

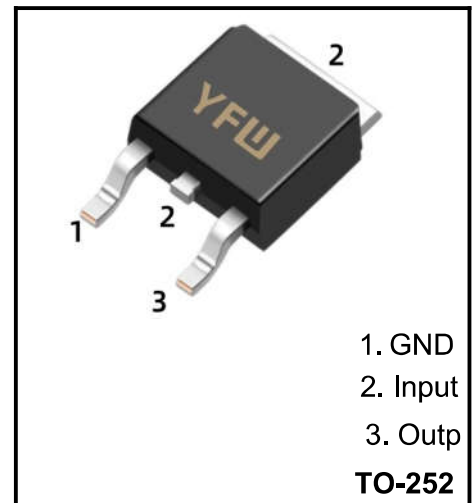
3-Terminal 1.5A Negative Voltage Regulator

Description

The 7905 series of 3-Terminal medium current negative voltage regulators are monolithic integrated circuits designed as fixed voltage regulators. These regulators employ internal current limiting, thermal shutdown and safe area compensation making them essentially indestructible.

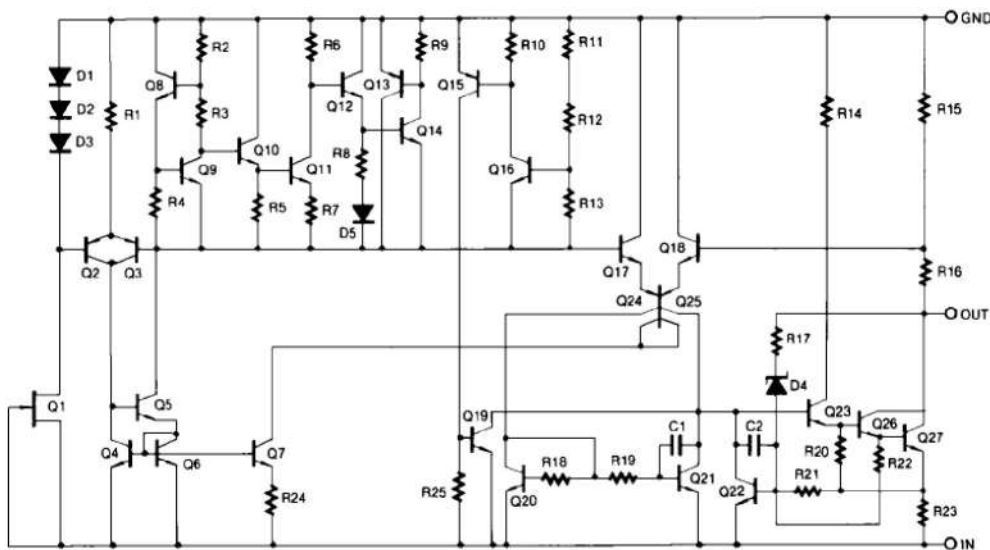
Features

- ◆ No external components required
- ◆ Output current in excess of 1.5A
- ◆ Internal thermal overload
- ◆ Internal short circuit current limiting
- ◆ Output transistor safe area compensation
- ◆ Output voltages of -5V



1. GND
2. Input
3. Outp
TO-252

Internal Block Diagram



Absolute Maximum Ratings (Ta = 25 °C)

Parameter	Symbol	Value	Unit
Input voltage	V_{IN}	-30	V
Output voltage	V_O	-5	V
Thermal resistance junction-air	$R_{\theta JA}$	65	°C/W
Thermal resistance junction-cases	$R_{\theta JC}$	5	°C/W
Operating Junction Temperature Range	T_j	0 ~ 125	°C
Storage Temperature Range	T_{stg}	-65 ~ 150	°C

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

(Refer to the test circuits, $I_o=1\text{A}$, $V_i=-10\text{V}$, $C_i=2.2\mu\text{F}$, $C_o=1\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output voltage	V_o	$T_j = 25^\circ\text{C}$	-4.8	-5.0	-5.2	V
		$I_o = 5\text{mA} \sim 1\text{A}$, $P_o < 15\text{W}$ $V_i = -7\text{V} \sim -20\text{V}$	-4.75	-5.0	-5.25	
Line regulation (Note)	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 (Note)	ΔV_o	$T_j = 25^\circ\text{C}$	$I_o = 5\text{mA} \sim 1.5\text{A}$		100	mV
			$I_o = 0.25\text{A} \sim 0.75\text{A}$		50	
Quiescent current	I_Q	$T_j = 25^\circ\text{C}$			6.0	mA
Quiescent current change	ΔI_Q	$I_o = 5\text{mA} \sim 1.5\text{A}$			0.5	mA
		$V_i = -8 \sim -25\text{V}$			0.8	
Output voltage drift	$\Delta V/\Delta T$	$I_o = 5\text{mA}$		-0.4		mV/ $^\circ\text{C}$
Output noise voltage	V_N	$f = 10\text{HZ} \sim 100\text{KHZ}$		40		μV
Ripple rejection	RR	$f = 120\text{Hz}$, $\Delta V_i = 10\text{V}$		60		dB
Dropout voltage	V_D	$T_j = 25^\circ\text{C}$, $I_o = 1.5\text{A}$		2		V
Short Circuit Current	I_{SC}	$T_j = 25^\circ\text{C}$, $V_i = -30\text{V}$		300		mA
Peak Current	I_{PK}	$T_j = 25^\circ\text{C}$		2.2		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.

Applications circuits

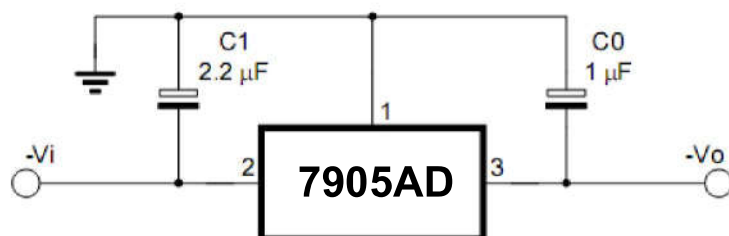


Figure.1 Fixed output regulator

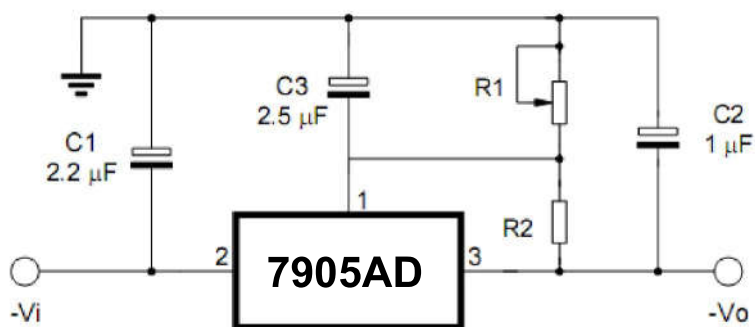
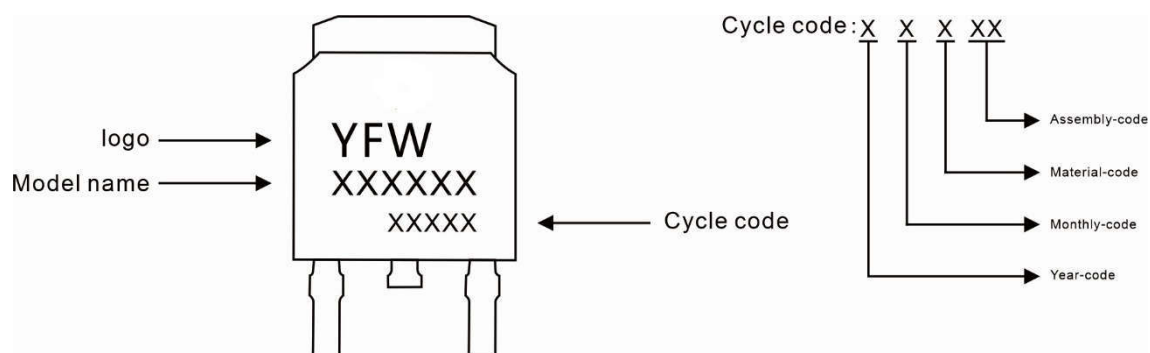


Figure.2 Circuit for increasing output voltage

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
7905AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252

Dim	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	10.00	11.00	0.393	0.433
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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