Low power consumption, Low ESR Cap. Compatible FC6206B Series

General Description

FC6206B 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

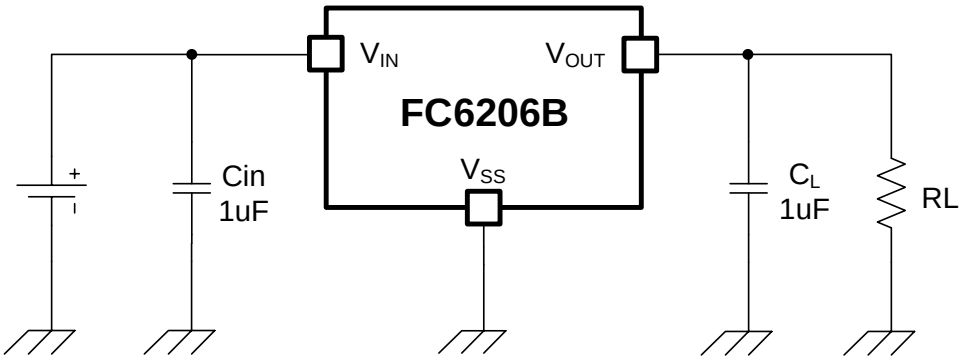
Typical Application

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

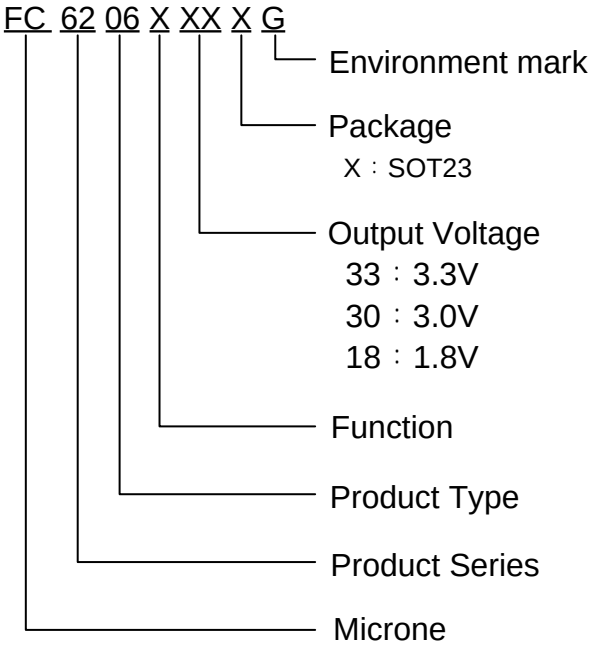
Package

- SOT-23

Typical Application Circuit



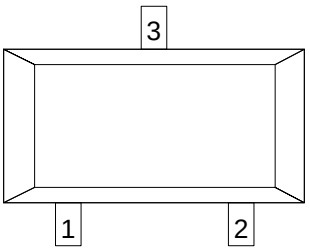
Selection Guide



product series	Output voltage	Supply Current	Package
FC6206B33XG	3.3V	7uA	SOT23
FC6206B30XG	3.0V	7uA	SOT23
FC6206B18XG	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

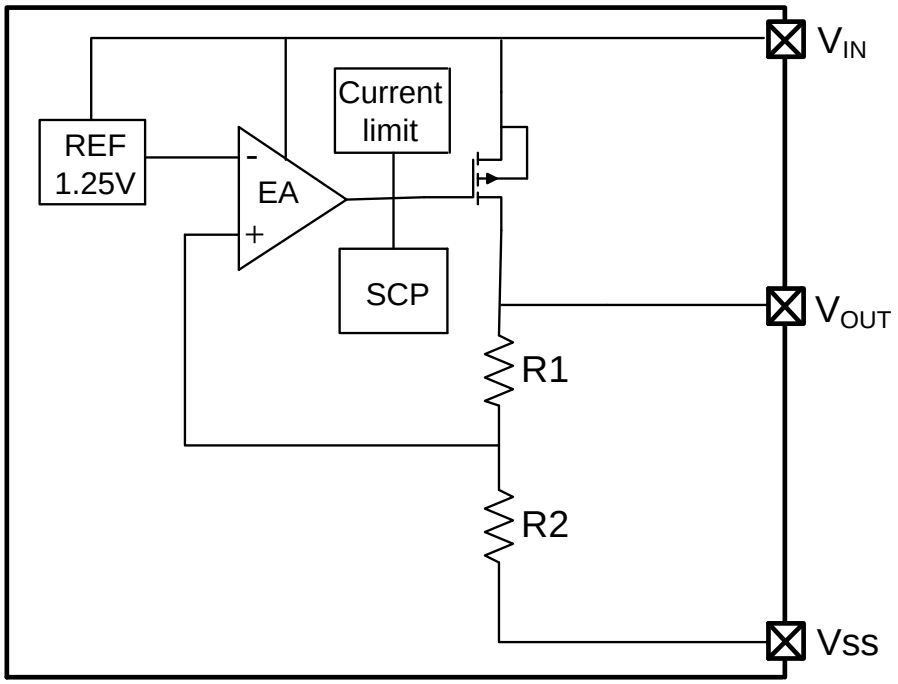


SOT23

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	Θ_{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	ΔV_{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	$\frac{V_{OUT}}{V_{IN}\ V_{OUT}}$	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.)

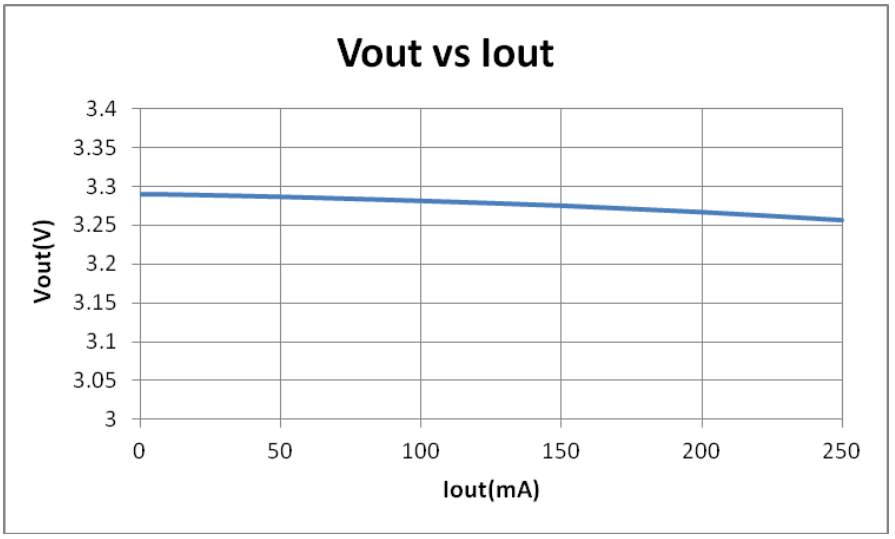
3.V_{dif} ：V_{IN1} –V_{OUT} (E)'

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

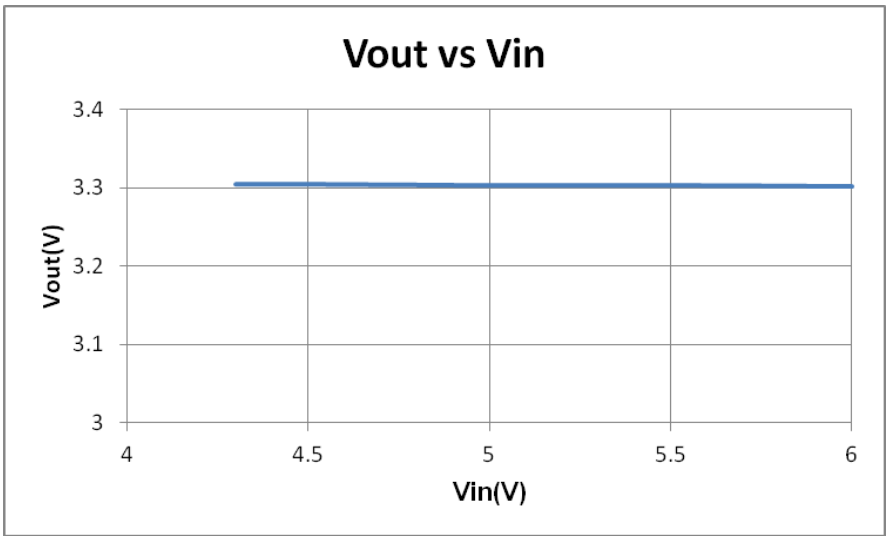
V_{OUT} (E)'=A voltage equal to 98% of the output voltage whenever an amplystabilized Iout {V_{OUT} (T)+1.0V} is input.

Type Characteristics

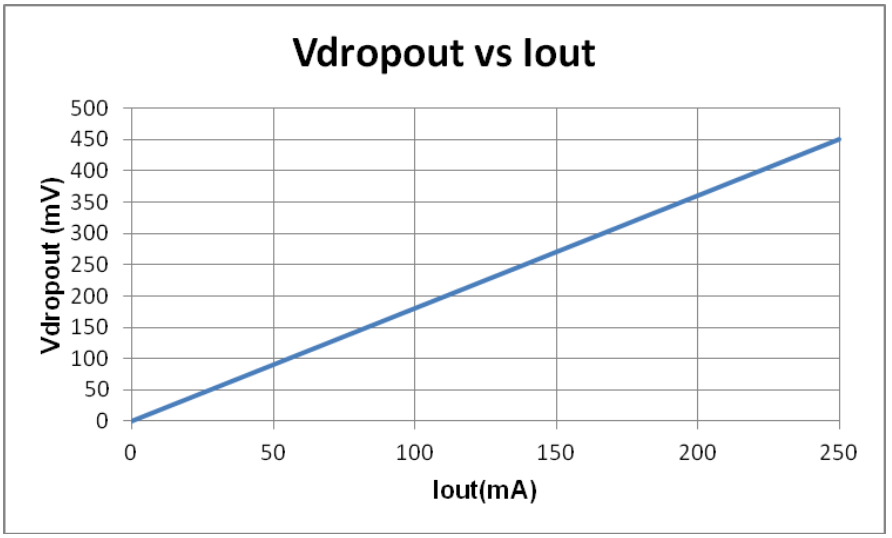
（1） Output Voltage VS. Output Current（VIN=Vout+1, **Ta = 25 °C**）



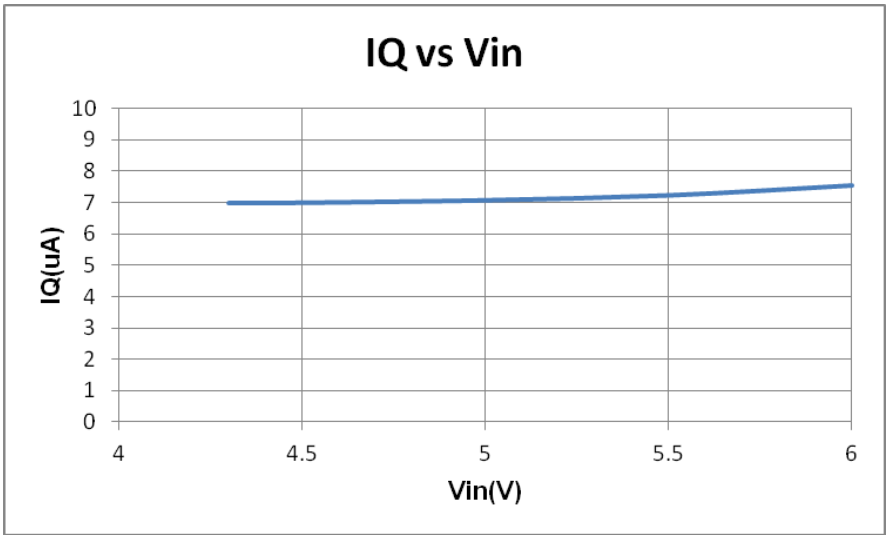
（2） Output Voltage vs Input Voltage（**Ta = 25 °C**）



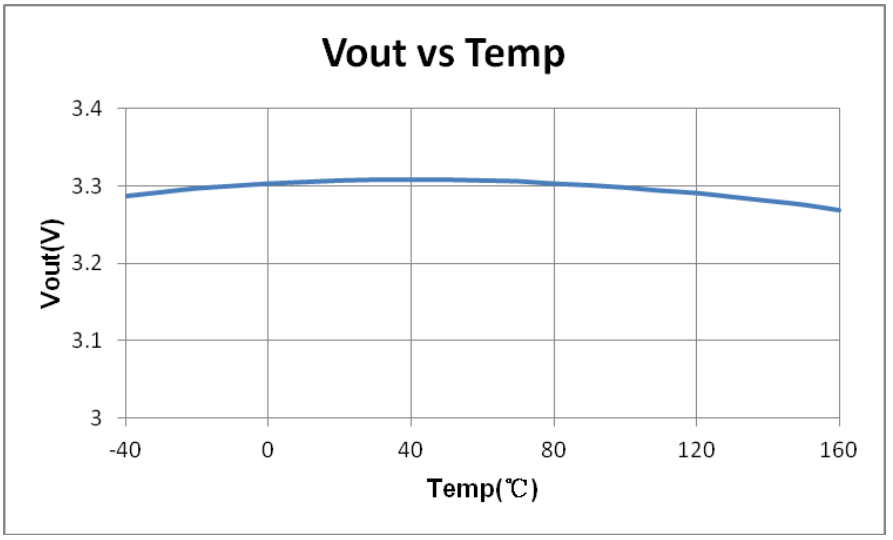
（3） Dropout Voltage vs Output Current（VIN=Vout+1V,**Ta = 25 °C**）



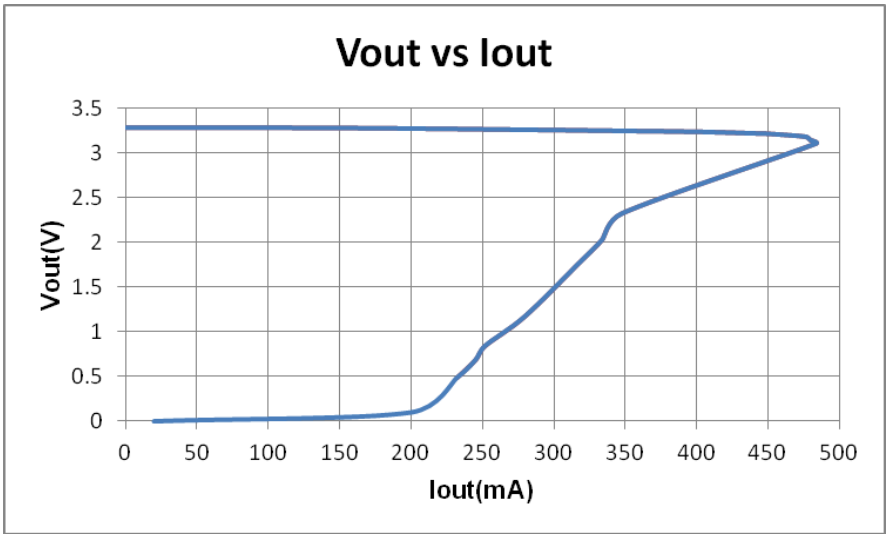
（4） Supply Current vs Input Voltage（**Ta = 25 °C**）



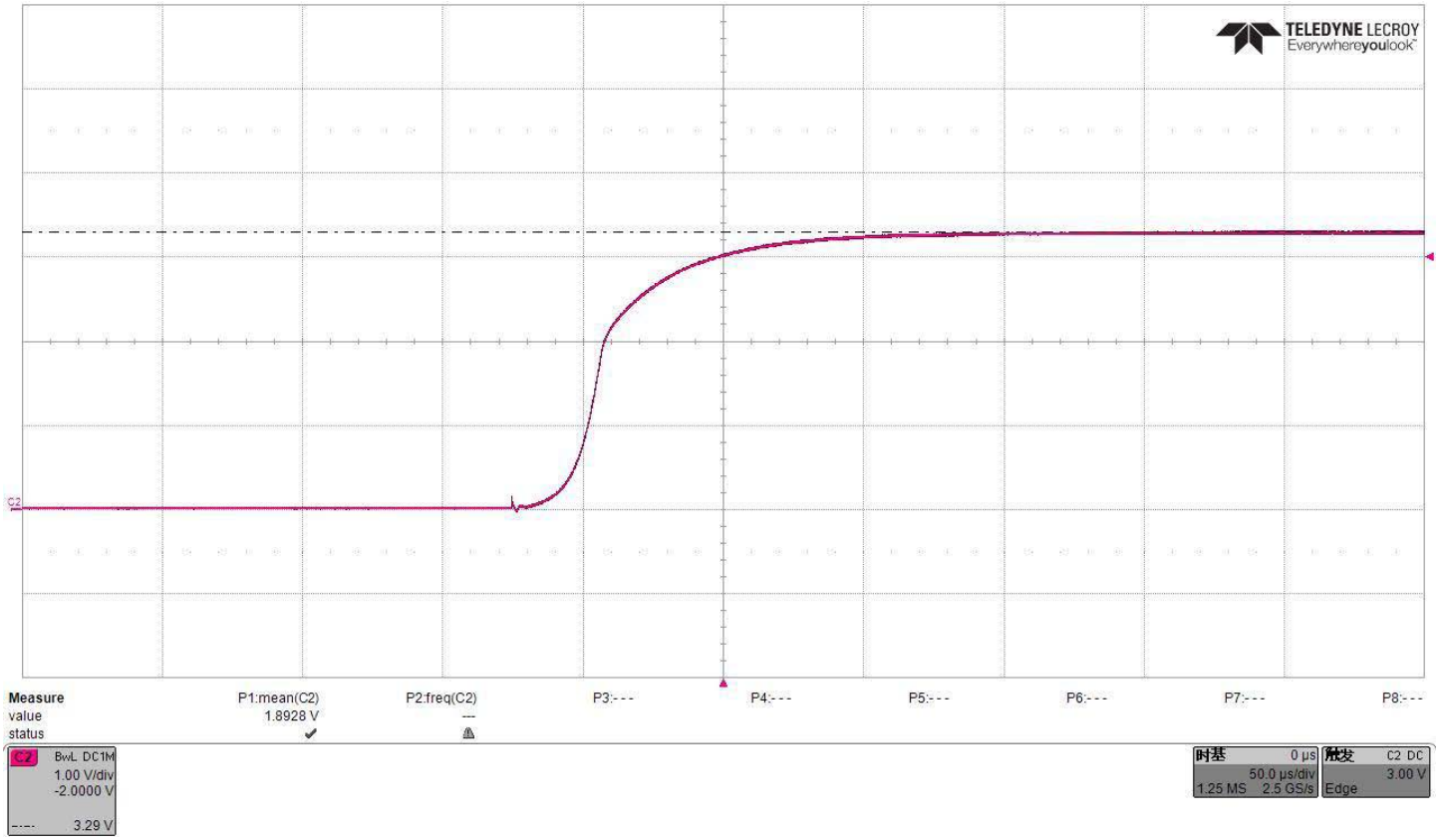
（5） Output Voltage vs Temperature（**VIN=4.3V,Iout=10mA**）



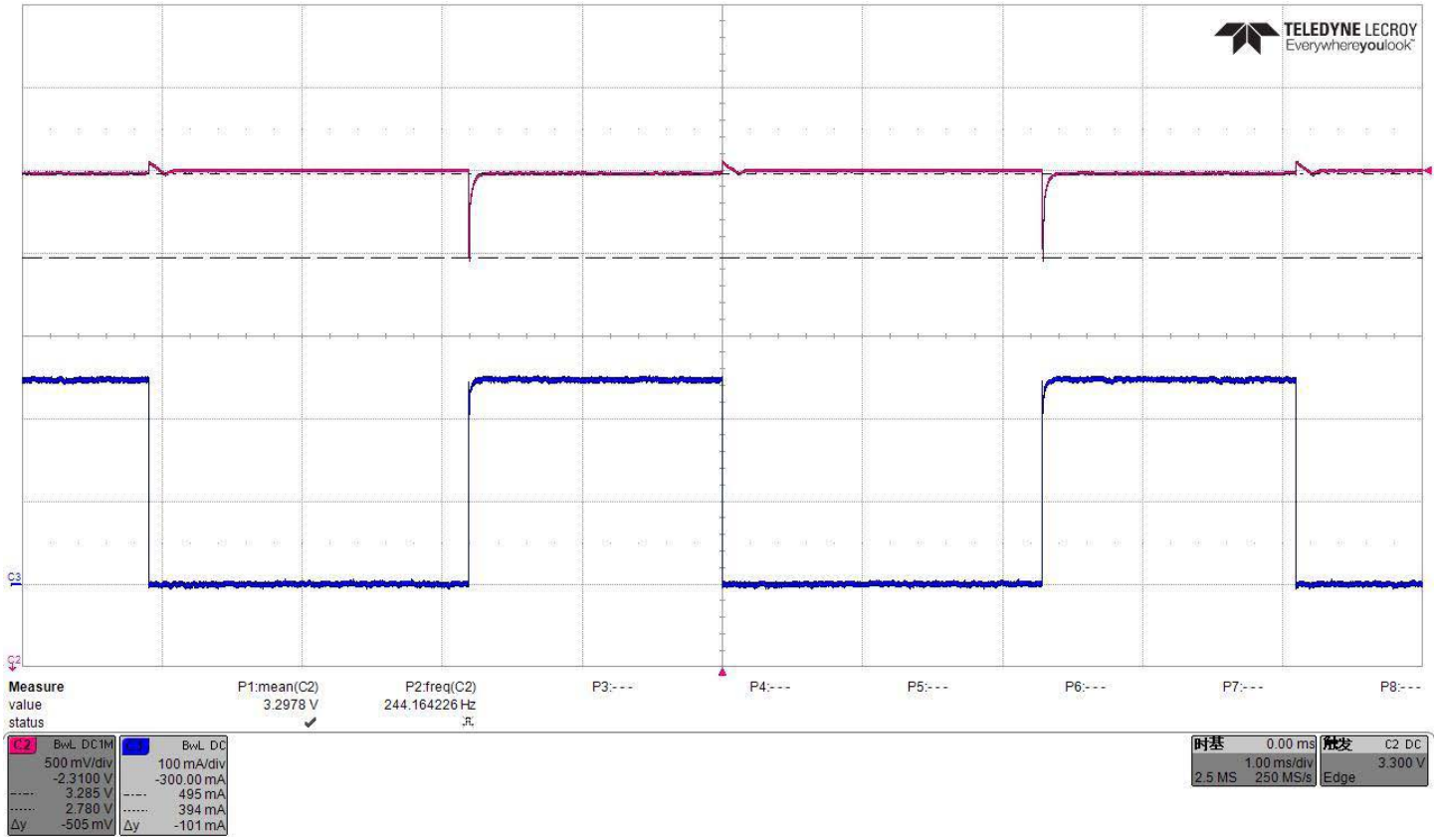
（6） Ilimit & short circuit（**VIN=4.3V**）



（7） overshoot（**VIN=4.3V,Iout=0**）

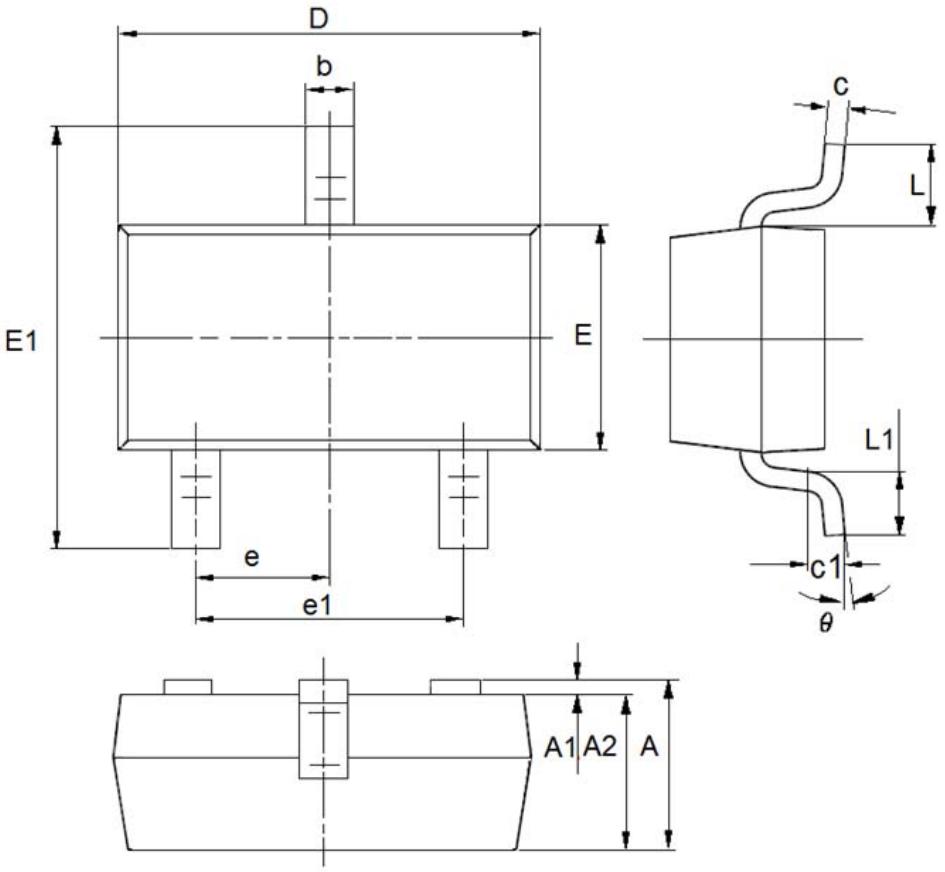


（8） Load Transient（**VIN=4.3V,Iout=1mA ←→ 250mA**）



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)	