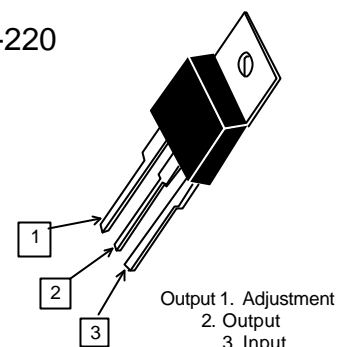# IL1084

IC OF ADJUSTABLE VOLTAGE REGULATOR OF POSITIVE POLARITY WITH LOW RESIDUAL VOLTAGE AND LOAD CURRENT 5A.

IC IL1084 is a powerful adjustable voltage regulator of positive polarity with low residual voltage and load current 5,5A.

IC of powerful adjustable voltage regulator with low residual voltage lower than 1,5A and reference voltage 1,25 V is purposed for producing constant temperature-stabilized voltage of positive polarity by means of the value set by external resistive divider and used in electronic equipment as a source of stabilized supply.

TO-220

Output 1. Adjustment
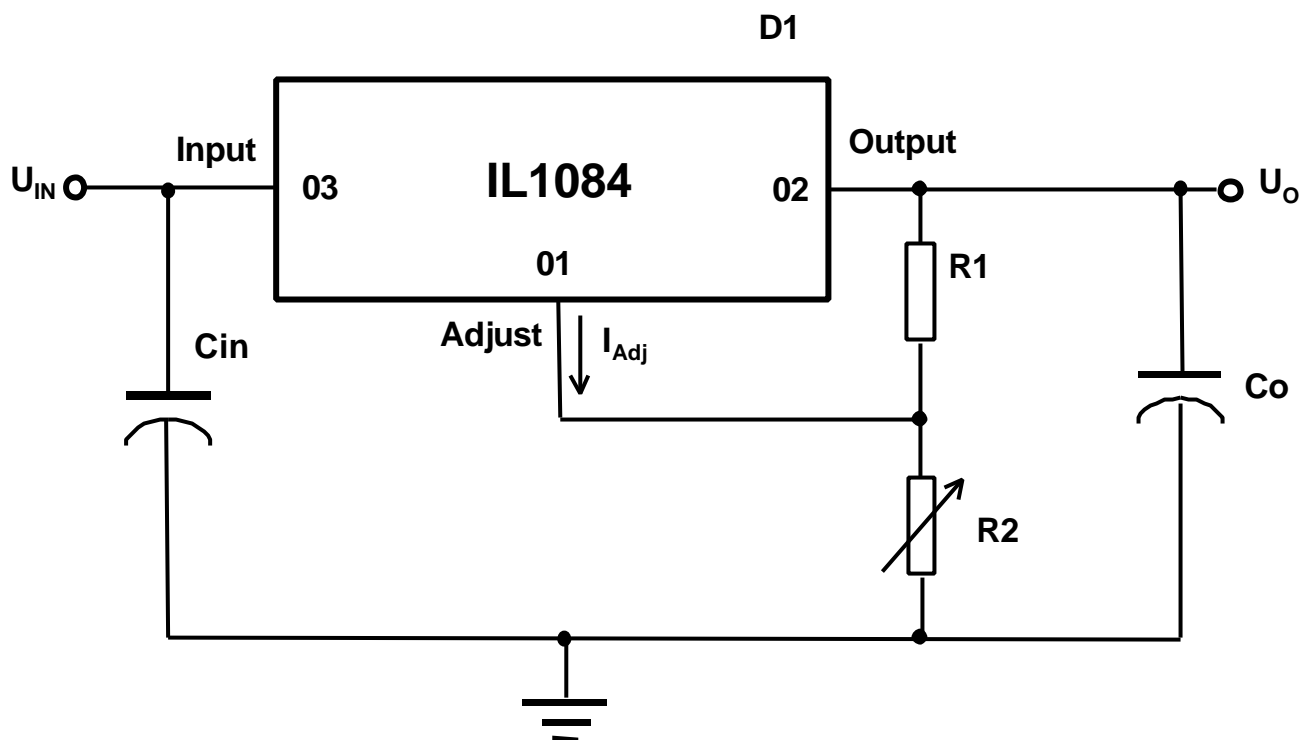2. Output
3. Input

Properties:

- Reference voltage 1,25V
- Output current up to 5,5 A
- Input-output voltage difference, U_{IN} - U_O up to 30 V
- Residual voltage lower than 1,5 V
- Overload protection
- Embedded temperature protection
- Operation range of chip temperature from 0 up to +125°Ñ.

Table 1 – Description of regulator IC pins in 3-pin package ÒÎ-220

Pin No.	Description	Name
01	Adjustment	Adjust
02	Output	Output
03	Input	Input

D1

Ñ1, Ñ2 – smoothing capacitors, C1=10 mkF, Ñ2=100 mkF (Ta),

D1 - IC,

R1, R2 - resistors, R1=121 Î ì ± 1%, R2 – adjusted with accuracy 1%.

Output voltage U_o, V, is defined by formula:

$$U_O = U_{ref}(1 + \frac{R2}{R1}) + I_{Adj}R2 \; ,$$

Where U_{ref} - reference voltage, V,

I_{Adj} - adjustment current, mkA.

Since I_{ADJ} has values not more than 120 mkA, inaccuracy dependent on this value for Uo – is minor.

Figure 1 – Connection circuit of adjustable voltage regulator

IL1084

TABLE 2 - ÒABLE OF ELECTRICAL CHARACTERISTICS

Characteristic, measurement unit	Symbol	Measurement mode	Standard		Tempera-ture T_J, ^{O}C
			min	Max	
Reference voltage, V	U_{ref}	I_O=10ì A (U_{IN} - U_O)=3V	1,238	1,262	25±10
		10mA≤ I_O ≤ $I_{FULL LOAD}$ 1,5V ≤(U_{IN} - U_O) ≤ 25V	1,225	1,270	0÷125
Change of output voltage when input voltage changes, %	Regline	I_O=10 mA, 1,5V ≤(U_{IN} - U_O) ≤ 15V	-	0,2	0÷125
		I_O=10 mA, 15V ≤(U_{IN} - U_O) ≤ 30V	-	0,5	0÷125
Change of output voltage when load current changes, %	Regload	(U_{IN} - U_O) = 3V	-	0,3	25±10
		10mA≤ I_O ≤ 5À	-	0,4	0÷125
Residual voltage, V	U_{ds}	ΔU_{ref} = 1 %, I_O= 5À	-	1,5	0÷125
Maximum output current, A	$I_{O max}$	(U_{IN} - U_O) = 5V	5,5	-	0÷125
		(U_{IN} - U_O) = 25V	0,3	-	0÷125
Minimum output current, mA	$I_{O min}$	(U_{IN} - U_O) = 25V	-	10	0÷125
Thermostabilization, %/W	Regterm	T_{pal}=30ms $T_À$=25°C		0,015	
Pulsation smoothing ratio, dB	RR	f=120Ãö, $Ñ_{Adj}$=25mkF, $Ñ_i$ =25 mkF (Ta), I_O= 5À,(U_{IN} - U_O)=3V	60	-	0÷125
Adjustment current, mkA	I_{Adj}		-	120	0÷125
Change of adjustment current, mkA	ΔI_{Adj}	10mA≤ I_O ≤ $I_{FULL LOAD}$ 1,5V ≤(U_{IN} - U_O) ≤ 25V	-	5	0÷125
Ratio of output voltage temporary instability, %	S	1000 h ;T_J = 125 ^{O}C (when testing)	-	1	25±10

Notes:

1 Measurement of electrical characteristics is carried out when capacitance $Ñ_{IN}$=10 mkF is connected to the input and $Ñ_i$ =100 mkF – to the output;

2 Reference voltage U_{ref} in adjustable regulator is measured between outputs Output and Adjust on resistance R1 (figure 1);

3 Parameters stipulated in table 1 are ensured for constant chip temperature T_J. Measurement of parameters should be performed using heatsink and pulse technique;

4 I $_{FULL LOAD}$ – value of maximum output current dependent on input-output voltage difference (U_{IN} - U_O) with power dissipation in package ÊÒ-28 - 30 W.

IL1084

Table 3 - **Typical values of electrical characteristics**

Characteristic, Measurement unit	Symbol.	Measurement mode	Typical value
Adjustment current, mkA	I_{Adj}	$T_J = 25\,^{O}C$	55
Temperature ratio of output voltage instability, %	TS	$T_J = 0 \div 125\,^{O}C$	0,5
Noise voltage on output, (%)	$U_{n\ rms}$	$T_J = 25\,^{O}C$ $10\ Ãö \le f \le 10\ êÃö$	0,003

Table 4 - **Table of maximum and absolute maximum ratings**

Parameter	Measure-ment unit	Maximum ratings		Absolute maxi-mum ratings	
		min	max	min	max
Input-output voltage difference, $U_{IN} - U_O$	V	2,77	30	0	31
Chip temperature, $Ò_J$	^{O}C	0	125	-65	150
Storage temperature, $Ò_{Stg}$	^{O}C			-65	150