

200mA Low Consumption Linear Regulator

DESCRIPTION

BL8064 series is a group of positive voltage output, low power consumption, low dropout voltage, three terminal regulator. It can provide 200mA output current when input / output voltage differential drops to 430mV ($V_{OUT}=2.8V$), The very low power consumption of BL8064($I_Q=1.0\mu A$) can greatly improve natural life of batteries.

BL8064 can provide output value in the range of 1.1V~5.5V in 0.1V steps. It also can be customized on command.

BL8064 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

BL8064 has well load transient response and good temperature characteristic, and it uses trimming technique to guarantee output voltage accuracy within $\pm 2\%$.

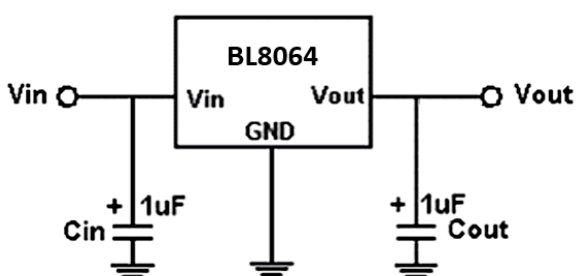
FEATURES

- Low power consumption: $1.0\mu A$ (Typ.)
- Maximum output current: 200mA
- Small dropout voltage
210mV@100mA ($V_{OUT}=2.8V$)
430mV@200mA ($V_{OUT}=2.8V$)
- Input voltage range: 1.5V~8V
- Output voltage range: 1.1V~5.5V (customized on command in 0.1V steps)
- Highly accurate: $\pm 2\%$ ($\pm 1\%$ customized)
- Output current limit

APPLICATIONS

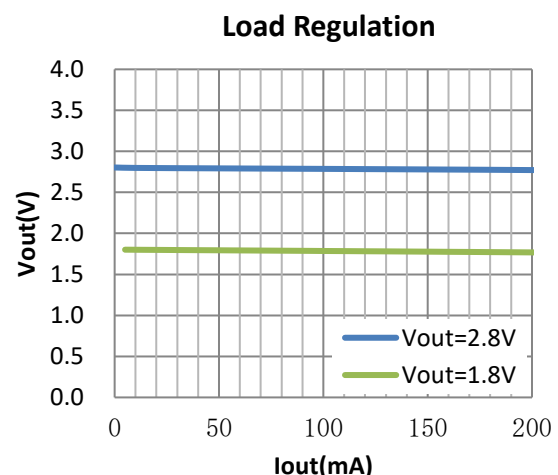
- Battery powered equipment
- Power management of MP3、PDA、DSC、mouse、PS2 games
- Reference voltage source regulation after switching power

TYPICAL APPLICATION



Note: Input capacitor ($C_{IN}=1\mu F$) and output capacitor ($C_{OUT}=1\mu F$) are recommended in all application circuit. Ceramic capacitor is recommended.

ELECTRICAL CHARACTERISTICS



ORDERING INFORMATION

BL8064 [1](#) [2](#) [3](#) [4](#) [5](#)

Code	Description
1	Temperature&RoHS: C:-40~85°C ,Pb Free RoHS Std.
2	Package type: B3:SOT-23-3 B3A:TSOT-23 B5:SOT-23-5 C3:SOT-89-3 H:TO-92
3	Packing type: TR:Tape&Reel (Standard) BG:Bag (TO-92)
4	Output voltage: e.g. 11=1.1V 15=1.5V 55=5.5V
5	Voltage accuracy: 1=±1% Blank(default)=±2%

MARKING DESRIPTON

Output Voltage Code

VOUT	Code	VOUT	Code	VOUT	Code
1.2V	2	2.9V	9	4.3V	3
1.3V	3	3.0V	0	4.4V	4
1.4V	4	3.1V	1	4.5V	5
1.5V	5	3.2V	2	4.6V	6
1.8V	8	3.3V	3	4.7V	7
2.0V	0	3.4V	4	4.8V	8
2.1V	1	3.5V	5	4.9V	9
2.2V	2	3.6V	6	5.0V	0
2.3V	3	3.7V	7	5.1V	1
2.4V	4	3.8V	8	5.2V	2
2.5V	5	3.9V	9	5.3V	3
2.6V	6	4.0V	0	5.4V	4
2.7V	7	4.1V	1	5.5V	5

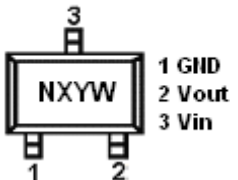
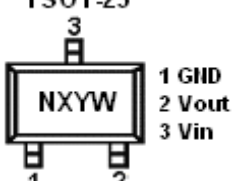
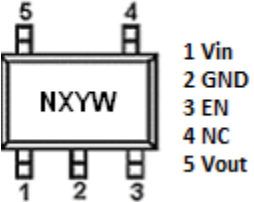
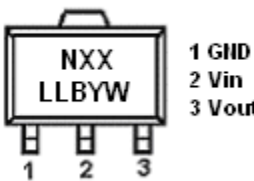
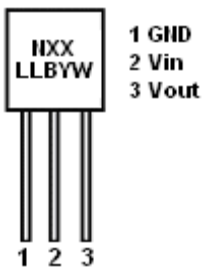
Y: The Year of manufacturing, "1" stands for year 20X1, "2" stands for year 20X2, and "8" stands for year 20X8.

(X=0,1,2,...,9)

W: The week of manufacturing. "A" stands for week 1, "Z" stands for week 26, "A" stands for week 27, "Z" stands for week 52.

The date code of the 53rd week is the same as that of the first week of the next year. For example, the date code of the 53rd week of 2017 is the same as that of the first week of 2018, which are 1801 and 8A.

PIN CONFIGURATION

Product classification		BL8064CB3TR□□
Marking		SOT-23-3
NXYW	N:Product code	
	X:Output voltage	
	YW:Date code	
Product classification		BL8064CB3ATR□□
Marking		TSOT-23
NXYW	N:Product code	
	X:Output voltage	
	YW:Date code	
Product classification		BL8064CB5TR□□
Marking		SOT-23-5
NXYW	N:Product code	
	X:Output voltage	
	YW:Date code	
Product classification		BL8064CC3TR□□
Marking		SOT-89-3
NXX LLBYW	N:Product code	
	XX:Output voltage	
	LL:LOT NO.	
	B:FAB code	
		YW:Date code
Product classification		BL8064CHBG□□
Marking		TO-92
NXX LLBYW	N:Product code	
	XX:Output voltage	
	LL:LOT NO.	
	B:FAB code	
		YW:Date code
GND	Ground pin	
Vin	Supply voltage input	
Vout	Output voltage	
EN	Chip enable	
NC	No connection	

ABSOLUTE MAXIMUM RATING

Parameter		Value
Max input voltage		10V
Operating junction temperature(T _J)		125°C
Ambient temperature(T _A)		-40°C to 85°C
Power dissipation	SOT-23-3	250mW
	TSOT-23	250mW
	SOT-23-5	400mW
	SOT-89-3	500mW
	TO-92	500mW
Package thermal resistance (θ _{JA})	SOT-23-3	220°C/W
	TSOT-23	250°C/W
	SOT-23-5	200°C/W
	SOT-89-3	90°C/W
	TO-92	117°C/W
Storage temperature(T _S)		-40°C to 150°C
Lead temperature & time		260°C,10S
ESD (HBM)		>2000V

Note:

Exceed these limits to damage to the device.

Exposure to absolute maximum rating conditions may affect device reliability.

RECOMMENDED WORK CONDITIONS

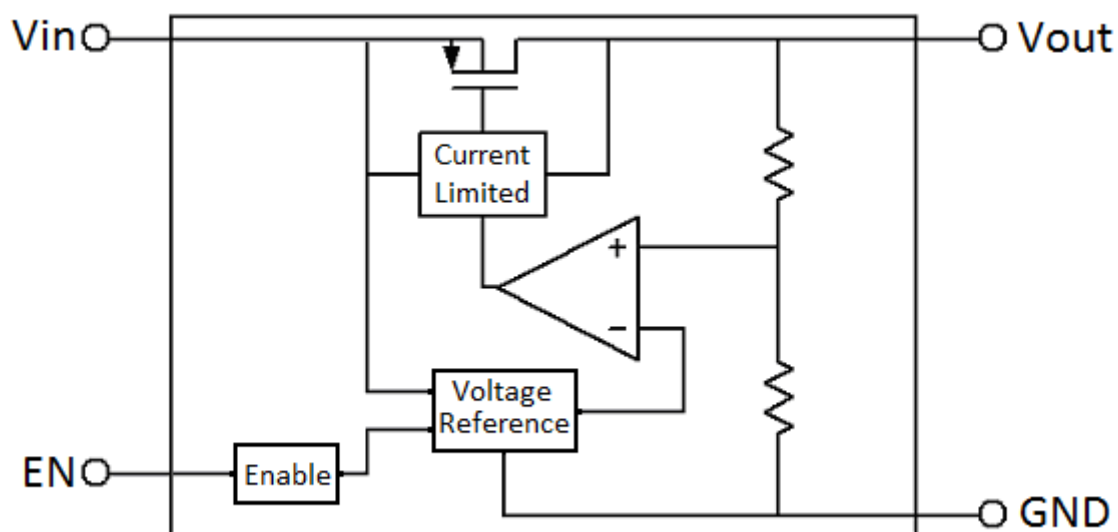
Item	Min	Recommended	Max.	Unit
Input voltage range			8	V
Ambient temperature	-40		85	°C

ELECTRICAL CHARACTERISTICS

(Test conditions: C_{IN}=1uF, C_{OUT}=1uF, T_A=25°C, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Type	Max	Units
V _{IN}	Input voltage				8	V
V _{OUT}	Output voltage		V _{OUT} x0.98		V _{OUT} x1.02	V
I _{OUT} (Max.)	Maximum output current	V _{IN} -V _{OUT} =1V	200			mA
Dropout voltage	Input-output voltage differential	I _{OUT} =100mA	V _{OUT} ≤ 1.8V	600	1000	mV
			V _{OUT} ≥ 1.8V	300	600	
$\frac{\Delta V_{out}}{\Delta V_{in} \cdot V_{out}}$	Line regulation	I _{OUT} =10mA Set V _{OUT} +0.5V≤V _{IN} ≤8V		0.2	0.3	%/V
ΔV _{out}	Load regulation	V _{IN} =Set V _{OUT} +1V 1mA≤I _{OUT} ≤100mA		20	40	mV
I _Q	Quiescent current	V _{IN} =Set V _{OUT} +1V		1.0	5.0	uA
$\frac{\Delta V_{out}}{\Delta T \cdot V_{out}}$	Output voltage temperature coefficient	I _{OUT} =10mA		100		ppm/°C
V _{ENH}	EN input voltage "H"		1.5		V _{IN}	V
V _{ENL}	EN input voltage "L"		0		0.2	V

BLOCK DIAGRAM



EXPLANATION

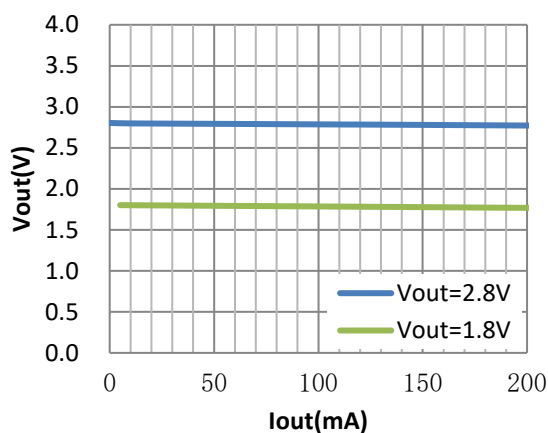
BL8064 is a series of low dropout voltage and low power consumption three pins regulator. Its application circuit is very simple, which only needs two outside capacitors. It is composed of these modules: high accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

Current Limit module can keep chip and power system away from danger when load current is more than 200mA.

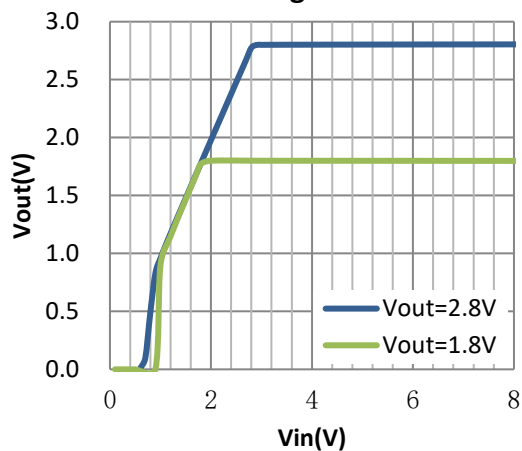
BL8064 uses trimming technique to assure the accuracy of output value within $\pm 2\%$, at the same time, temperature compensation is elaborately considered in this chip, which makes BL8064's temperature coefficient within 100ppm/ $^{\circ}\text{C}$.

TYPICAL PERFORMANCE CHARACTERISTICS

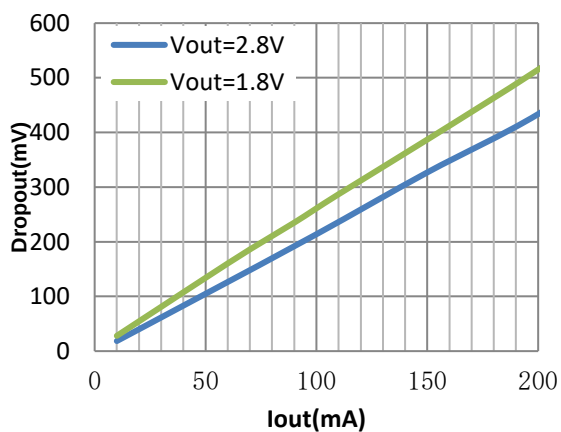
Load Regulation



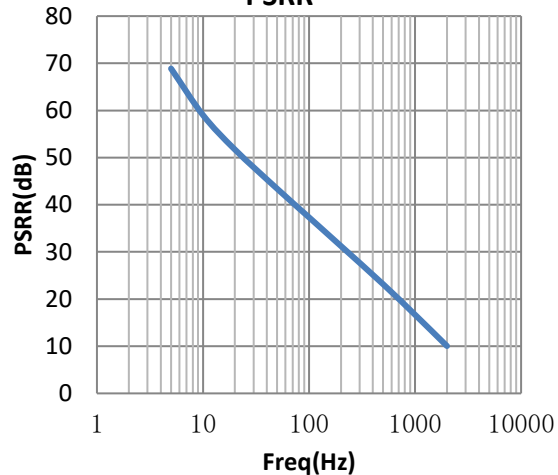
Line Regulation



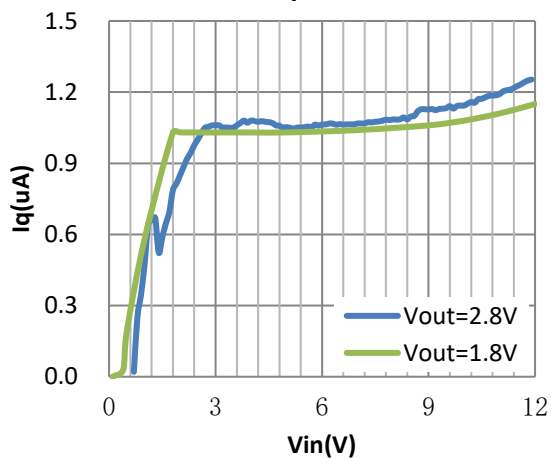
Dropout Voltage



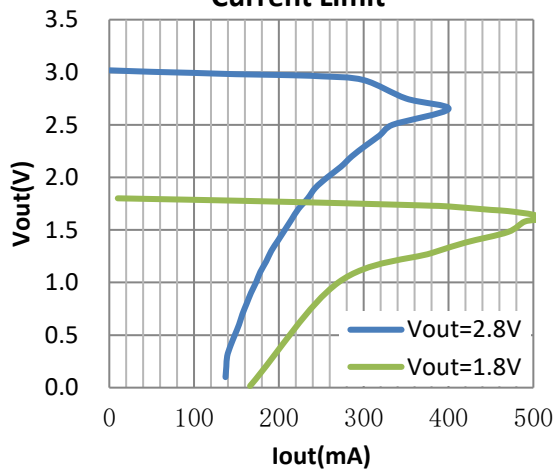
PSRR



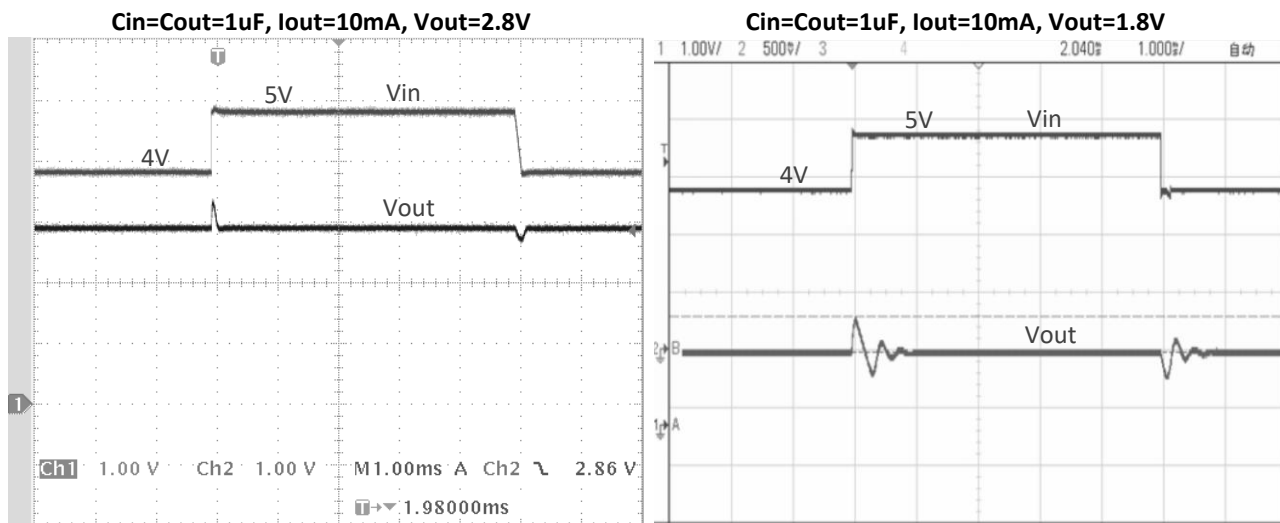
I_q



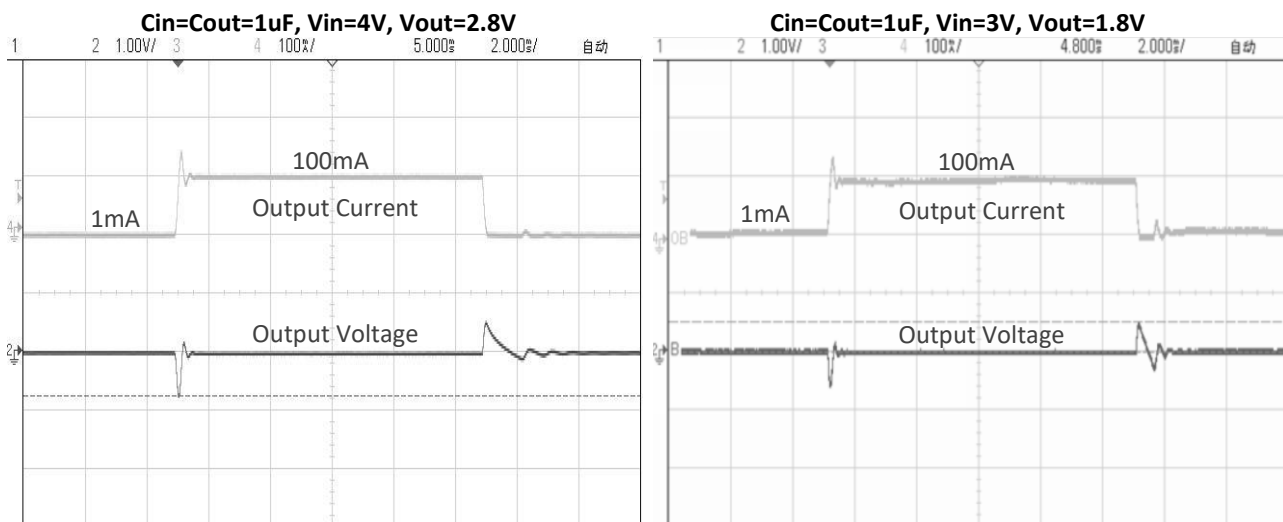
Current Limit



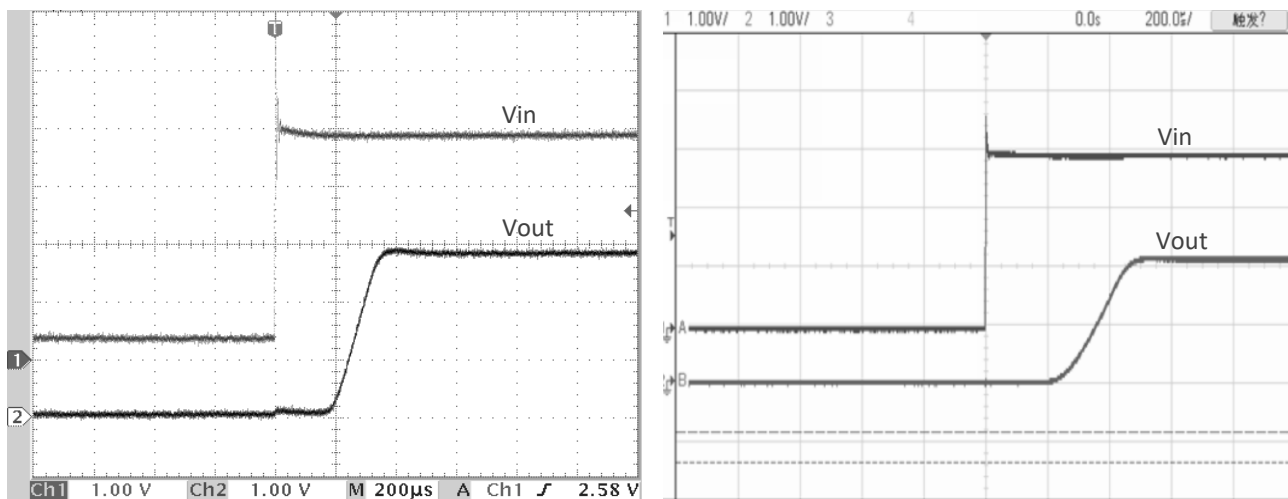
Line transient response



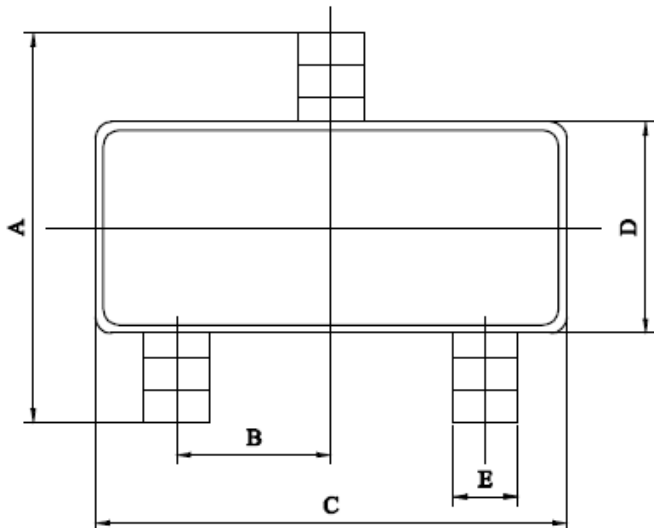
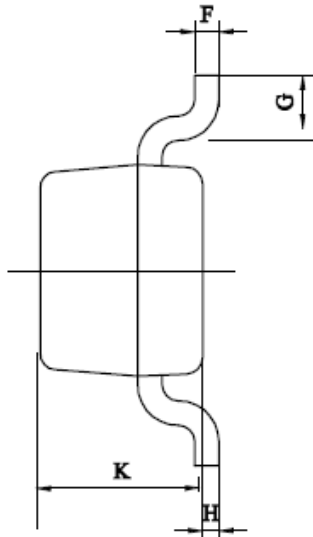
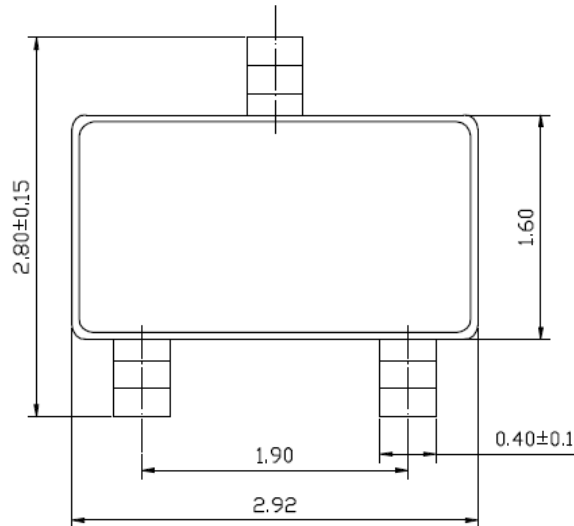
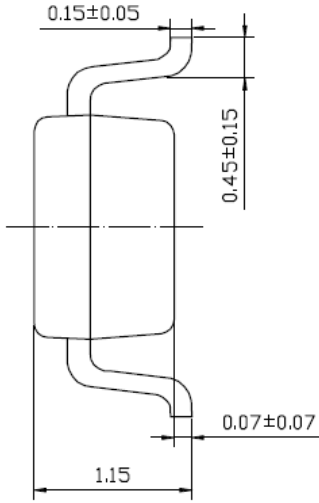
Load transient response

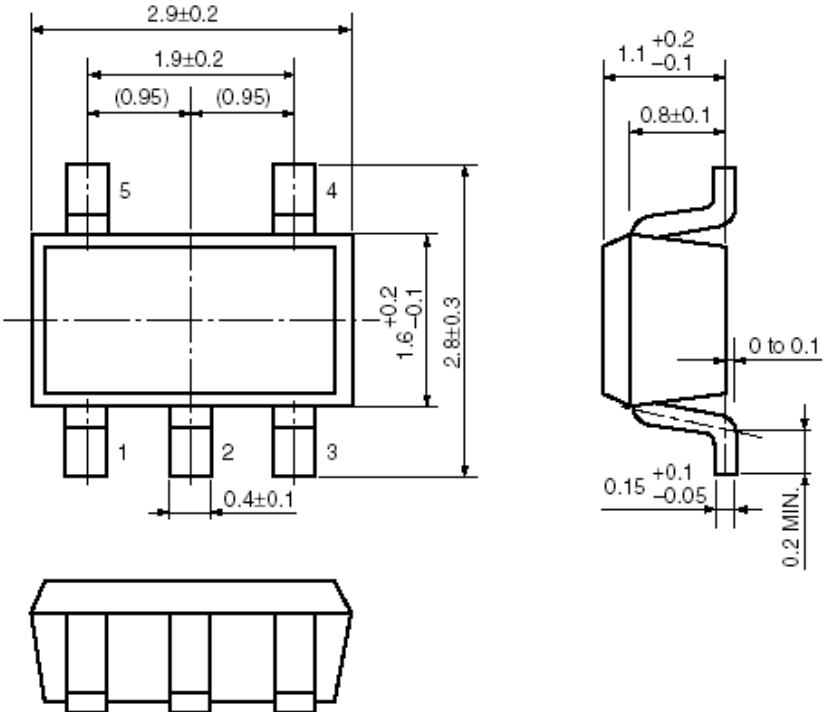
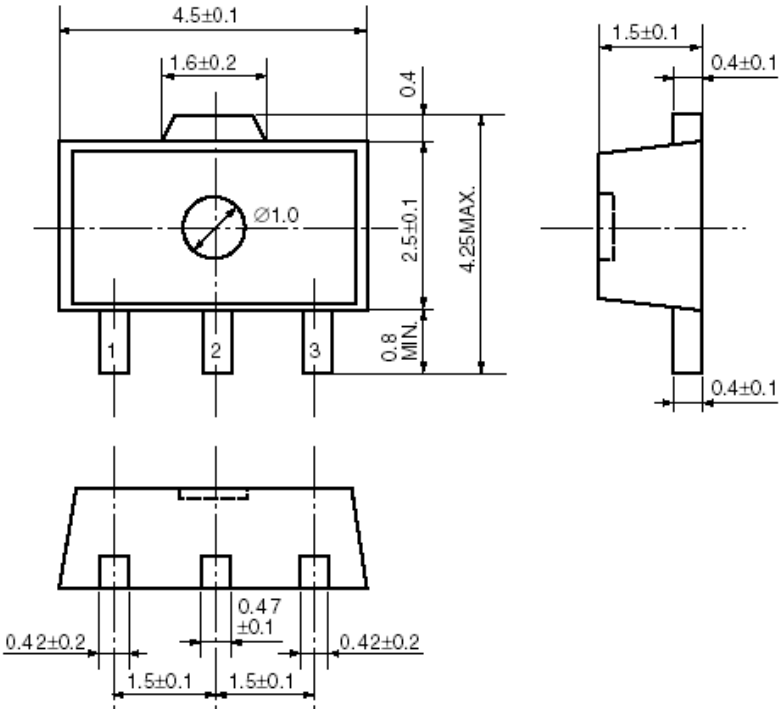


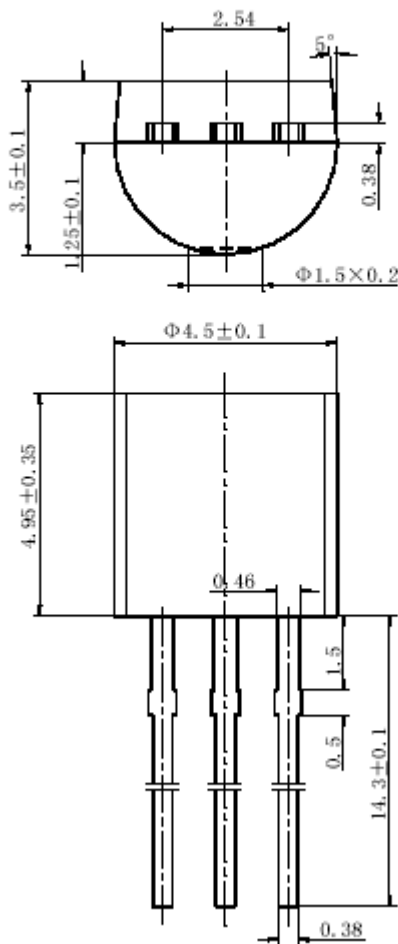
Start up



PACKAGE OUTLINE

Package	TSOT-23				Devices per reel			3000Pcs	
Package dimension:									
									
	A	B	C	D	E	F	G	H	K
出厂标准	2.4±0.15	0.95±0.05	2.9±0.1	1.3±0.1	0.40±0.1	0.15±0.08	0.4±0.1	0.07±0.07	1.00±0.05
Unit: mm									
Package	SOT-23-3				Devices per reel			3000Pcs	
Package dimension:									
									
Unit: mm									

Package	SOT-23-5	Devices per reel	3000Pcs
Package Dimension:  The diagram shows the SOT-23-5 package dimensions. The top view shows a rectangular body with a width of 2.9 ± 0.2 mm and a length of 1.9 ± 0.2 mm. The distance between the two side pins is 0.95 mm. The distance between the two bottom pins is 0.4 ± 0.1 mm. The height of the package is 1.6 ± 0.2 mm. The distance from the top edge to the top pins is 2.8 ± 0.3 mm. The side view shows a maximum height of 1.1 ± 0.2 mm, a width of 0.8 ± 0.1 mm, and a minimum height of 0.15 ± 0.1 mm. The distance from the bottom edge to the bottom pins is 0.2 mm. The bottom view shows a rectangular body with a width of 0.42 ± 0.2 mm and a length of 1.5 ± 0.1 mm. The distance between the two side pins is 0.47 ± 0.1 mm.			
Unit: mm			
Package	SOT-89-3	Devices per reel	1000Pcs
Package Dimension:  The diagram shows the SOT-89-3 package dimensions. The top view shows a rectangular body with a width of 4.5 ± 0.1 mm and a length of 1.6 ± 0.2 mm. The distance between the two side pins is 0.4 mm. The height of the package is 2.5 ± 0.1 mm. The distance from the top edge to the top pins is 0.8 mm. The side view shows a maximum height of 4.25 mm, a width of 1.5 ± 0.1 mm, and a minimum height of 0.4 ± 0.1 mm. The bottom view shows a rectangular body with a width of 0.42 ± 0.2 mm and a length of 1.5 ± 0.1 mm. The distance between the two side pins is 0.47 ± 0.1 mm.			
Unit: mm			

Package	TO-92	Devices per Bag	1000Pcs
Package Dimension: TO-92  Unit: mm			