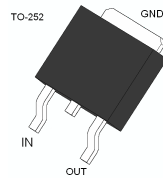


Features

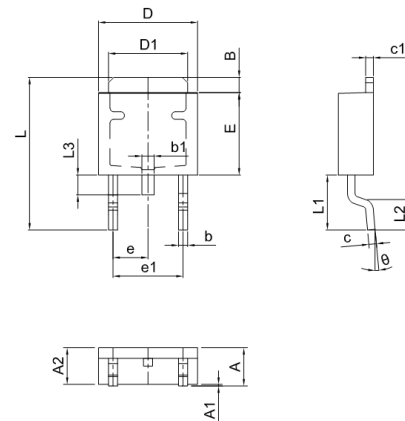
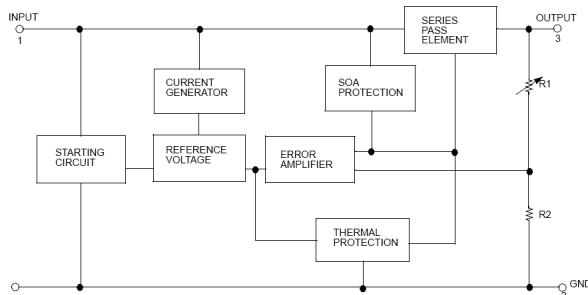
- Output Current up to 1A
- Output Voltages of 12V
- Thermal Overload Protection Short Circuit Protection
- Output Transistor Safe Operating area (SOA)Protection

Description

The MC7812BDTRKG three-terminal positive regulators are available in the TO-252 package with several fixed output voltages making it useful in a wide range of applications.



Internal Block Diagram



Symbol	Min.	Typ	Max.
A	2.20	2.35	2.50
A1	0.00	0.05	0.12
A2	2.20	2.30	2.40
B	1.20	1.40	1.60
b	0.50	0.60	0.70
b1	0.70	0.80	0.90
c	0.40	0.50	0.60
c1	0.40	0.50	0.60
D	6.35	6.50	6.65
D1	5.20	5.30	5.40
E	5.40	5.50	5.70
e	2.20	2.30	2.40
e1	4.40	4.60	4.80
L	9.60	9.90	10.20
L1	2.70	2.90	3.10
L2	1.40	1.60	1.80
L3	0.90	1.20	1.50
θ	0°C	4°C	8°C

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Thermal Resistance Junction-Case	$R_{\theta JC}$	2.5	°C/W
Thermal Resistance Junction-Air ($T_a = +25^{\circ}C$)	$R_{\theta JA}$	92	°C/W
Operating Junction Temperature Range	T_{OPR}	0 ~ 150	°C
Storage Temperature Range	T_{STG}	-55 ~ + 150	°C

MC7812BDTRKG

Electrical Characteristics

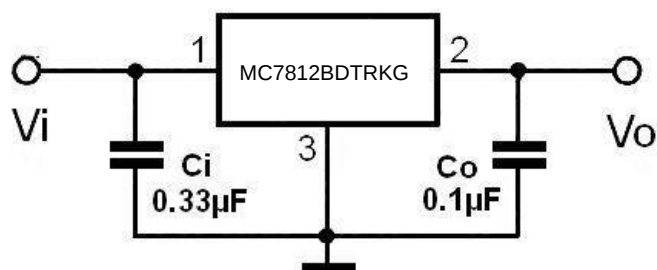
(Refer to the test circuits, $0 < T_J < +125^{\circ}\text{C}$, $I_O=500\text{mA}$, $V_I=19\text{V}$, $C_I = 0.33\mu\text{F}$, $C_O=0.1\mu\text{F}$ unless otherwise specified,)

Parameter	Symbol	Conditions		Value			Unit
				Min	Typ	Max	
Output Voltage	V_O	$I_O = 5\text{mA} \sim 1\text{A}$, $V_I = 14.5 \sim 27\text{V}$		11.4	12	12.6	V
Line Regulation(Note)	ΔV_O	$T_J = 25^{\circ}\text{C}$	$V_I = 14.5\text{V} \sim 30\text{V}$			240	mV
			$V_I = 16\text{V} \sim 22\text{V}$			120	
Load Regulation(Note)	ΔV_O	$T_J = 25^{\circ}\text{C}$	$I_O = 5\text{mA} \sim 1.2\text{A}$			240	mV
			$I_O = 250\text{mA} \sim 750\text{mA}$			120	
Quiescent Current	I_Q	$T_J = 25^{\circ}\text{C}$				8.0	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA} \sim 1\text{A}$				0.5	mA
		$V_I = 14.5 \sim 30\text{V}$				1.0	
Output Voltage Drift	$\Delta V / \Delta T$	$I_O = 5\text{mA}$			-1.0		mV/ $^{\circ}\text{C}$
Output Noise Voltage	V_N	$f = 10\text{Hz} \sim 100\text{KHz}$			76		μV
Ripple Rejection	RR	$f = 120\text{Hz}$, $V_I = 15 \sim 25\text{V}$		55			dB
Dropout Voltage	V_D	$I_O = 1\text{A}$, $T_J = 25^{\circ}\text{C}$			2		V
Short Circuit Current	I_{SC}	$V_I = 35\text{V}$, $T_A = 25^{\circ}\text{C}$			230		mA
Peak Current	I_{PK}	$T_J = 25^{\circ}\text{C}$			1.5		A

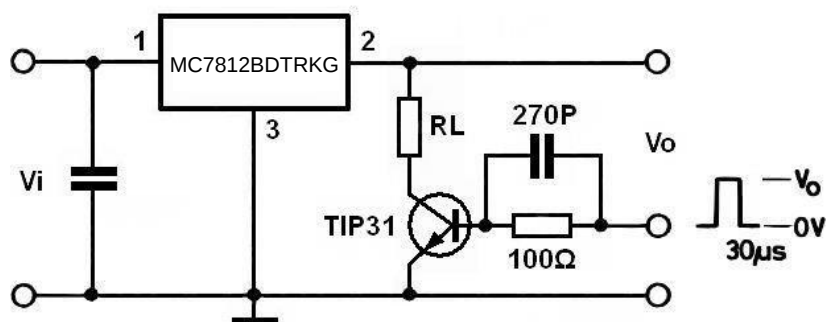
Notes:

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.

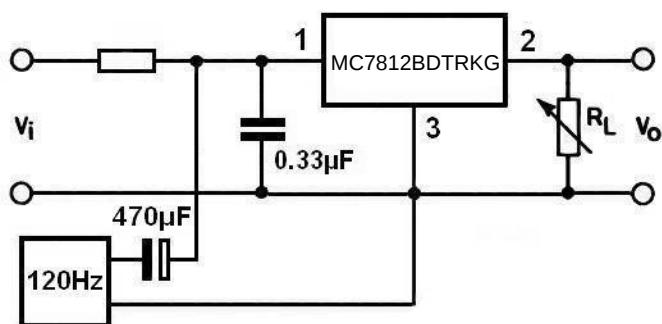
Test Circuits



DC Parameter



Load Regulation



Ripple Rejection