# Low power consumption, Low ESR Cap. Compatible ME6206B Series

## General Description

ME6206B series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies .The series provides large currents with a significantly small dropout voltage.

The series is compatible with low ESR ceramic capacitors .The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin.

## Features

- Maximum Output Current: 250mA （$V_{IN}$＝4.3V,$V_{OUT}$＝3.3V）
- Dropout Voltage: 0.2V at 100mA ,0.4V at 200mA （$V_{OUT}$＝3.3V）
- Input Voltage Range: up to 5.5V
- Highly Accuracy: ±2％
- Low Power Consumption: 7uA（TYP.）
- Excellent Input Stability
- Be available to regulator and reference voltage

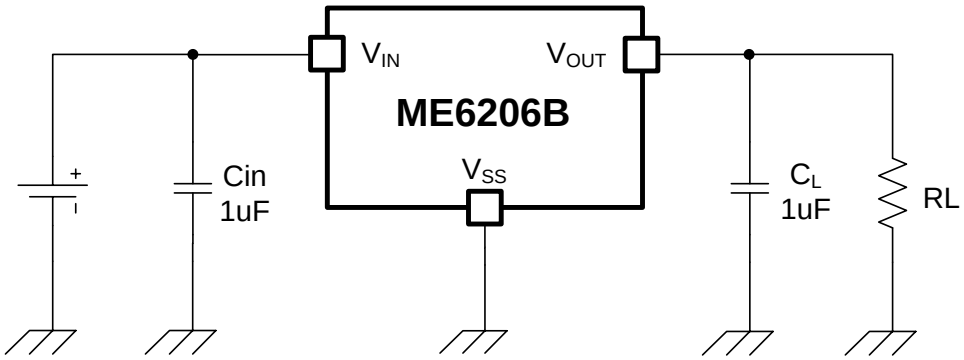
## Typical Application

- Mobile phones
- communication equipment
- Portable games
- Cameras, Video systems
- Reference voltage sources
- Battery powered equipment

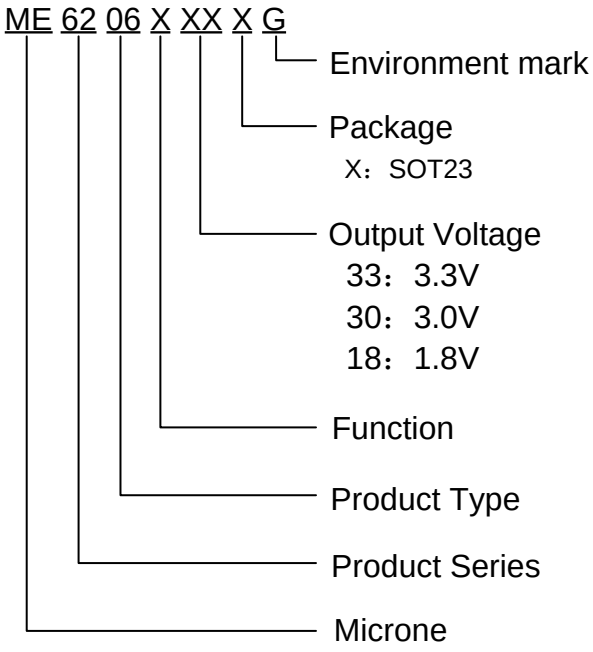
## Package

- SOT23

## Typical Application Circuit



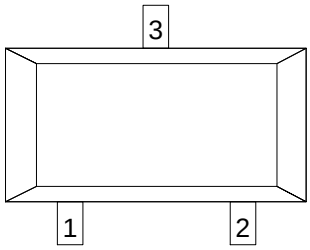
## Selection Guide




| product series | Output voltage | Supply Current | Package |
|---|---|---|---|
| ME6206B33XG | 3.3V | 7uA | SOT23 |
| ME6206B30XG | 3.0V | 7uA | SOT23 |
| ME6206B18XG | 1.8V | 7uA | SOT23 |

**NOTE:** At present ,There are three kinds of voltage：3.3V、3.0V、1.8V； If you need other voltage or package, please contact our sales staff。

## Pin Configuration

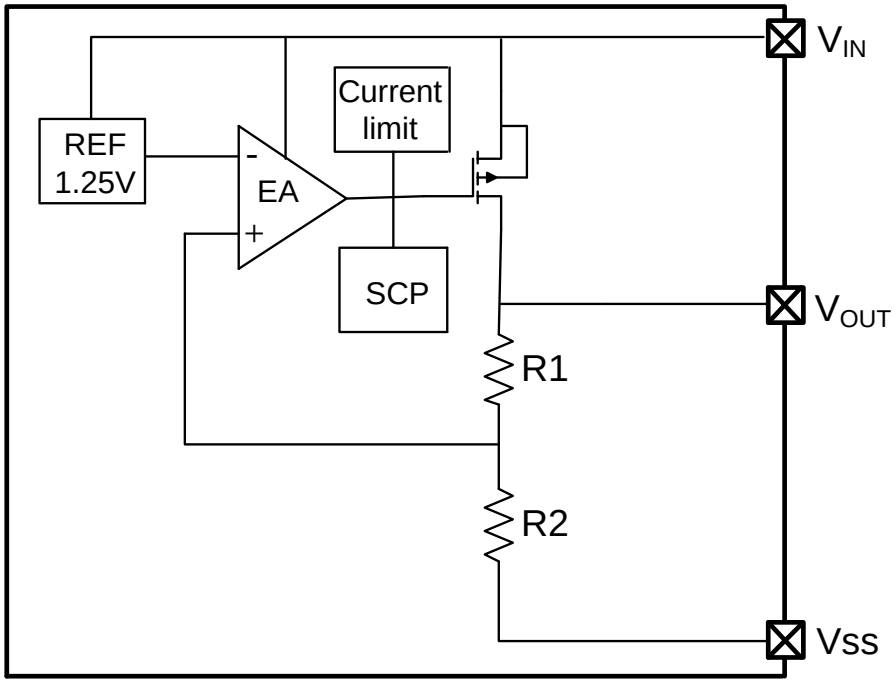



**SOT23**

## Pin Assignment

| Pin Num | Name | Function |
|---|---|---|
| 1 | $V_{SS}$ | Ground |
| 2 | $V_{OUT}$ | Output |
| 3 | $V_{IN}$ | Input |

## Block Diagram




## Absolute Maximum Ratings

| Parameter | | Symbol | Description | Units |
|---|---|---|---|---|
| Input Voltage | | $V_{IN}$ | 6.5 | V |
| Output Current | | $I_{out}$ | 500 | mA |
| Output Voltage | | $V_{out}$ | Vss-0.3 ~ Vout+0.3 | V |
| Power Dissipation | SOT23 | Pd | 0.38 | W |
| Thermal resistance (Junction to air) | SOT23 | $\theta_{JA}$ | 328 | ℃/W |
| Operating Ambient Temperature | | $T_{Opr}$ | -40 ~ +85 | ℃ |
| Storage Temperature | | $T_{stg}$ | -55 ~ +150 | ℃ |
| Maximum junction temperature | | $T_J$ | -40 ~ +150 | ℃ |

## Electrical Characteristics

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25$^{O}$C Unless otherwise stated)

| Parameter | Symbol | Condition | | Mix | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Output Voltage | $V_{OUT}$(E) (Note 2) | $I_{OUT}$=10mA, $V_{IN}$=Vout+1V | | X 0.98 | $V_{OUT}$(T) (Note 1) | X 1.02 | V |
| Input Voltage | $V_{IN}$ | | | - | - | 5.5 | V |
| Maximum Output Current | $I_{OUT}$ (max) | $V_{IN}$=Vout+1V | | - | 250 | - | mA |
| Load Regulation | $\Delta V_{OUT}$ | $V_{IN}$=Vout+1V, 1mA≤$I_{OUT}$≤100mA | | - | 14 | 28 | mV |
| Dropout Voltage (Note 3) | $V_{dif1}$ | $I_{OUT}$ =100mA | Vout=1.8V | - | 310 | 620 | mV |
| | | | Vout=3.0V、3.3V | - | 200 | 400 | mV |
| | $V_{dif2}$ | $I_{OUT}$ =200mA | Vout=1.8V | - | 620 | 1240 | mV |
| | | | Vout=3.0V、3.3V | - | 400 | 800 | mV |
| Supply Current | $I_{SS}$ | $V_{IN}$=Vout+1V | | - | 7 | 15 | μA |
| Line Regulations | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$ | $I_{OUT}$ =10mA Vout+1V ≤$V_{IN}$≤5V | | - | 0.03 | 0.2 | %/V |
| Power Supply Ripple Rejection Ratio | PSRR | Vin= 5V +1VrmsAC, $I_{OUT}$ =10mA | f=100Hz | - | 70 | - | dB |
| | | | f=1kHz | - | 65 | - | |
| | | | f=10kHz | - | 54 | - | |
| Short Circuit Current | $I_{short}$ | Vin=Vout(T)+1.5V Vout=Vss | | - | 20 | 50 | mA |
| Over Current Protection | $I_{limit}$ | | | - | 480 | - | mA |

**Note :** 1. $V_{OUT}$ (T) ： Specified Output Voltage

2. $V_{OUT}$ (E) ： Effective Output Voltage ( Ie. The output voltage when "$V_{OUT}$ (T)+1.0V"is provided at the Vin pin while maintaining a certain Iout value.)

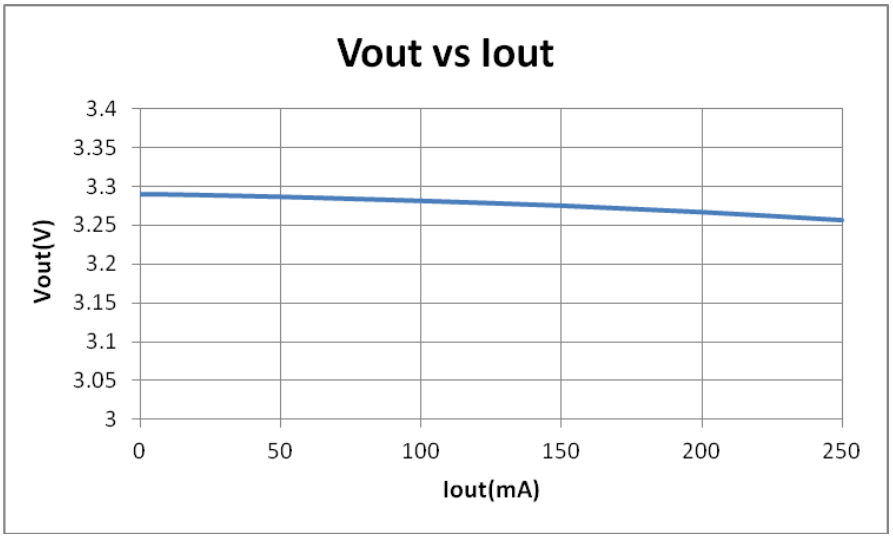
3.$V_{dif}$ ： $V_{IN1}$ –$V_{OUT}$ (E)'

$V_{IN1}$ ： The input voltage when $V_{OUT}$(E)' appears as input voltage is gradually decreased.

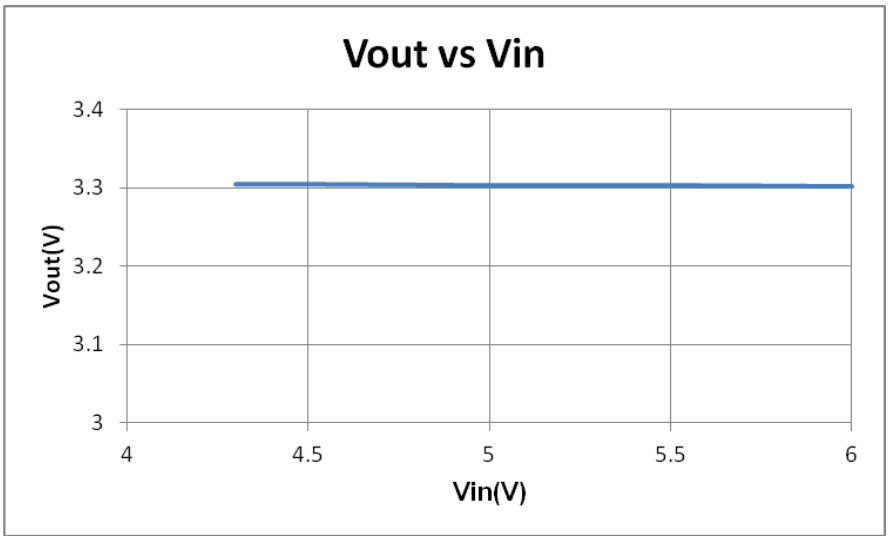
$V_{OUT}$ (E)'=A voltage equal to 98% of the output voltage whenever an amply stabilized Iout {$V_{OUT}$ (T)+1.0V} is input.

## Type Characteristics

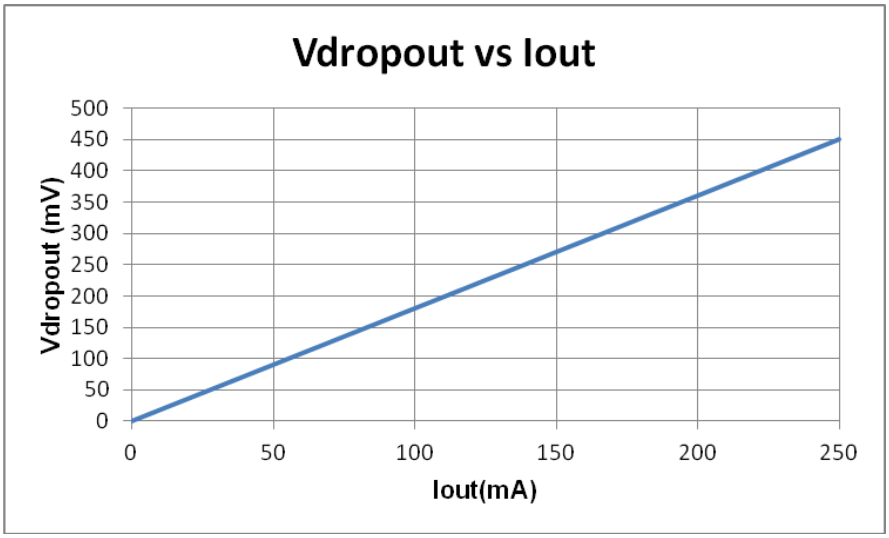
（1） Output Voltage VS. Output Current（VIN=Vout+1, **Ta = 25 °C**）



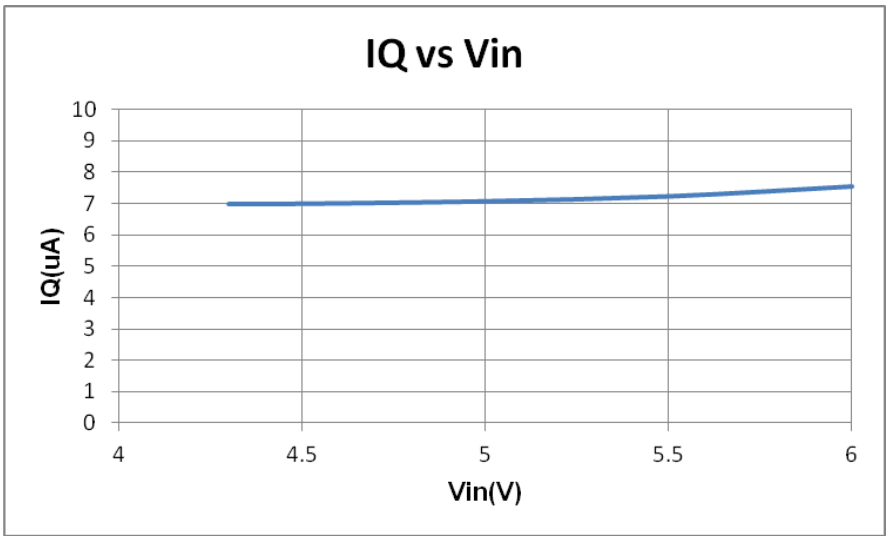

（2） Output Voltage vs Input Voltage（**Ta = 25 °C**）



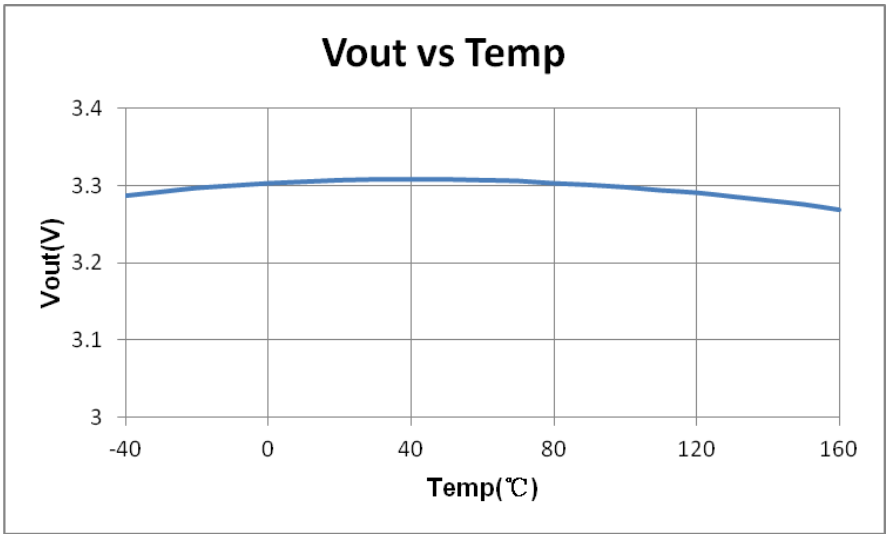

（3） Dropout Voltage vs Output Current（VIN=Vout+1V,**Ta = 25 °C**）



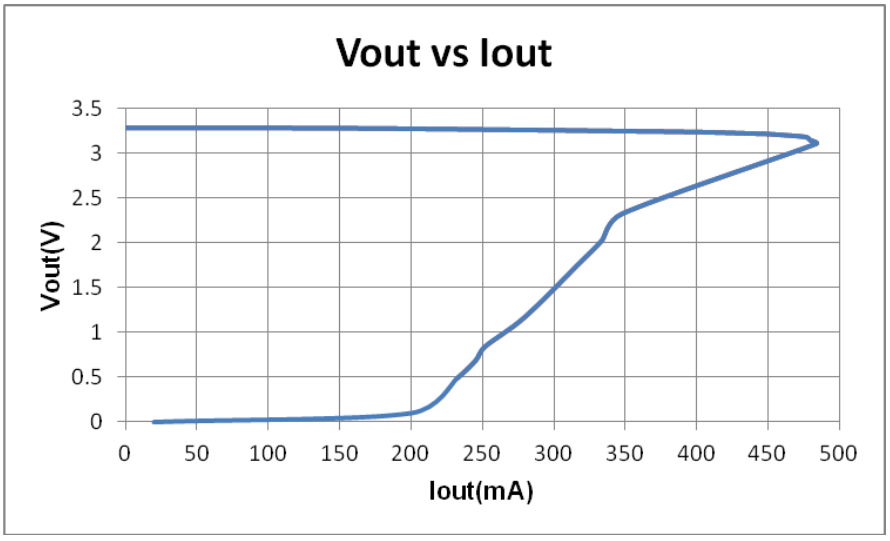
（4） Supply Current vs Input Voltage（**Ta = 25 °C**）



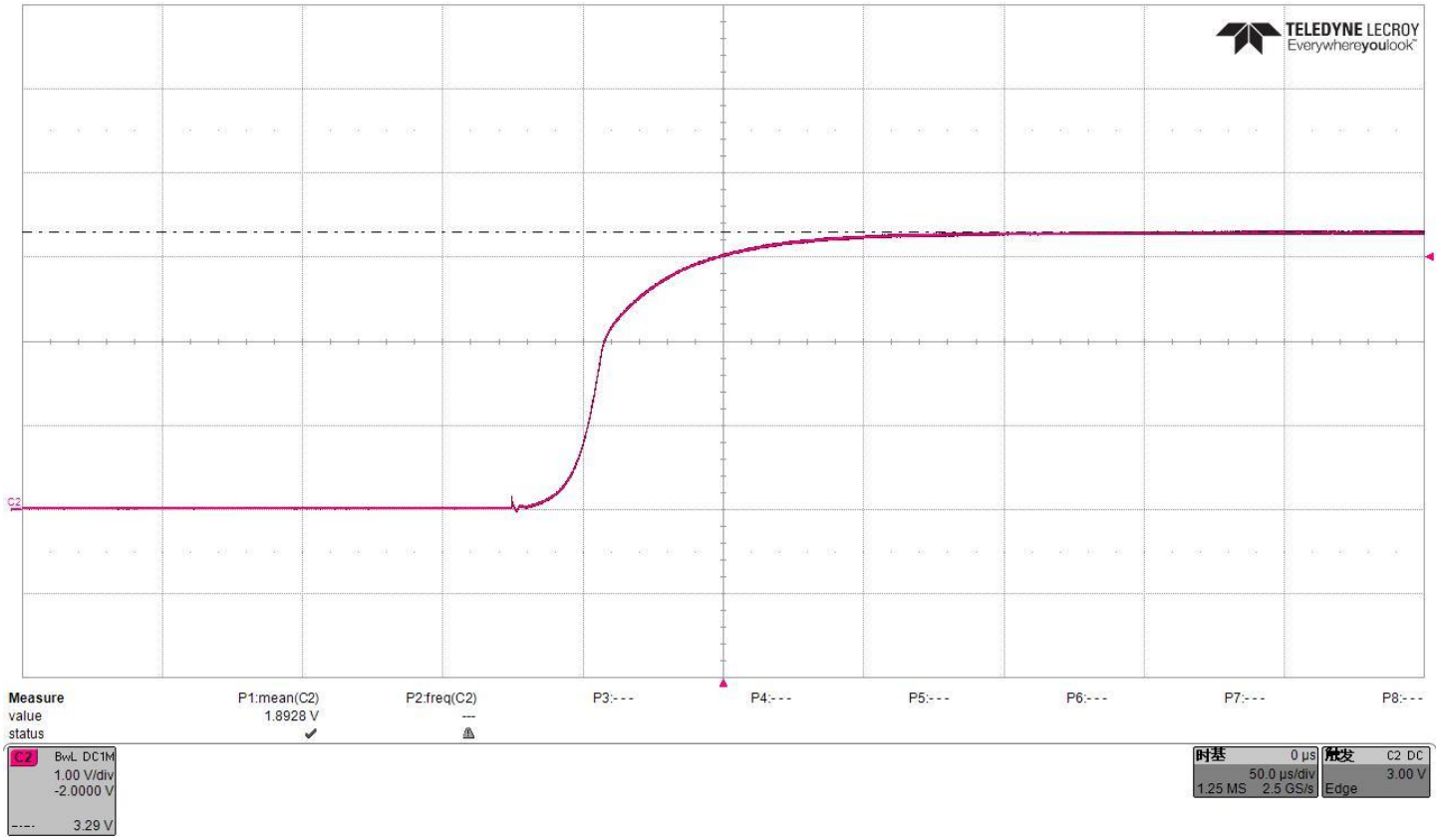

（5） Output Voltage vs Temperature（**VIN=4.3V,Iout=10mA**）



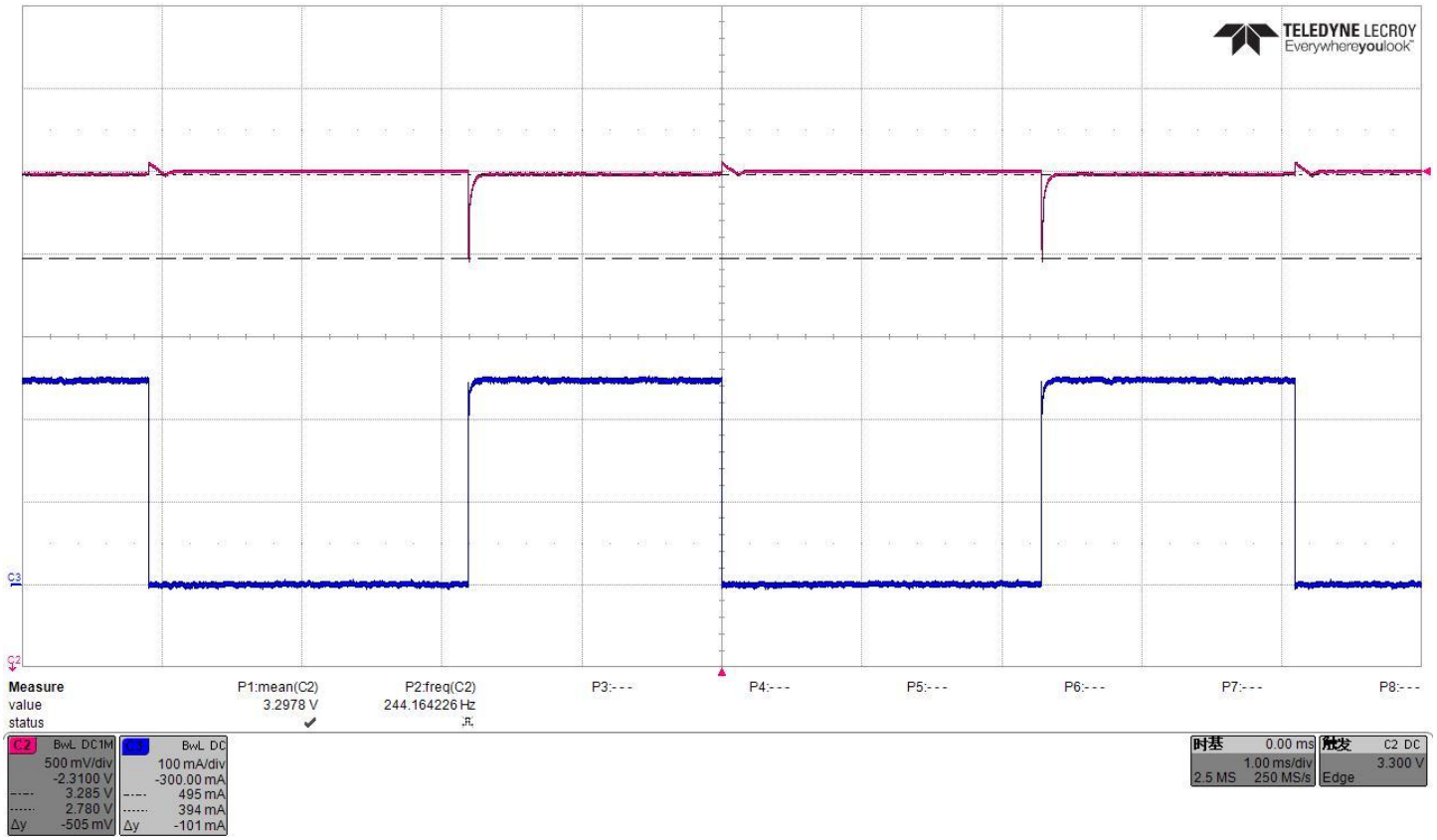

（6） Ilimit & short circuit（**VIN=4.3V**）



（7） overshoot（**VIN=4.3V,Iout=0**）

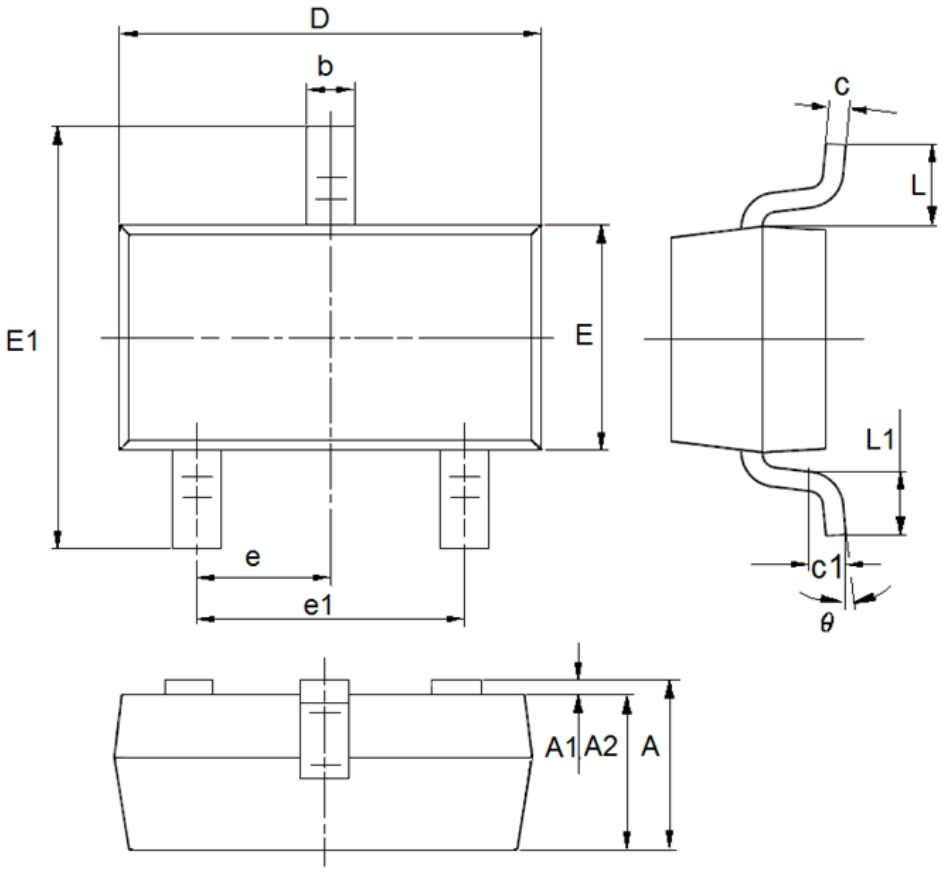



（8） Load Transient（**VIN=4.3V,Iout=1mA ←→ 250mA**）



## Packaging Information

- **Package Type：SOT23**




| DIM | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.9 | 1.15 | 0.0354 | 0.0453 |
| A1 | 0 | 0.14 | 0 | 0.0055 |
| A2 | 0.9 | 1.05 | 0.0354 | 0.0413 |
| b | 0.28 | 0.52 | 0.011 | 0.0205 |
| c | 0.07 | 0.23 | 0.0028 | 0.0091 |
| D | 2.8 | 3 | 0.1102 | 0.1181 |
| e1 | 1.8 | 2 | 0.0709 | 0.0787 |
| E | 1.2 | 1.4 | 0.0472 | 0.0551 |
| E1 | 2.2 | 2.6 | 0.0866 | 0.1024 |
| e | 0.95(TYP) | | 0.0374(TYP) | |
| L | 0.55(TYP) | | 0.0217(TYP) | |
| L1 | 0.25 | 0.55 | 0.0098 | 0.0217 |
| θ | 0 | 8° | 0 | 8° |
| c1 | 0.25(TYP) | | 0.0098(TYP) | |

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