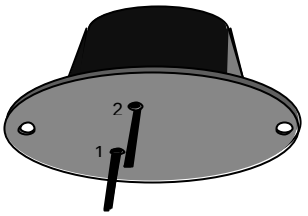
IL1083

IC of adjustable voltage regulator of positive polarity with low residual voltage and load current 7,5 À

IC IL1084 is a powerful adjustable voltage regulator of positive polarity with low residual voltage and load current 7,5 À.

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.



Output 1. Adjustment
Output 2. **Output**
Bottom of package - **Input**

Properties:

- Reference voltage 1,25V
- Output current up to 7,5 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 KT-9

Pin No.	Description	Name
01	Adjustment	Adjust
Bottom of package	Output	Output
02	Input	Input

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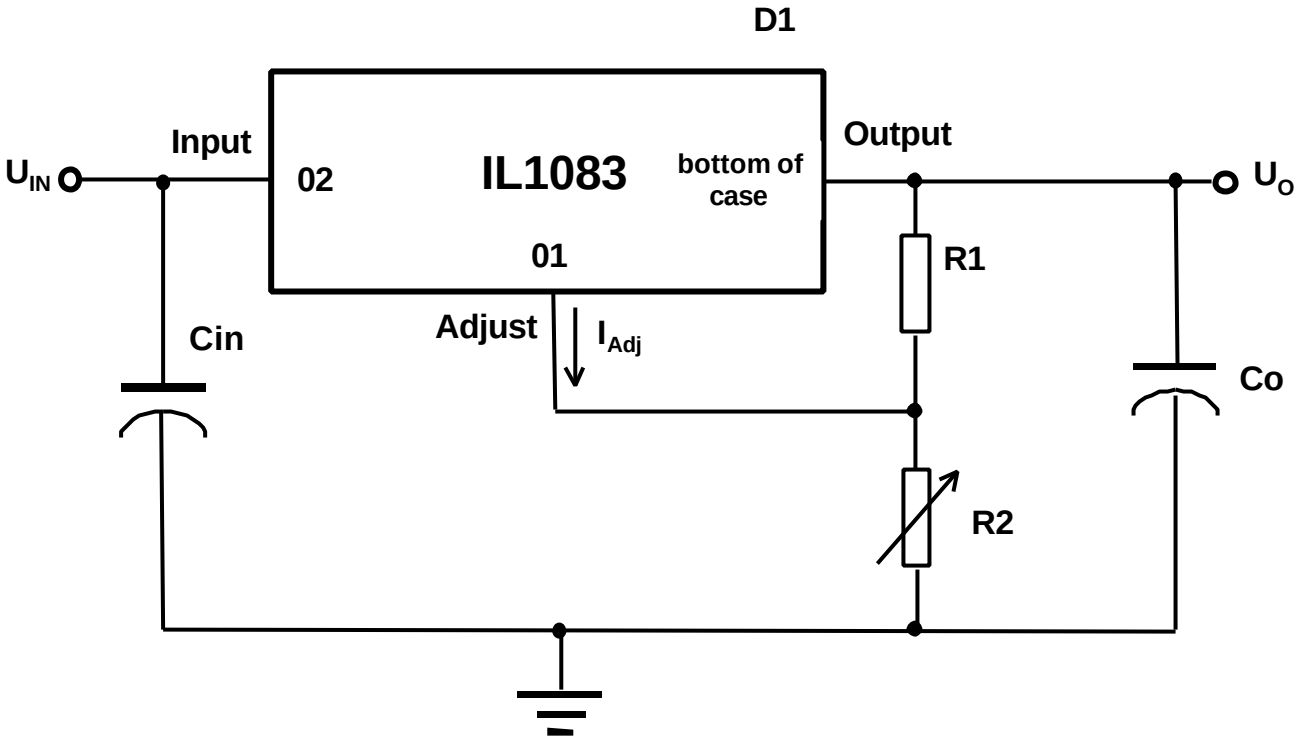

Ñ1, Ñ2 – smoothing capacitors, C1=10 mkF, Ñ2=100 mkF (Ta),

D1 - IC,

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

Output voltage U_o, V, is defined by formula:

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

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

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TABLE 2 - ÒABLE OF ELECTRICAL CHARACTERISTICS

Characteristic, measurement unit	Symbol	Measurement mode	Standard		Tempera-ture T_J, ^OC
			min	Max	
Reference voltage, V	U_{ref}	I_O=10mA $(U_{IN} - U_O)$=3V	1,238	1,262	25±10
		10mA≤ $I_O \le I_{FULL\ LOAD}$ 1,5V ≤$(U_{IN} - U_O) \le$ 25V	1,225	1,270	0÷125
Reference voltage, V	U_{ref}	I_O=10mA $(U_{IN} - U_O)$=3V	1,238	1,262	25±10
		10mÀ ≤ $I_O \le I_{FULL\ LOAD}$ 1,5V ≤$(U_{IN} - U_O) \le$ 25V	1,225	1,270	0÷125
Change of output voltage when input voltage changes, %	Regline	I_O=10 mÀ, 1,5V ≤$(U_{IN} - U_O) \le$ 15V	-	0,2	0÷125
		I_O=10 mÀ, 15V ≤$(U_{IN} - U_O) \le$ 30V	-	0,5	0÷125
Change of output voltage when load current changes, %	Regload	$(U_{IN} - U_O)$ = 3V	-	0,3	25±10
		10mÀ ≤ $I_O \le I_{FULL\ LOAD}$	-	0,4	0÷125
Residual voltage, V	U_{ds}	ΔU_{ref} = 1 %, I_O= $I_{FULL\ LOAD}$	-	1,5	0÷125
Maximum output current, A	$I_{O\ max}$	$(U_{IN} - U_O)$ = 5V	8,0	-	0÷125
		$(U_{IN} - U_O)$ = 25V	0,4	-	0÷125
Minimum output current, mA	$I_{O\ min}$	$(U_{IN} - U_O)$ = 25V	-	10	0÷125
Thermostabilization, %/W	Regterm	$t_{èì\ ï\ óëüñ}$=30mñ$T_À$=25^{O}C		0,010	
Pulsation smoothing ratio, dB	RR	f=120Hz, $Ñ_{Adj}$=25µF, $Ñ_î$ =25 µF I_O=$I_{FULL\ LOAD}$, $(U_{IN} - U_O)$=3V	60	-	0÷125
Adjustment current, mkA	I_{Adj}	10mÀ ≤ $I_O \le I_{FULL\ LOAD}$ 1,5V ≤$(U_{IN} - U_O) \le$ 25V	-	120	0÷125
Change of adjustment current, mkA	ΔI_{Adj}	10mÀ ≤ $I_O \le I_{FULL\ LOAD}$ 1,5V ≤$(U_{IN} - U_O) \le$ 25V	-	5	0÷125
Ratio of output voltage temporary instability, %	S	1000 ÷ ;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 $Ñ_î$ =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.

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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÷125 ^{O}C	0,5
Noise voltage on output, (%)	$U_{n\ rms}$	T_J = 25 ^{O}C 10 Ãö ≤ f ≤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

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