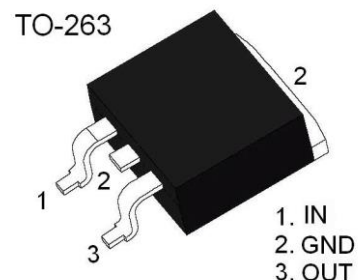


Description

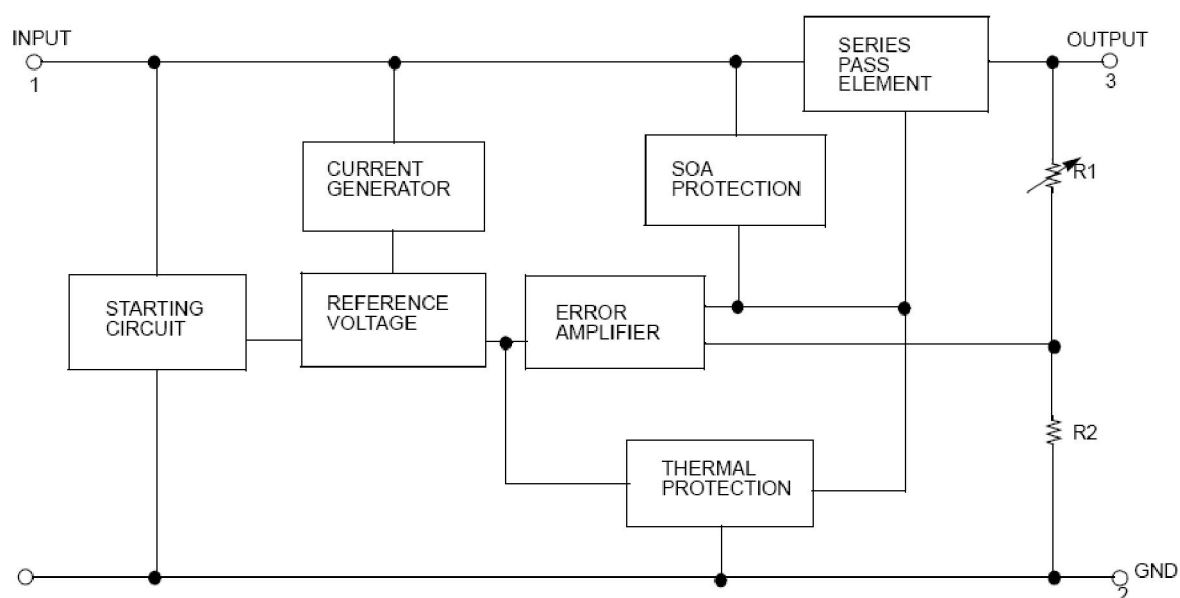
The LM7812 three-terminal positive regulators are available in the TO-263 package with several fixed output voltages making it useful in a wide range of applications.



Features

- Output Current up to 1.0A
- Output Voltages of 12V
- Thermal Overload Protection Short Circuit Protection
- Output Transistor Safe Operating area (SOA)Protection

Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Thermal Resistance Junction-Case	$R_{\theta JC}$	5	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction-Air ($T_a = +25^{\circ}\text{C}$)	$R_{\theta JA}$	65	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_{OPR}	0~150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55~+150	$^{\circ}\text{C}$



Electrical Characteristics

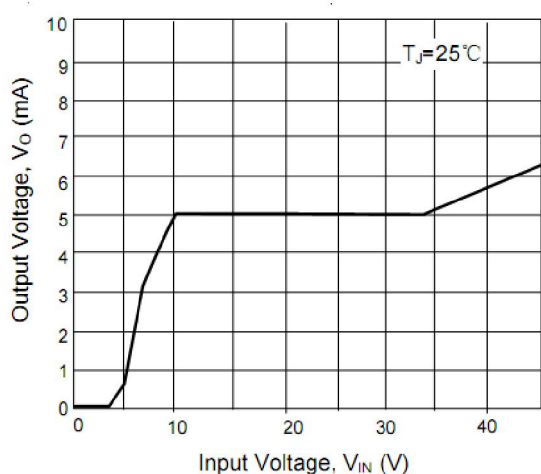
(Refer to the test circuits, $0 < T_j < +125^{\circ}\text{C}$, $I_o=500\text{mA}$, $V_i=19\text{V}$, unless otherwise specified, $C_i = 0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Output Voltage	V_o	$T_j = 25^{\circ}\text{C}$, $I_o = 5\text{mA} \sim 1.0\text{A}$	11.52	12.00	12.48	V
		$V_i = 14.5\text{V} \sim 27\text{V}$, $I_o = 5\text{mA} \sim 1.0\text{A}$, $P_D \leq 15\text{W}$	11.40	12.00	12.60	V
Line Regulation(Note)	ΔV_o	$V_i = 14.5\text{V} \sim 30\text{V}$, $T_j = 25^{\circ}\text{C}$			120	mV
		$V_i = 14.6\text{V} \sim 22\text{V}$, $I_o = 1\text{A}$, $T_j = 25^{\circ}\text{C}$			120	
Load Regulation(Note)	ΔV_o	$T_j = 25^{\circ}\text{C}$				mV
		$I_o = 5\text{mA} \sim 1.5\text{A}$ $I_o = 0.25\text{A} \sim 0.75\text{A}$			120 60	
Quiescent Current	I_Q	$T_j = 25^{\circ}\text{C}$			8.0	mA
Quiescent Current Change	ΔI_Q	$V_i = 14.5\text{V} \sim 30\text{V}$			1.0	mA
		$I_o = 5\text{mA} \sim 1.0\text{A}$			0.5	
Output Noise Voltage	V_N	$f = 10\text{Hz} \sim 100\text{KHz}$		75		μV
Output Voltage Drift	$\Delta V / \Delta T$	$I_o = 5\text{mA}$		-1.5		$\text{mV}/^{\circ}\text{C}$
Ripple Rejection	RR	$V_i = 15\text{V} \sim 25\text{V}$, $f = 120\text{Hz}$, $T_j = 25^{\circ}\text{C}$		80		dB
Short Circuit Current	I_{SC}	$V_i = 35\text{V}$, $T_j = 25^{\circ}\text{C}$		250		mA
Peak Current	I_{PK}	$T_j = 25^{\circ}\text{C}$		1.8		mA
Dropout Voltage	V_D	$T_j = 25^{\circ}\text{C}$		2.0		V

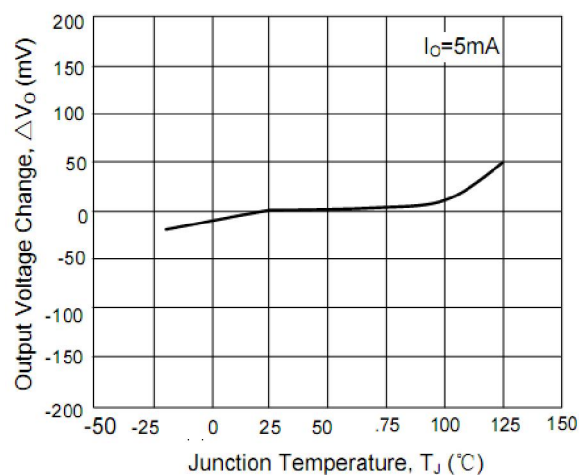
Notes:

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.

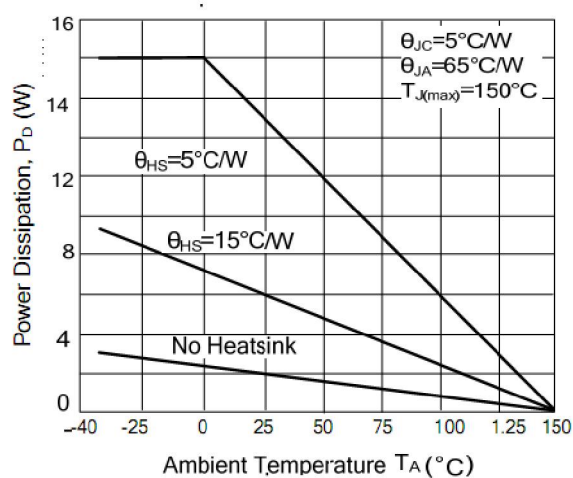
Typical Performance Characteristics



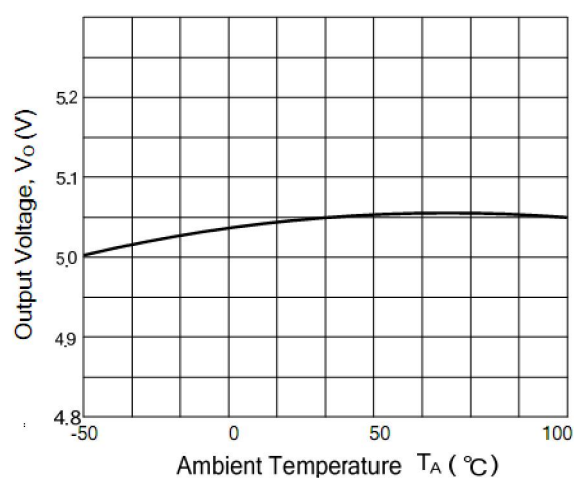
Output Voltage vs. Input Voltage



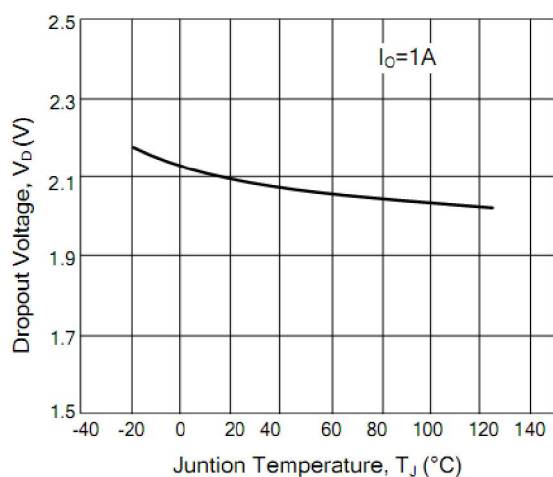
Output Voltage Change vs. Junction Temperature



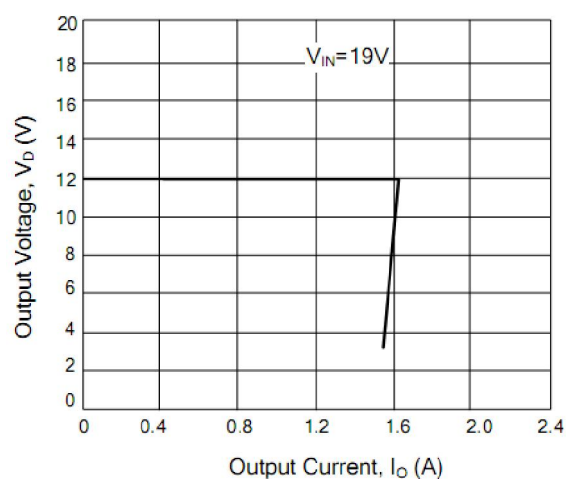
Peak Output Current



Output Voltage vs. Ambient Temperature

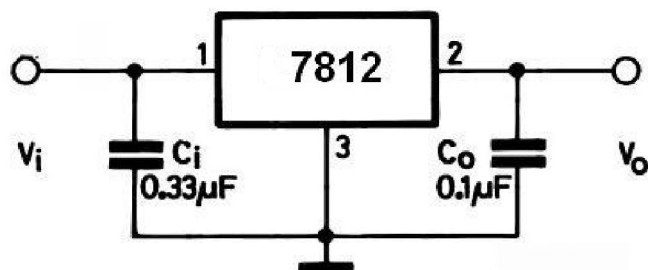


Dropout Voltage vs. Junction Temperature

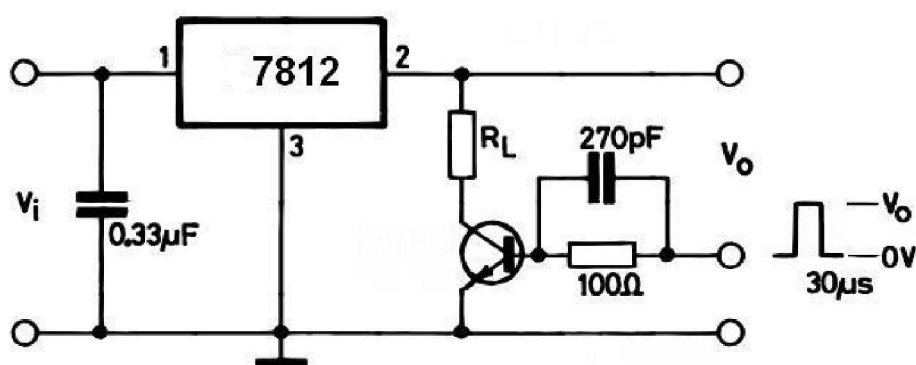


Output Voltage vs. Output Current

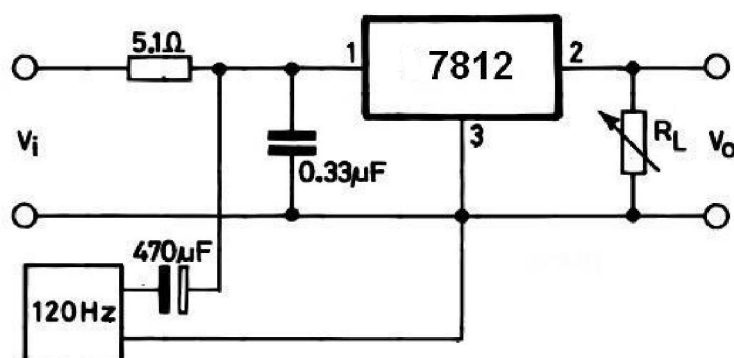
Typical Applications



DC Parameters



Load Regulation



Ripple Rejection

Package Dimensions

Dim	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