250mA，Low Power Consumption LDO BL9103 Series

■ General Description

The BL9103 series are a group of positive voltage output, three–pin regulator, that provide a high current even when the input/output Voltage differerntial is small. Low power consumption and high accuracy is achieved through CMOS technology. They allow input voltages as high as 18V.

■ Features

- Ultra low quienscent current: 3.0uA(typ)
- High input voltage (up to 18v)
- Low dropout voltage :80mV@Iout=40mA （Vout=3.3v）
- Output voltage accuracy： ±2％
- Maximum output current：250mA （within max.power dissipation,Vout=3.3V）
- Low temperature coefficient
- Package：SOT23-3、TO-92、SOT89-3

■ Typical Application

- Cameras, video recorders
- Voltage regulator for microprocessor
- Voltage regulator for LAN cards
- Wireless communication equipment
- Audio/Video equipment

■ Selection Guide

BL9103-*XX X X X*

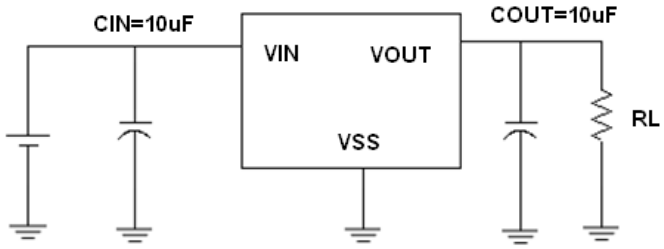
Packages：
RM：SOT-23-3
SM：SOT-89-3
T：TO-92

Output accucy：
Default，±2％
1： ±1％
（customized）

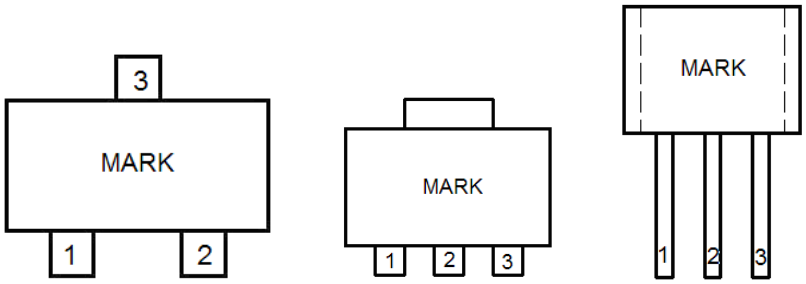
Temperature range：
P：Standard
（Default、lead free）
C：Standard
（customized）

Output Voltage：
33……3.3V
40……4.0V
45……4.5V
50……5.0V

■ Typical Application Circuit



■ Pin Configuration



SOT23-3 SOT89-3 TO-92

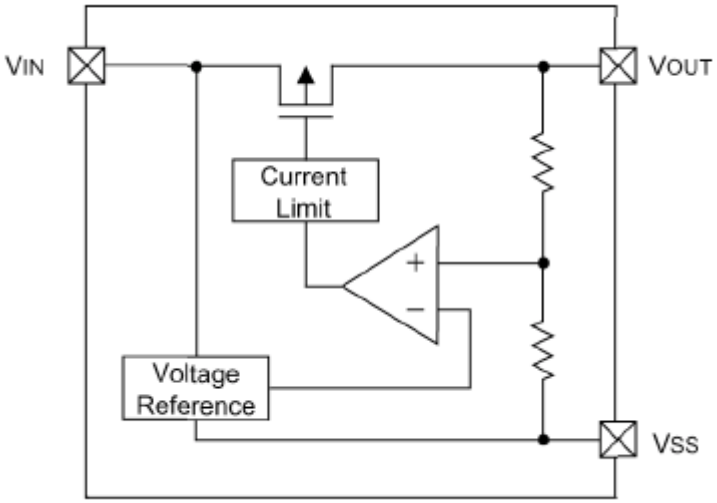
■ Pin Description

Pin Number		Pin Name	Functions
SOT89-3/TO-92	SOT23-3		
1	1	V_{SS}	Ground
2	3	V_{IN}	Input
3	2	V_{OUT}	Output

■ Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltage		V_{IN}	18	V
Output Voltage		V_{OUT}	Vss-0.3～V_{IN} +0.3	V
Output Current		Iout	500	mA
Operating Temperature Range		T_{OPR}	-40～＋85	℃
Storage Temperature Range		T_{STG}	－40～＋125	℃
Power Dissipation	SOT89-3	P_D	500	mW
	TO-92		500	
	SOT23-3		300	

■ Block Diagram



■ Electrical Characteristics

BL9103-33

(V_{IN}= V_{OUT}+1.0V，C_{IN}=C_L=10uF，Ta=25^{O}C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=40mA, V_{IN}=Vout+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Input Voltage	V_{IN}				18	V
Maximum Output Voltage	I_{OUT} _max	V_{IN}=Vout+1V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+1V, 1mA≤I_{OUT}≤60mA		15	40	mV
Dropout Voltage (Note 3)	V_{dif}	I_{OUT} =40mA		80		mV
Supply Current	I_{SS}	V_{IN}=Vout+1V		3	4	μ A
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	I_{OUT} =40mA Vout+1V ≤V_{IN}≤18V		0.1	0.2	%/V
△VOUT/△Ta	Temperature Coefficient	V_{IN}=Vout+1V, I_{OUT} =40mA -40℃<Ta<85℃		±0.7		mV/℃

BL9103-40

(V_{IN}= V_{OUT}+1.0V，C_{IN}=C_L=10uF，Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=40mA, V_{IN}=Vout+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Input Voltage	V_{IN}				18	V
Maximum Output Voltage	I_{OUT} _max	V_{IN}=Vout+1V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+1V, 1mA≤I_{OUT}≤60mA		15	40	mV
Dropout Voltage (Note 3)	V_{dif}	I_{OUT} =40mA		70		mV
Supply Current	I_{SS}	V_{IN}=Vout+1V		3	4	μ A
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	I_{OUT} =40mA Vout+1V ≤V_{IN}≤18V		0.1	0.2	%/V
△VOUT/△Ta	Temperature Coefficient	V_{IN}=Vout+1V, I_{OUT} =40mA -40℃<Ta<85℃		±0.7		mV/℃

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.)

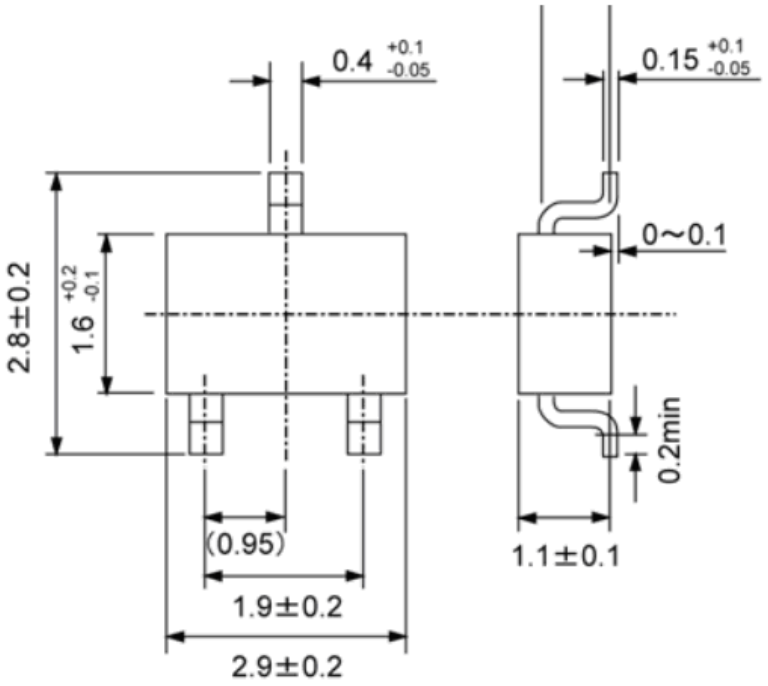
3.V_{DIF}： V_{IN1} –V_{OUT} (E)’

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

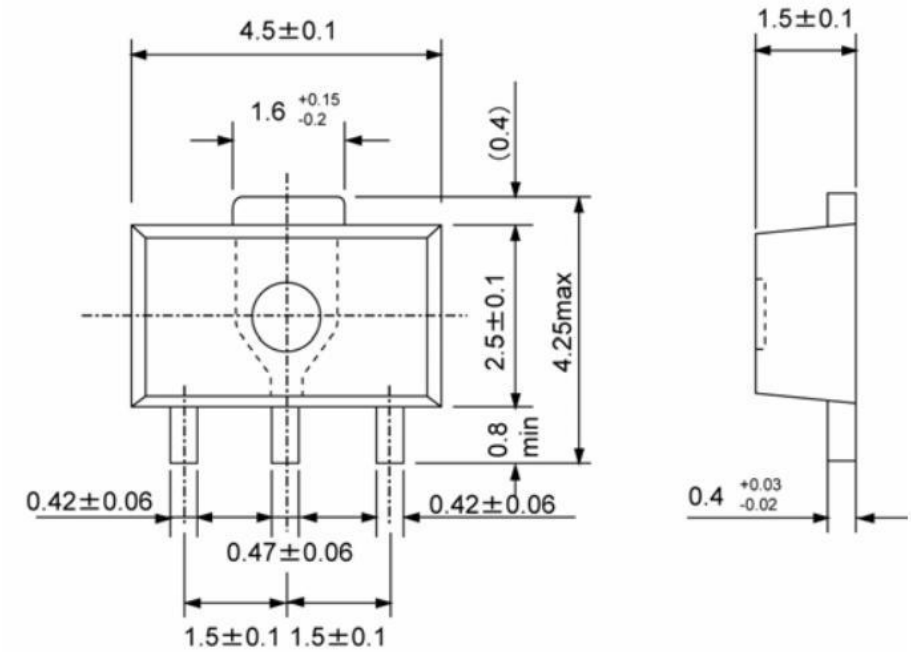
V_{OUT} (E)’=A voltage equal to 98% of the output voltage whenever an amply stabilized Iout and {V_{OUT} (T)+1.0V} is input.

■ Packaging Information

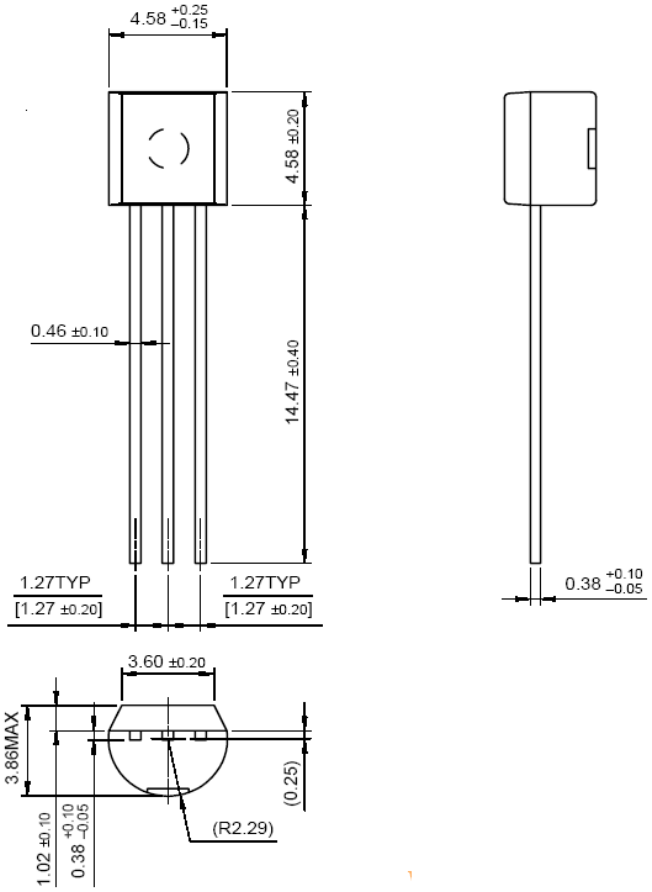
● SOT23-3



● SOT89-3



- TO-92


4.58 +0.25 −0.15
4.58 ±0.20
0.46 ±0.10
14.47 ±0.40
1.27TYP
[1.27 ±0.20]
1.27TYP
[1.27 ±0.20]
0.38 +0.10 −0.05
3.60 ±0.20
3.86MAX
(0.25)
(R2.29)
1.02 ±0.10
0.38 +0.10 −0.05