



ELECTRÓNICA

FUENTES DE ALIMENTACION REGULADAS

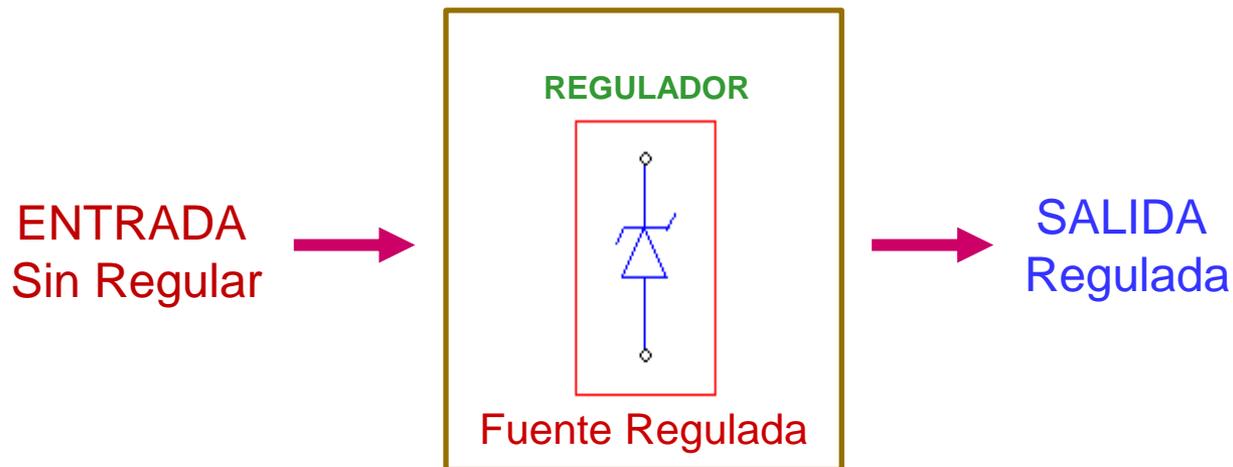
con

CIRCUITOS INTEGRADOS



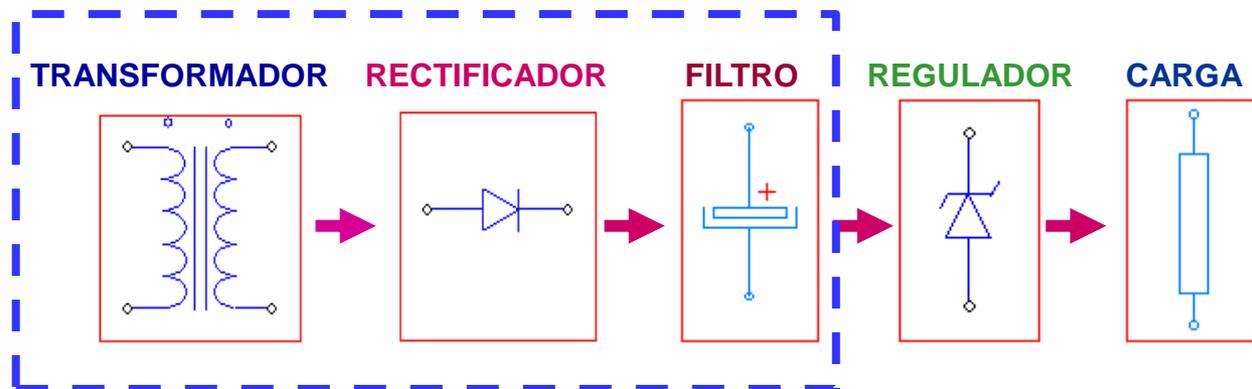
FUENTE DE TENSION REGULADA

Una fuente de **alimentación regulada** entrega una tensión en corriente continua **constante** , independientemente de la corriente que toma la carga, de la temperatura y de la variación de la tensión de entrada a la fuente reguladora.

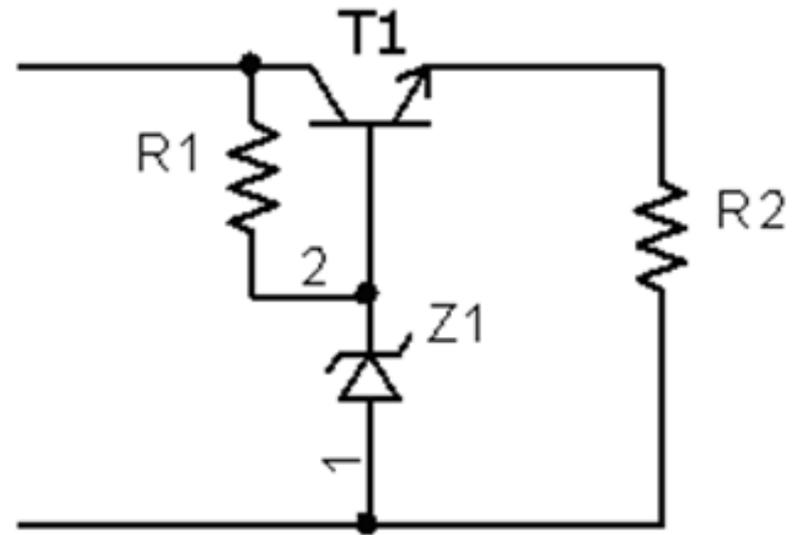
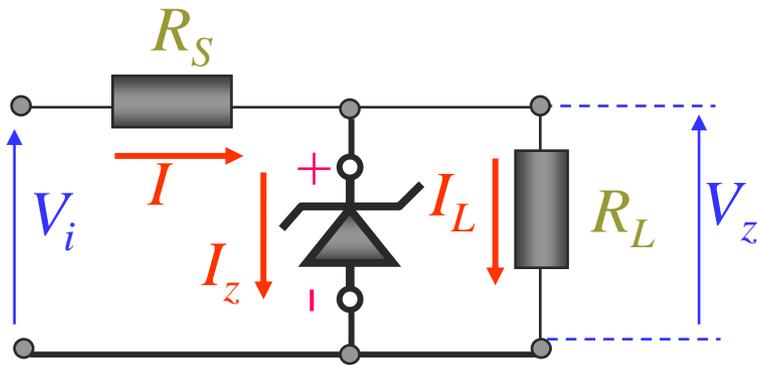


FUENTE DE TENSION REGULADA

- La **tensión de entrada** (*en corriente continua*) de la fuente regulada, puede provenir de una fuente lineal no regulada, conformada por un transformador, rectificador y filtro.



Regulador Paralelo con Zener



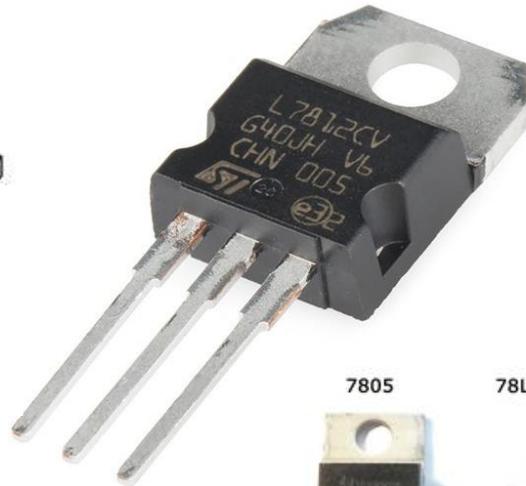
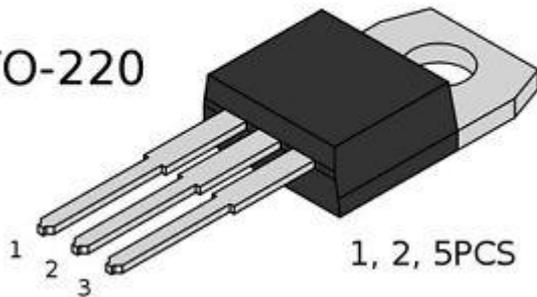
FUENTE REGULADA SERIE >

Fuentes Reguladas Integradas

EXISTEN FUENTES DE ALIMENTACIÓN COMPLETAS EN FORMA DE CIRCUITO INTEGRADO

L78xx L79xx

TO-220

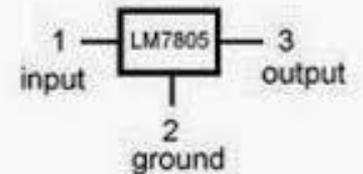
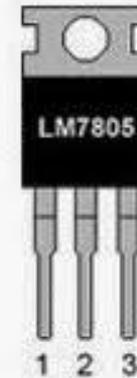


7805

78L05

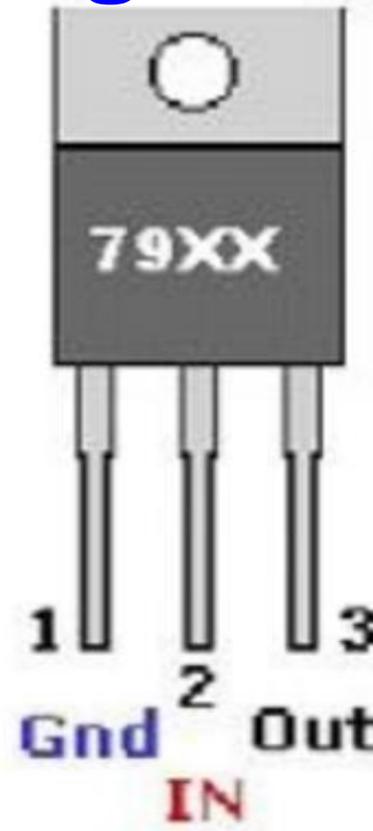
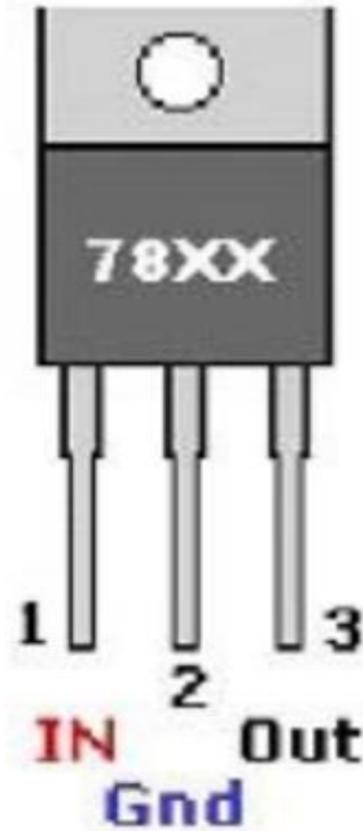


LM7805 PINOUT DIAGRAM



FUENTES REGULADAS

Positivas y Negativas



Fuentes Regulada LM78xx

- De un **corriente continua sin regular** que se aplica a la entrada de un circuito integrado regulador **LM78xx**, se obtiene a la salida una tensión perfectamente regulada y estabilizada.
- Este valor de tensión depende exclusivamente del integrado utilizado (ver tabla). >

Fuentes Regulada LM78xx

Número	Tensión de salida
LM7805	5 Voltios
LM7806	6 Voltios
LM7808	8 Voltios
LM7809	9 Voltios
LM7812	12 Voltios
LM7815	15 Voltios
LM7818	18 Voltios
LM7824	24 Voltios
LM7830	30 Voltios

Fuentes Regulada LM78xx

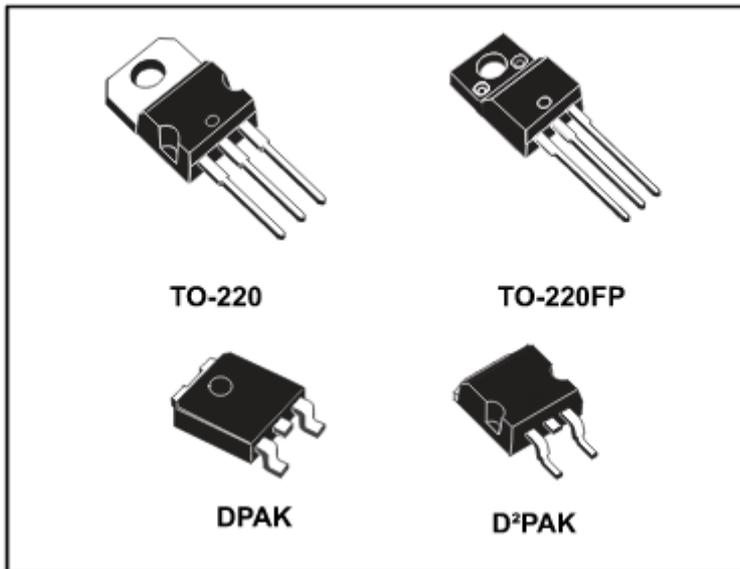
- Los circuitos integrados de regulación están **protegidos contra cortocircuitos y sobrecargas**, gracias a un sistema de limitación de corriente interno, así como una **protección contra exceso de disipación.** >

Fuentes Regulada LM78xx

Tabla de selección

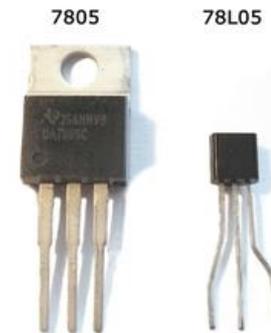
TENSION SALIDA	CORRIENTE DE SALIDA MAXIMA	T1	IC1
5V	0,5A	7,5V / 0,5A	78M05
	1A	7,5V / 1A	7805
	1,5A	7,5V / 2A	LM340T5
8V	0,5A	12V / 0,5A	78M08
	1A	12V / 1A	7808
	1,5A	12V / 2A	LM340T8
12V	0,5A	15V / 0,5A	78M12
	1A	15V / 1A	7812
	1,5A	15V / 2A	LM340T12
15V	0,5A	15V / 0,5A	78M15
	1A	15V / 1A	7815
	1,5A	15V / 2A	LM340T15

Fuentes Regulada LM78xx



Features

- Output current up to 1.5 A
- Output voltages of 5; 6; 8; 8.5; 9; 12; 15; 18; 24 V
- Thermal overload protection
- Short circuit protection
- Output transition SOA protection
- 2 % output voltage tolerance (A version)
- Guaranteed in extended temperature range (A version)



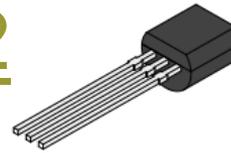
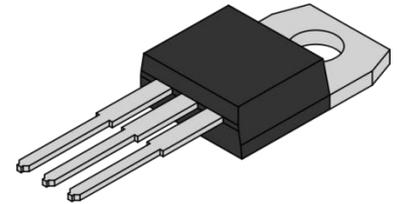
Fuentes Regulada LM78xx

78xx (s letra): 1 amperio, TO220

78Lxx: 0,1 A, TO92

78Mxx: 0,5 A

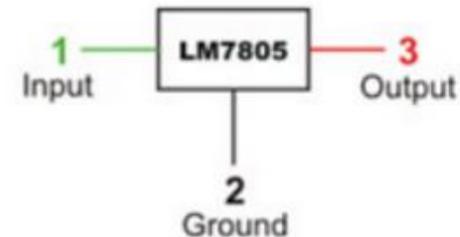
78Txx: 3 A



78L05

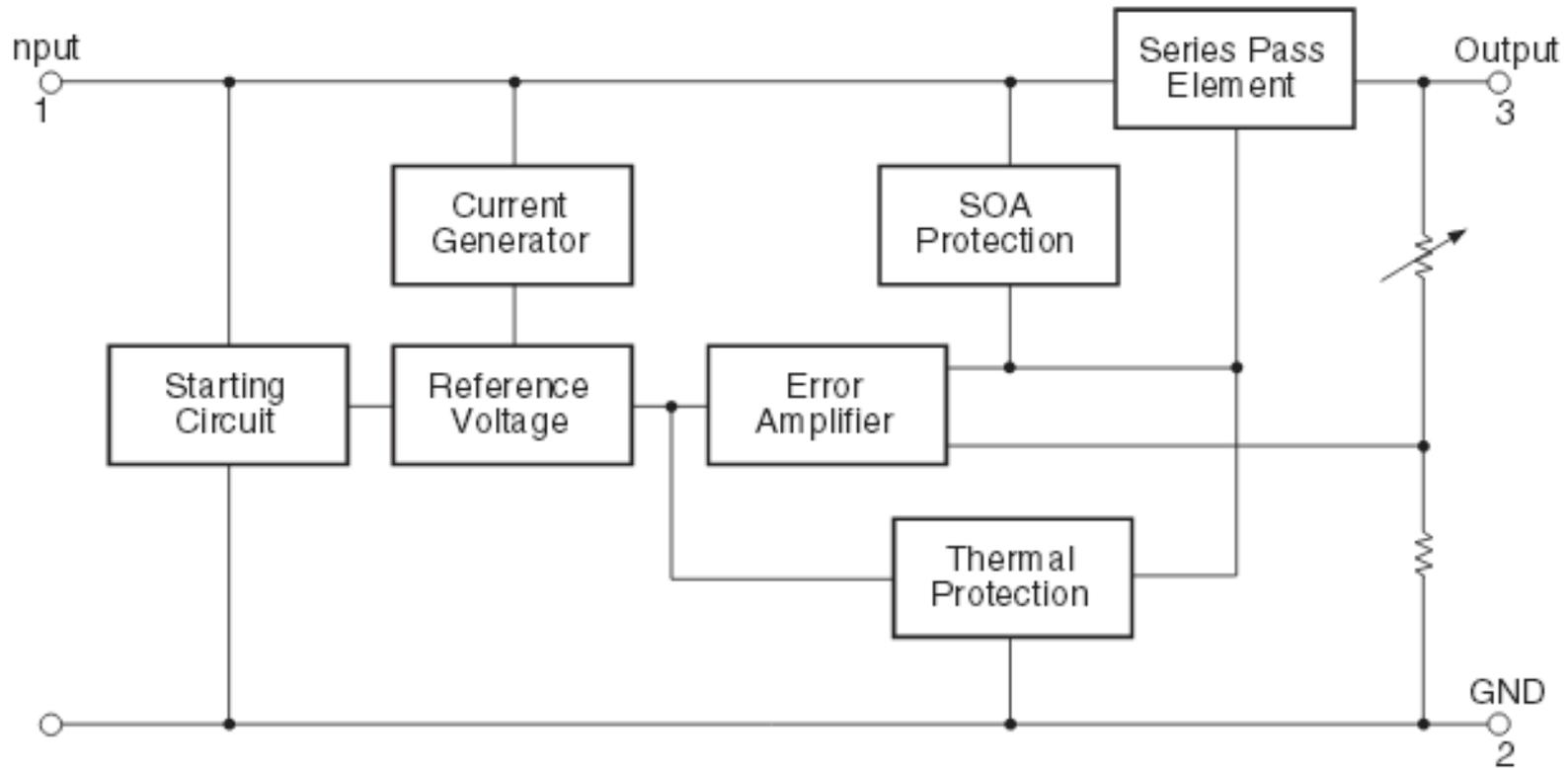


LM7805 PINOUT DIAGRAM

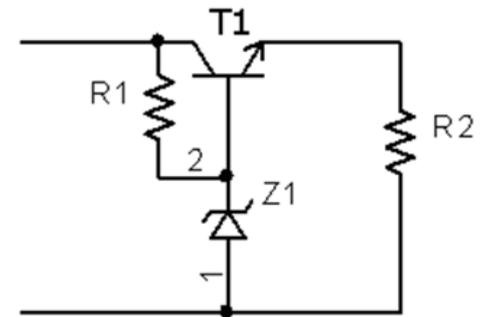
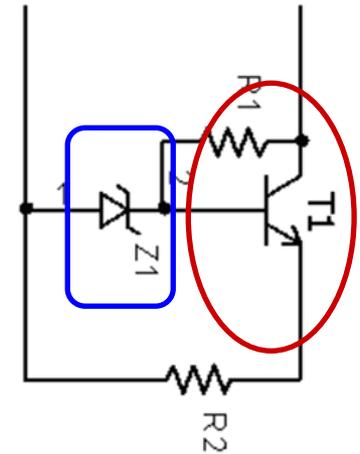
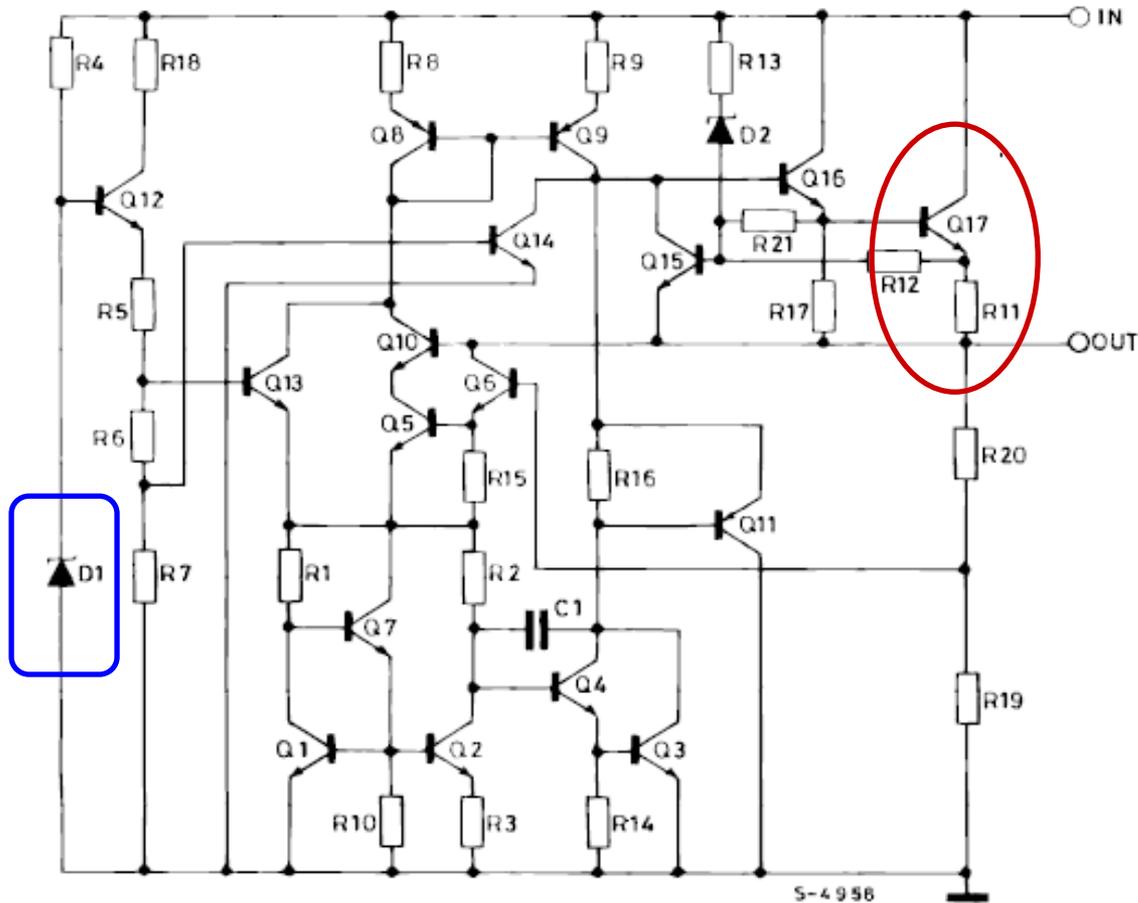


Fuentes Regulada LM78xx

DIAGRAMA EN BLOQUES

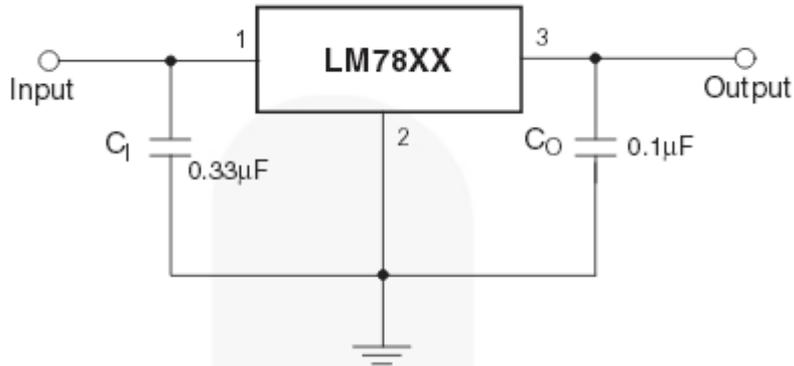


Fuentes Regulada LM78xx

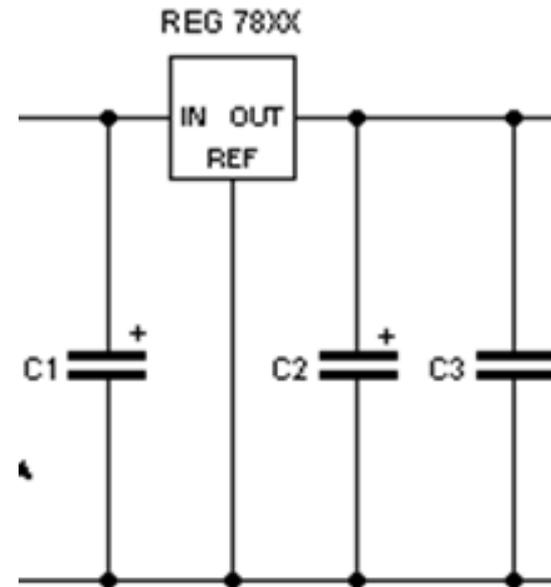


Fuentes Regulada LM78xx

CIRCUITO RECOMENDADO POR EL FABRICANTE



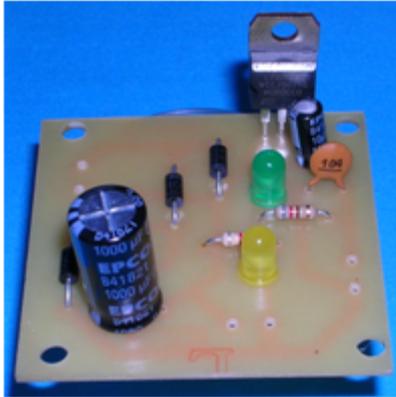
RECOMENDADO POR LA CATEDRA



$C_1 = 10\mu\text{F}$ (u otro valor)
 $C_2 = 10\mu\text{F}$
 $C_3 = 100\text{nF}$

Fuentes Regulada LM78xx

FUENTE DE ALIMENTACION REGULADA KIT REG78 VHK®



REG78

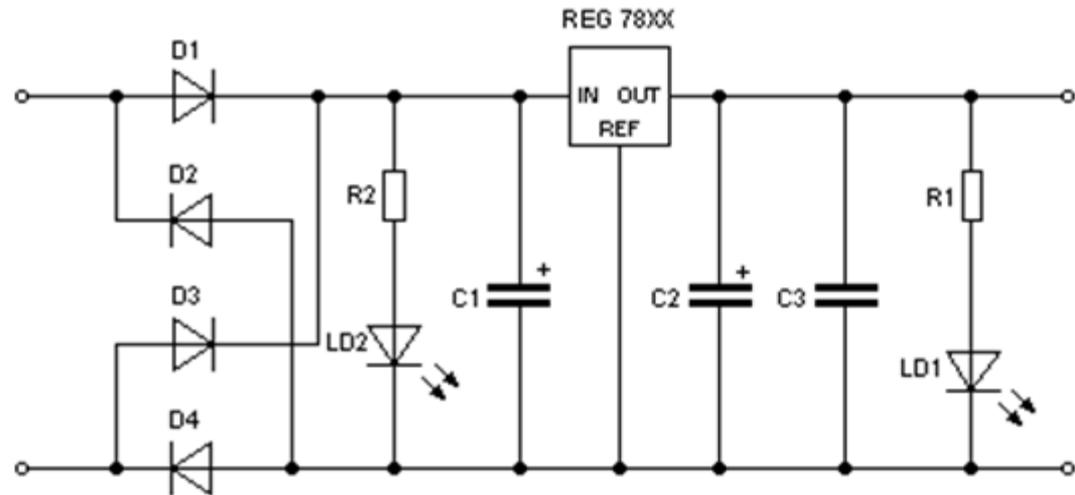


Fig.1 Circuito Fuente Regulada

Fuentes Regulada LM78xx

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_I	Input Voltage	$V_O = 5\text{ V to }18\text{ V}$	35
		$V_O = 24\text{ V}$	40
$R_{\theta JC}$	Thermal Resistance, Junction-Case (TO-220)	5	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction-Air (TO-220)	65	$^{\circ}\text{C/W}$
T_{OPR}	Operating Temperature Range	LM78xx	-40 to +125
		LM78xxA	0 to +125
T_{STG}	Storage Temperature Range	-65 to +150	$^{\circ}\text{C}$

Electrical Characteristics (LM7805)

Refer to the test circuit, $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{ mA}$, $V_I = 10\text{ V}$, $C_I = 0.1\text{ }\mu\text{F}$, unless otherwise specified.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$T_J = +25^{\circ}\text{C}$	4.80	5.00	5.20	V
		$I_O = 5\text{ mA to }1\text{ A}$, $P_O \leq 15\text{ W}$, $V_I = 7\text{ V to }20\text{ V}$	4.75	5.00	5.25	

Fuentes Regulada LM78xx

Electrical Characteristics (LM7805)

Refer to the test circuit, $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{ mA}$, $V_I = 10\text{ V}$, $C_I = 0.1\text{ }\mu\text{F}$, unless otherwise specified.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
V_O	Output Voltage	$T_J = +25^{\circ}\text{C}$	4.80	5.00	5.20	V	
		$I_O = 5\text{ mA to }1\text{ A}$, $P_O \leq 15\text{ W}$, $V_I = 7\text{ V to }20\text{ V}$	4.75	5.00	5.25		
Regline	Line Regulation ⁽²⁾	$T_J = +25^{\circ}\text{C}$	$V_I = 7\text{ V to }25\text{ V}$		4.0	100.0	mV
			$V_I = 8\text{ V to }12\text{ V}$		1.6	50.0	

Electrical Characteristics (LM7809)

Refer to the test circuit, $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{ mA}$, $V_I = 15\text{ V}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$, unless otherwise specified.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
V_O	Output Voltage	$T_J = +25^{\circ}\text{C}$	8.65	9.00	9.35	V	
		$I_O = 5\text{ mA to }1\text{ A}$, $P_O \leq 15\text{ W}$, $V_I = 11.5\text{ V to }24\text{ V}$	8.60	9.00	9.40		
Regline	Line Regulation ⁽⁸⁾	$T_J = +25^{\circ}\text{C}$	$V_I = 11.5\text{ V to }25\text{ V}$		6	180	mV
			$V_I = 12\text{ V to }17\text{ V}$		2	90	

Fuentes Regulada LM78xx

Electrical Characteristics (LM7812)

Refer to the test circuit, $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{ mA}$, $V_I = 19\text{ V}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$, unless otherwise specified.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
V_O	Output Voltage	$T_J = +25^{\circ}\text{C}$	11.5	12.0	12.5	V	
		$I_O = 5\text{ mA to } 1\text{ A}$, $P_O \leq 15\text{ W}$, $V_I = 14.5\text{ V to } 27\text{ V}$	11.4	12.0	12.6		
Regline	Line Regulation ⁽¹²⁾	$T_J = +25^{\circ}\text{C}$	$V_I = 14.5\text{ V to } 30\text{ V}$		10	240	mV
			$V_I = 16\text{ V to } 22\text{ V}$		3	120	

Electrical Characteristics (LM7824)

Refer to the test circuit, $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{ mA}$, $V_I = 33\text{ V}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$, unless otherwise specified.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
V_O	Output Voltage	$T_J = +25^{\circ}\text{C}$	23.00	24.00	25.00	V	
		$I_O = 5\text{ mA to } 1\text{ A}$, $P_O \leq 15\text{ W}$, $V_I = 27\text{ V to } 38\text{ V}$	22.80	24.00	25.25		
Regline	Line Regulation ⁽¹⁸⁾	$T_J = +25^{\circ}\text{C}$	$V_I = 27\text{ V to } 38\text{ V}$		17	480	mV
			$V_I = 30\text{ V to } 36\text{ V}$		6	240	
Regload	Load Regulation ⁽¹⁸⁾	$T_J = +25^{\circ}\text{C}$	$I_O = 5\text{ mA to } 1.5\text{ A}$		15	480	mV
			$I_O = 250\text{ mA to } 750\text{ mA}$		5	240	



FIN