MOBICON
Electronic Components

S@Tech KOREA

FIXED VOLTAGE REGULATOR (POSITIVE)

LM7809

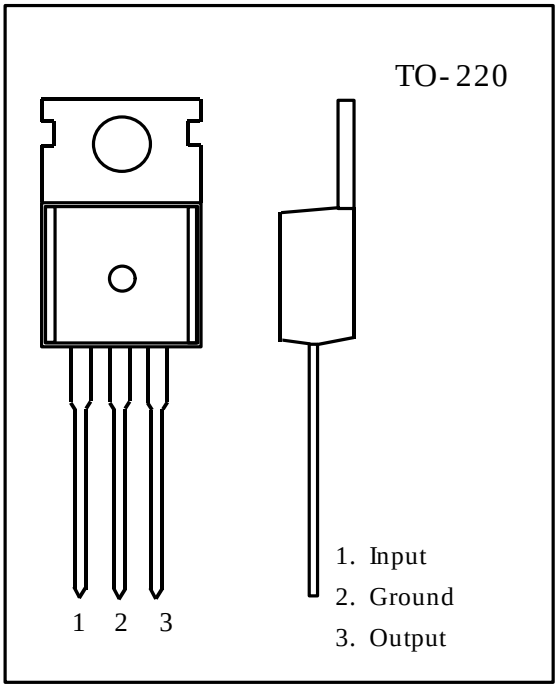
3-TERMINAL 1A POSITIVE VOLTAGE REGULATORS

The LM78XX series of three-terminal positive regulators. fixed output voltage and TO-220 package - are designed for a wide range of applications.

These applications include on-card regulation for elimination of noise and distribution problems associated with single point regulation. In addition, they can be used with power pass elements to make high current voltage regulators.

If adequate heat sinking is provided, each of these regulators can deliver up to 1A of output current.

Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltage and currents.



FEATURES

- ◇ Output current in excess of 1A
- ◇ No external components required
- ◇ Internal short circuit current limiting
- ◇ Internal thermal overload protection
- ◇ Output transistor safe-area compensation
- ◇ Output voltage offered in 4% tolerance

ABSOLUTE MAXIMUM RATINGS

Characteristic		Symbol	Value	Unit
Input Voltage	LM7805 ~ LM7818		35	V
	LM7824	Vl	40	
Operating Junction Temperature		Topr	0 ~ +150	℃
Operating Temperature		Topr	0 ~ +125	
Storage Temperature		Tstg	-65 ~ +150	

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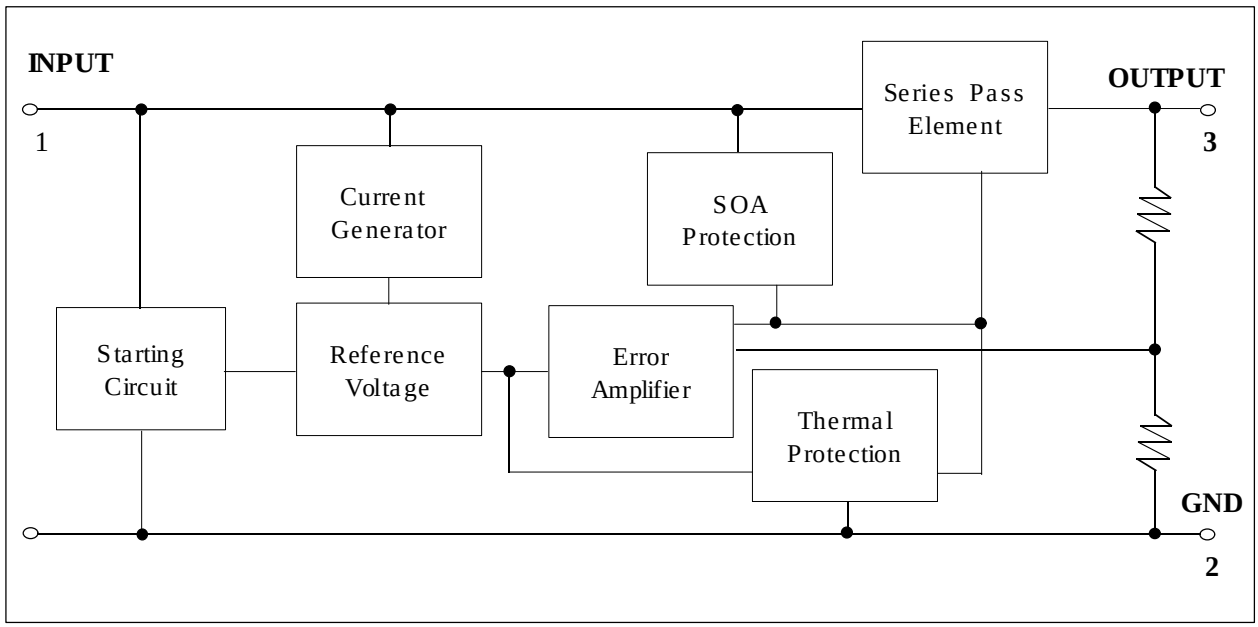
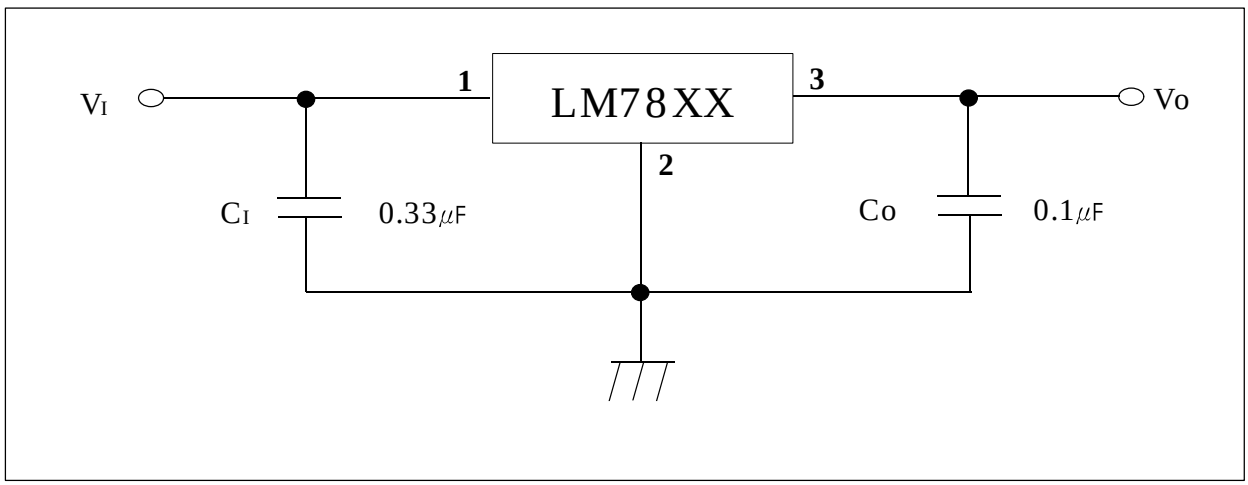
1. BLOCK DIAGRAM



2. TYPICAL APPLICATIONS



Note:

(1) To specify an output voltage, subsitute voltage value for "XX".

(2) CI is required if regulator is located in appreciable distance from power supply filter.

(3) Co improves stability and transient response.

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LM7809 ELECTRICAL CHARACTERISTICS

(Refer to test circuit, $T_{MIN}<T_J<T_{MAX}$, I_O=500mA, V_I=15V, C_I=0.33μF, C_O=0.1μF, unless otherwise specified)

Characteristic	Symbol	Test Condition		Min.	Typ.	Max.	Unit
Output Voltage	V_O	T_J=25°C		8.65	9.0	9.35	V
		5.0mA≤I_O≤1.0A P_D≤15W V_I=11.5V to 24V V_I=12.5V to 24V		8.6	9.0	9.4	
Line Regulation	ΔV_O	T_J=25°C	V_I=11.5V to 25V		6.0	180	mV
			V_I=12V to 25V		2	90	
Load Regulation	ΔV_O	T_J=25°C	I_O=5mA to 1.5A		12	180	mV
			I_O=250mA to 750mA		4	90	
Quiescent Current	I_Q	T_J=25°C			5.0	8	mA
Quiescent Current Change	ΔI_Q	I_O=5mA to 1A				0.5	mA
		V_I=11.5V to 26V				1.3	
		V_I=12.5V to 26V					
Output Voltage Drift	$\Delta V_O/\Delta T$	I_O=5mA			-1		mV/°C
Output Noise Voltage	V_N	f=10Hz to 100kHz T_A=25°C			58		μV
Ripple Rejection	RR	f=120Hz V_I=13V to 23V		56	71		dB
Dropout Voltage	V_D	I_O=1A T_J=25°C			2		V
Peak Current	I_{PK}	T_J=25°C			2.2		A
Output Resistance	Ro	f=1kHz			17		MΩ
Short Circuit Current	I_{SC}	V_I=35V T_A=25°C			250		mA

Notes:

* $T_{MIN}<T_J<T_{MAX}$

  LM78XX ; T_{MIN}=0°C, T_{MAX}=125°C

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