

## 300mA CMOS LINEAR REGULATOR WITH LOW DROPOUT VOLTAGE & LOW CONSUMPTION CURRENT

The IZ1734-33 is 3.3 V/300 mA linear regulator with low dropout voltage and low consumption current low-dropout linear regulator.

The IZ1734-50 is 5V/300 mA linear regulator with low drop voltage and low consumption current low-dropout linear regulator.

The main features of the IZ1734 include low ground current defined by CMOS technology, very low dropout voltage, and  $\pm 2\%$  accuracy for the output voltage. Typical consumption current remains 12  $\mu\text{A}$ , from no load to maximum loading conditions. Short circuit current limiting is built in to provide protection for the IZ1734-33, IZ1734-50 (further IZ1734).

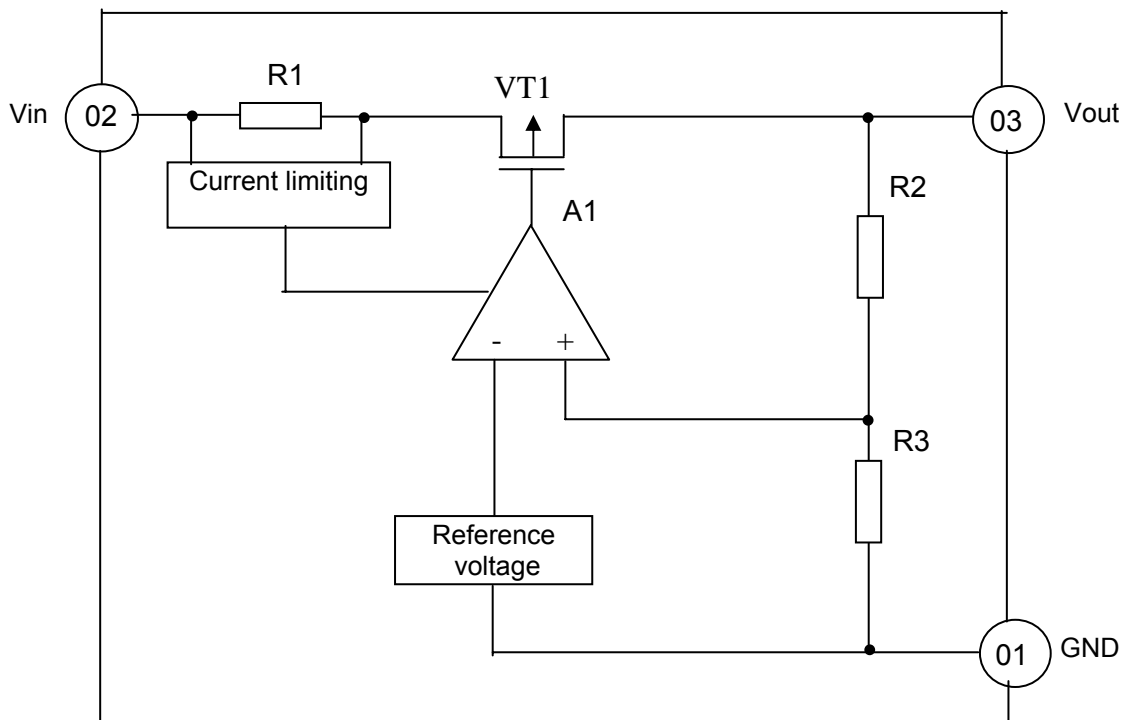
### FEATURES

- Low dropout voltage is no more than 600 mV at 300 mA.
- Guaranteed 300 mA output current.
- Low consumption current 25  $\mu\text{A}$ .
- Output voltage accuracy of  $\pm 2\%$  at 3.3/5 V.
- Needs only 1  $\mu\text{F}$  for stability.
- Protection with short circuit current limiting.
- Operating junction temperature range:  $-45 \dots +125^\circ\text{C}$

Permissible value of electrostatic potential 1000 V.

Table 1 – Contact pad description

Contact pad number	Symbol	Function
01	GND	Common pin (GND)
02	Vin	Input
03	Vout	Output
04 - 11	-	Technological pads



A1 – error amplifier;  
 R1 – R3 – resistors;  
 VT1 - transistor

**Fig. 1 – Electric block diagram**

Table 2 – Absolute maximum ratings

Symbol	Parameter	Norm		Unit
		Min	Max	
$U_{IN}$	Input voltage	-0.3	12	V
$T_{stg}$	Storage temperature	-60	150	°C
$T_J$	Junction temperature	-	150	°C
$t_{SC}$	Short circuit duration	-	0.5	s

Table 3 – Electric parameters ( $T_A=25^\circ\text{C}$ ,  $C_{IN}=1\mu\text{F}$ ,  $C_{OUT}=1\mu\text{F}$ , unless otherwise specified)

Parameter	Symbol	Measurement mode	Norm		Unit
			Min.	Max.	
Output voltage	$U_O$	without load			V
		IZ1734-33   $U_{IN}$ from 4.0 to 12 V	3.235	3.365	
		IZ1734-50   $U_{IN}$ from 5.5 to 12 V	4.900	5.100	
Line regulation	Regline	$I_O = -40$ mA			mV
		IZ1734-33   $U_{IN}$ from 5.5 to 10 V	-	10	
		IZ1734-50   $U_{IN}$ from 5.5 to 12 V	-	30	
Load regulation	Regload	$I_O$ from -0.1 to -100 mA			mV
		IZ1734-33   $\frac{U_{IN}=5\text{ V}}{U_{IN}=7\text{ V}}$	-	<u>20</u>	
		IZ1734-50   $\frac{U_{IN}=5\text{ V}}{U_{IN}=7\text{ V}}$	-	<u>40</u>	
		$I_O$ from -0.1 to -300 mA			
		IZ1734-33   $\frac{U_{IN}=5\text{ V}}{U_{IN}=7\text{ V}}$	-	<u>50</u>	
		IZ1734-50   $\frac{U_{IN}=5\text{ V}}{U_{IN}=7\text{ V}}$	-	<u>70</u>	
Short circuit current	$I_{OS}$	$U_{IN}=7\text{ V}$ , $U_{OUT}=0\text{ V}$	300	900	mA
Ground current	$I_{GND}$	$I_O$ from -0.1 to -300 mA			$\mu\text{A}$
		IZ1734-33   $U_{IN}$ from 5 to 12 V	-	25	
		IZ1734-50   $U_{IN}$ from 7 to 12 V	-	25	

Table 3 continued

Parameter	Symbol	Measurement mode		Norm		Unit
				Min.	Max.	
Dropout voltage	$U_{DS}$	$I_O = -300mA$	$\frac{IZ1734-33}{IZ1734-50}$	-	$\frac{600}{600}$	mV
Output voltage temperature stability coefficient	TS	$U_{IN} = 7V$		-	$80 \cdot 10^{-6}$	1/°C

Notes

1 To provide condition of equality of junction temperature  $T_J$  and ambient temperature  $T_A$  measurements of electric parameters have to processed in pulse mode.

2. Drop voltage  $U_{DS}$  is defined as difference of input and output voltages, at which the output voltage has dropped 100mV from the value obtained at 1V difference.

3 Regload parameters norms are indicated for case of bonding by gold wire with 30  $\mu m$  diameter and 2,44 mm length. It is recommended to use for bonding gold wire with 50  $\mu m$  diameter and minimum length to decrease value Regload and voltage drop on the bonding wire

**Application of the microcircuit:**

- Voltage regulator for CD-ROM Drivers.
- Voltage regulator for LAN Cards.
- Voltage regulator for microprocessor.
- Wireless telecom systems.
- Battery powered systems.

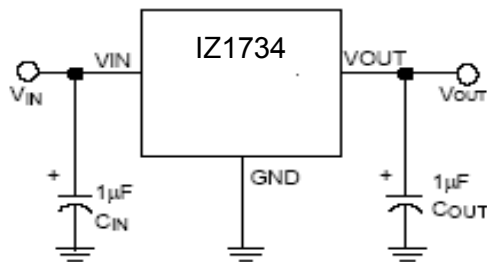
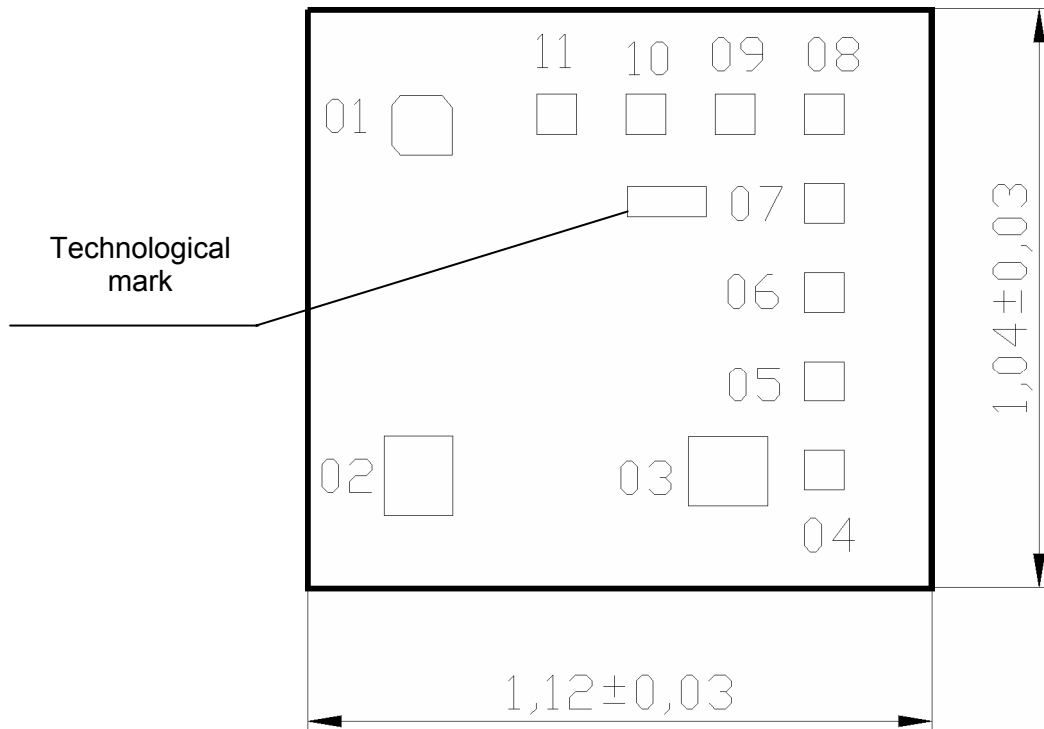


Fig. 2 – Recommended application circuit



Coordinates of contact pad are indicated in table 4  
 Technological mark on chip has coordinates, mm: left bottom corner  $x = 0,576$  ,  $y = 0,695$   
 Content of the technological mark is indicated in table 5.  
 Chip thickness is  $0,46 \pm 0,02$ .

**Fig 3 – Chip outline drawing**

**Table 4 – Contact pad location**

Contact pad number	Coordinates (left bottom corner ), mm		Contact pad size , mm
	X	Y	
01	0,151	0,779	0,108x0,108
02	0,1365	0,131	0,124x0,143
03	0,683	0,1485	0,143x0,124
04	0,891	0,177	0,072x0,072
05	0,891	0,337	0,072x0,072
06	0,891	0,497	0,072x0,072
07	0,891	0,657	0,072x0,072
08	0,891	0,817	0,072x0,072
09	0,731	0,817	0,072x0,072
10	0,571	0,817	0,072x0,072
11	0,411	0,817	0,072x0,072

Notes  
 Coordinates and size of the contact pads are given by the layer «Passivation»

**Table 5**

Type of IC	Technological mark
IZ1734-50	1734-50
IZ1734-33	1734-33