上海贝岭 SHANGHAI BELLING

BL8554

300mA High PSRR, Linear Regulator

DESCRIPTION

BL8554 series is a group of positive voltage output, low power consumption, low dropout voltage regulator.

BL8554 can provide output value in the range of 1.0V~4.5V every 0.1V step. It also can be customized on command.

BL8554 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module。

BL8554 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

BL8554 is available in SOT-23-5, SC-70-5 and SOT23-3 packages which is lead free.

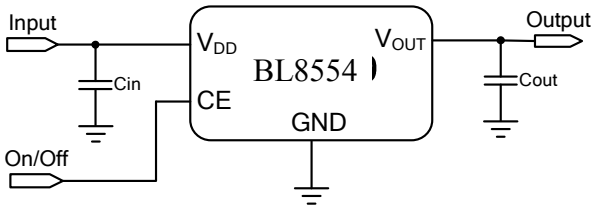
FEATURES

- Low Power Consumption: 25uA（Typ.）
- Low output noise (47uVRMS)
- Standby Mode: 0.1uA
- Low dropout Voltage: 0.16V@300mA (Typ.)
- High Ripple Rejection: 73dB@100Hz (Typ.)
- Low Temperature Coefficient: ± 100ppm/°C
- Excellent Line regulation: 0.05%/V
- Build-in chip enable circuit
- Output Voltage Range: 1.0V~4.5V (customized on command every 0.1V step)
- Highly Accurate: ±2%
- Output Current Limit

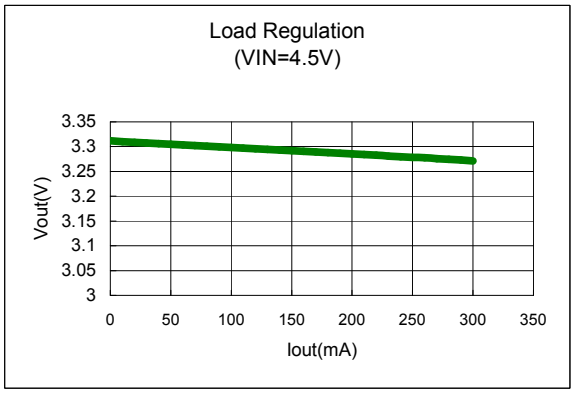
APPLICATIONS

- Power source for cellular phones and various kind of PCSs
- 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=3.3uF/4.7uF) are recommended in all application circuit.



ELECTRICAL CHARACTERISTICS

ORDERING INFORMATION

BL8554 [1][2][3][4]

Code	Description
[1]	Temperature&Rohs: C:-40~85°C ,Pb Free Rohs Std.
[2]	Package type: A5:SC-70-5 B5A:SOT-23-5(A) B5B:SOT-23-5(B) B3: SOT23-3
[3]	Packing type: TR:Tape&Reel (Standard)
[4]	Output voltage: e.g. 15=1.5V 18=1.8V 45=4.5V

MARKING DESCRIPTON

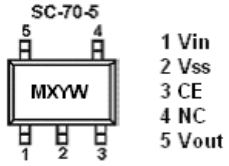
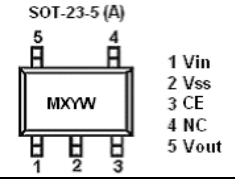
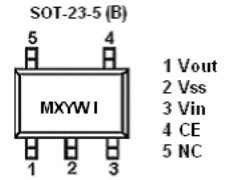
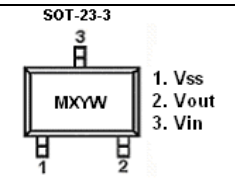
M: Product Code
X: Output Voltage

Vout	Code	Vout	Code	Vout	Code
1.0V	0	2.3V	$\overline{3}$	3.6V	$\underline{6}$
1.1V	1	2.4V	$\overline{4}$	3.7V	$\underline{7}$
1.2V	2	2.5V	$\overline{5}$	3.8V	$\underline{8}$
1.3V	3	2.6V	$\overline{6}$	3.9V	$\underline{9}$
1.4V	4	2.7V	$\overline{7}$	4.0V	$\underline{0}$
1.5V	5	2.8V	$\overline{8}$	4.1V	$\underline{1}$
1.6V	6	2.9V	$\overline{9}$	4.2V	$\underline{2}$
1.7V	7	3.0V	$\underline{0}$	4.3V	$\underline{3}$
1.8V	8	3.1V	$\underline{1}$	4.4V	$\underline{4}$
1.9V	9	3.2V	$\underline{2}$	4.5V	$\underline{5}$
2.0V	$\overline{0}$	3.3V	$\underline{3}$		
2.1V	$\overline{1}$	3.4V	$\underline{4}$		
2.2V	$\overline{2}$	3.5V	$\underline{5}$		

Y: The Year of manufacturing, ”8” stands for year 2008, ”9” stands for year 2009, and “$\overline{0}$” stands for year 2010.

W: The week of manufacturing. ”A” stands for week 1,”Z” stands for week 26,”$\overline{A}$” stands for week 27,” $\overline{Z}$” stands for week 52.

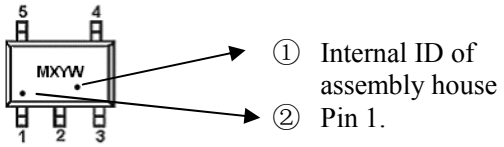
PIN CONFIGURATION

Product Classification	BL8554CA5TR□□
M: Product Code X: Output Voltage YW: Date Code	
Product Classification	BL8554CB5ATR□□
M: Product Code X: Output Voltage YW: Date Code	
Product Classification	BL8554CB5BTR□□
M: Product Code X: Output Voltage YW: Date Code I: B type	
Product Classification	BL8554CB3TR□□
M: Product Code X: Output Voltage YW: Date Code	

Vss	Ground Pin
Vin	Supply Voltage Input
Vout	Output Voltage
CE	Chip Enable
NC	No Connection

Optional marking information:

From one source of assembly house, there are dots in addition to formal marking information. One is the pin1 indicator and the other is for internal identification of the assembly house. The dots are illustrated as below:



ABSOLUTE MAXIMUM RATING

Parameter		Value
Max Input Voltage		8V
Operating Junction Temperature(Tj)		125°C
Output Current		300mA
Ambient Temperature(Ta)		-40°C –85°C
Power Dissipation	SC70-5	250mW
	SOT-23-5	250mW
	SOT-23-3	250mW
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	2		6	V
Ambient Temperature	-40		85	°C

ELECTRICAL CHARACTERISTICS

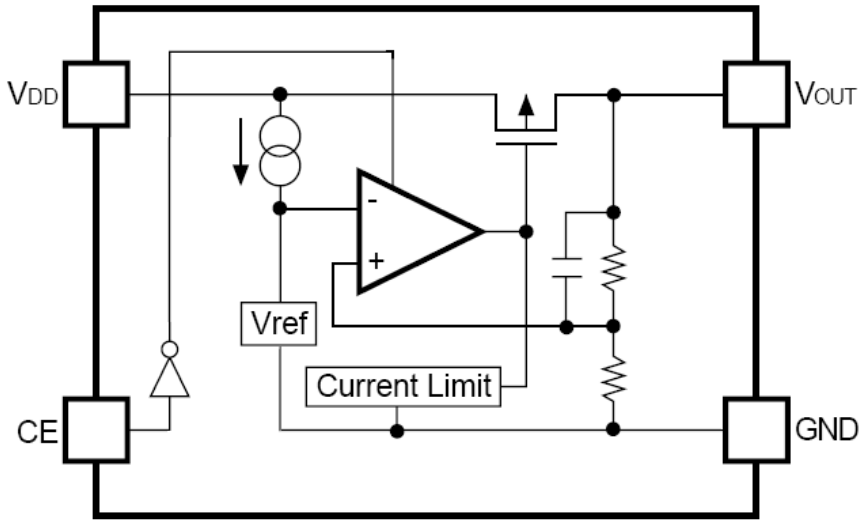
(Test Conditions: Cin=1uF,Cout=3.3uF,TA=25°C, unless otherwise specified.)
BL8554, For Arbitrary Output Voltage

Symbol	Parameter		Conditions	Min	Typ	Max	Units
Vin	Input Voltage			2		6	V
Vout	Output Voltage	V_{OUT}>1.5V	Vin=Set Vout+1V 1mA≤Iout≤30mA	Vout x0.98	Vout	Vout X1.02	V
		V_{OUT}<=1.5V		Vout -0.03		Vout +0.03	
Iout (Max.)	Maximun Output Current		Vin-Vout=1V	300			mA
Vdrop[1]	Dropout Voltage,Vout≥2.8V		Iout=100mA		50	80	mV
			Iout=300mA		160	220	mV
$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Line Regulation		Iout=40mA 2.8V≤Vin≤6V		0.05	0.2	%/V
$\Delta Vout / \Delta Iout$	Load Regulation		Vin=Set Vout+1V 1mA≤Iout≤300mA		60	100	mV
Iss	Supply Current		Vin=Set Vout+1V		25	50	uA
Istandby	Supply Current (Srandby)		Vin=Set Vout+1V Vce=GND		0.1	1.0	uA
$\frac{\Delta Vout}{\Delta T \cdot Vout}$	Output Voltage Temperature Coefficiency		Iout=30mA		±100		ppm/°C

PSRR	Ripple Rejection	F=100Hz, Ripple=0.5Vp-p Vin=Set Vout+1V		70		dB
Ilim	Short Current Limit	Vout=0V		500		mA
Vceh	CE Input Voltage “H”		1.5		Vin	V
Vcel	CE Input Voltage “L”		0		0.25	V
en	Output Noise	BW=10Hz~100kHz		47		uVrms

NOTE:
*Vdrop=Vin1-(Vout2*0.98) Vout2 is the output voltage when Vin=Vout1+1.0V and Iout=300mA.*
Vin1 is the input voltage at which the output voltage becomes 98% of Vout1 after gradually decreasing the input voltage.

BLOCK DIAGRAM



Explanation

BL8554 series is a group of positive voltage output, low noise, low power consumption, low dropout voltage regulator.

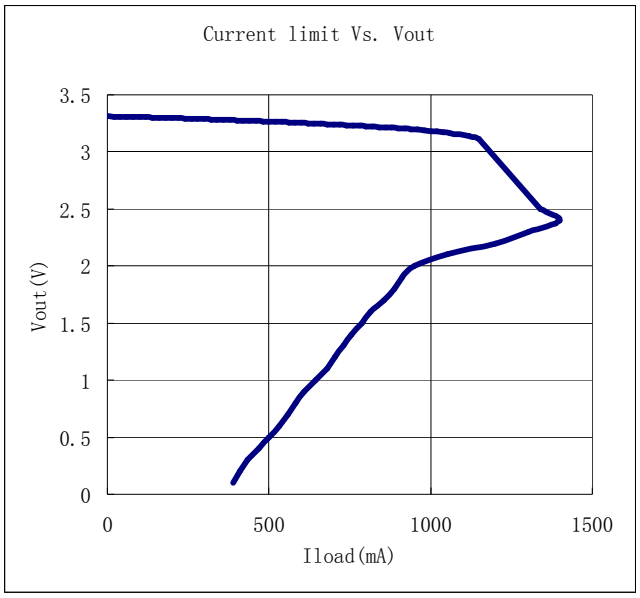
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BL8554 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

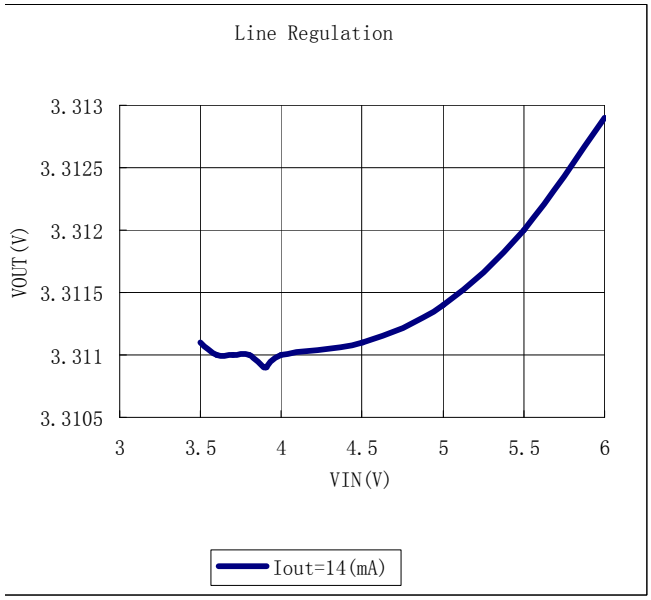
BL8554 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within±2%.

TYPICAL PERFORMANCE CHARACTERISTICS

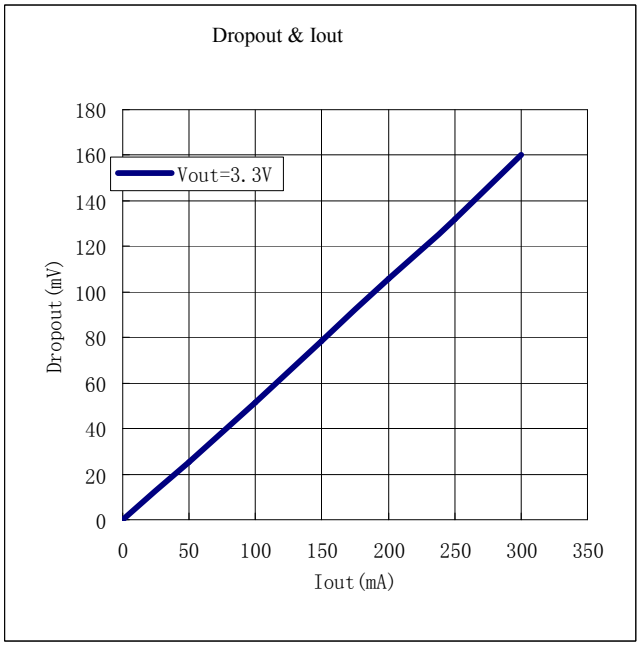
1) Output Voltage vs. Output Current (with output short protection)



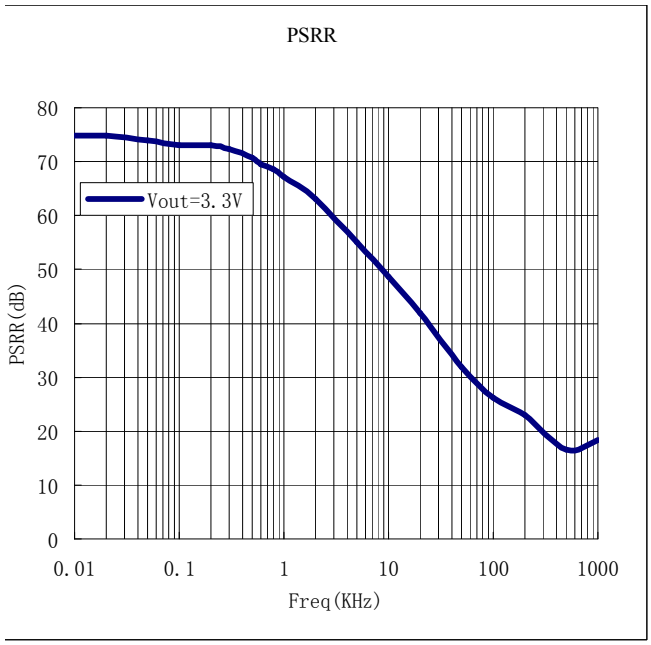
2) Output Voltage vs. Input Voltage



3) Dropout Voltage vs. Output Current

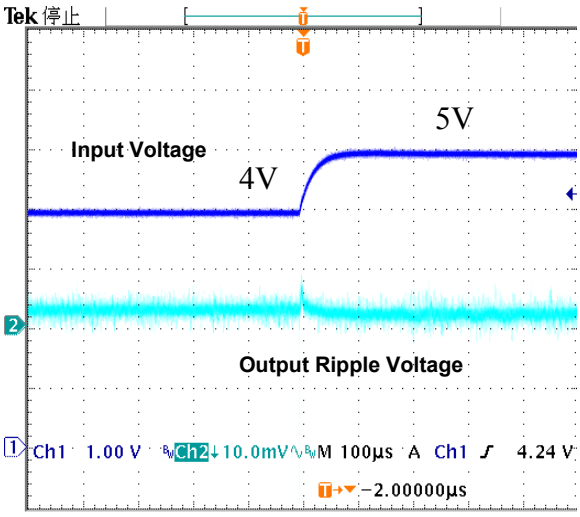


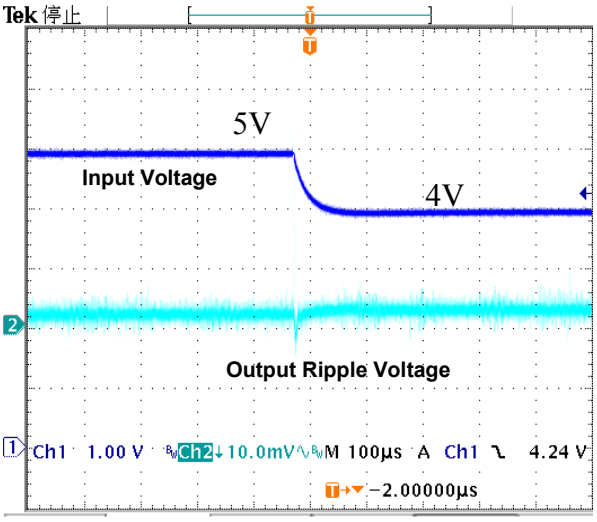
4) Ripple rejection vs. Frequency



5) Line transient response

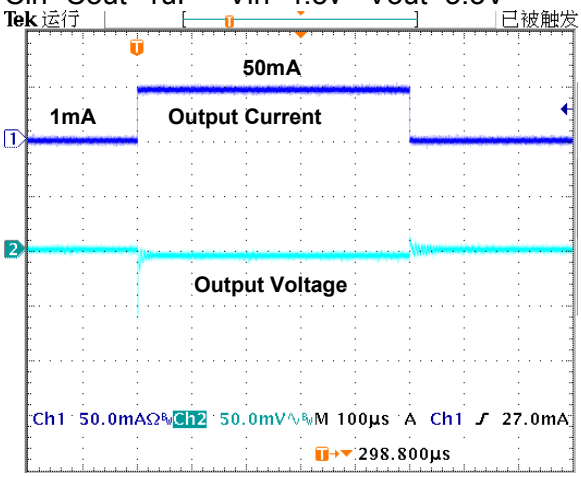
Cin=Cout=1uF Iout=25mA vout=3.3V

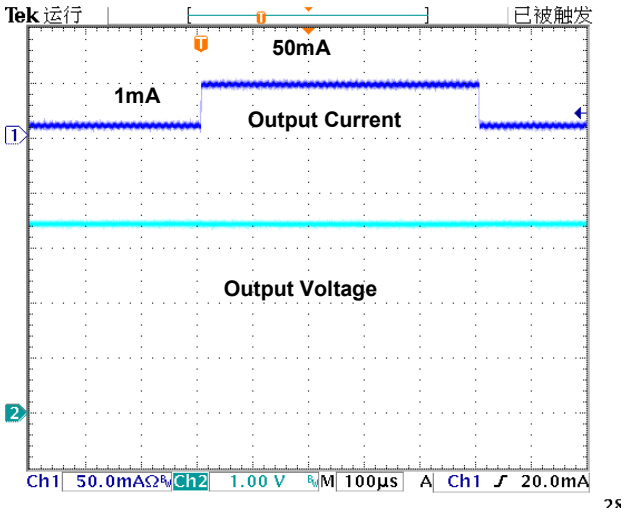




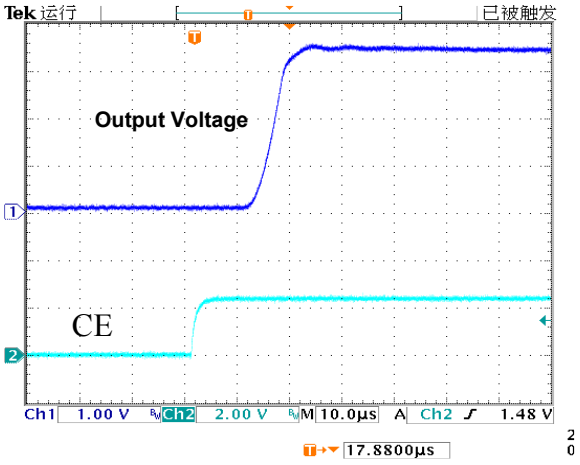
6) Load transient response

Cin=Cout=1uF Vin=4.5v Vout=3.3V

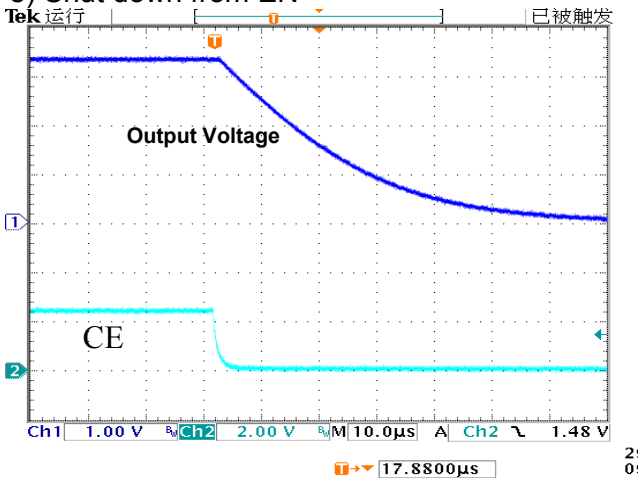




7) Start up from EN



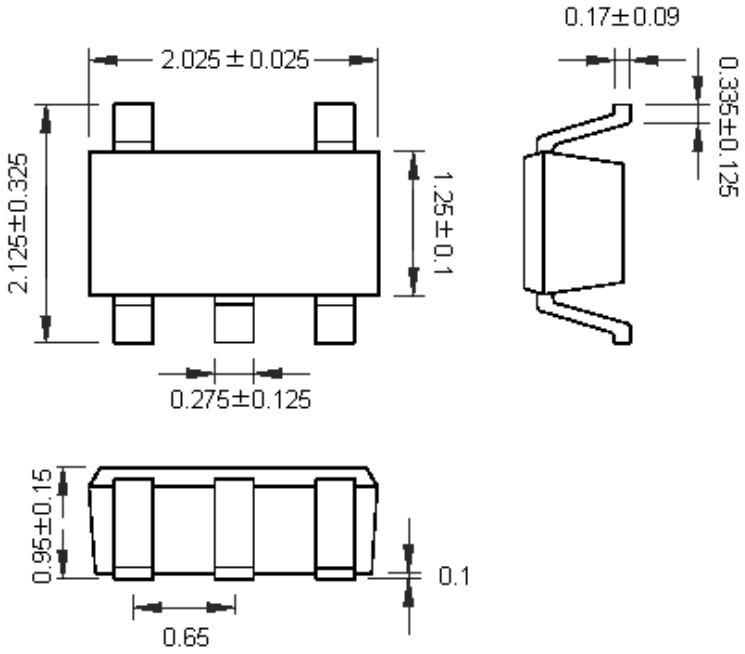
8) Shut down from EN



PACKAGE OUTLINE

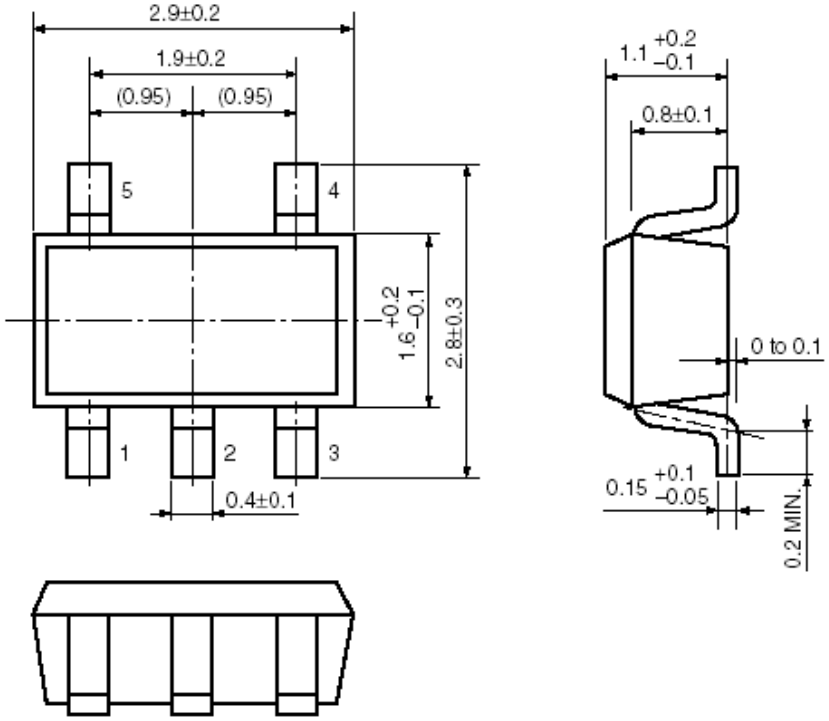
Package	SC70-5	Devices per reel	3000Pcs	Unit	mm

Package dimension：



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

Package Dimension:



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

Package Dimension:

