

ULVR-3312-130

0.13 μ m 3.3v to 1.2v 100mA Cap-Free Linear Voltage Regulator

Features

- ◆ 0.13 μ m logic 1P8M SALICIDE 1.2V/3.3V FSG IMD Process with 1P5M Layout
- ◆ 3.3V to 1.2V
- ◆ Maximum output current: 100mA
- ◆ Stable without external passive components
- ◆ Test Chip available in LQFP-64 Package
- ◆ Power down mode available
- ◆ Active / Idle mode available
- ◆ Fast settling (settling time < 50 μ s)
- ◆ Operation temperature: -30 $^{\circ}$ C~105 $^{\circ}$ C

Applications

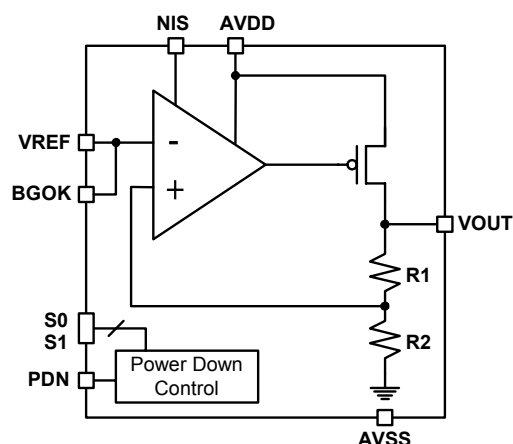
- ◆ PCMCIA Card
- ◆ Camera
- ◆ Battery powered applications

Overview

ULVR-3312-130 is a cap-free linear voltage regulator (LVR) IP for powering the 1.2V digital core circuits from a single 3.3V supply voltage. The LVR performs cap-free applications without any external passive components. The feedback loop sets the output voltage to typical 1.2V with small voltage coefficient regardless whether the output load current changes from 0mA up to 100mA or supply voltage varies within the external reference voltage applies to 0.6V.

The regulator also incorporates different operation modes for active, idle and power mode applications.

Block Diagram



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Description

The output voltage of the regulator (V_{OUT}) is set by the external reference voltage V_{REF} and the output voltage control signals S_0 and S_1 . By setting S_0 and S_1 digital control signals, the operation mode of the regulator will be programmed to active or idle mode. In active mode, the regulator applies up to 100mA output load current and the relationship between the regulator output V_{OUT} and external reference voltage V_{REF} is defined as:

$$V_{OUT} = V_{REF} \times \left(1 + \frac{R_1}{R_2} \right), \quad 0.59V \leq V_{REF} \leq 0.66V$$

When the regulator programs to idle mode, the regulator applies greater than 100 μ A output load current, meanwhile the drop-out voltage will be less than 100mV.

Deliverables

- Comprehensive document set
- Hard macro
- Synopsys™ synthesis model
- Verilog model
- TLF model
- LEF model
- Testchip and evaluation board

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