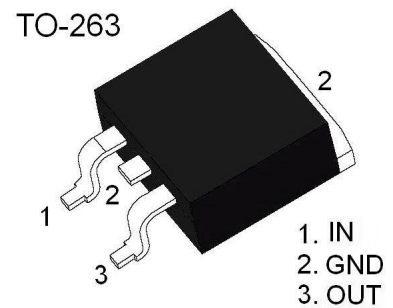


The 7805 three-terminal positive regulators are available in the TO-263 package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1.0A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

**Features**

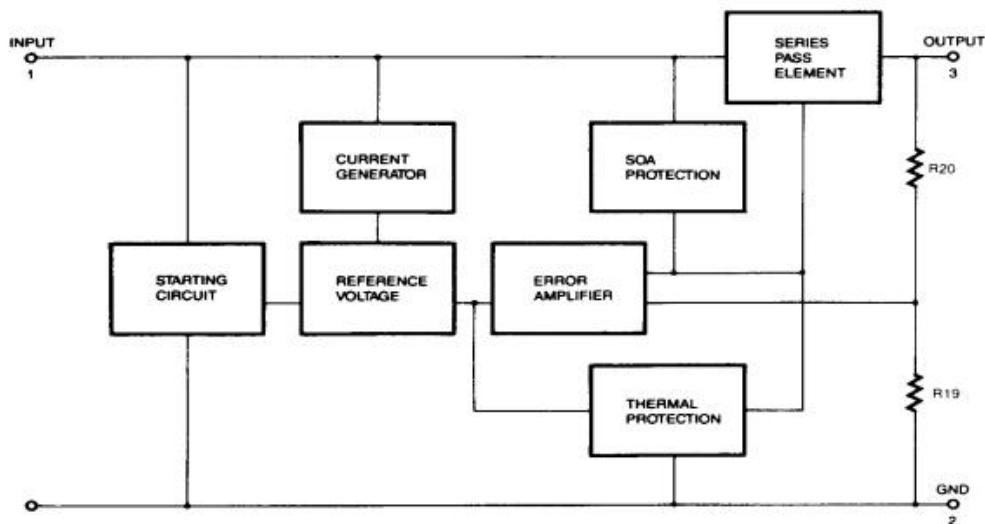
- Output Current up to 1.0A
- Output Voltages of 5V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating area (SOA) Protection



**Description**

The LM7805 three-terminal positive regulators are available in the TO-263 package with several fixed output voltages making it useful in a wide range of applications.

**Internal Block Diagram**



**Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit
Input Voltage	$V_{IN}$	35	V
Out put Voltage	$V_O$	5	V
Operating Temperature Range	$T_{OPR}$	0 ~ + 125	°C
Storage Temperature Range	$T_{STG}$	-55 ~ + 150	°C

## Electrical Characteristics

(Refer to test circuit ,  $I_o = 500\text{mA}$ ,  $V_i = 10\text{V}$ ,  $C_i = 0.33\mu\text{F}$ ,  $C_o = 0.1\mu\text{F}$ , unless otherwise specified)

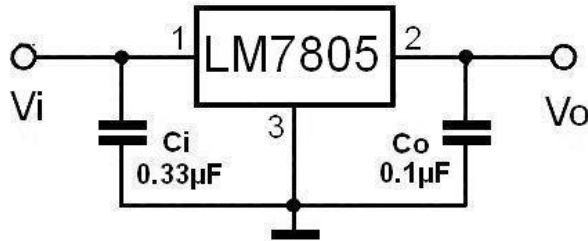
Parameter	Symbol	Conditions		Value			Unit
				Min	Typ	Max	
Output Voltage	$V_o$	$T_j = 25^\circ\text{C}$		4.8	5	5.2	V
		$V_i = 7 \sim 20\text{V}, I_o = 5\text{mA} \sim 1.0\text{A}$		4.75	5	5.25	
Line Regulation	$\Delta V_o$	$T_j = 25^\circ\text{C}$	$V_i = 7\text{V} \sim 25\text{V}$			100	mV
			$V_i = 8\text{V} \sim 12\text{V}$			50	
Load Regulation	$\Delta V_o$	$T_j = 25^\circ\text{C}$	$I_o = 5\text{mA} \sim 1.0\text{A}$			100	mV
			$I_o = 250\text{mA} \sim 750\text{mA}$			50	
Quiescent Current	$I_q$	$T_j = 25^\circ\text{C}$				8	mA
Quiescent Current Change	$\Delta I_q$	$I_o = 5\text{mA} \sim 1.0\text{A}$				0.5	mA
		$V_i = 7 \sim 25\text{V}$				1.3	
Output Voltage Drift	$\Delta V/\Delta T$	$I_o = 5\text{mA}$			-0.8		mV/°C
Output Noise Voltage	$V_N$	$10\text{Hz} \leq f \leq 100\text{KHz}$			42		$\mu\text{V}$
Ripple Rejection	RR	$f = 120\text{Hz}, V_i = 8 \text{ to } 18\text{V}$		62			dB
Dropout Voltage	$V_d$				2		V
Short Circuit Current	$I_{SC}$	$T_j = +25^\circ\text{C}, V_i = 35\text{V}$			200		mA
Peak Current	$I_{PK}$				1.6		A

### Notes:

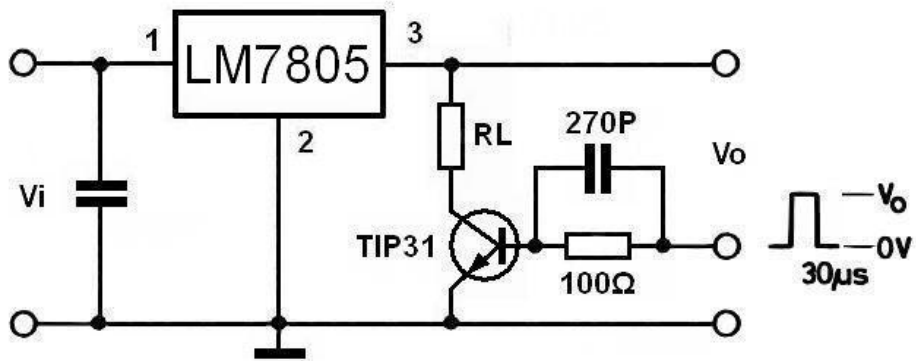
\*Load and line regulation are specified at constant junction temperature. Change in  $V_o$  due to heating effects must be taken into account separately. Pulse testing with low duty is used.



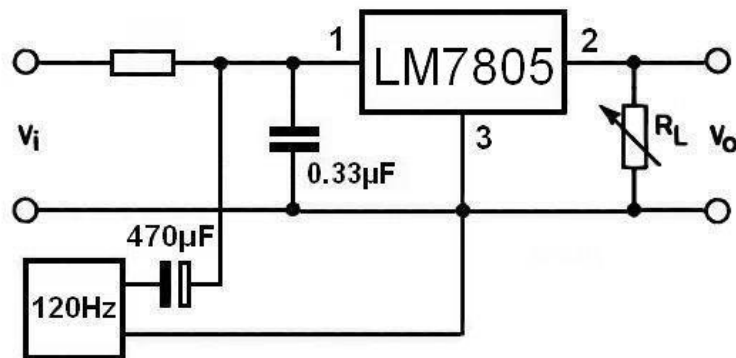
### Test Circuits



**DC Parameter**



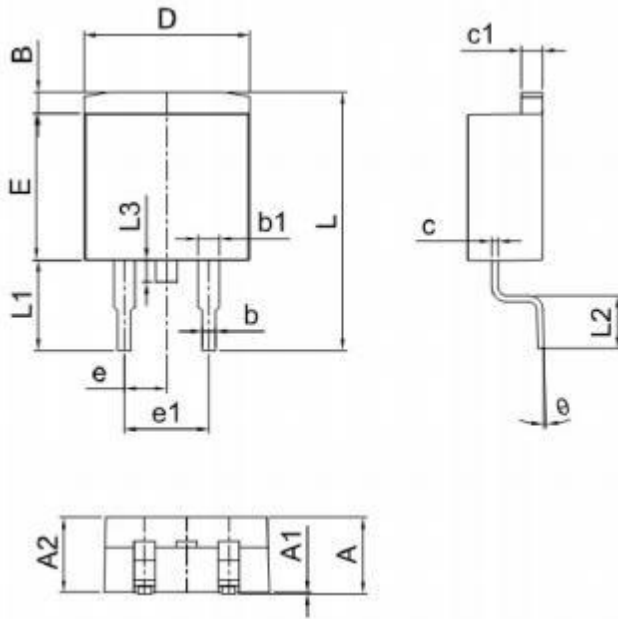
**Load Regulation**



**Ripple Rejection**



### Package Dimensions



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071

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