f=120Hz$, $\Delta V_i=10V$	54	60		dB	
Dropout Voltage	V_D	$T_J=25^\circ C$, $I_o=1A$		2		V	
Short Circuit Current	I_{sc}	$T_J=25^\circ C$, $V_i=-35V$		300		mA	
Peak Current	I_{PK}	$T_J=25^\circ C$		2.2		A	

* Load and line regulation are specified at constant junction temperature. Changes in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.