上海贝岭 SHANGHAI BELLING

BL8060

REV1.6-Revised AUG 2012

200mA Low Consumption Linear Regulator

DESCRIPTION

BL8060 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 BL8060 （Iq=1.0uA） can greatly improve natural life of batteries.

BL8060 can provide output value in the range of 1.1V~5.5V in 0.1V steps. It also can customized on command.

BL8060 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

BL8060 has well load transient response and good temperature characteristic, And it uses trimming technique to guarantee output voltage accuracy within±2%.

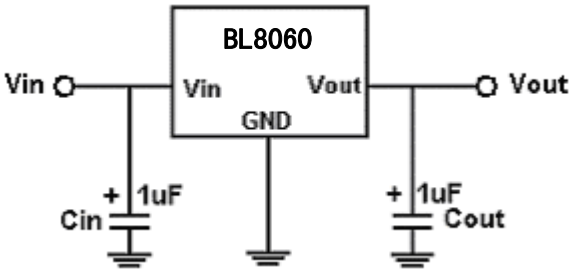
FEATURES

- 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~14V
- 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

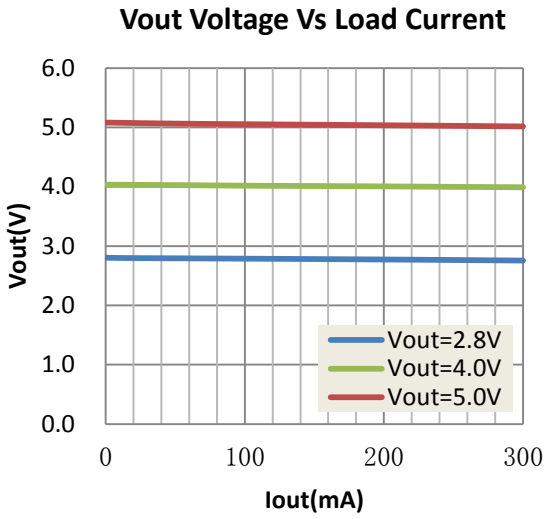
TYPICAL APPLICATION



NOTE1:
Input capacitor (Cin=1uF) is recommended in all application circuit. Ceramic capacitor is recommended.

NOTE2:
Output capacitor (Cout=1uF) is recommended in all application to assure the stability of circuit. Ceramic capacitor is recommended.

ELECTRICAL CHARACTERISTICS



ORDERING INFORMATION

BL8060 ①②③④⑤

Code	Description
①	Temperature&Rohs: C:-40~85°C ,Pb Free Rohs Std.
②	Package type: B3:SOT-23-3 B5:SOT-23-5 C3:SOT-89-3 C3B:SOT-89-3（B） HA:TO-92 HB:TO-92
③	Packing type: TR:Tape&Reel (Standard) BG:Bag (TO-92) PT:Reel (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

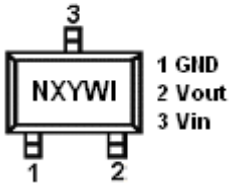
N: Product Code
X: Output Voltage
Output Voltage Code

VOUT	Code	VOUT	Code	VOUT	Code
1.2V	2	3.0V	0	4.4V	$\bar{4}$
1.3V	3	3.1V	$\dot{1}$	4.5V	$\bar{5}$
1.5V	5	3.2V	2	4.6V	$\bar{6}$
1.8V	8	3.3V	3	4.7V	$\bar{7}$
2.0V	$\bar{0}$	3.4V	4	4.8V	$\bar{8}$
2.1V	$\bar{1}$	3.5V	5	4.9V	$\bar{9}$
2.2V	$\bar{2}$	3.6V	6	5.0V	$\ddot{0}$
2.3V	$\bar{3}$	3.7V	7	5.1V	$\ddot{1}$
2.4V	$\bar{4}$	3.8V	8	5.2V	$\ddot{2}$
2.5V	$\bar{5}$	3.9V	9	5.3V	$\ddot{3}$
2.6V	$\bar{6}$	4.0V	$\bar{0}$	5.4V	$\ddot{4}$
2.7V	$\bar{7}$	4.1V	$\dot{\bar{1}}$	5.5V	$\ddot{5}$
2.8V	$\bar{8}$	4.2V	$\bar{2}$		
2.9V	$\bar{9}$	4.3V	$\bar{3}$		

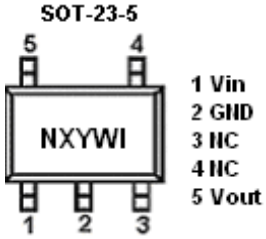
Y: The Year of manufacturing,"9" stands for year 2009, "$\bar{0}$" stands for year 2010, and "$\dot{\bar{1}}$" stands for year 2011.
W: The week of manufacturing. "A" stands for week 1,"Z" stands for week 26," $\bar{A}$ " stands for week 27," $\bar{Z}$ " stands for week 52.

PIN CONFIGURATION

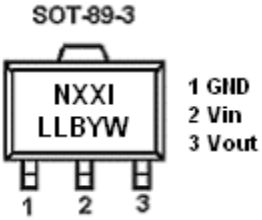
Product Classification	BL8060CB3TR□ □ □
Marking	SOT-23-3
NXYWI	N:Product Code X:Output Voltage YW：Date Code



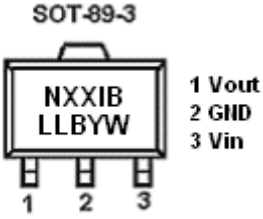
Product Classification	BL8060CB5TR□ □ □
Marking	SOT-23-5
NXYWI	N: Product Code X: Output Voltage YW: Date Code



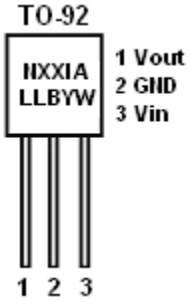
Product Classification	BL8060CC3TR□ □ □
Marking	SOT-89-3
NXXI LLBYW	N:Product Code XX:Output Voltage LL:LOT NO. B:FAB Code YW:Date Code



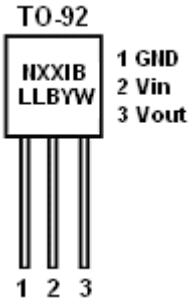
Product Classification	BL8060CC3BTR□ □ □
Marking	SOT-89-3
NXXIB LLBYW	N:Product Code XX:Output Voltage LL:LOT NO. B:FAB Code YW:Date Code



Product Classification	BL8060CHABG□ □ □ BL8060CHAPT□ □ □
Marking	TO-92
NXXIA LLBYW	N:Product Code XX:Output Voltage LL:LOT NO. B:FAB Code YW:Date Code



Product Classification	BL8060CHBBG□ □ □ BL8060CHBPT□ □ □
Marking	TO-92
NXXIB 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

ABSOLUTE MAXIMUM RATING

Parameter		Value
Max Input Voltage		14V
Operating Junction Temperature(Tj)		125°C
Ambient Temperature(Ta)		-40°C -85°C
Power Dissipation	SOT-23-3	250mW
	SOT-23-5	250mW
	SOT-89-3	500mW
	TO-92	500mW
Storage Temperature(Ts)		-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

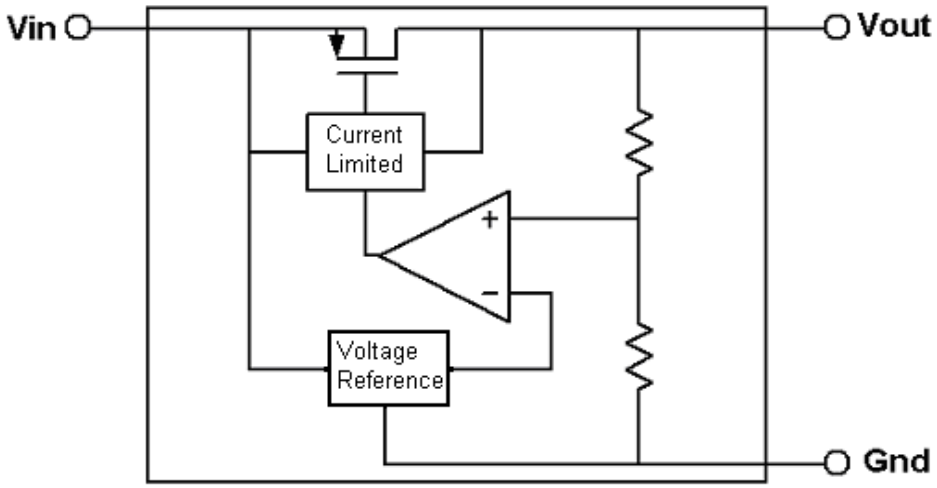
Item	Min	Recommended	Max.	Unit
Input Voltage Range			12	V
Ambient Temperature	-40		85	°C

ELECTRICAL CHARACTERISTICS

(Test Conditions: Cin=1uF, Cout=1uF, TA=25°C, Unless Otherwise Specified)

Symbol	Parameter	Conditions		Min	Type	Max	Units
Vin	Input Voltage					12	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
Iq	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

BLOCK DIAGRAM



EXPLANATION

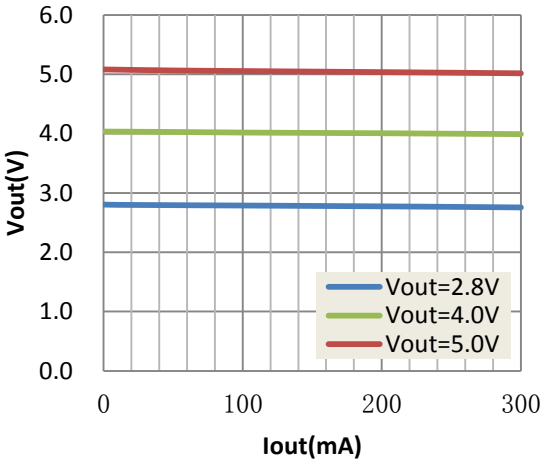
BL8060 is a series of low dropout voltage and low power consumption three pins regulator. Its application circuit is very simple, which only needs two outside capacitors. It is composed of these modules: high accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

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

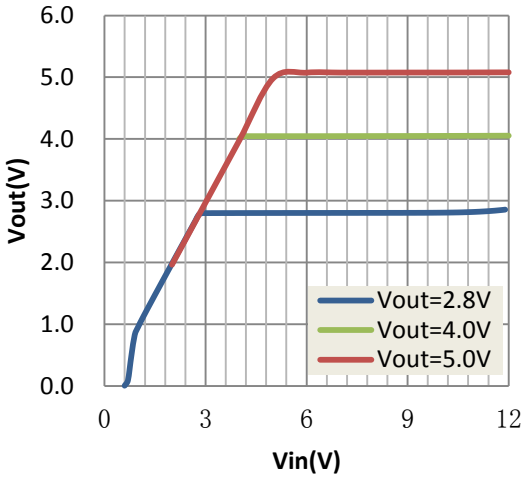
BL8060 uses trimming technique to assure the accuracy of output value within±2%, at the same time, temperature compensation is elaborately considered in this chip, which makes BL8060's temperature coefficient within 100ppm/℃。

TYPICAL PERFORMANCE CHARACTERISTICS

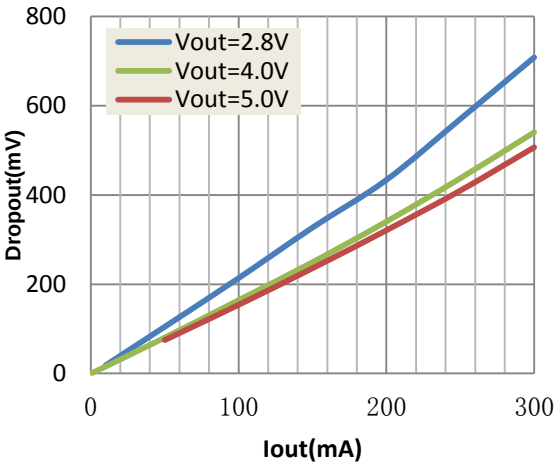
Vout Voltage Vs Load Current



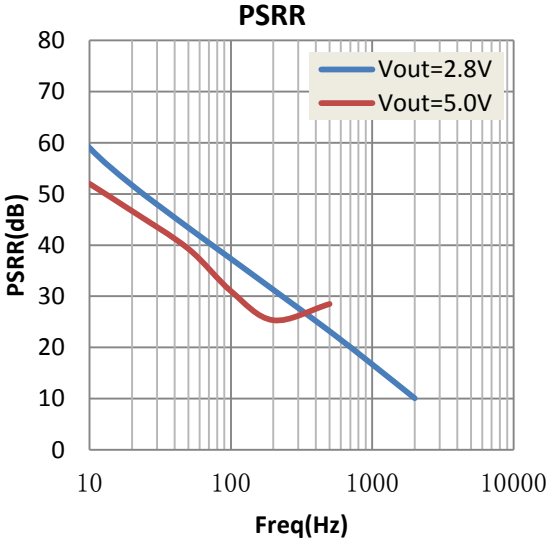
Load Regulation



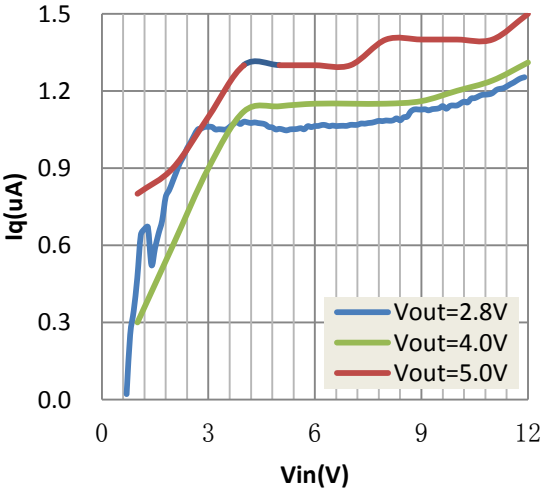
Dropout Voltage Vs Load Current



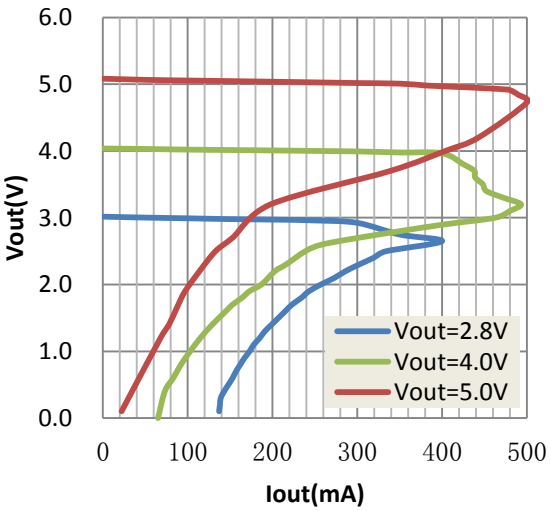
PSRR



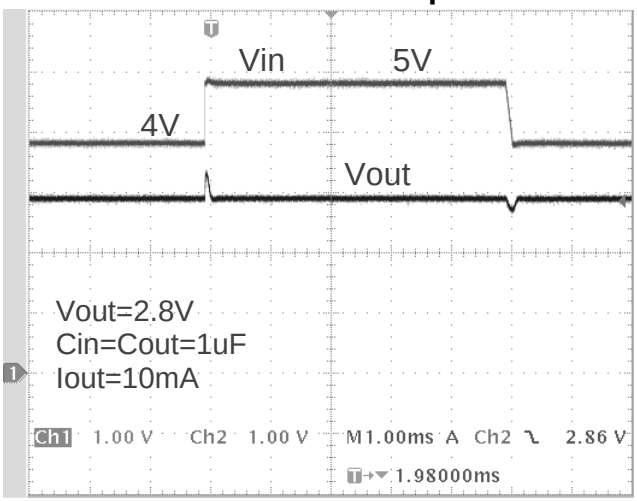
Iq



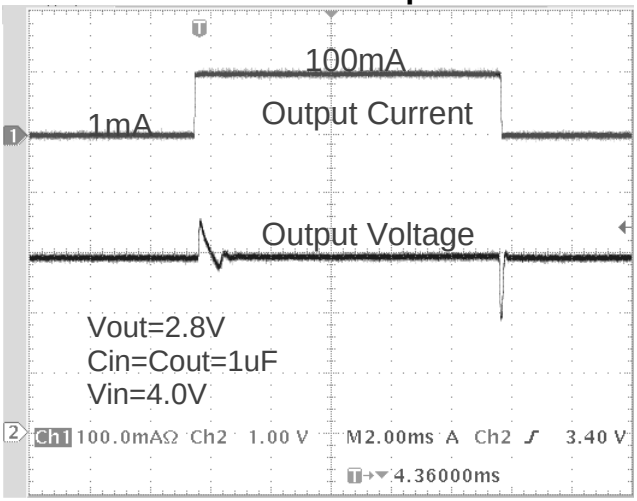
Current Limit



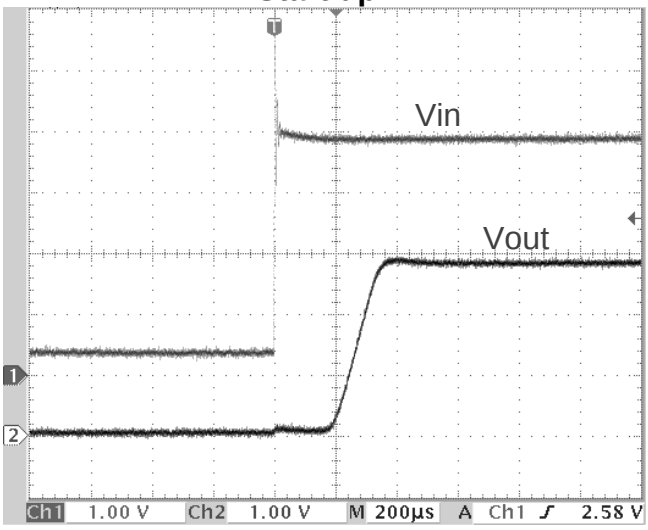
Line transient response



Load transient response



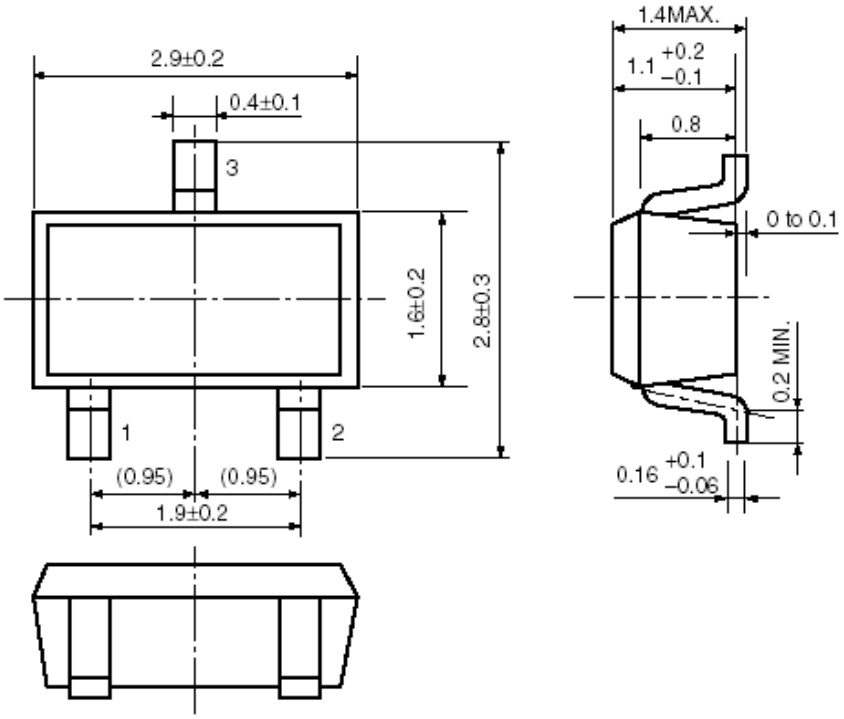
Start up



PACKAGE LINE

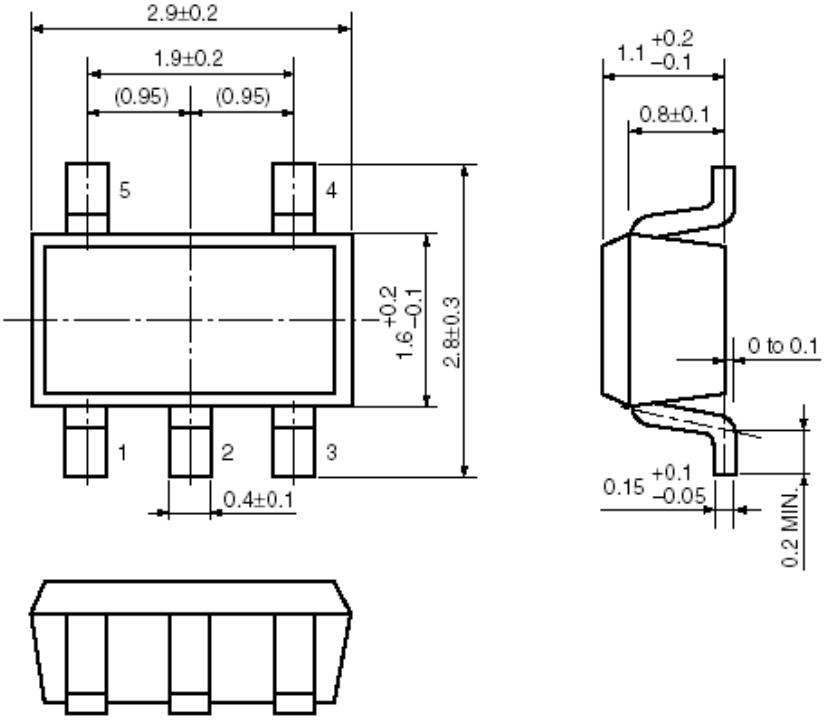
Package	SOT-23-3	Devices per reel	3000Pcs	Unit	mm

Package dimension：



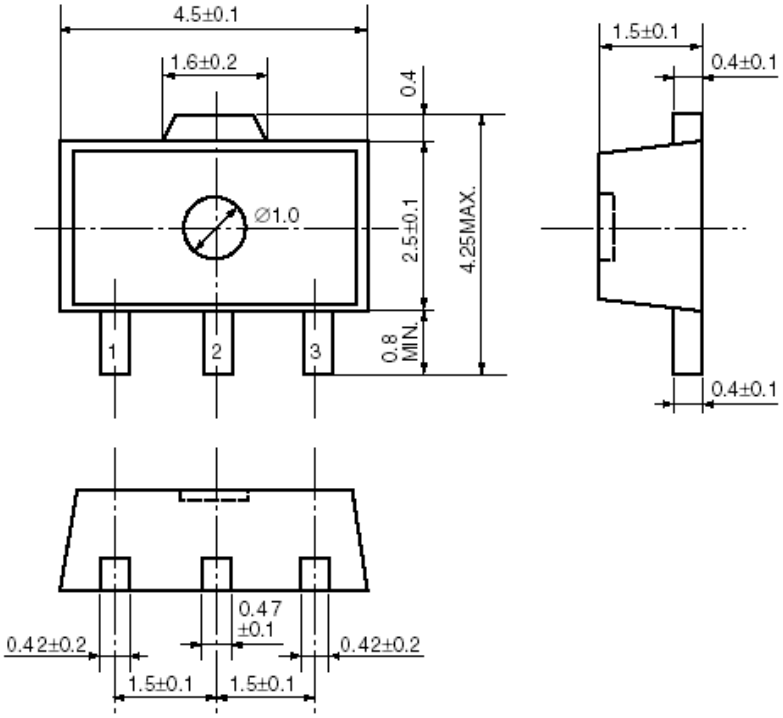
Package	SOT-23-5	Devices per reel	3000Pcs	Unit	mm

Package Dimension:



Package	SOT-89-3	Devices per reel	1000Pcs	Unit	mm

Package Dimension:



Package	TO-92	Devices per Bag	1000Pcs	Unit	mm
		Devices per reel	2000Pcs		

Package Dimension:

TO-92