LC1208

200mA Low Consumption Linear Regulator

DESCRIPTION

LC1208 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(Vout = 2.8V), The very low power consumption of LC1208(Iq=1.0uA)can greatly improve natural life of batteries.

LC1208 can provide output value in the range of 1.1V~5.5V in 0.1V steps. It also can be customized on command.

LC1208 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

LC1208 has well load transient response and good temperature characteristic, And it uses trimming technique to guarantee output voltage accuracy within±2%.

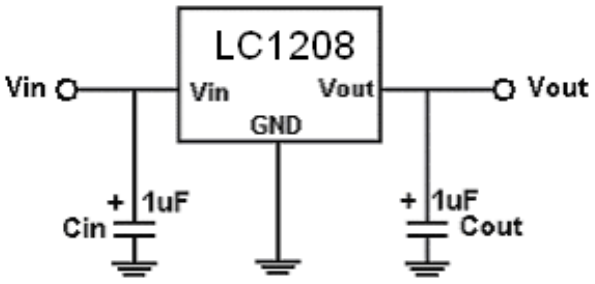
FEATURES

- Low power consumption:1.0uA(Typ.)
- Maximum output current:200mA
- Small dropout voltage
  210mV@100mA (Vout=2.8V)
  430mV@200mA (Vout=2.8V)
- Input voltage range:1.5V~6V
- Output voltage range:1.1V~5.5V (customized on command in 0.1V steps)
- Highly accurate:±2% (±1% customized)
- Output current limit

APPLICATIONS

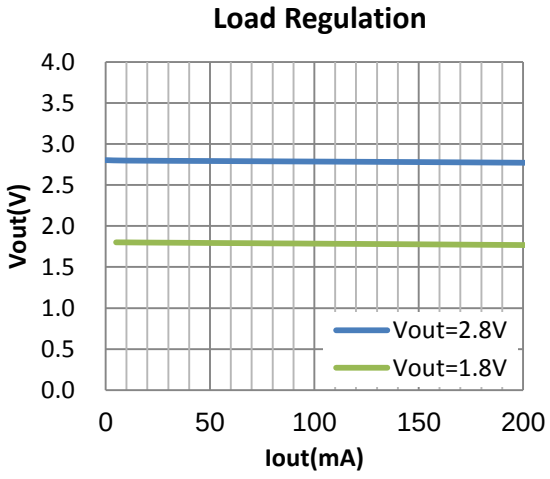
- Battery powered equipment
- Power management of MP3、PDA、DSC、mouse、PS2 games
- Reference voltage source regulation after switching power

TYPICAL APPLICATION



Note: *Input capacitor (Cin=1uF) and output capacitor (Cout=1uF) are recommended in all application circuit. Ceramic capacitor is recommended.*

ELECTRICAL CHARACTERISTICS



ORDERING INFORMATION

LC1208 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%

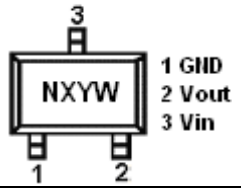
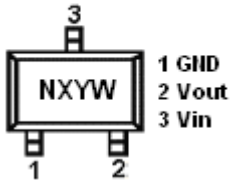
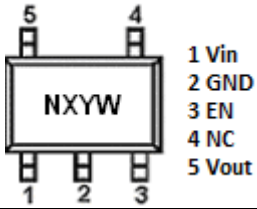
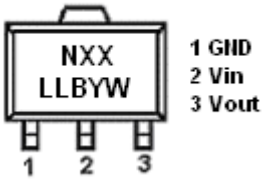
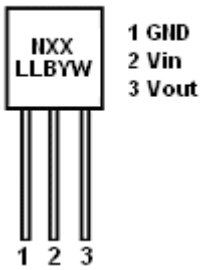
MARKING DESCRIPTON

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
2.8V	8	4.2V	2		

Y: The Year of manufacturing,"1" stands for year 2011, "2" stands for year 2012, and "8" stands for year 2018.
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.

PIN CONFIGURATION

Product classification		LC1208CB3TR□□
Marking		SOT-23-3
NXYW	N:Product code X:Output voltage YW：Date code	
Product classification		LC1208CB3ATR□□
Marking		TSOT-23
NXYW	N:Product code X:Output voltage YW：Date code	
Product classification		LC1208CB5TR□□
Marking		SOT-23-5
NXYW	N:Product code X:Output voltage YW：Date code	
Product classification		LC1208CC3TR□□
Marking		SOT-89-3
NXX LLBYW	N:Product code XX:Output voltage LL:LOT NO. B:FAB code YW:Date code	
Product classification		LC1208CHBG□□
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		8V
Operating junction temperature(T_J)		125°C
Ambient temperature(T_A)		-40°C -85°C
Power dissipation	SOT-23-3	250mW
	TSOT-23	250mW
	SOT-23-5	250mW
	SOT-89-3	500mW
	TO-92	500mW
Storage temperature(T_S)		-40°C -150°C
Lead temperature & time		260°C,10S

Note:
Exceed these limits to damage to the device.
Exposure to absolute maximum rating conditions may affect device reliability.

RECOMMENDED WORK CONDITIONS

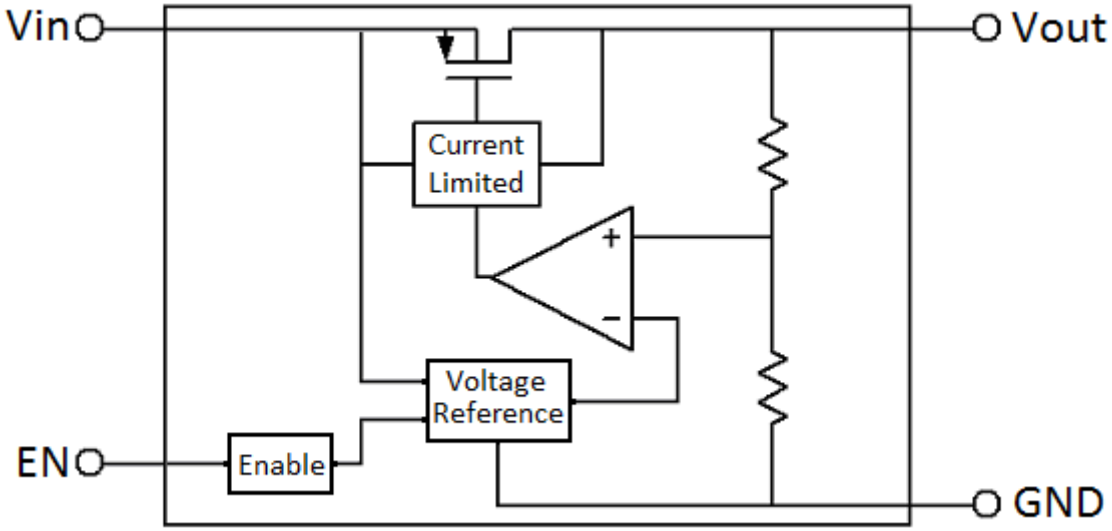
Item	Min	Recommended	Max.	Unit
Input voltage range			6	V
Ambient temperature	-40		85	°C

ELECTRICAL CHARACTERISTICS

(Test conditions: Cin=1uF,Cout=1uF,T_A=25°C, unless otherwise specified.)

Symbol	Parameter	Conditions		Min	Type	Max	Units
Vin	Input voltage					6	V
Vout	Output voltage			Vout x0.98		Vout X1.02	V
Iout(Max.)	Maximum output current	Vin-Vout=1V		200			mA
Dropout voltage	Input-output voltage differential	Iout=100mA	Vout ≤ 1.8V		600	1000	mV
			Vout ≥ 1.8V		300	600	
$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Line regulation	Iout=10mA 1.5V≤Vin≤8V			0.2	0.3	%/V
$\Delta Vout$	Load regulation	Vin=Set Vout+1V 1mA≤Iout≤100mA			20	40	mV
I_Q	Quiescent current	Vin=Set Vout+1V			1.0	5.0	uA
$\frac{\Delta Vout}{\Delta T \cdot Vout}$	Output voltage temperature coefficient	Iout=10mA			100		ppm/°C
V_{ENH}	EN input voltage “H”			1.5		Vin	V
V_{ENL}	EN input voltage “L”			0		0.2	V

BLOCK DIAGRAM



EXPLANATION

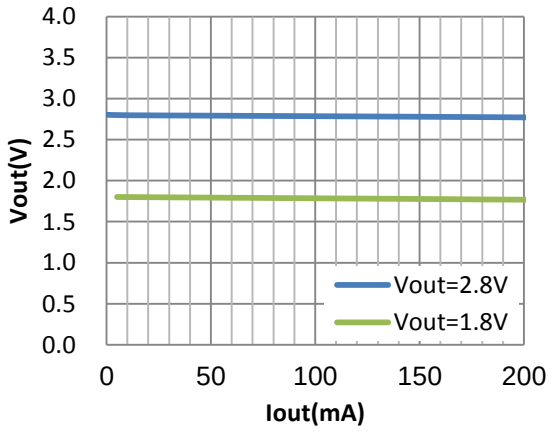
LC1208 is a series of low dropout voltage and low power consumption three pins regulator. Its application circuit is very simple, which only needs two outside capacitors. It is composed of these modules: high accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

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

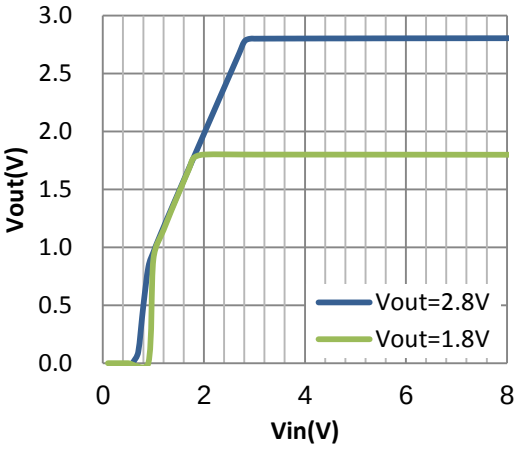
LC1208 uses trimming technique to assure the accuracy of output value within±2%, at the same time, temperature compensation is elaborately considered in this chip, which makes LC1208's temperature coefficient within 100ppm/°C。

TYPICAL PERFORMANCE CHARACTERISTICS

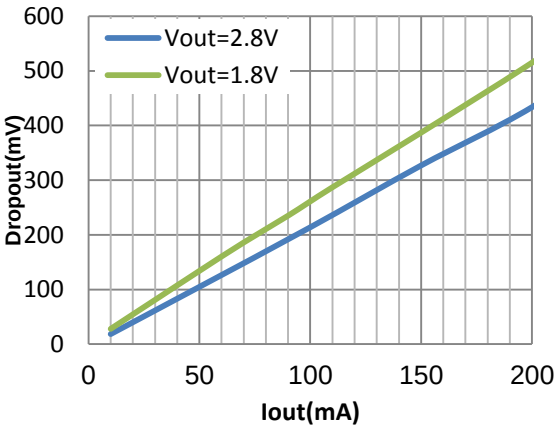
Load Regulation



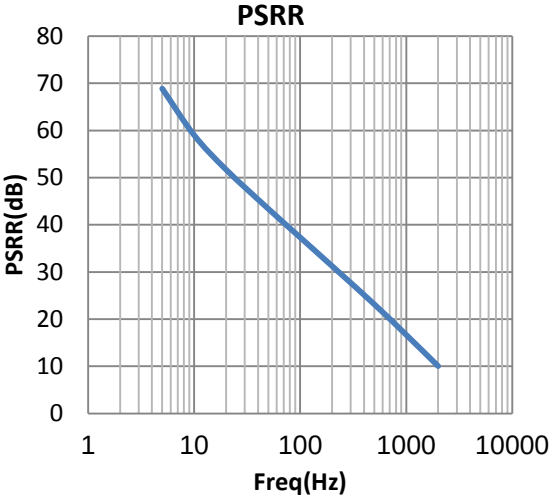
Line Regulation



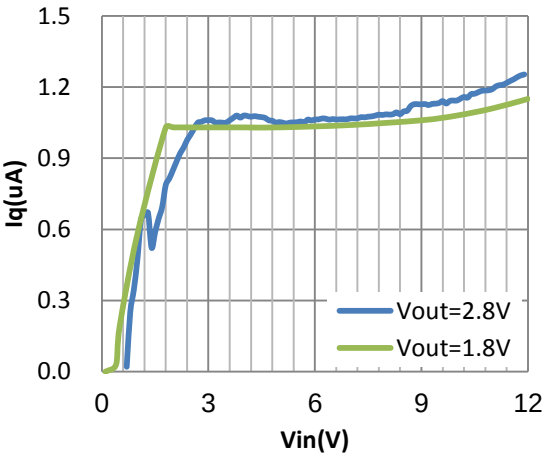
Dropout Voltage



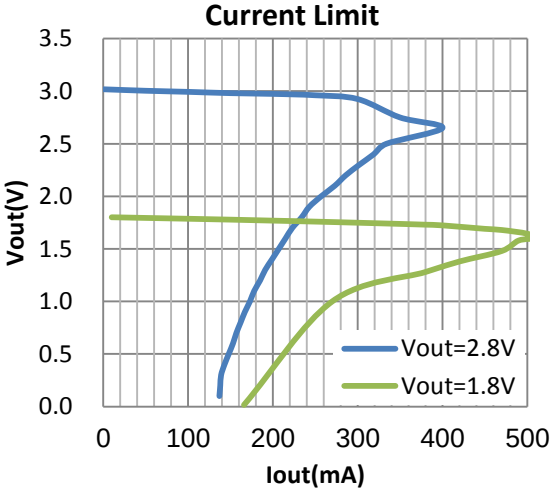
PSRR



Iq

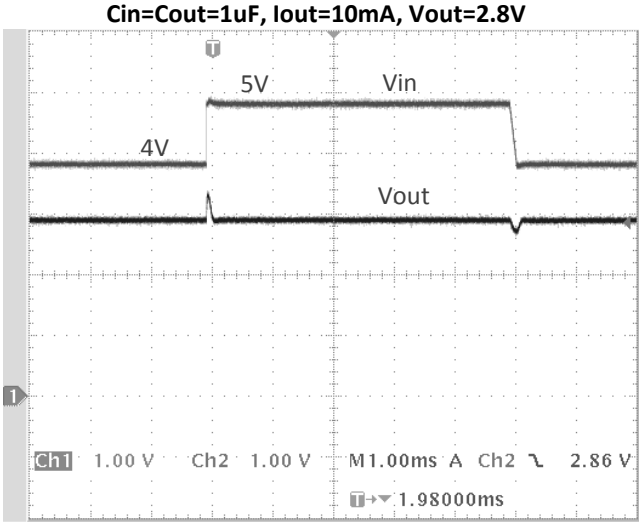


Current Limit

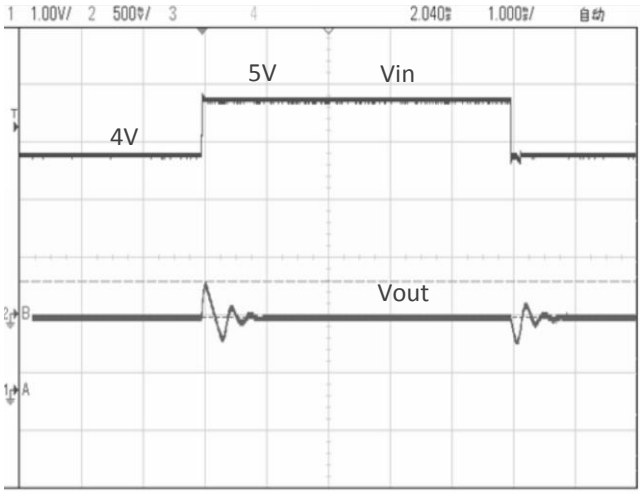


Line transient response

Cin=Cout=1uF, Iout=10mA, Vout=2.8V

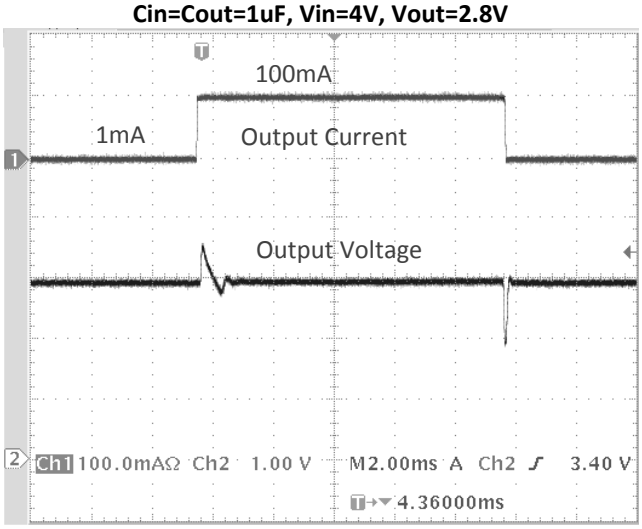


Cin=Cout=1uF, Iout=10mA, Vout=1.8V

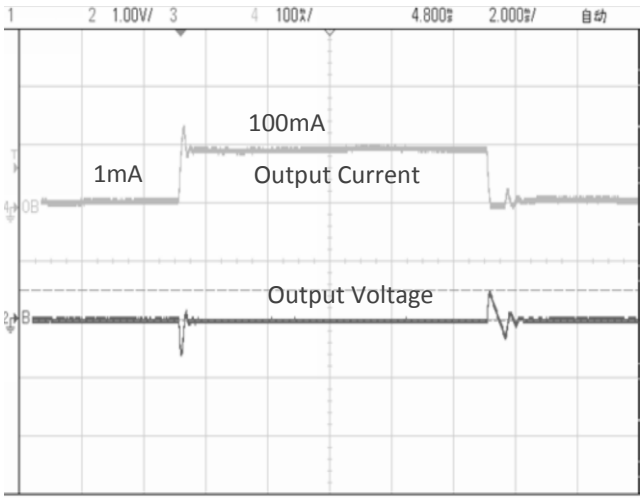


Load transient response

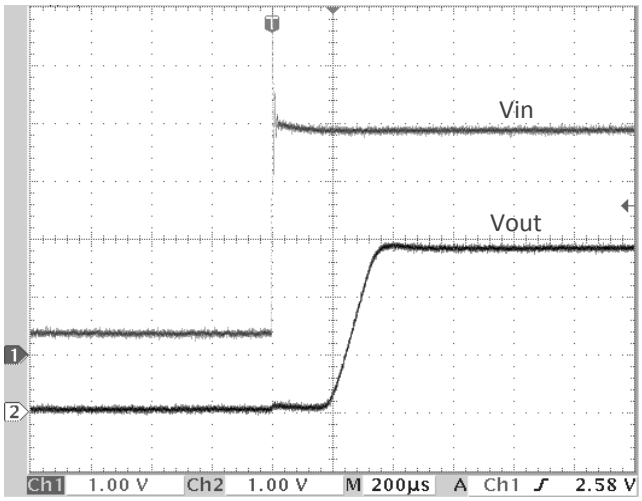
Cin=Cout=1uF, Vin=4V, Vout=2.8V

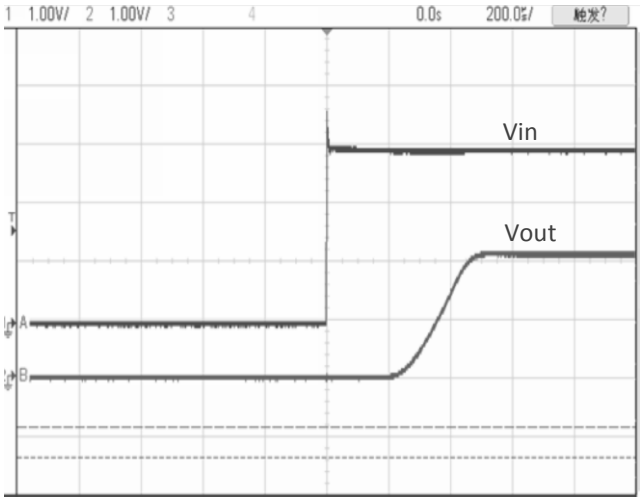


Cin=Cout=1uF, Vin=3V, Vout=1.8V



Start up

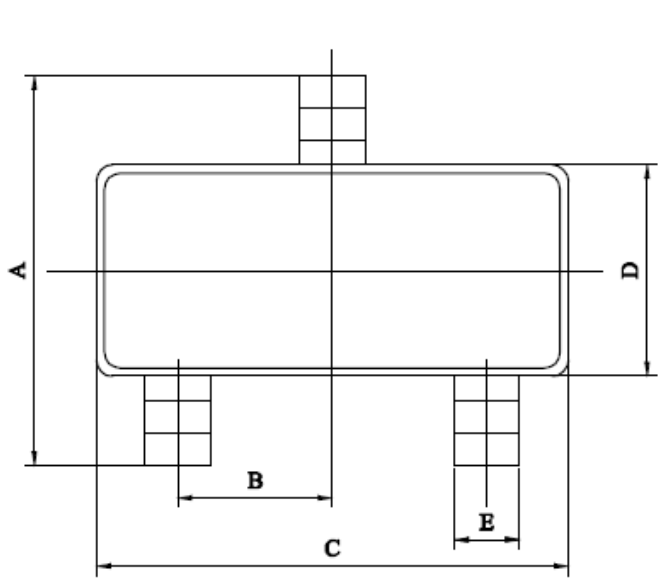




PACKAGE LINE

Package	TSOT-23	Devices per reel	3000Pcs

Package dimension：

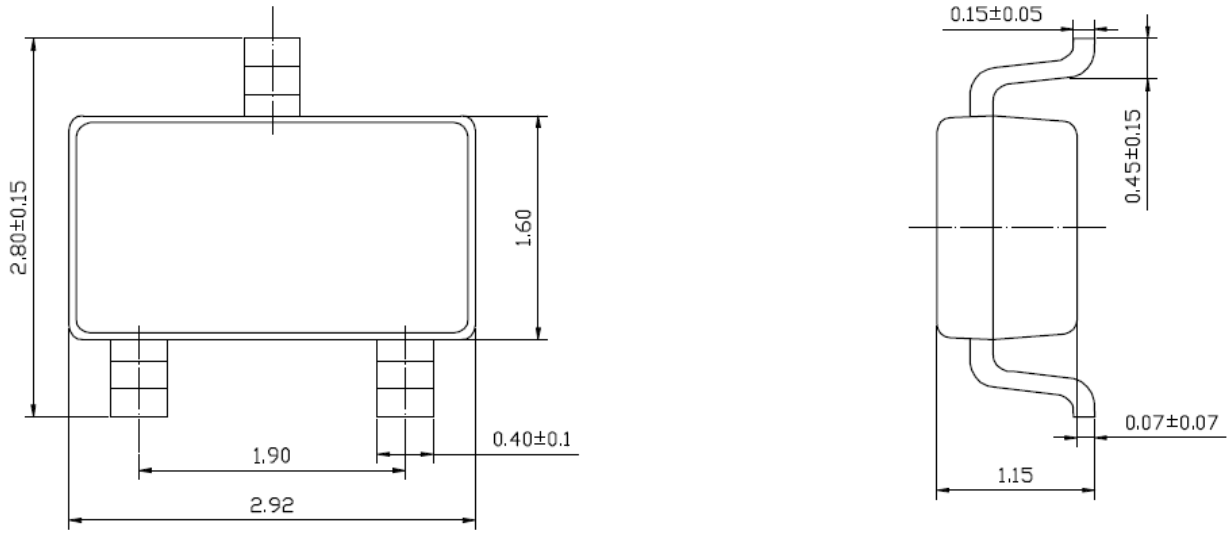


	A	B	C	D	E	F	G	H	K
出厂标准	2.4±0.15	0.95±0.05	2.9±0.1	1.3±0.1	0.40±0.1	0.15±0.08	0.4±0.1	0.07±0.07	1.00±0.05

Unit: mm

Package	SOT-23-3	Devices per reel	3000Pcs

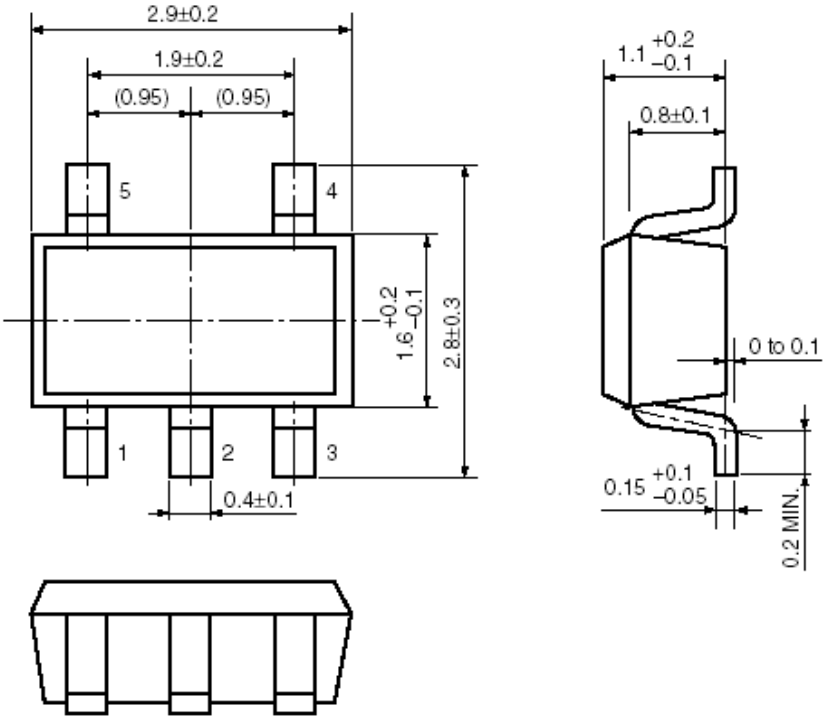
Package dimension：



Unit: mm

Package	SOT-23-5	Devices per reel	3000Pcs

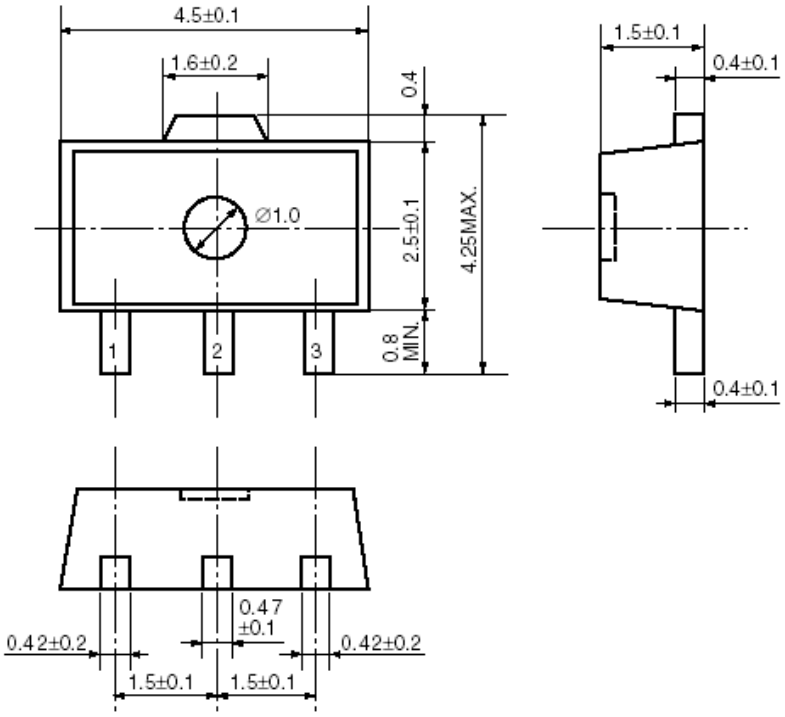
Package Dimension:



Unit: mm

Package	SOT-89-3	Devices per reel	1000Pcs

Package Dimension:

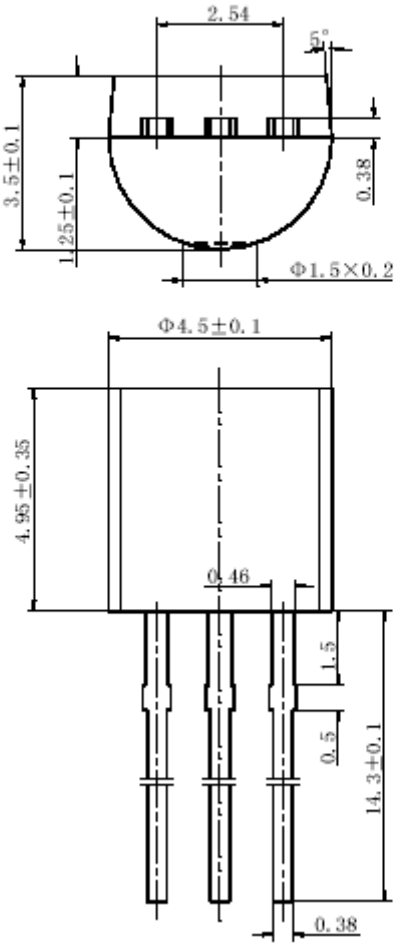


Unit: mm

Package	TO-92	Devices per Bag	1000Pcs

Package Dimension:

TO-92



Unit: mm

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