LC1465

500mA High PSRR, Low Dropout Voltage Linear Regulator

DESCRIPTION

LC1465 series is a group of positive voltage output, low noise,low power consumption, low dropout voltage regulator.

LC1465 can provide output value in the range of 1.5V~4.5V every 0.1V step. It also can be customized on command.

LC1465 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module with discharge capability.

LC1465 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%.

LC1465 is available in SOT-89-3, SOT-23-3, SOT-23-5 packages which are lead free.

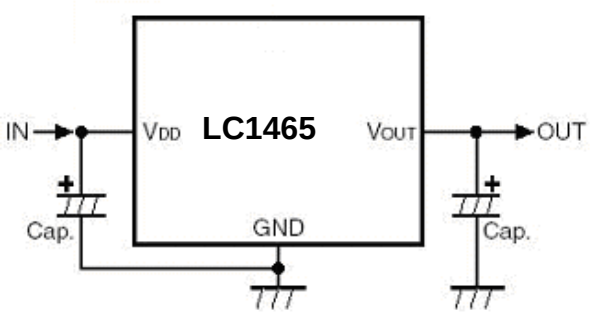
FEATURES

- Low Power Consumption: 20uA（Typ.）
- Low output noise (47uVRMS)
- 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 and discharge circuit
- Output Voltage Range: 1.5V~4.5V (customized on command every 0.1V step)
- Highly Accurate: ±2%
- Output Current Limit

APPLICATIONS

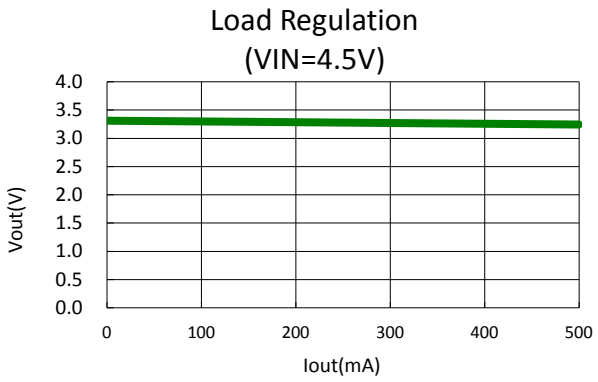
- Power Management for Computer, Mother Board, Graphic Card
- LCD Monitor and LCD TV
- DVD Decode Board
- Reference Voltage Source
- Regulation after Switching Power

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

LC1465 [1] [2] [3] [4] [5]

Code	Description
[1]	Temperature&Rohs: C:-40~85°C ,Pb Free Rohs Std.
[2]	Package type: C3A:SOT-89-3(A) C3B:SOT-89-3(B) C3C:SOT-89-3(C) B5A: SOT23-5(A) B3: SOT23-3
[3]	Packing type: TR:Tape&Reel (Standard)
[4]	Output voltage: e.g. 15=1.5V 18=1.8V 45=4.5V
[5]	Voltage accuracy: Blank(default)=±2%

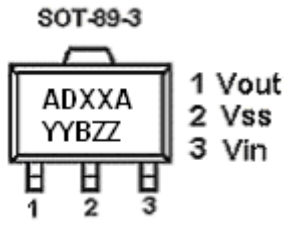
MARKING DESCRIPTON

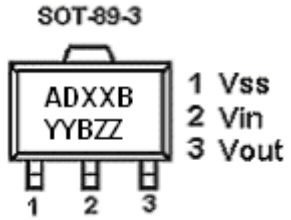
AD: Product Code
XX: Output Voltage

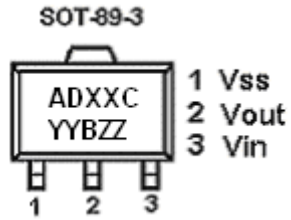
Vout	Code	Vout	Code	Vout	Code
		2.5V	25	3.8V	38
		2.6V	26	3.9V	39
		2.7V	27	4.0V	40
1.5V	15	2.8V	28	4.1V	41
1.6V	16	2.9V	29	4.2V	42
1.7V	17	3.0V	30	4.3V	43
1.8V	18	3.1V	31	4.4V	44
1.9V	19	3.2V	32	4.5V	45
2.0V	20	3.3V	33		
2.1V	21	3.4V	34		
2.2V	22	3.5V	35		
2.3V	23	3.6V	36		
2.4V	24	3.7V	37		

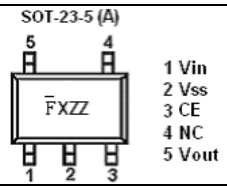
YY:LOT NO.
Z: The Year of manufacturing,"7" stands for year 2007,"8" stands for year 2008,and "$\overline{0}$" stands for year 2010.
Z: The week of manufacturing. "A" stands for week 1,"Z" stands for week 26," $\overline{A}$ " stands for week 27," $\overline{Z}$ " stands for week 52.

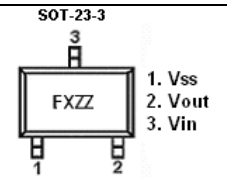
PIN CONFIGURATION

Product Classification	LC1465CC3ATR□□□
Marking	
ADXXA YYBZZ: AD:Product Code; XX: Output Voltage; A:Package; YY:Lot No.; B:Fab Code; ZZ:Data Code	

Product Classification	LC1465CC3BTR□□□
Marking	
ADXXB YYBZZ: AD:Product Code; XX: Output Voltage; B:Package; YY:Lot No.; B:Fab Code; ZZ:Data Code	

Product Classification	LC1465CC3CTR□□□
Marking	
ADXXC YYBZZ: AD:Product Code; XX: Output Voltage; C:Package; YY:Lot No.; B:Fab Code; ZZ:Data Code	

Product Classification	LC1465CB5ATR□□
$\overline{F}$: Product Code	
X: Output Voltage	
ZZ: Date Code	

Product Classification	LC1465CB3TR□□
F: Product Code	
X: Output Voltage	
ZZ: Date Code	

Vss	Ground Pin
Vin	Supply Voltage Input
Vout	Output Voltage

ABSOLUTE MAXIMUM RATING

Parameter		Value
Max Input Voltage		10V
Operating Junction Temperature(Tj)		125°C
Output Current		500mA
Ambient Temperature(Ta)		-40°C –85°C
Power Dissipation	SOT-89-3	500mW
	SOT-23-3	250mW
	SOT-23-5	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			8	V
Ambient Temperature	-40		85	°C

ELECTRICAL CHARACTERISTICS

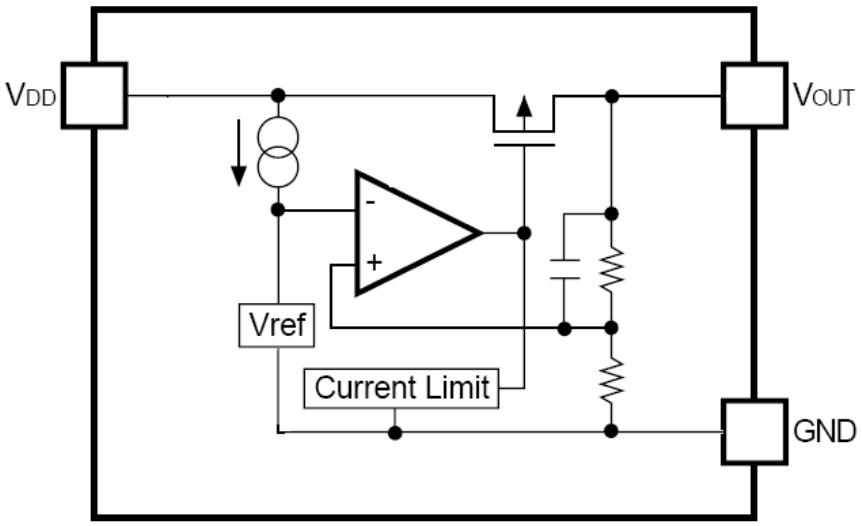
（Test Conditions: Cin=1uF,Cout=3.3uF,TA=25°C, unless otherwise specified.）

LC1465, For Arbitrary Output Voltage

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Vin	Input Voltage				8	V
Vout	Output Voltage	Vin=Set Vout+1V 1mA≤Iout≤30mA	Vout x0.98	Vout1	Vout X1.02	V
Iout (Max.)	Maximun Output Current	Vin-Vout=1V	500			mA
Vdrop1	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		30	50	mV
Iss	Supply Current	Vin=Set Vout+1V		20		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
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=500mA.*
Vin1 is the input voltage at which the output voltage becomes 98% of Vout1 after gradually decreasing the input voltage.

BLOCK DIAGRAM



EXPLANATION

LC1465 series is a group of positive voltage output, low noise, low power consumption, low dropout voltage regulator.

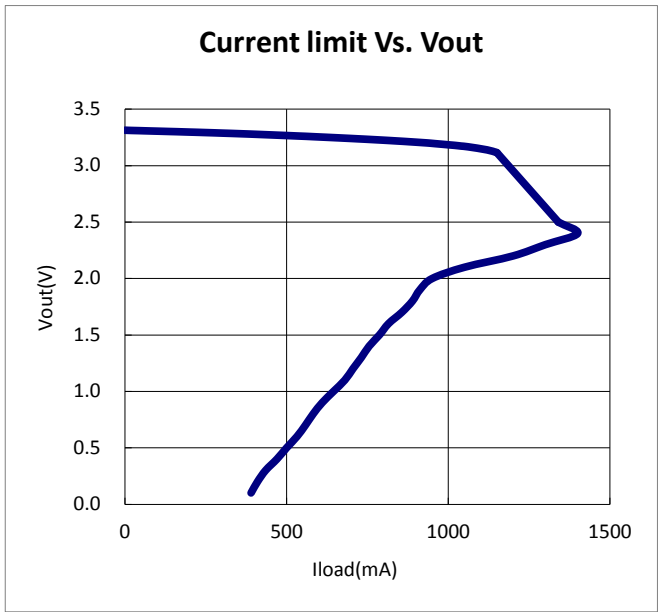
LC1465 can provide output value in the range of 1.5V~4.5V every 0.1V step. It also can be customized on command.

LC1465 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

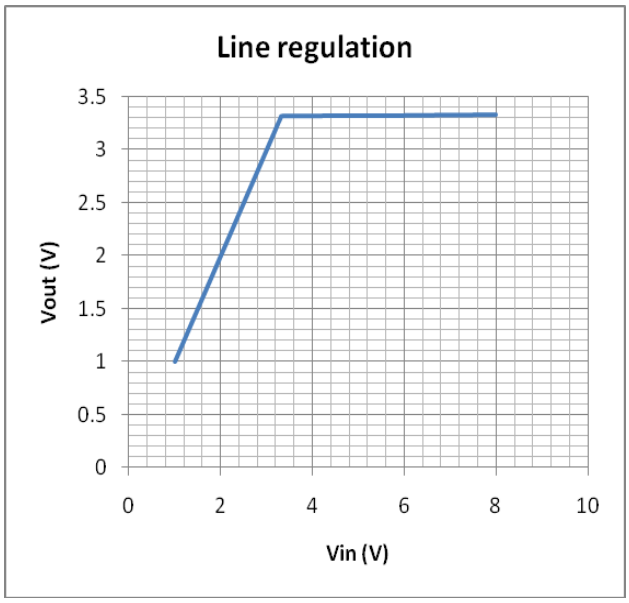
LC1465 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within±2%.

TYPICAL PERFORMANCE CHARACTERISTICS

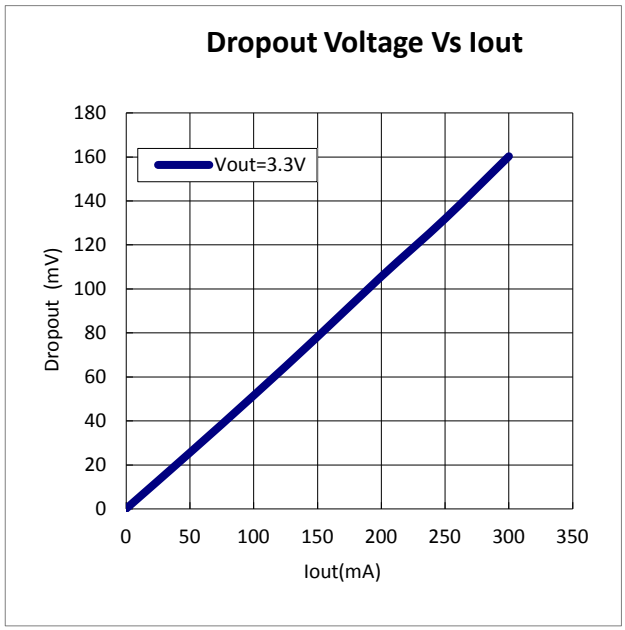
1) Output Voltage vs. Output Current (with output short protection)



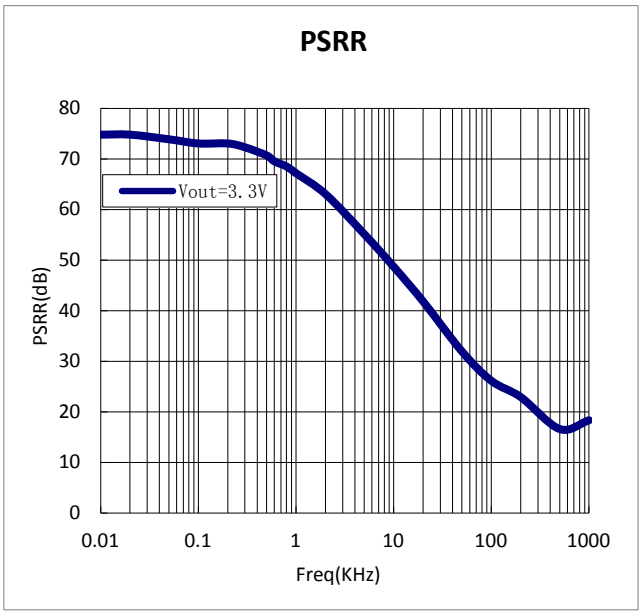
2) Output Voltage vs. Input Voltage



3) Dropout Voltage vs. Output Current

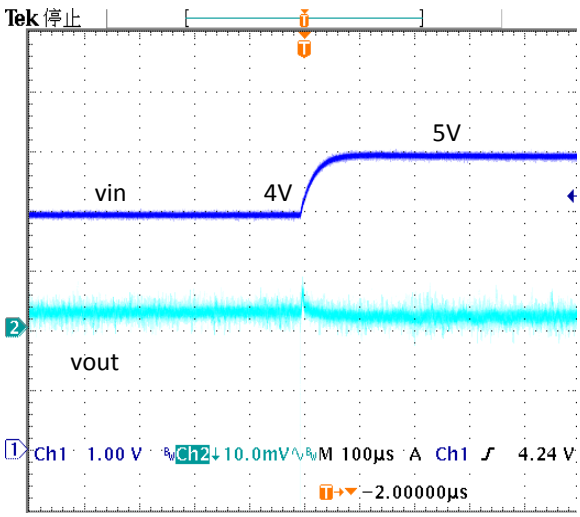


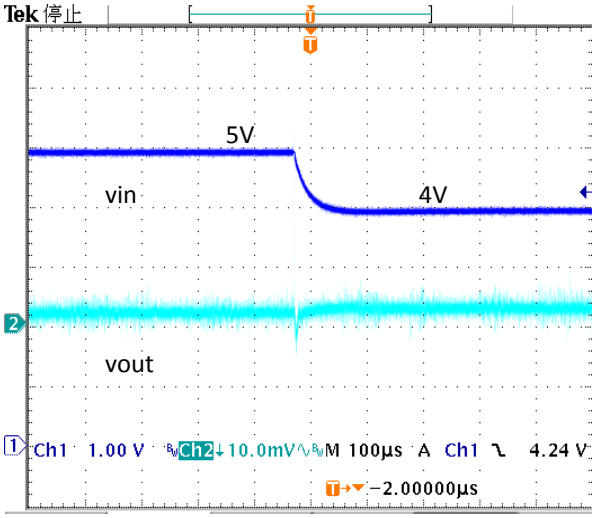
4) Ripple rejection vs. Frequency



5) Line transient response

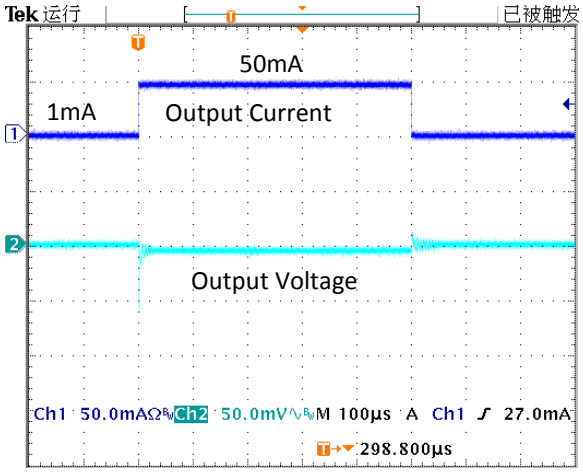
Cin=Cout=1uF Iout=25mA vout=3.3V

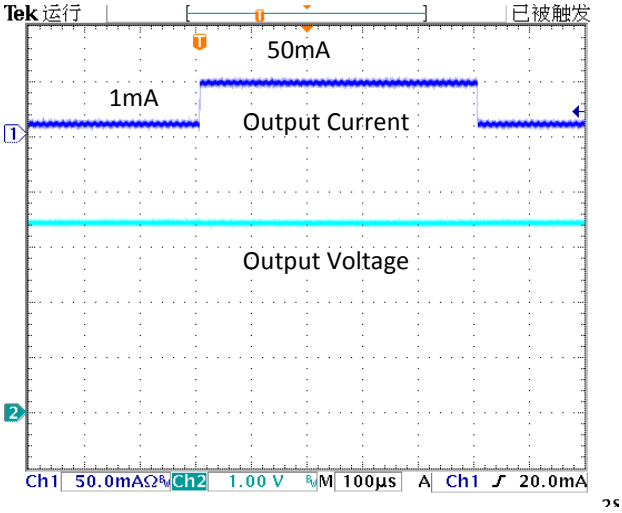




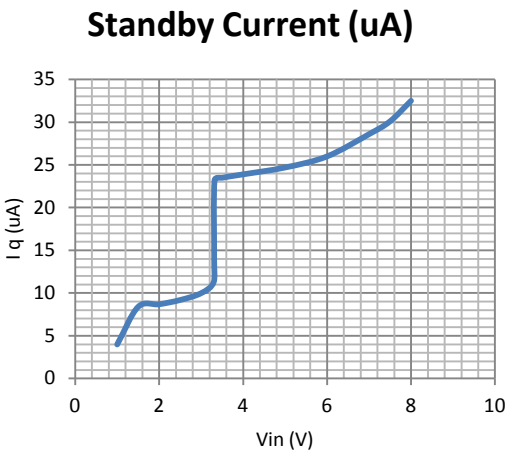
6) Load transient response

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





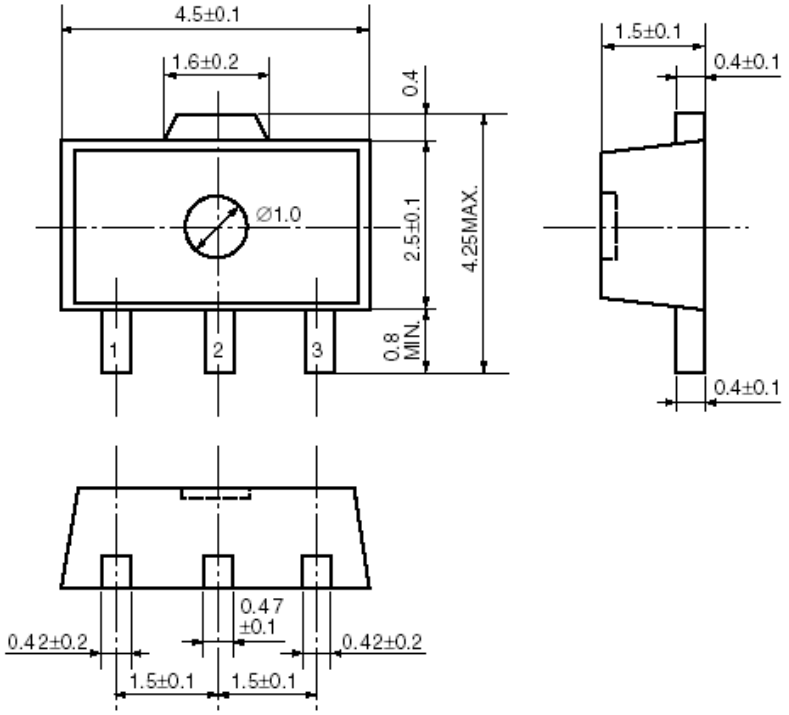
7) Standby current Vs. Input voltage



PACKAGE LINE

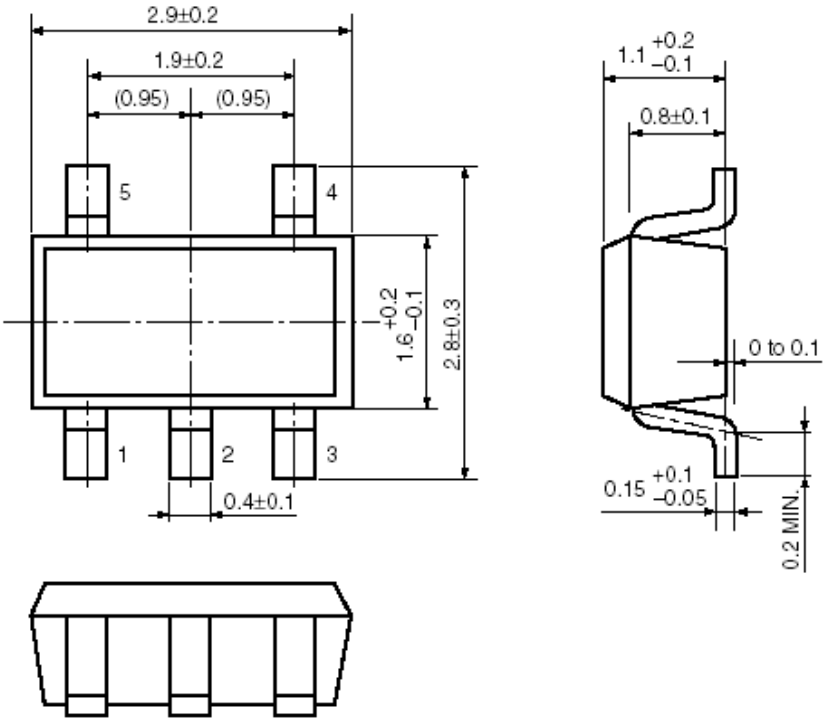
Package	SOT-89-3	Devices per reel	1000Pcs	Unit	mm

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: