

7900

3-Terminal Negative Output Voltage Regulators

TO-220



Pin: 1. Ground 2. Input 3. Output
(Heatsink surface connected to Pin 2.)

Features

- ◇ Output Current up to 1 Ampere
- ◇ No External Components Required
- ◇ Internal Thermal Overload Protection
- ◇ Internal Short-Circuit Current Limiting
- ◇ Output Transistor Safe-Area Compensation
- ◇ Available in 4% Voltage Tolerance

Maximum Ratings (Ta=25°C)

Rating	Symbol	TS7900 Series	Unit
Input Voltage	V _{in} *1	-35	V
Input Voltage	V _{in} *2	-40	V
Power Dissipation TO-220 TO-220F	P _D	15 10	W
Operating Ambient Temperature	T _{opr}	-20 to +85	°C
Operating Junction Temperature	T _j	0 to +125	°C
Storage Temperature	T _{stg}	-25 to +125	°C

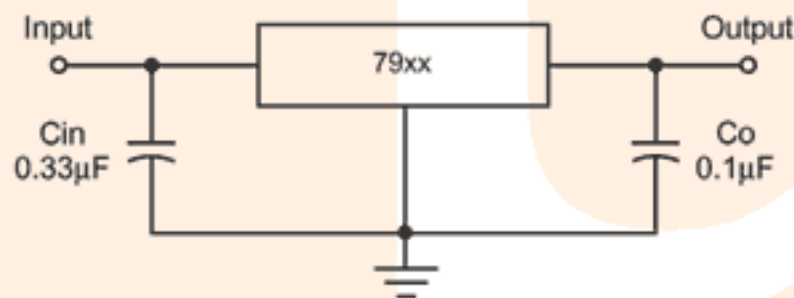
Note: *1: 7905 to 7918
*2: 7924

Follow the derating curve. When T_j exceeds 150°C, the internal circuit cuts off the output.

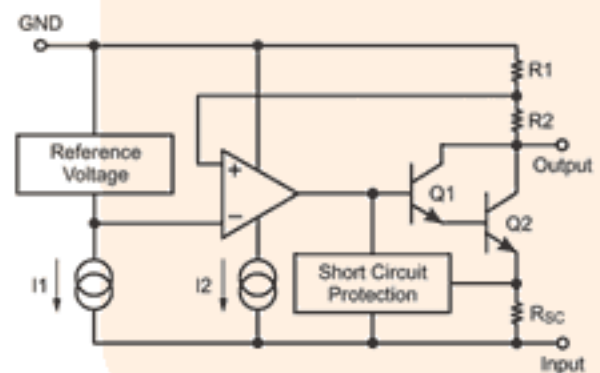
Standard Application

A common ground is required between the input and the output voltages. The input voltage must remain typically 2.0 V more negative even during the high point on the input ripple voltage.

XX = these two digits of the type number indicate voltage.
C_{in} is required if regulator is located an appreciable distance from power supply filter. C_o improves stability and transient response.



Internal Block Diagram



7906 Electrical Characteristics

(V_{in} = -11V, I_{out} = 500mA, C_{in} = 2µF, C_{out} = 1µF; T_j = 0°C to 125°C, unless otherwise specified.)

Characteristic	Symbol	Test Circuit	Condition	Min	Typ	Max	Unit	
Output Voltage	V _o	1	T _j =25°C	-5.75	-6.0	-6.25	V	
Output Voltage Tolerance	V _o	1	V _i =-8 to -21V, I _o =5mA to 1A, P _D <15W	-5.70	-6.0	-6.30	V	
Line Regulation	REG _{line}	1	T _j =25°C	V _i =-8 to -25V	--	4	120	mV
				V _i =-9 to -13V	--	1.5	60	mV
Load Regulation	REG _{load}	1	T _j =25°C	I _o =5mA to 1.5A	--	10	120	mV
				I _o =250mA to 750mA	--	3	60	mV
Quiescent Current	I _q	3	T _j =25°C	--	2	4	mA	
Quiescent Current Change	Δ I _q	3	V _i =-8 to -25V, T _j =25°C	--	--	1.3	mA	
			I _o =5mA to 1.5A, T _j =25°C	--	--	0.5	mA	
Output Noise Voltage	V _n	1	f=10Hz to 100KHz, T _a =25°C	--	44	--	µV	
Ripple Rejection Ratio	RR	2	V _i =-9 to -19V, I _o =100mA, f=120Hz	60	73	--	dB	
Min. I/O Voltage Difference	V _{dif}		I _o =1A, T _j =25°C	--	1.1	--	V	
Peak Output Current	I _{o-peak}	1	T _j =25°C	--	2.1	--	A	
Output Voltage Temperature Coefficient	Δ V _o /T _a	1	I _o =5mA, T _j =0 to 125°C	--	-0.5	--	mV/°C	