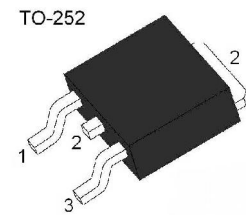


Description

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

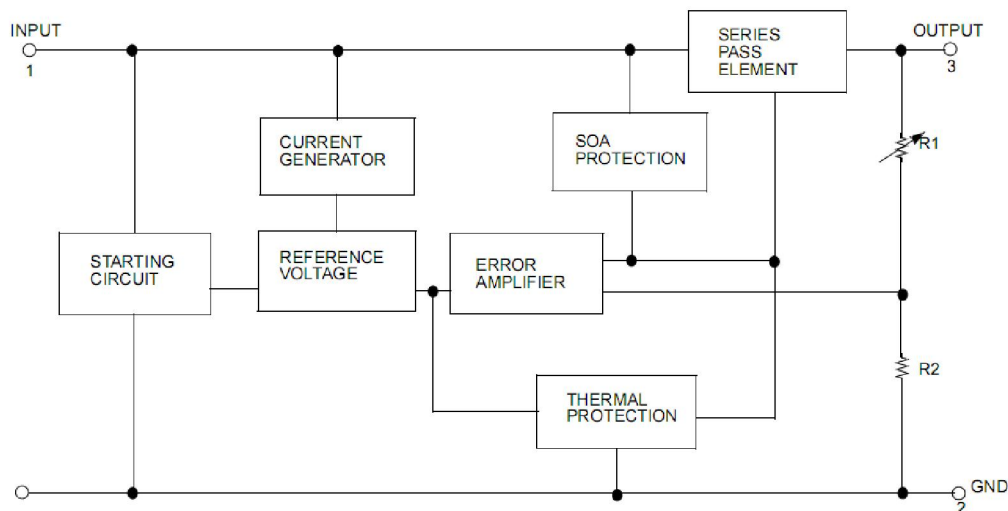
Features

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



1. Input
2. GND
3. Output

Internal Block Diagram



Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Input Voltage	$V_O = 12V$	V_{IN}	30	V
Thermal Resistance Junction-Air		$R_{\theta JA}$	92	$^{\circ}C/W$
Operating Temperature Range		T_{OPR}	0 ~ + 125	$^{\circ}C$
Storage Temperature Range		T_{STG}	-55 ~ + 150	$^{\circ}C$

Note: Absolute maximum ratings are those values beyond which damage to the device may occur. The datasheet specifications should be met, without exception, to ensure that the system design is reliable over its power supply, temperature, and output/input loading variables. ChipNobo does not recommend operation outside datasheet specifications.

Electrical Characteristics

($V_I = 19V$, $I_O = 0.5A$, $C_I = 0.33\mu F$, $C_O = 0.1\mu F$, $T_J = -40$ to $125^\circ C$, unless otherwise specified)

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
Output Voltage	V_O	$T_J = 25^\circ C$, $I_O = 5mA \sim 1A$		11.52	12.0	12.48	V
		$V_I = 14.5V \sim 27V$, $I_O = 5mA \sim 1A$		11.40	12.0	12.60	V
Line Regulation	ΔV_O	$T_J = 25^\circ C$ $I_O = 0.5A$	$V_I = 14.5V \sim 30V$			240	mV
			$V_I = 11.5V \sim 24V$			120	
Load Regulation	ΔV_O	$T_J = 25^\circ C$	$I_O = 5mA \sim 1A$			240	mV
			$I_O = 0.25A \sim 0.75A$			120	
Quiescent Current	I_Q	$T_J = 25^\circ C$				8.0	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA \sim 1A$				0.5	mA
		$V_I = 14.5V \sim 30V$				1.0	
Output Voltage Drift	$\Delta V / \Delta T$	$I_O = 5mA$			-1.0		mV/ $^\circ C$
Output Noise Voltage	V_N	$10Hz \leq f \leq 100KHz$			76		$\mu V/V_O$
Ripple Rejection	RR	$f = 120Hz$, $V_I = 15V \sim 25V$		55	71		dB
Output Resistance	R_O	$f = 1kHz$			18		m Ω
Short Circuit Current	I_{SC}	$T_J = 25^\circ C$, $V_I = 30V$			230		mA
Peak Out Current	I_{PK}	$T_J = 25^\circ C$			1.8		A
Dropout Voltage	V_d	$T_J = 25^\circ C$, $I_O = 1A$			2.0		V

Note 1: Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Note 2: These parameters, although guaranteed, are not 100% tested in production.

Typical Characteristics

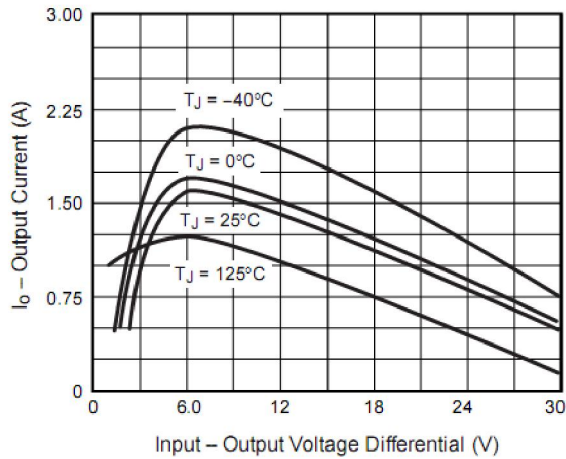


Figure 1. Peak Output Current

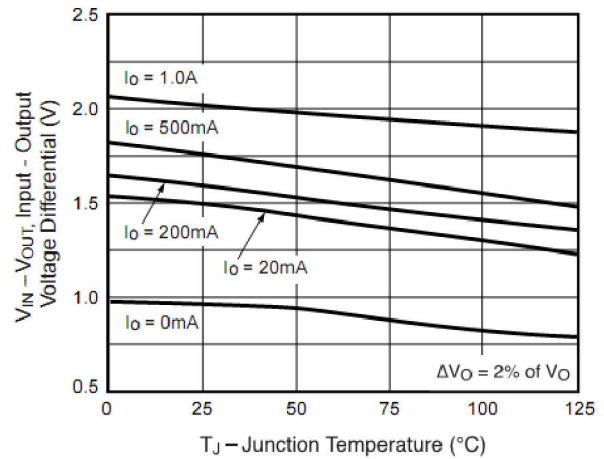


Figure 2. Dropout Voltage vs. Junction Temperature

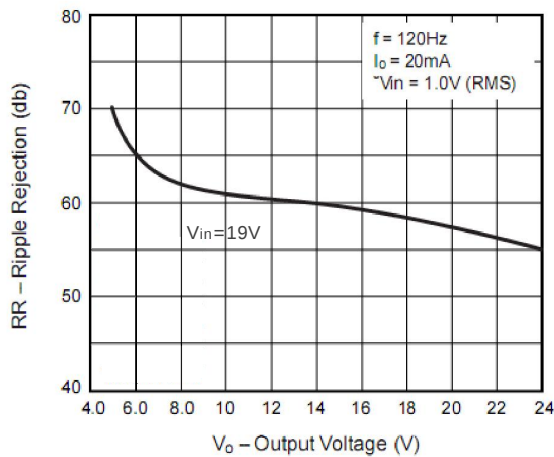


Figure 3. Ripple Rejection Ratio vs. Output Voltage

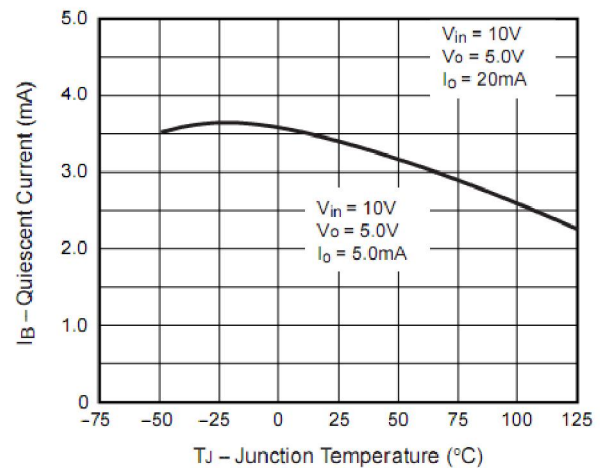


Figure 4. Quiescent Current vs. Junction Temperature

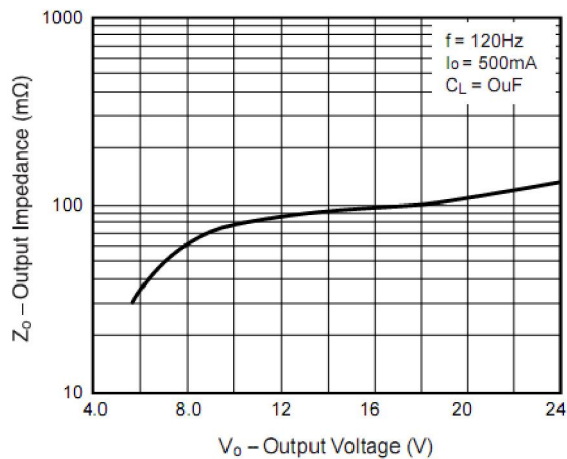
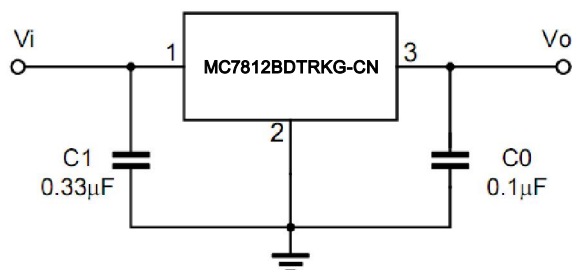


Figure 8. Output Impedance (mΩ) vs. Output Voltage

Application circuit



Note : Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Package Dimensions (TO-252)

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	9.60	10.20	0.378	0.402
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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