



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

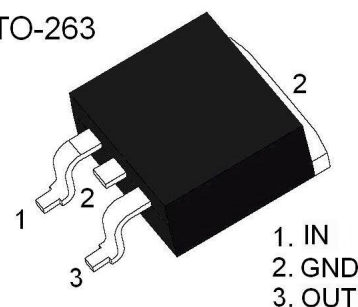
Short Circuit Protection

Output Transistor Safe Operating area (SOA) Protection

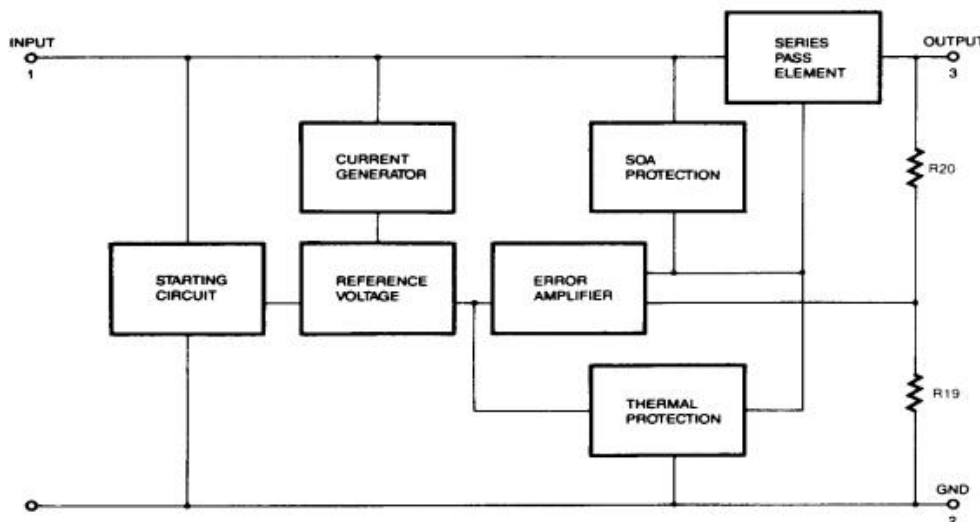
Description

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.

TO-263



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)

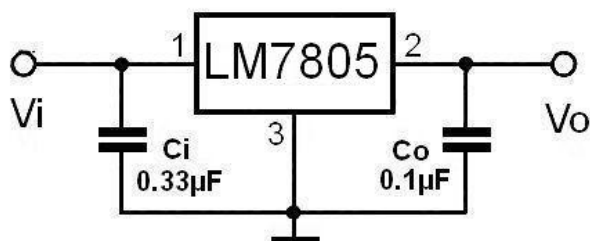
Parameter	Symbol	Conditions		Value			Unit
				Min	Typ	Max	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$		4.8	5	5.2	V
		$V_i = 7 \sim 20\text{V}, I_o = 5\text{mA} \sim 1.0\text{A}$		4.75	5	5.25	
Line Regulation	ΔV_o	$T_j = 25^\circ\text{C}$	$V_i = 7\text{V} \sim 25\text{V}$			100	mV
			$V_i = 8\text{V} \sim 12\text{V}$			50	
Load Regulation	ΔV_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	ΔI_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/ $^\circ\text{C}$
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$			42		μV
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:

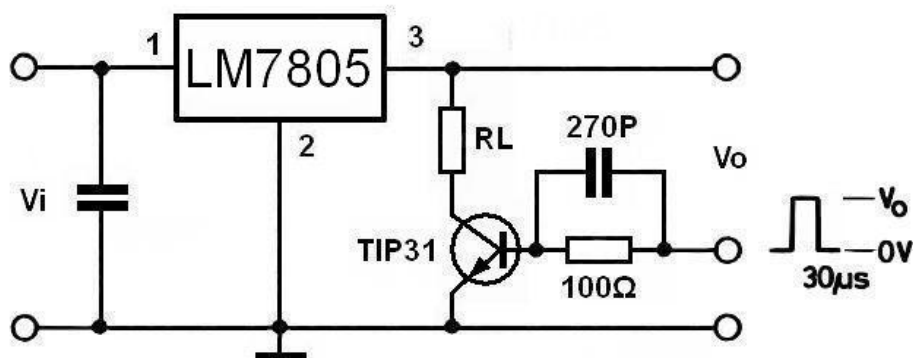
*Load and line regulation are specified at constant junction temperature. Change in V_o due to heating effects must be taken into account separately. Pulse testing with low duty is used.



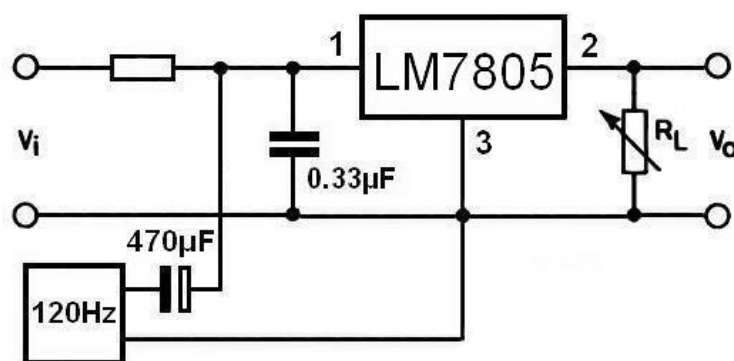
Test Circuits



DC Parameter



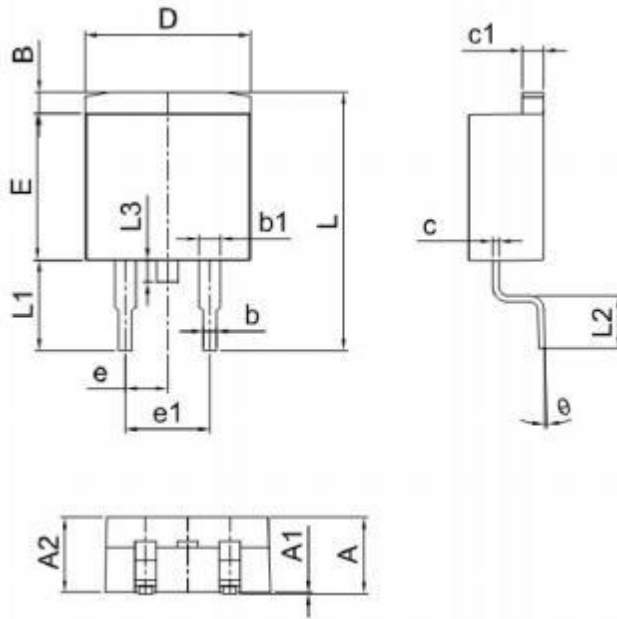
Load Regulation



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