THINKI SEMICONDUCTOR ®

Pb Free Plating Product

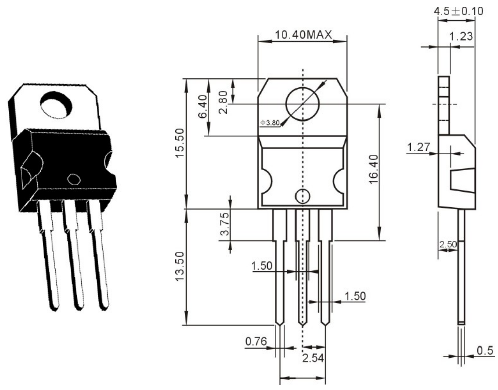
LM79XX

RoHS Pb

3-Terminal 1 A Negative Voltage Regulator

Features

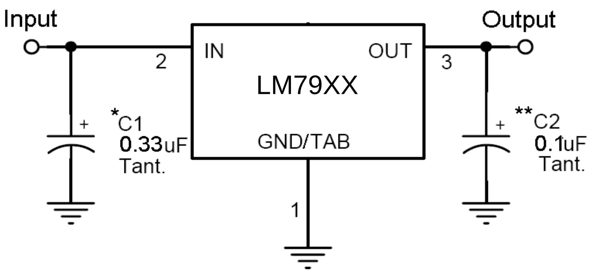
- Output Voltage: -5 & -12V
- Output current up to 1A
- No external components required
- Internal thermal overload protection
- Internal short-circuit current limiting
- Output transistor safe-area compensation
- Output voltage offered in 4% tolerance



TO-220M-1

Unit : (mm)

Standard Application Circuit



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

XX = these two digits of the type number indicate voltage.

* = Cin is required if regulator is located an appreciable distance from power supply filter.

** = Co is not needed for stability; however, it does improve transient response.

Absolute Maximum Rating (Ta = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Input Voltage		V_{IN}	-35	V
Power Dissipation		P_D	Internal Limited	W
Junction Temperature		T_J	+150	°C
Storage Temperature Range		T_{STG}	-65~+150	°C
Thermal Resistance - Junction to Case	TO-220	$R\Theta_{JC}$	3	°C/W
	ITO-220		5	
Thermal Resistance - Junction to Ambient	TO-220	$R\Theta_{JA}$	50	°C/W
	ITO-220		60	

Note: * Follow the derating curve

LM7905 Electrical Characteristics

(Vin= -10V, Iout=500mA, 0°C≤Tj≤125°C, Cin=0.33uF, Cout=0.1uF; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output voltage	Vout	Tj=25°C		-4.80	-5	-5.20	V
		-7.5V≤Vin≤-20V, 10mA≤Iout≤1A, PD≤15W		-4.75	-5	-5.25	
Line Regulation	REGline	Tj=25°C	-7.5V≤Vin≤-25V	--	3	100	mV
			-8V≤Vin≤-12V	--	1	50	
Load Regulation	REGload	Tj=25°C	10mA≤Iout≤1A	--	15	100	
			250mA≤Iout≤750mA	--	5	50	
Quiescent Current	Iq	Iout=0, Tj=25°C		--	4	8	mA
Quiescent Current Change	ΔIq	-7.5V≤Vin≤-25V		--	--	1.3	
		10mA≤Iout≤1A		--	--	0.5	
Output Noise Voltage	Vn	10Hz≤f≤100KHz, Tj=25°C		--	40	--	µV
Ripple Rejection Ratio	RR	f=120Hz, -8V≤Vin≤-18V		62	74	--	dB
Voltage Drop	Vdrop	Iout=1A, Tj=25°C		--	2	--	V
Output Short Circuit Current	Ios	Tj=25°C		--	750	--	mA
Peak Output Current	Io peak	Tj=25°C		--	2.1	--	A
Temperature Coefficient of Output Voltage	ΔVout/ ΔTj	Iout=10mA, 0°C≤Tj≤125°C		--	-0.1	--	mV/ °C

LM7912 Electrical Characteristics

(Vin= -19V, Iout=500mA, 0°C≤Tj≤125°C, Cin=0.33uF, Cout=0.1uF; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	Vout	Tj=25°C		-11.53	-12	-12.48	V
		-14.5V≤Vin≤-27V, 10mA≤Iout≤1A, PD ≤15W		-11.42	-12	-12.60	
Line Regulation	REGline	Tj=25°C	-14.5V≤Vin≤-30V	--	10	240	mV
			-15V≤Vin≤-19V	--	3	120	
Load Regulation	REGload	Tj=25°C	10mA≤Iout≤1A	--	12	240	
			250mA≤Iout≤750mA	--	4	120	
Quiescent Current	Iq	Tj=25°C, Iout=0		--	4.3	8	mA
Quiescent Current Change	ΔIq	-14.5V≤Vin≤-30V		--	--	1	
		10mA≤Iout≤1A		--	--	0.5	
Output Noise Voltage	Vn	10Hz≤f≤100KHz, Tj=25°C		--	75	--	uV
Ripple Rejection Ratio	RR	f=120Hz, -15V≤Vin≤-25V		55	70	--	dB
Voltage Drop	Vdrop	Iout=1A, Tj=25°C		--	2	--	V
Output Short Circuit Current	Ios	Tj=25°C		--	350	--	mA
Peak Output Current	Io peak	Tj=25°C		--	2.1	--	A
Temperature Coefficient of Output Voltage	ΔVout/ ΔTj	Iout=10mA, 0°C≤Tj≤125°C		--	-1	--	mV/ °C

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

Electrical Characteristics Curve

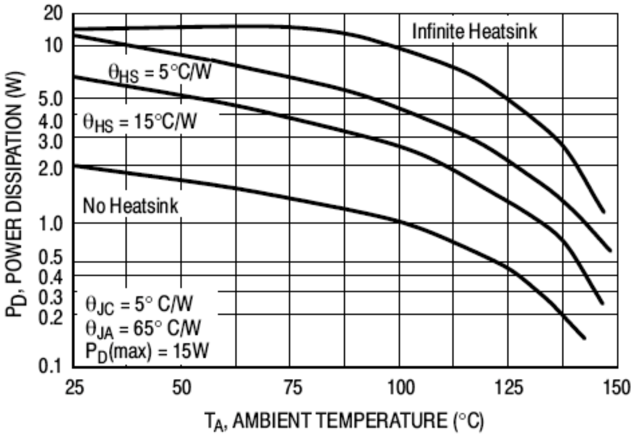


Figure 1. Worse Case Power Dissipation as a Function of Ambient Temperature

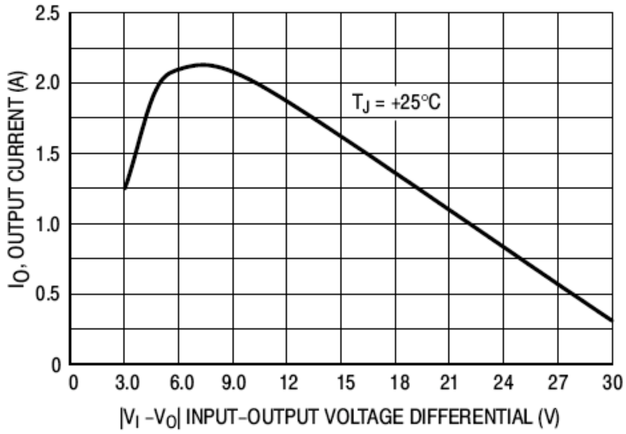


Figure 2. Peak Output Current as a Function of Input-Output Differential Voltage

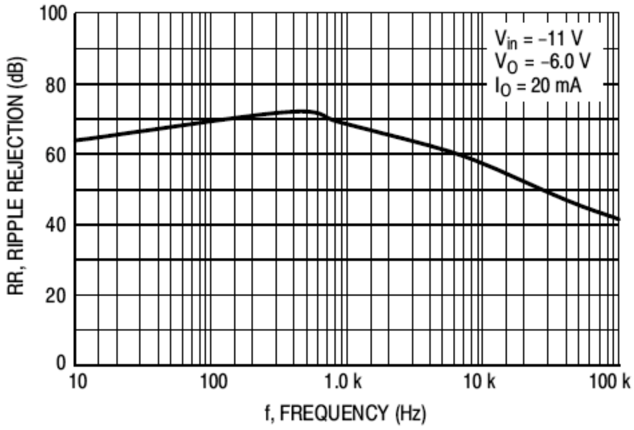


Figure 3. Ripple Rejection as a Function of Frequency

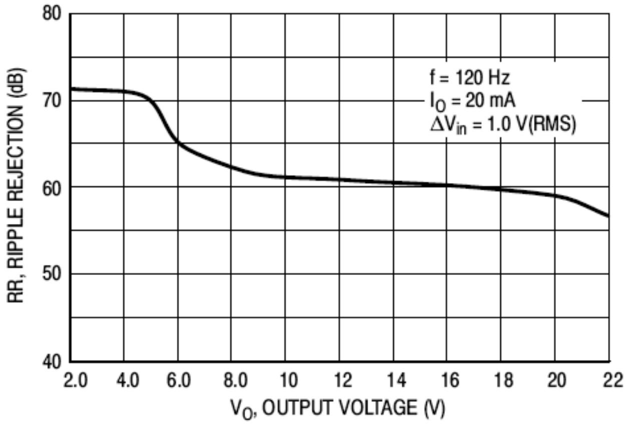


Figure 4. Ripple Rejection as a Function of Output Voltage

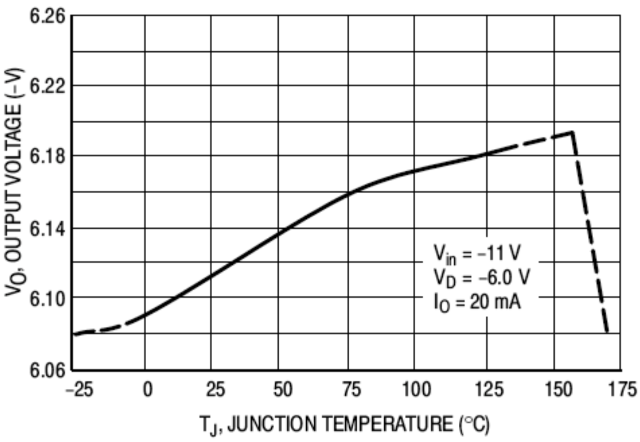


Figure 5. Output Voltage as a Function of Junction Temperature

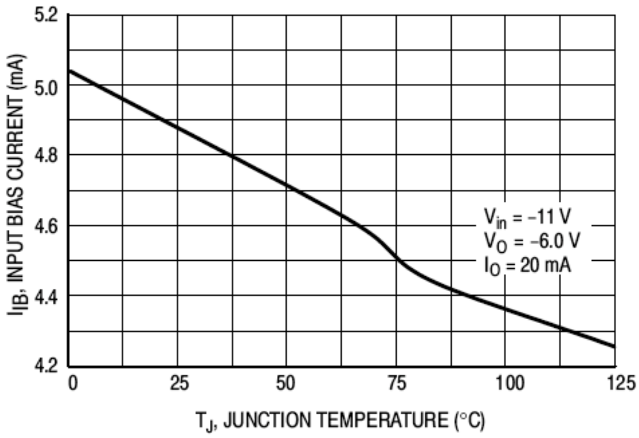


Figure 5. Output Voltage as a Function of Junction Temperature