

## Description

The CL2801A/B can disconnect the systems from its output pin (OUT) in case wrong input operating conditions are detected. The system is positive overvoltage protected up to 30V.

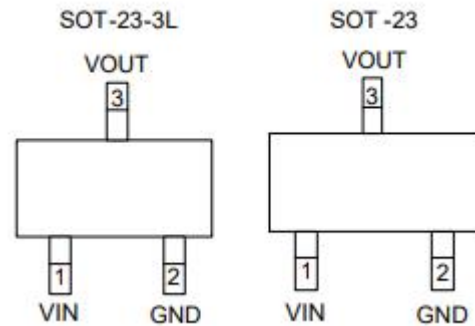
The internal over voltage threshold (OVLO) is 6.3V and internal over current threshold (OCP) is 1.1A. The CL2801A/B also has an internal over temperature protection (OTP) function, which monitors chip temperature to protect the device.

## Features

- ◆ VIN operating range: 2.7V to 30V
- ◆ Internal OVP: 6.3V
- ◆ Internal OCP
- CL2801A: 0.5A (typ.)
- CL2801B: 1.1A (typ.)
- ◆ Typical Ron: 500mΩ@0.7A
- ◆ OVP response time: 50ns (typ.)
- ◆ Startup debounce time: 20ms
- ◆ Output power on time: 20ms
- ◆ Output discharge

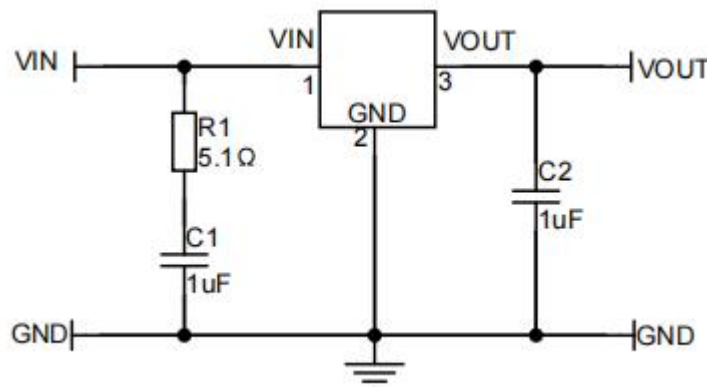
## Applications

- ◆ GPS
- ◆ Industrial Handheld and Enterprise Equipment
- ◆ SLR Digital Cameras
- ◆ PC
- ◆ Electronic Cigarette

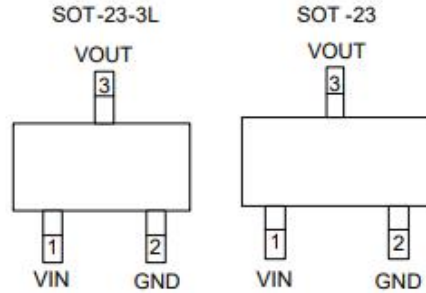


Package Type: SOT23 SOT-23-3L

## Typical Application



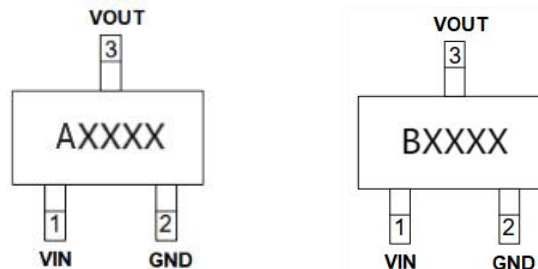
## Pin Configuration



## Pin Description

| NO. | NAME | DESCRIPTION                                                                                                                                                                               |
|-----|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | VIN  | Input pin, connect to AC adaptor or VBUS. A 47nF low ESR ceramic capacitor must be connected as close as to this pin. It is recommended to use 50V capacitor or according to application. |
| 2   | GND  | Power ground.                                                                                                                                                                             |
| 3   | VOUT | Output pin. Connect to load.                                                                                                                                                              |

## Marking Information



| PART NUMBER | INTERNAL OCP | MARKING | DESCRIPTION                                                                                     |
|-------------|--------------|---------|-------------------------------------------------------------------------------------------------|
| CL2801A3S   | 0.5A         | AXXXX   | The first letter represents the version.<br>The last four digits represent the year and period. |
| CL2801A3L   |              |         |                                                                                                 |
| CL2801B3S   | 1.1A         | BXXXX   |                                                                                                 |
| CL2801B3L   |              |         |                                                                                                 |

## Ordering Information

CL 2801 A 3L  
① ② ③ ④

①: Abbreviation of product company name

②: Series model

③: Built in OCP version

A: Internal OCP 0.5A      B: Internal OCP 1.1A

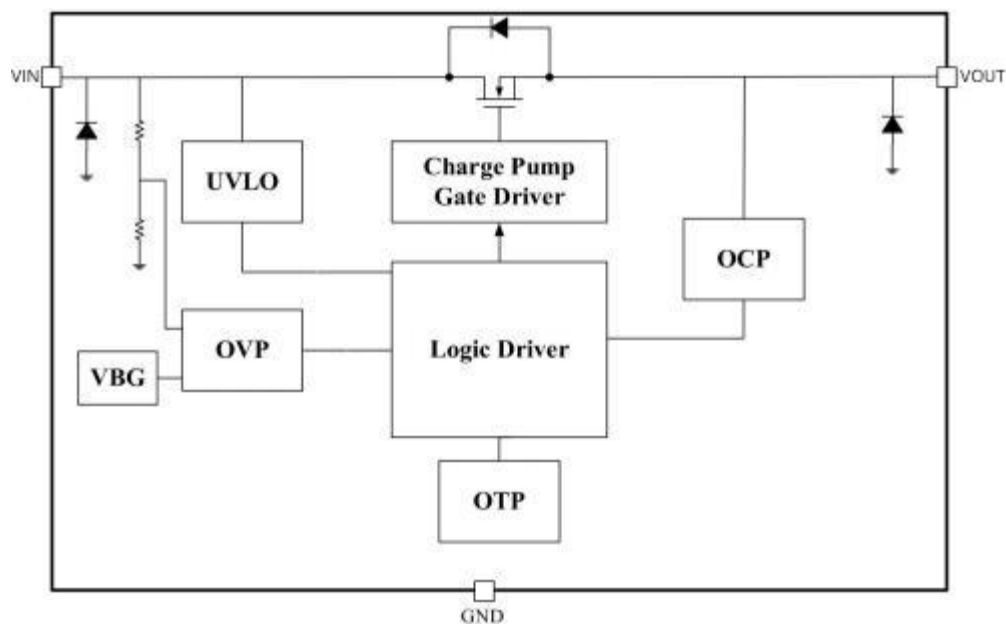
④: Package code

3S: SOT23      3L: SOT23-3L

### Absolute Maximum Ratings

| PARAMETER                                  | SYMBOL         | VALUE      | UNIT |
|--------------------------------------------|----------------|------------|------|
| Input voltage                              | $V_{IN}$       | -0.3 ~ 36  | V    |
| Output voltage                             | $V_{out}$      | -0.3 ~ 7   | V    |
| Thermal resistance                         | $\theta_{JA}$  | 260        | °C/W |
| Operation temperature                      | $T_J$          | -40 ~ +150 | °C   |
| Storage temperature                        | $T_{stg}$      | -65 ~ +150 | °C   |
| Soldering temperature                      | $T_{solder}$   | 260, 10s   | °C   |
| Soldering time                             |                |            |      |
| ESD (Human Body Model) <sup>(Note 2)</sup> | $V_{ESD\_HBM}$ | 2000       | V    |
| ESD (Machine Model) <sup>(Note 2)</sup>    | $V_{ESD\_MM}$  | 200        | V    |

## Functional Block Diagram

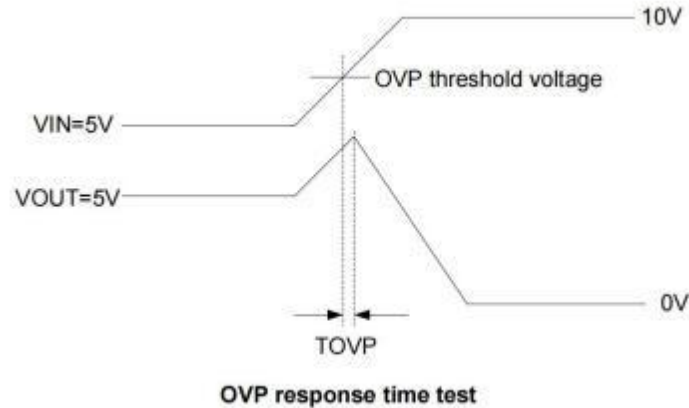


## Electrical Characteristics

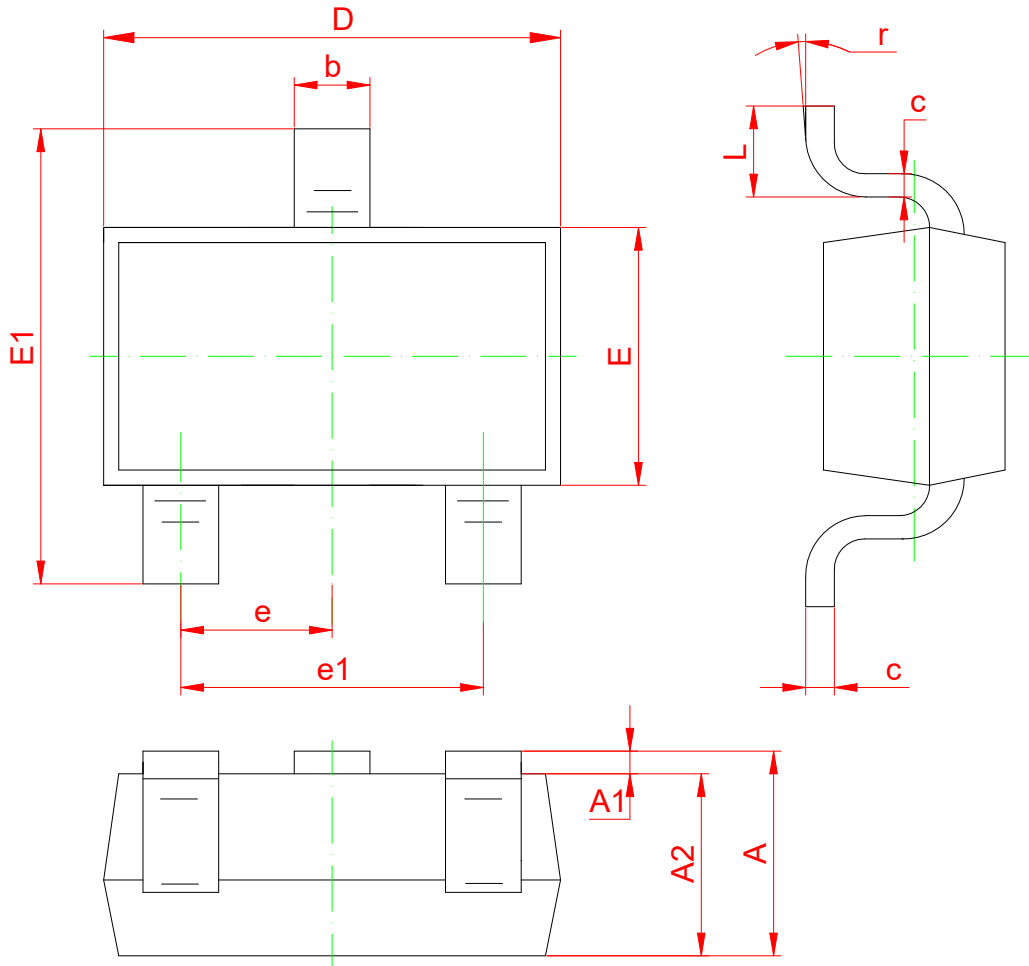
CL2801 ( $V_{IN} = 5V$ ,  $T_A = 25^\circ C$ )

Over operating free-air temperature range (unless otherwise noted)

| PARAMETER                    | SYMBOL         | TEST CONDITIONS                       | MIN | TYP | MAX | UNIT       |
|------------------------------|----------------|---------------------------------------|-----|-----|-----|------------|
| VIN operating voltage        | $V_{IN}$       |                                       | 2.7 |     | 30  | V          |
| VIN operating supply current | $I_Q$          | $V_{IN} = 5V$                         |     | 100 | 150 | $\mu A$    |
| VIN-to-VOUT ON resistance    | $R_{ON}$       | $V_{IN} = 5V$ , $I_{OUT} = 0.3A$      |     | 480 |     | $m\Omega$  |
|                              |                | $V_{IN} = 5V$ , $I_{OUT} = 0.7A$      |     | 500 |     | $m\Omega$  |
| Output discharge resistance  | $R_{DIS}$      |                                       |     | 3   |     | $k\Omega$  |
| VIN undervoltage lockout     | $V_{UVLO\_R}$  | VIN rising                            |     | 2.5 |     | V          |
|                              | $V_{UVLO\_F}$  | VIN falling                           |     | 2.3 |     | V          |
| Output power on time         | $T_{ON}$       | VIN= 0 - >5V to output ON             |     | 20  |     | ms         |
| OVP active time              | $T_{OVP}$      | VIN = 5 - >10V with rising<br>1V/20ns |     | 50  |     | ns         |
| OVP recovery time            | $T_{ON\_OVP}$  | VIN = 10 - >5V to output ON           |     | 20  |     | ms         |
| OCP threshold                | $I_{OCP}$      | CL2801A                               |     | 0.5 |     | A          |
|                              |                | CL2801B                               |     | 1.1 |     | A          |
| OTP threshold                | $T_{OTP}$      |                                       |     | 165 |     | $^\circ C$ |
| OTP threshold hysteresis     | $T_{OTP\_HYS}$ |                                       |     | 40  |     | $^\circ C$ |

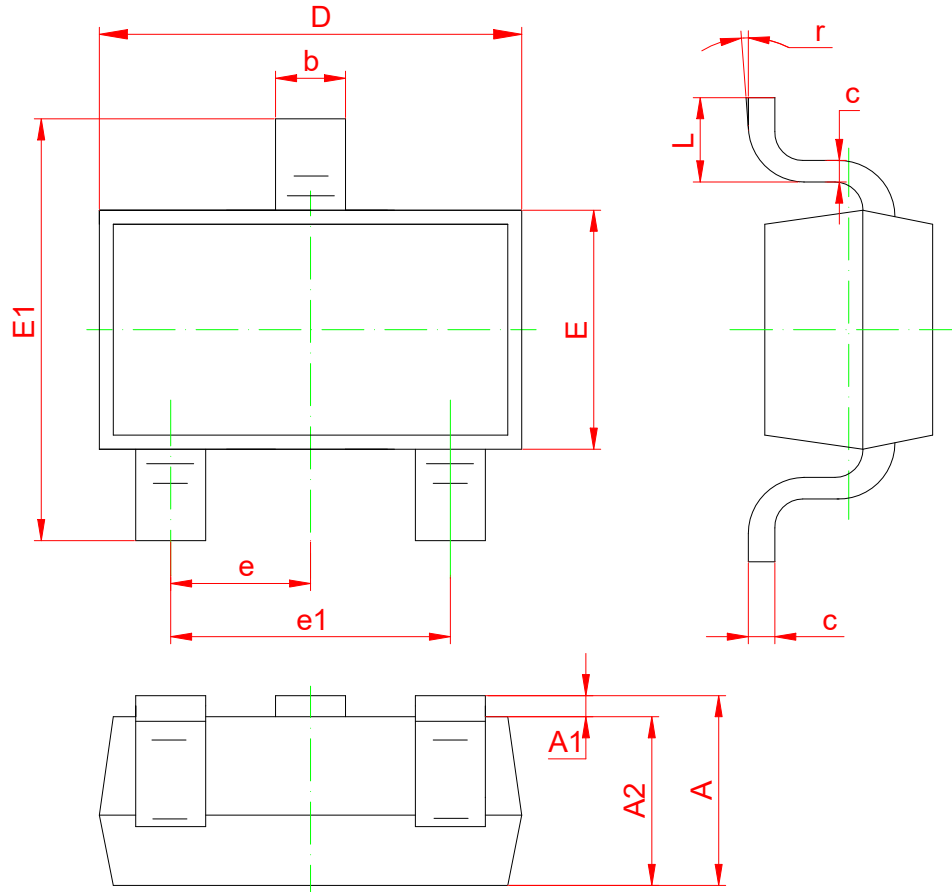


**Package Information: SOT23**



| Symbol | Dimensions In Millimeters |      |
|--------|---------------------------|------|
|        | Min                       | Max  |
| A1     | 0.02                      | 0.1  |
| A2     | 1.0Typ                    |      |
| b      | 0.4Typ                    |      |
| c      | 0.1Typ                    |      |
| D      | 2.70                      | 3.10 |
| E      | 1.10                      | 1.50 |
| E1     | 2.20                      | 2.60 |
| e1     | 1.80                      | 2.00 |
| L      | 0.35                      | 0.48 |

**Package Information: SOT23-3L**



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.050                     | 1.250 | 0.041                | 0.049 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 1.050                     | 1.150 | 0.041                | 0.045 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.100                     | 0.200 | 0.004                | 0.008 |
| D      | 2.820                     | 3.020 | 0.111                | 0.119 |
| E      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E1     | 2.650                     | 2.950 | 0.104                | 0.116 |
| e      | 0.950 (BSC)               |       | 0.037 (BSC)          |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.300                     | 0.600 | 0.012                | 0.024 |
| r      | 0°                        | 8°    | 0°                   | 8°    |

- The information described herein is subject to change without notice.
- CHIPLINK Technology is not responsible for any problems caused by circuits or diagrams described herein whose related industrial properties, patents, or other rights belong to third parties. The application circuit examples explain typical applications of the products, and do not guarantee the success of any specific mass-production design.
- When the products described herein are regulated products subject to the Wassenaar Arrangement or other agreements, they may not be exported without authorization from the appropriate governmental authority.
- Use of the information described herein for other purposes and/or reproduction or copying without the express permission of CHIPLINK Technology is strictly prohibited.
- The products described herein cannot be used as part of any device or equipment affecting the human body, such as exercise equipment, medical equipment, security systems, gas equipment, or any apparatus installed in airplanes and other vehicles, without prior written permission of CHIPLINK Technology.
- Although CHIPLINK Technology exerts the greatest possible effort to ensure high quality and reliability, the failure or malfunction of semiconductor products may occur. The user of these products should therefore give thorough consideration to safety design, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue.