500MA CMOS LINEAR REGULATOR WITH LOW DROPOUT VOLTAGE & LOW CONSUMPTION CURRENT

The IZ1735-33 is 3.3 V/500 mA linear regulator with low dropout voltage and low consumption current low-dropout linear regulator.

The IZ1735-50 is 5V/500 mA linear regulator with low drop voltage and low consumption current low-dropout linear regulator

The main features of the IZ1735 include low ground current defined by CMOS technology, very low dropout voltage, and ±2% accuracy for the output voltage. Typical consumption current remains 13 μA, from no load to maximum loading conditions. Short circuit current limiting is built in to provide protection for the IZ1735-33, IZ1735-50 (further IZ1735).

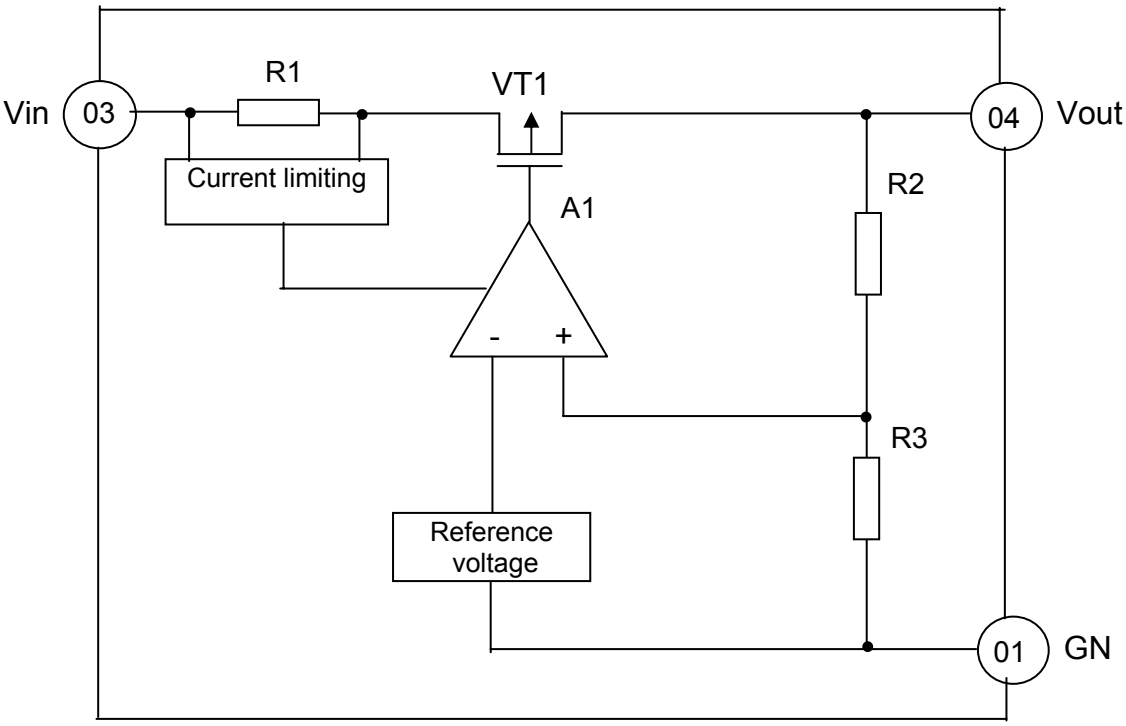
FEATURES

- Low dropout voltage is no more than 800 mV at 500 mA output current;
- Guaranteed 500 mA output current;
- Low consumption current 30 μA;
- Output voltage accuracy of ±2% at 3.3/5 V;
- Needs only 4,7 μF for stability;
- Protection with short circuit current limiting;
- Operating junction temperature range: -40 … +125^{o}C.

Permissible value of electrostatic potential 1000 V.

Table 1 – Contact pad description

Contact pad number	Symbol	Function
01	GND	Common pin (GND)
03	Vin	Input
04	Vout	Output
02, 05 - 11	-	Technological pads



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

Fig. 1 – Electric block diagram

Table 2 – Absolute maximum ratins

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

Table 3 – Electric parameters (T_A=25^{o}C, C_{IN}=1μF, C_{OUT}=4,7μF, unless otherwise specified)

Parameter	Symbol	Measurement mode		Norm		Unit
				Min.	Max.	
Output voltage	U_O	without load				V
		IZ1735-33	U_{IN} from 4.7 to 12 V	3.235	3.365	
		IZ1735-50	U_{IN} from 5.5 to 12 V	4.900	5.100	
Line regulation	Regline	I_O = -40 mA IZ1735-33 IZ1735-50	U_{IN} from 5.5 to 10 V	-	10	mV
			U_{IN} from 5.5 to 12 V	-	30	
Load regulation	Regload	I_O from -0.1to -100 mA				mV
		IZ1735-33	U_{IN}=5 V	-	30	
		IZ1735-50	U_{IN}=7 V	-	50	
		I_O from -0.1 to -500 mA				
		IZ1735-33	U_{IN}=5 V	-	75	
		IZ1735-50	U_{IN}=7 V	-	95	
Short circuit current	I_{OS}	U_{IN}=7 V, U_{OUT}=0 V		500	1200	mA
Ground current	I_{GND}	I_O from -0.1 to -500 mA				μA
		IZ1735-33	U_{IN} from 5 to 12 V	-	30	
		IZ1735-50	U_{IN} from 7 to 12 V	-	30	

Table 3 continued

Parameter	Symbol	Measurement mode		Norm		Unit
				Min.	Max.	
Dropout voltage	U_{DS}	I_O=-500mA	IZ1735-33 IZ1735-50	-	800 800	mV
Output voltage temperature stability coefficient	TS	-		-	$80 \bullet 10^{-6}$	$1/^oC$

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 μm diameter and 2,34 mm length. It is recommended to use for bonding gold wire with 50 μm 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 microprocessors.
- Wireless telecom systems.
- Battery powered systems.

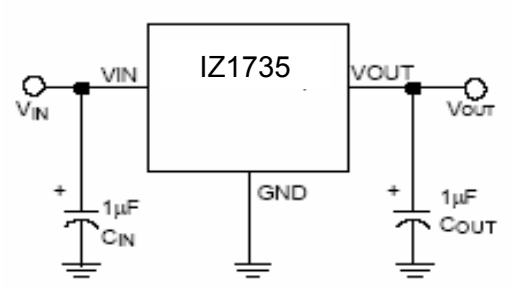
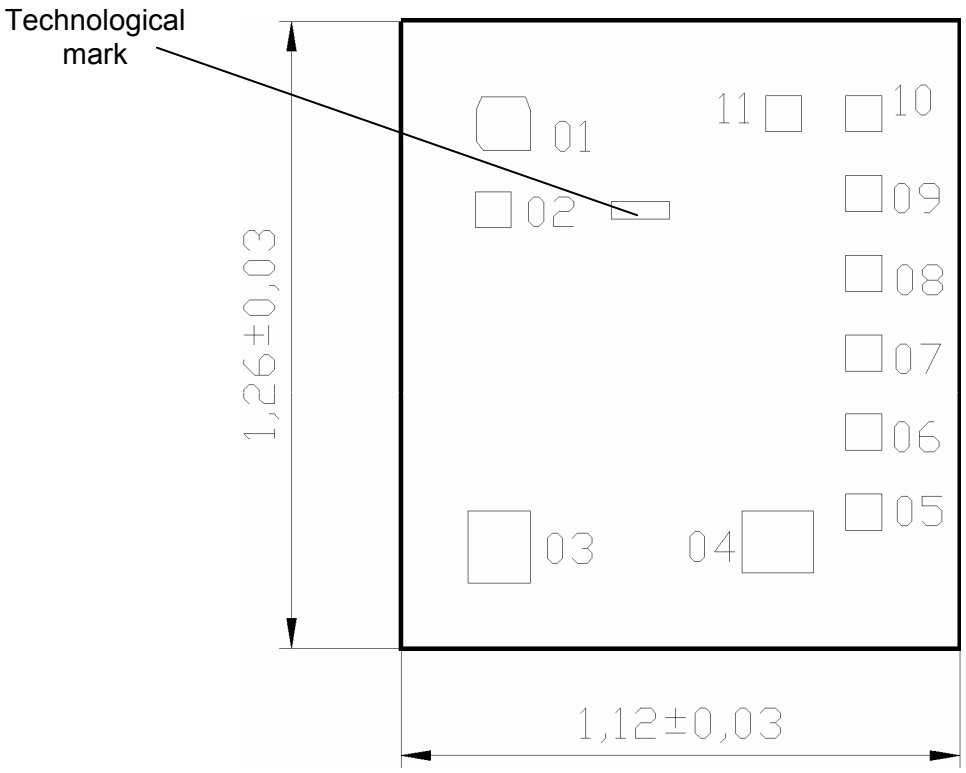


Fig. 2 – Recommended application circuit



Coordinates of contact pad are indicated in table 5
Technological mark on chip has coordinates, mm: left bottom corner x = 0,330 , y = 0,855
Chip thickness is 0,46 ± 0,02.

Fig 3 – Chip outline drawing

Table 5 – Contact pad location

Contact pad number	Coordinates (left bottom corner), mm		Contact pad size , mm
	X	Y	
01	0,151	0,998	0,108x0,108
02	0,149	0,844	0,072x0,072
03	0,1355	0,131	0,124x0,143
04	0,683	0,151	0,143x0,124
05	0,891	0,236	0,072x0,072
06	0,891	0,396	0,072x0,072
07	0,891	0,556	0,072x0,072
08	0,891	0,716	0,072x0,072
09	0,891	0,876	0,072x0,072
10	0,891	1,036	0,072x0,072
11	0,731	1,036	0,072x0,072
Notes Coordinates and size of the contact pads are given by the layer «Passivation»			

Table 6 Technological marking

Type of IC	Technological mark
IZ1735-50	1735-50
IZ1735-33	1735-33