



## 3A Ultra-Low Voltage Drop Linear Regulator (LDO) with soft start

### 1 Main features:

- ◆ Input voltage range: 1.1V to 5.5V
- ◆ Soft start pin can provide linear start, rise time can be set by external capacitor
- ◆ The output voltage accuracy is 1%
- ◆ Adjustable output range: 0.8V to 3.6V
- ◆ Ultra-low pressure drop: 115mV@3A
- ◆ Can be paired with any output capacitor or without the use of output capacitance can be maintained stable
- ◆ Excellent transient response
- ◆ Package: QFN20

### 2 Typical Applications

- ◆ Field programmable gate array (FPGA) applications
- ◆ Output signal processor (DSP) core and I/O voltage
- ◆ Rear voltage regulator application
- ◆ Applications with special startup time or power-on sequencing requirements
- ◆ Hot swap and surge control

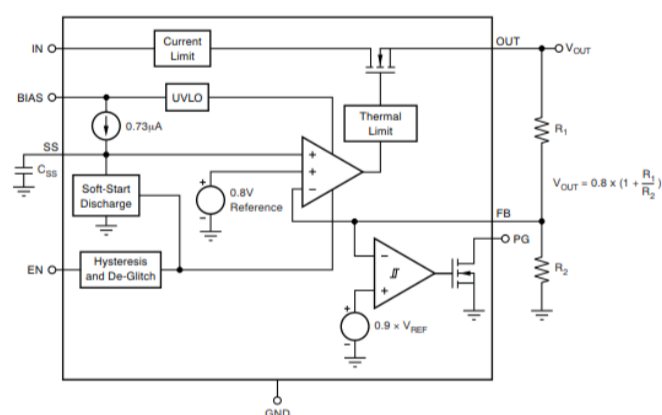
### 3 Product description

The HS74401 Ultra-Low Voltage Drop Linear Regulator (LDO) provides an easy-to-use and robust power management solution for a wide range of applications. The user-programmable soft start function reduces the capacitive inrush current at device startup to minimize the stress on the input power supply. The monotony of soft boot makes it ideal for powering a wide range of processors and application-specific integrated circuits (ASIC). With the enable input and power normal output, power-on sequencing can be easily achieved with an external regulator. With full flexibility, users can configure a solution to meet their power-on sequencing requirements for applications with special start-up requirements,

### 5 Compared with similar foreign products

|                  | precision | Output range | Pressure drop | Current to earth | Output current | PSRR      | Encapsulation form |
|------------------|-----------|--------------|---------------|------------------|----------------|-----------|--------------------|
| TPS74401<br>(TI) | 1%        | 0.8V - 3.6V  | 115mV@3A      | 2mA              | 0 - 3A         | 73dB@1KHz | VQFN20             |
| HS74401          | 1%        | 0.8V - 3.6V  | 100mV@3A      | 1.8mA            | 0 - 3A         | 73dB@1KHz | QFN20              |

such as field programmable gate arrays (FPGAs) and digital signal processors (DSPs). The device also has a high-precision reference voltage circuit and error amplifier that can be negative throughout. Guaranteed 1% accuracy in load, line, temperature and process range. The device can operate stably without or with ceramic output capacitors. The chip adopts QFN20 package, which has low package parasitism effect. The internal structure block diagram of the chip is as follows:



### 4 Product highlights

- ◆ It has a programmable starting function, which can reduce the inrush current when the device is started, and can flexibly configure the starting time of each part of the power supply.
- ◆ It can be combined with any capacitor or no capacitor to ensure the stability of the output.
- ◆ With a high-precision reference voltage circuit and error amplifier, output voltage accuracy of 1% is guaranteed over the entire temperature, voltage and load range.
- ◆ Excellent transient response performance.