

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 5uA at 6V
- Output voltage accuracy: tolerance $\pm 2\%$

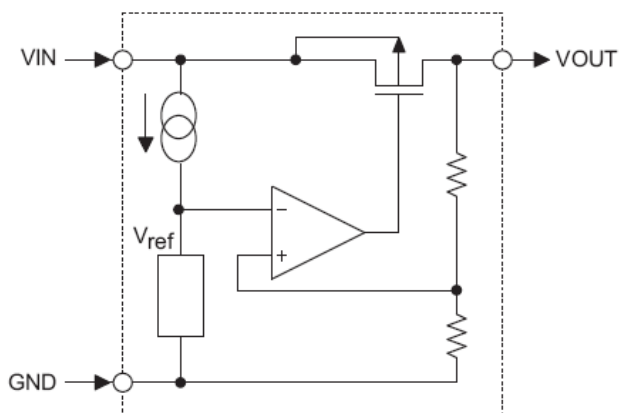
Applications

- Battery-powered equipment
- Reference voltage sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games

General Description

XC6206-xxxV is a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. XC6206-xxxV consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.2V to 5.0V. XC6206-xxxV is available in SOT-23 packages.

Block Diagram



Pin Assignment

SOT23 (Top View)

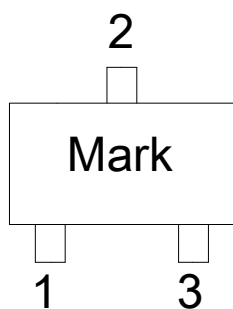
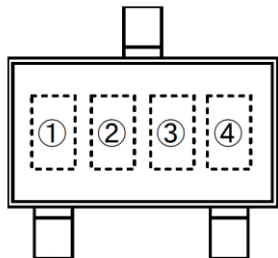


Table1:

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

Marking Rule



SOT-23
(TOP VIEW)

① represents product number

MARK	PRODUCT SERIES
6	XC6206-xxxV

② represents 3 pins regulator

MARK		PRODUCT SERIES
VOLTAGE=0.1~3.0V	VOLTAGE=3.1V~6.0V	
5	6	XC6206-xxxV

③ represents output voltage

MARK	VOLTAGE(V)			MARK	VOLTAGE(V)		
0	-	3.1	-	F	1.6	4.6	-
1	-	3.2	-	H	1.7	4.7	-
2	-	3.3	-	K	1.8	4.8	-
3	-	3.4	-	L	1.9	4.9	-
4	-	3.5	-	M	2.0	5.0	-
5	-	3.6	-	N	2.1	-	-
6	-	3.7	-	P	2.2	-	-
7	-	3.8	-	R	2.3	-	-
8	-	3.9	-	S	2.4	-	-
9	-	4.0	-	T	2.5	-	-
A	-	4.1	-	U	2.6	-	-
B	1.2	4.2	-	V	2.7	-	-
C	1.3	4.3	-	X	2.8	-	-
D	1.4	4.4	-	Y	2.9	-	-
E	1.5	4.5	-	Z	3.0	-	-

④ X



Absolute Maximum Ratings (The following specifications apply for Ta=25°C, unless specified otherwise)

Parameter		Symbol	Ratings	Units
Input Voltage		V _{IN}	8	V
Output Current		I _{OUT}	300*	mA
Output Voltage		V _{OUT}	V _{SS} -0.3~V _{IN} +0.3	V
Power Dissipation	SOT-23	P _d	0.20	W
Operating Temperature Range		T _{opr}	-40~+85	°C
Storage Temperature Range		T _{stg}	-55~+125	°C

*I_{OUT}=P_d/(V_{IN}-V_{OUT})

*P_d is measured at Ta=25°C

Electrical Characteristics

XC6206-xxxV for any output voltage

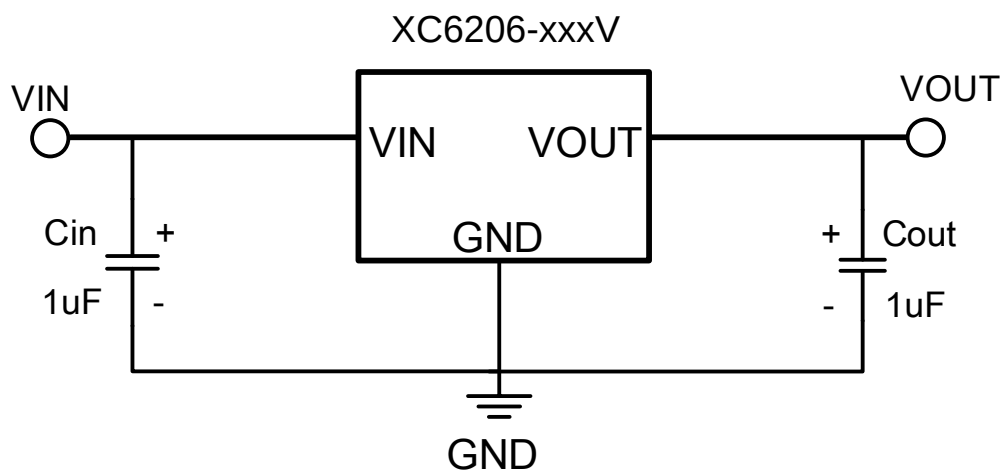
(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V _{out}	V _{in} =V _{out} +1V 1.0mA≤I _{out} ≤30mA 1.2V≤V _{OUT} ≤2.5V	V _{out} -0.05	--	V _{out} +0.05	V
		V _{in} =V _{out} +1V 1.0mA≤I _{out} ≤30mA 2.5V≤V _{OUT} ≤5.0V	V _{out} ×0.98	--	V _{out} ×1.02	V
Output Current*1	I _{out}	V _{in} -V _{out} =1V	--	300	--	mA
Low dropout*2	V _{drop}	Refer to the next table				
Line Regulation	ΔV _{out} 1/(V _{in} ·V _{out})	1.6V≤V _{in} ≤8V I _{out} =40mA	--	0.05	0.2	%/V
Load Regulation	ΔV _{out} /ΔI _{out}	V _{in} = V _{out} +1V 1.0mA≤I _{out} ≤80mA	--	12	30	mV
Output voltage Temperature Coefficiency	ΔV _{out} /(Ta·V _{out})	I _{out} =30mA 0°C≤Ta≤70°C	--	±50	--	Ppm/°C
Supply Current	I _{ss}	--	--	5	8	uA
Input Voltage	V _{in}	--	--	6	8	V
PSRR	PSRR	F=1KHz V _{in} =V _{out} +1V	--	55	--	dB
Output Noise	EN	BW=10HZ~100KHz	--	30	--	uVrms

Electrical Characteristics by Output Voltage:

Output Voltage Vout (V)	Dropout Voltage Vdif (V)		
	Conditions	Typ.	Max.
$V_{out} \leq 1.5V$	$I_{out} = 100\text{ mA}$	0.35	0.57
$1.8 \leq V_{out} \leq 2$		0.28	0.42
$2.8 \leq V_{out} \leq 5.0$		0.19	0.35

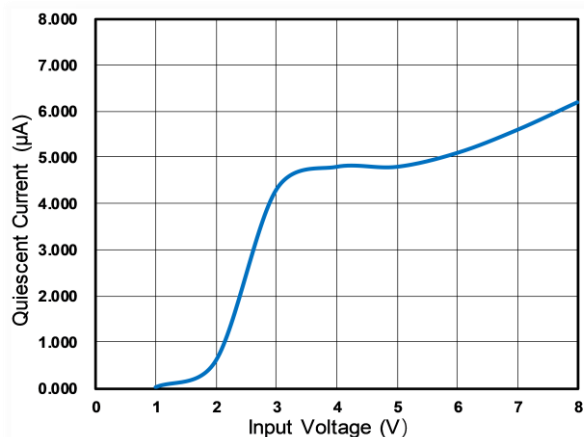
Typical Application



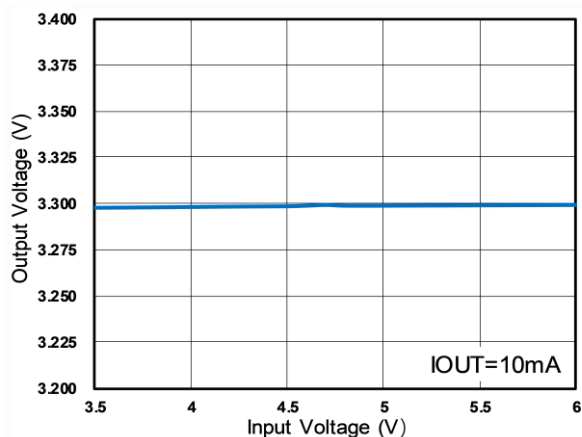
Typical Performance Characteristics

Note: $C_{IN}=0.33\mu F$ $C_{OUT}=0.1\mu F$ $V_{OUT}=3.3V$ $T=25^{\circ}C$ unless specified otherwise

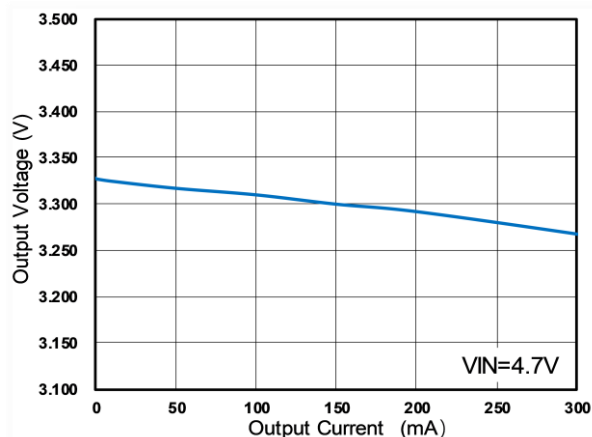
(1) Quiescent Current VS Input Voltage



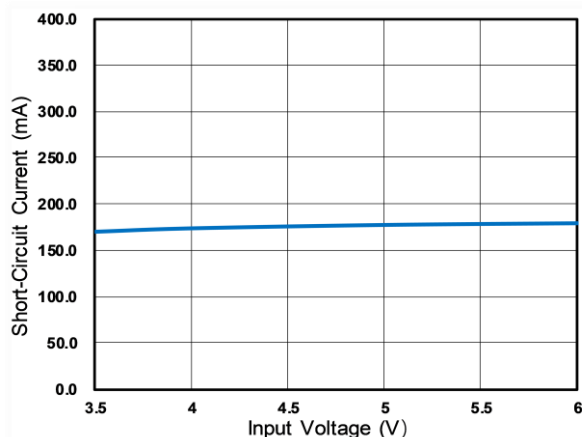
(2) Output Voltage VS Input Voltage



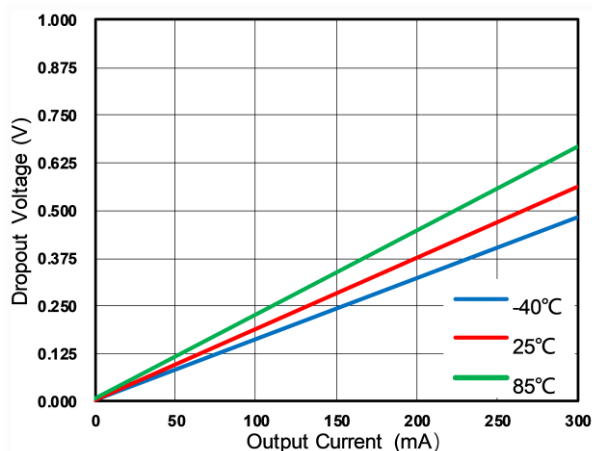
(3) Output Voltage VS Output Current



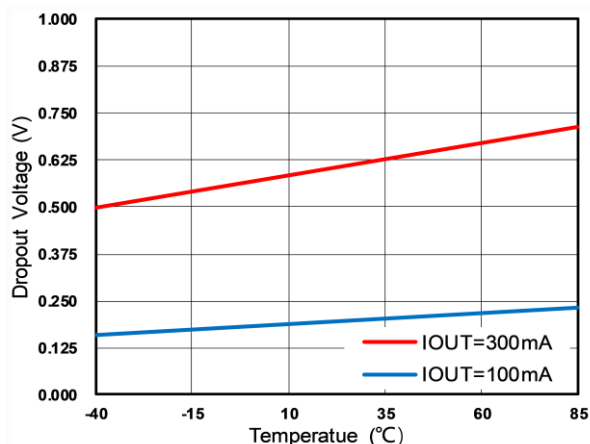
(4) Short-Circuit Current VS Input Voltage



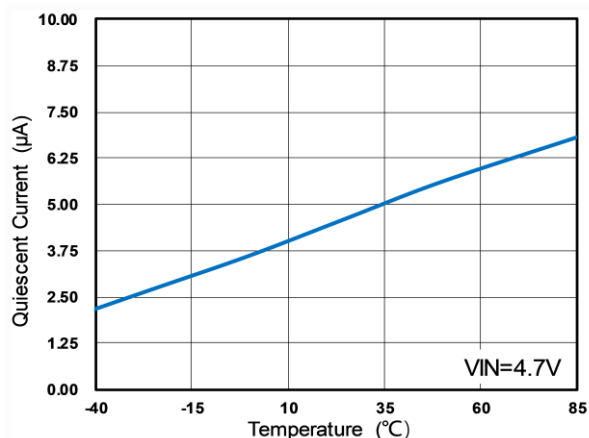
(5) Dropout Voltage VS Output Current



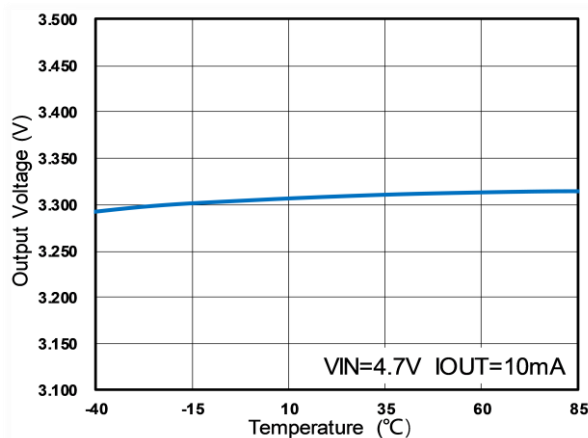
(6) Dropout Voltage VS Temperature



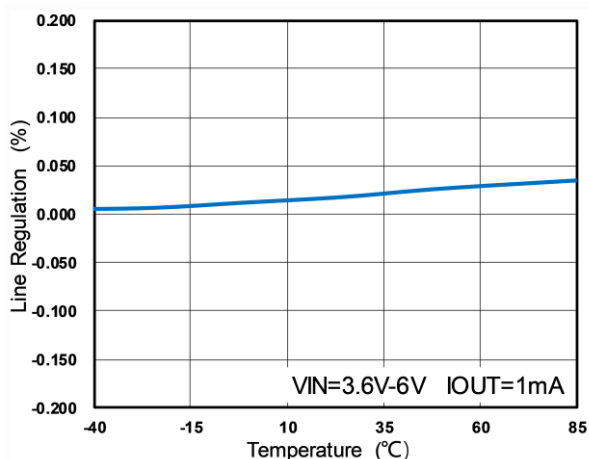
(7) Quiescent Current VS Temperature



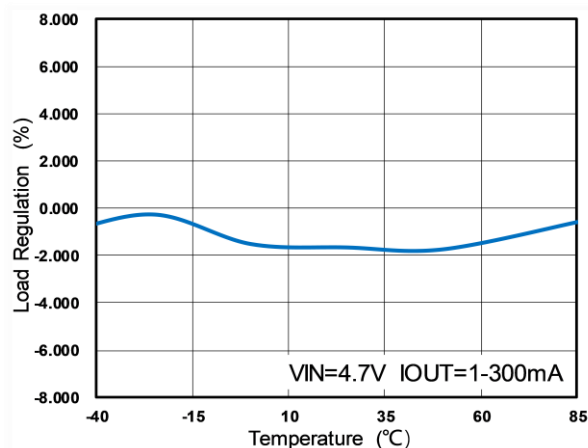
(8) Output Voltage VS Temperature



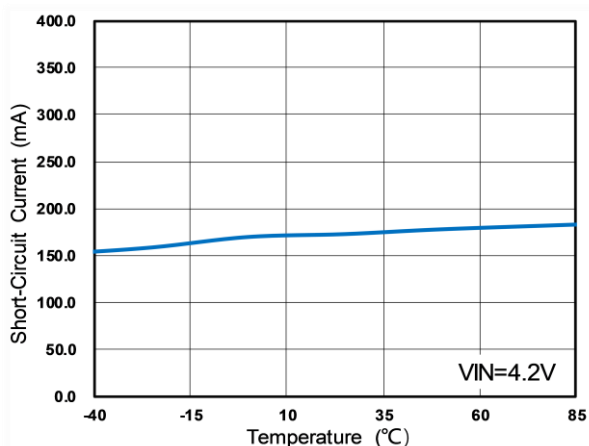
(9) Line Regulation VS Temperature



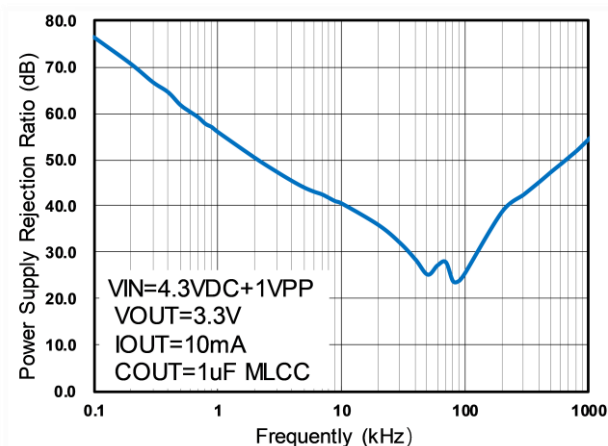
(10) Load Regulation VS Temperature



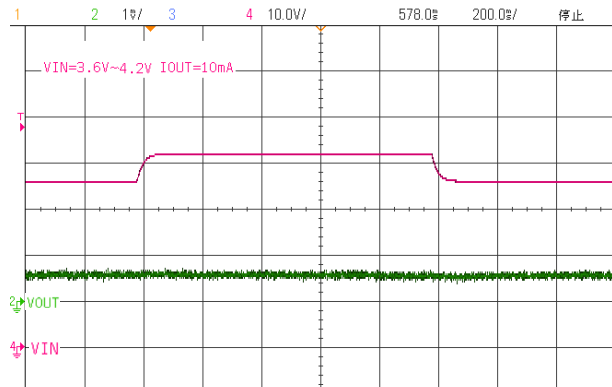
(11) Short-Circuit Current VS Temperature



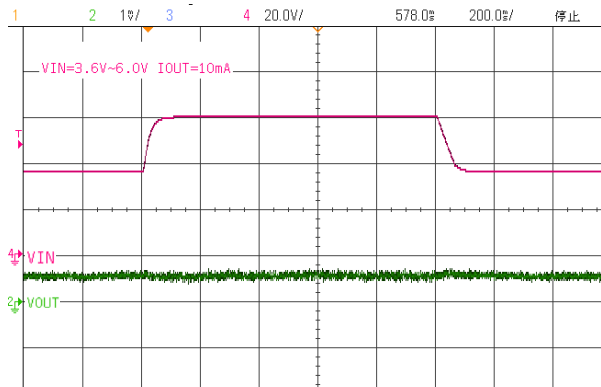
(12) PSRR



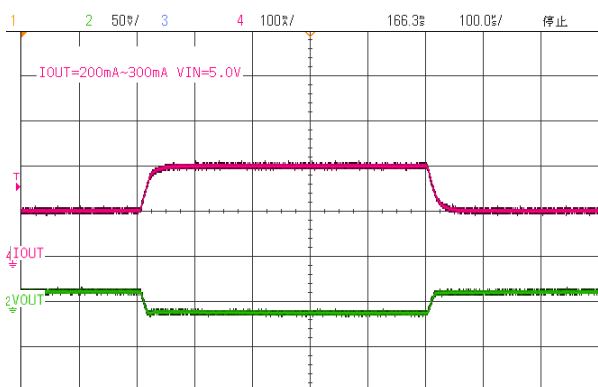
(13) Input Transient Response (VIN=3.6V-4.2V)



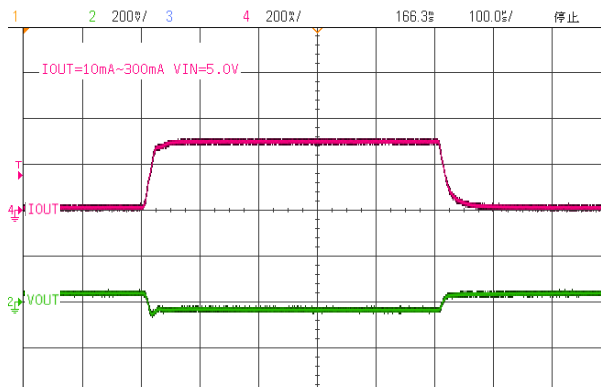
(14) Input Transient Response (VIN=3.6V-6.0V)



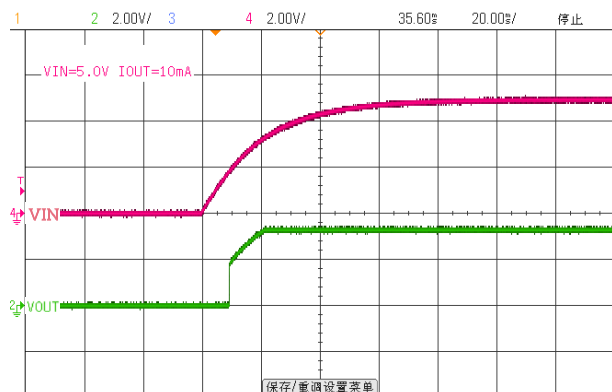
(15) Load Transient Response (IOUT=200mA-300mA)



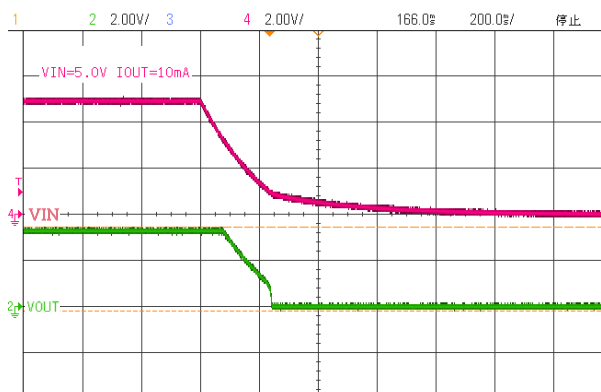
(16) Load Transient Response (IOUT=10mA-300mA)



(17) Power ON (VIN=5.0V IOUT=10mA)

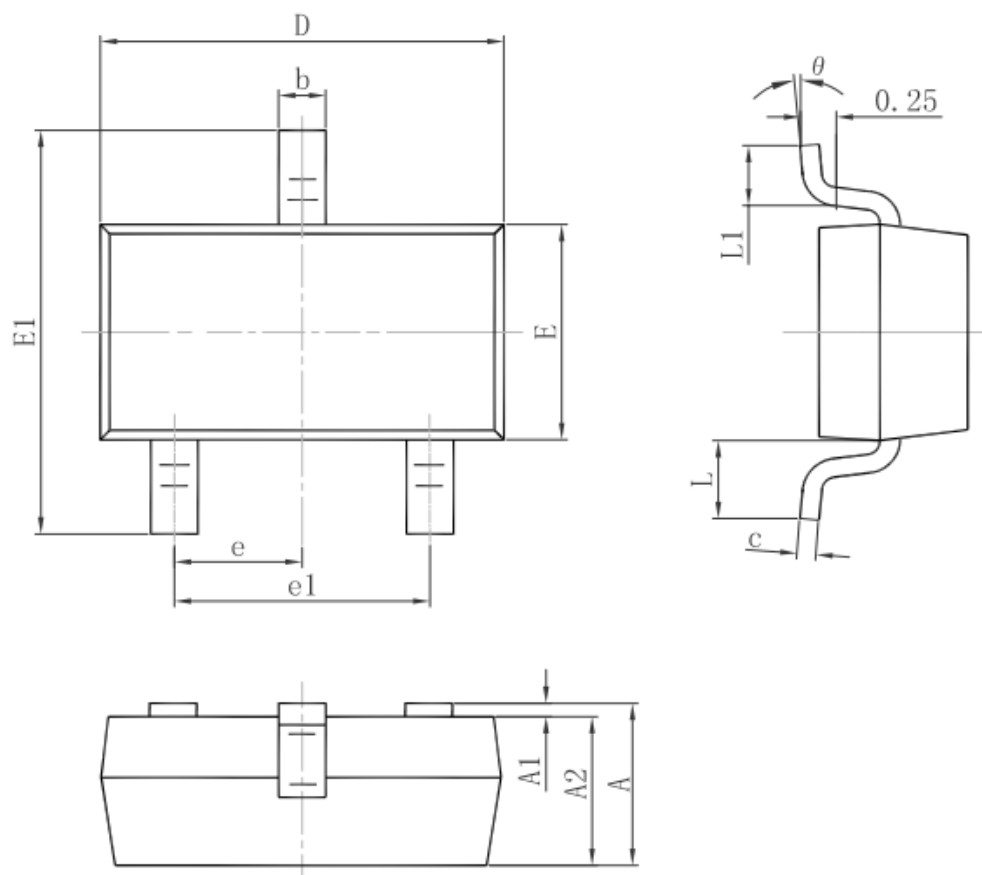


(18) Power OFF (VIN=5.0V IOUT=10mA)



Package Information

3-pin SOT23 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°