

3-terminal 5V 1.0A positive voltage regulator

Description

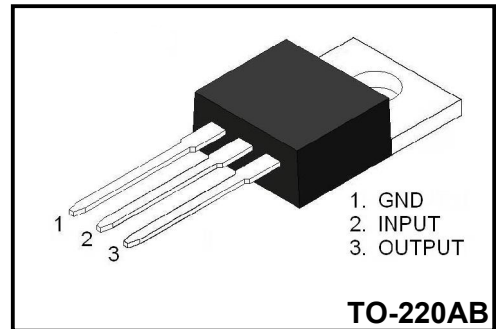
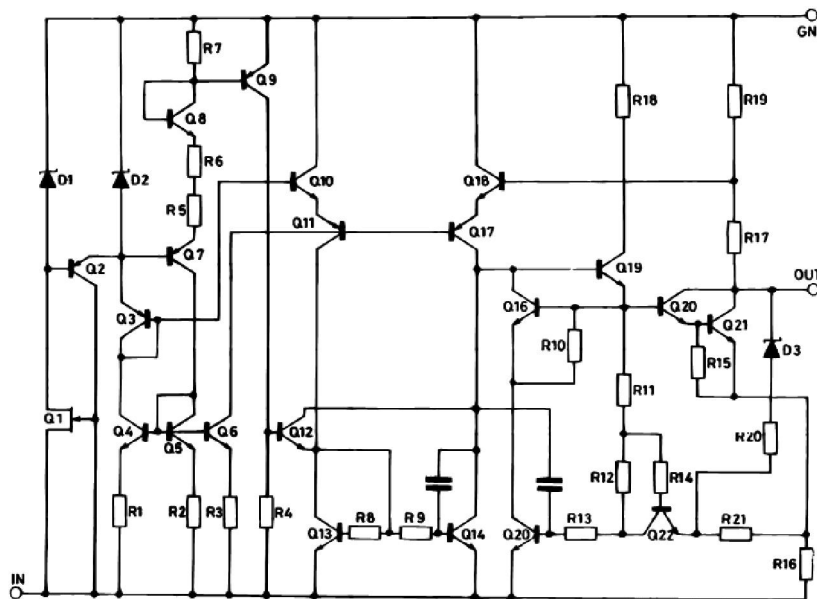
The 7912A three-terminal negative regulators is available in TO-220AB packages and several fixed output voltages, making it useful in a wide range of applications. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation; furthermore, having the same voltage as the 7812 positive, they are particularly suited for split power supplies. If adequate heat sinking is provided, they can deliver over 1.5 A 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 1.5A
- ◆ Output Voltages of -12V
- ◆ Thermal Overload Protection
- ◆ Short Circuit Protection
- ◆ Output transition SOA protection

Schematic diagram



TO-220AB

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	-35	V
Output current	I_O	-1.5	A
Operating Junction Temperature Range	T_{OPR}	0 ~ 125	°C
Storage Temperature Range	T_{STG}	-55 ~ + 150	°C

Note: Absolute maximum ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied.

Thermal Resistances (Ta = 25°C)

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$	5	°C/W
Thermal Resistance Junction-Air	$R_{\theta JA}$	65	°C/W

Electrical Characteristics

 Refer to the test circuits , $I_O = -750mA$, $V_I = -19V$, $C_I = 2.2\mu F$, $C_O = 1\mu F$ unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Output Voltage	V_O	$T_j = 25^\circ C$	-11.52	-12	-12.48	V
		$I_O = -5mA \sim -1.5A$, $P_O \leq 15W$ $V_I = -14.5 \sim -27V$	-11.40	-12	-12.60	
Line Regulation(Note)	ΔV_O	$T_j = 25^\circ C$	$V_I = -14.5V \sim -30V$		240	mV
			$V_I = -16V \sim -30V$		120	
Load Regulation(Note)	ΔV_O	$T_j = 25^\circ C$	$I_O = -5mA \sim -1.5A$		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	$I_O = -5mA \sim -1.5A$			0.5	mA
		$I_O = -14.5V \sim -30V$			1.0	
Output Voltage Drift	$\Delta V / \Delta T$	$I_O = 5mA$		-0.8		mV/°C
Output Noise Voltage	V_N	$f = 10HZ \sim 100KHZ$, $T_j = 25^\circ C$		200		μV
Ripple Rejection	RR	$f = 120Hz$, $\Delta V_I = 10V$		60		dB
Dropout Voltage	V_D	$I_O = 1.5A$, $T_j = 25^\circ C$		2		V
Short Circuit Current	I_{SC}	$V_I = -35V$, $T_j = 25^\circ C$		300		mA
Peak Current	I_{PK}	$T_j = 25^\circ C$		2.2		A

Notes: 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 cycle is used.

Application information

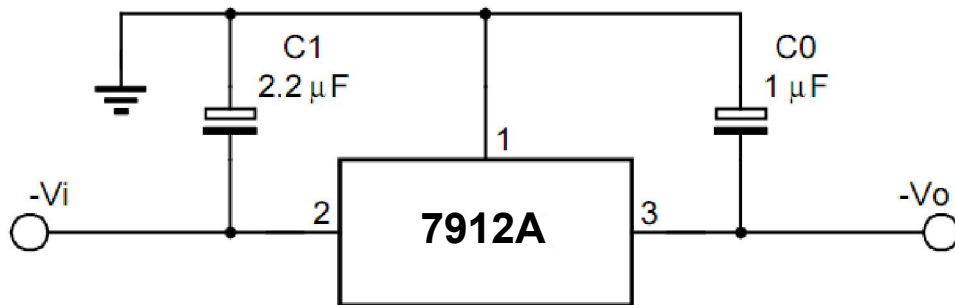
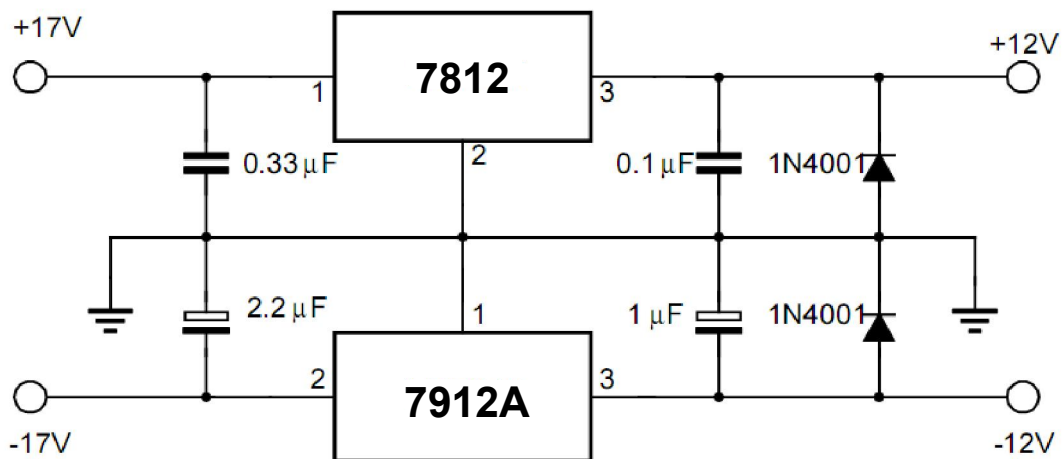


Figure 1.Fixed Output regulator

1. Required for stability. For value given, capacitor must be solid tantalum. If aluminium electrolytic are used, at least ten times value should be selected. C1 is required if regulator is located an appreciable distance from power supply filter.
- 2.To improve transient response. If large capacitors are used, a high current diode from input to output (1N4001 or similar) should be introduced to protect the device from momentary input short circuit.



(*) Against potential latch-up problems.

Figure 2.Split power supply (± 12 V, $- 1.5$ A)

Package Dimensions

TO-220AB

TO-220AB	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
	b	0.71	0.91	0.028	0.036
	b1	1.17	1.37	0.046	0.054
	c	0.30	0.50	0.012	0.020
	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
	E1	12.00	12.50	0.472	0.492
	e	2.44	2.64	0.096	0.104
	e1	4.88	5.28	0.192	0.208
	F	2.60	2.80	0.102	0.110
	L	13.20	13.80	0.520	0.543
	L1	3.80	4.20	0.150	0.165
	Φ	3.60	3.96	0.142	0.156

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
TO-220AB	Tube	50/1000/5000	EIA-481-1