300mA Low Consumption Linear Regulator

LR8552

GENERAL DESCRIPTION

LR8552 series are a group of positive voltage output, high precise, and high PSRR and low power consumption voltage regulator. Voltages are selectable in 100mV steps within a range of 1.2V to 3.6V. It also can be customized on command.

LR8552 series have 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%.

LR8552 series are available in SOT-23-3, SOT-23-5, SOT-89-3 and TO-92 packages, which are lead (Pb)- free.

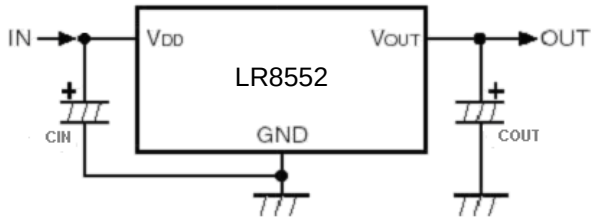
FEATURES

- Low Quiescent Current: 2uA at 5V
- 60dB PSRR at 100Hz
- Low Output Noise: 44uVRMS
- Low Dropout: 280mV at 150mA load
- Low Temperature Coefficient: ±100ppm/°C
- Excellent Line Regulation: 0.05%/V
- Highly Accurate: ±2%

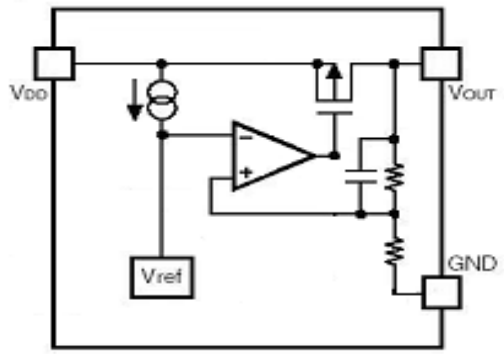
APPLICATIONS

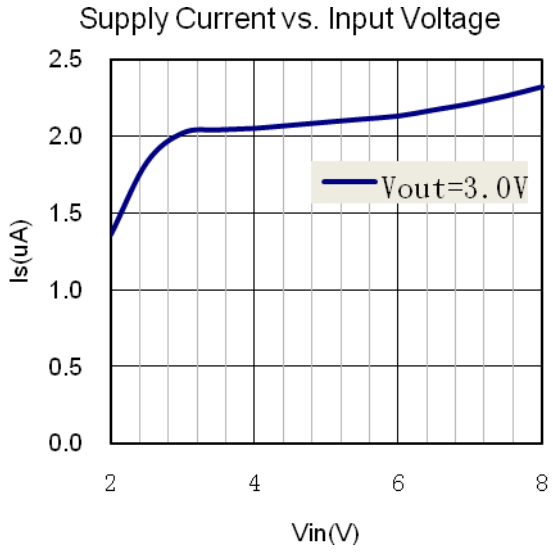
- Reference Voltage Source
- Battery Powered Equipment
- Hand-Hold Equipment
- Wireless LAN
- GPS Receivers

TYPICAL APPLICATION



BLOCK DIAGRAM





MARKING INFORMATION *(Note 1)*

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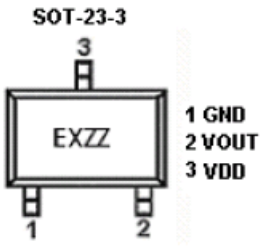
<tr><td colspan="2">Marking</td><td rowspan="4">
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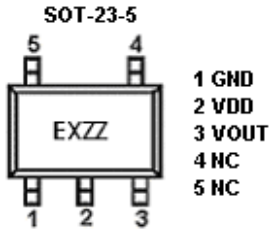
<tr><td colspan="2">Marking</td><td rowspan="4">
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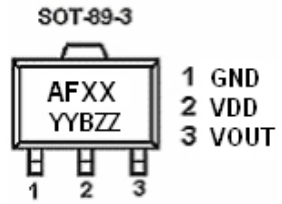
<tr><td colspan="2">Marking</td><td rowspan="5">
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<tr><td>YY: LOT NO.</td></tr>
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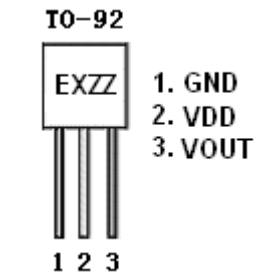
<tr><td colspan="2">Marking</td><td rowspan="4">
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<tr><td colspan="2">GND</td><td>Ground</td></tr>
<tr><td colspan="2">VOUT</td><td>Output Voltage</td></tr>
<tr><td colspan="2">VDD</td><td>Supply Voltage Input</td></tr>
</table>

Note 1

E: Product Code

X: Output Voltage Code

VOUT	*Code*	*VOUT*	*Code*	*VOUT*	*Code*
1.2V	*2*	*2.1V*	$\bar{1}$	*3.0V*	$\underline{0}$
1.3V	*3*	*2.2V*	$\bar{2}$	*3.1V*	$\underline{1}$
1.4V	*4*	*2.3V*	$\bar{3}$	*3.2V*	$\underline{2}$
1.5V	*5*	*2.4V*	$\bar{4}$	*3.3V*	$\underline{3}$
1.6V	*6*	*2.5V*	$\bar{5}$	*3.4V*	$\underline{4}$
1.7V	*7*	*2.6V*	$\bar{6}$	*3.5V*	$\underline{5}$
1.8V	*8*	*2.7V*	$\bar{7}$	*3.6V*	$\underline{6}$
1.9V	*9*	*2.8V*	$\bar{8}$		
2.0V	$\bar{0}$	*2.9V*	$\bar{9}$		

XX: Output voltage:

e.g. 12=1.2V, 25=2.5V, 36=3.6V.

Z: The Year of manufacturing,"7" stands for year 2007,"8" stands for year 2008,and "$\bar{0}$" stands for year 2010.

Z: 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.

ORDERING INFORMATION

LR8552 [1] [2] [3] [4]

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 H: TO-92
[3]	Packing type: TR:Tape&Reel (Standard) BG:Bag (TO-92)
[4]	Output voltage: e.g. 12=1.2V 25=2.5V 36=3.6V

ABSOLUTE MAXIMUM RATING

Parameter		Value
Max Input Voltage		10V
Operating Junction Temperature (T_J)		125°C
Ambient Temperature (T_A)		-40°C~85°C
Power Dissipation	SOT-23-3, SOT-23-5	250mW
	SOT-89-3, TO-92	500mW
Storage Temperature (T_S)		-40°C~150°C
Lead Temperature & Time		260°C, 10 Sec

Note 2: *Exceed these limits to damage to the device.*
Note 3: *Exposure to absolute maximum rating conditions may affect device reliability.*

RECOMMENDED WORK CONDITIONS

Parameter	Value
Input Voltage Range	Max. 8V
Ambient Temperature	-40°C~85°C

ELECTRICAL CHARACTERISTICS

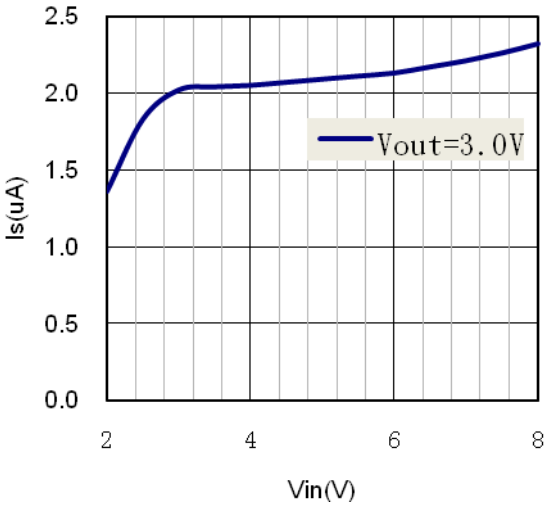
Test Conditions: C_{IN}=1uF,C_{OUT}=1uF,T_A=25°C, unless otherwise specified.

Symbol	Parameter		Conditions	Min	Typ	Max	Units
V_{DD}	Input Voltage					8	V
V_{OUT}	Output Voltage	V_{OUT} >1.5V	V_{DD}=Set V_{OUT}+1V 1mA≤I_{OUT}≤10mA	V_{OUT} X0.98	V_{OUT}	V_{OUT} X1.02	V
		V_{OUT}<=1.5V		V_{OUT}- 0.03	Vout	V_{OUT}+ 0.03	V
I_{OUT} (Max.) *(Note 4)*	Maximum Output Current		V_{DD}-V_{OUT}=1V	300			mA
V_{DROP}	Dropout Voltage		I_{OUT}=150mA V_{OUT}=3.0V		280		mV
$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Line Regulation		I_{OUT}=10mA 4V≤V_{DD}≤6V		0.05	0.2	%/V
$\Delta Vout$	Load Regulation		V_{DD}=Set V_{OUT}+1V 1mA≤I_{OUT}≤300mA		150		mV
Is	Supply Current		V_{DD}=Set V_{OUT}+1V V_{OUT} Floating		2	3	uA
$\frac{\Delta Vout}{\Delta T \cdot Vout}$	Output Voltage Temperature Coefficient		I_{OUT}=10mA		±100		ppm/°C
PSRR	Ripple Rejection		f=100Hz, Ripple=0.5Vp-p, V_{DD}=Set V_{OUT}+1V		60		dB
en	Output Noise		BW=10Hz~100KHz		44		uVrms

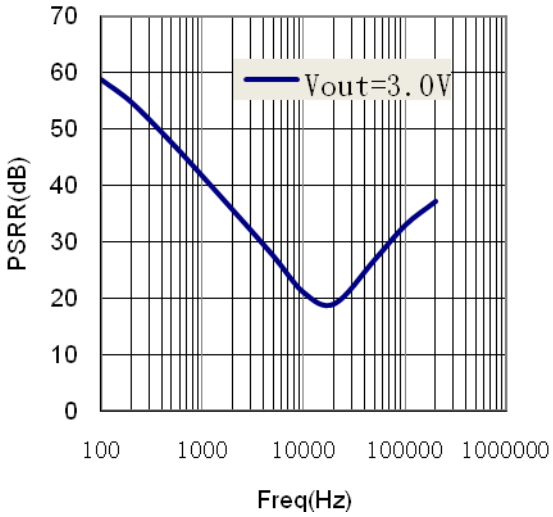
Note 4: *The maximum power rating of each package is a constant, so along with the change of I_{LOAD}, the V_{DD}-V_{OUT} should be controlled to a certain range to ensure the normal operation.*

TYPICAL PERFORMANCE CHARACTERISTICS

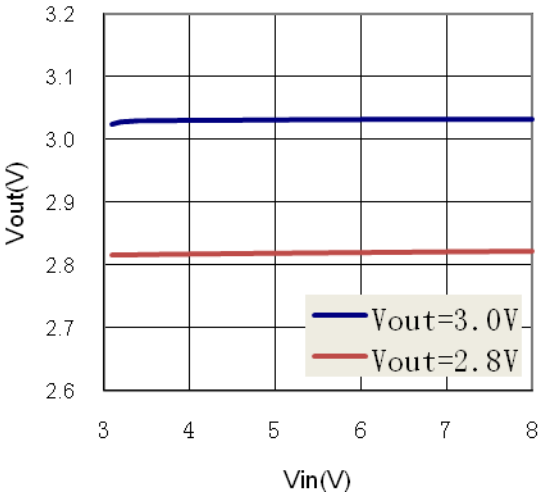
Supply Current vs. Input Voltage



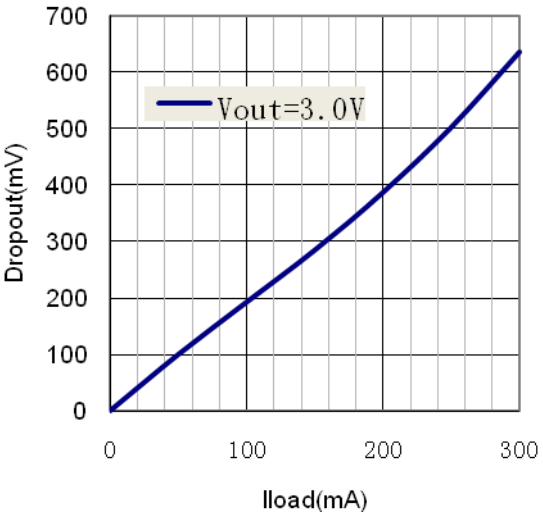
PSRR



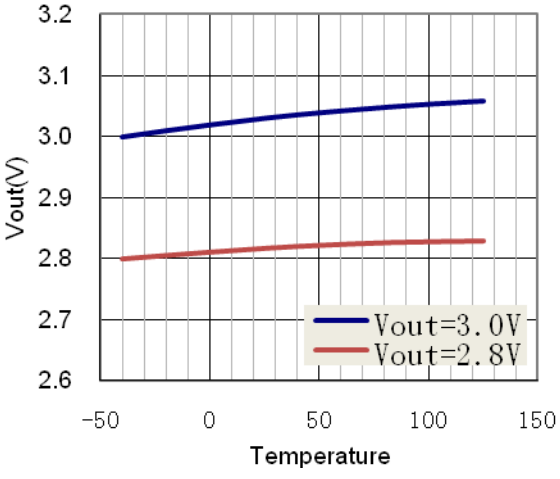
Output Voltage vs. Input Voltage



Dropout Voltage vs. Output Current



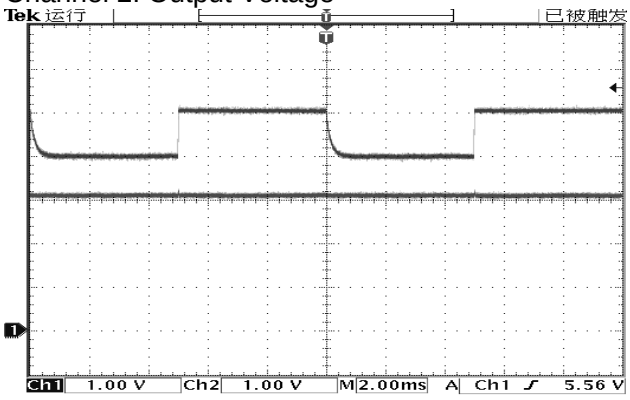
Output Voltage vs. Temperature

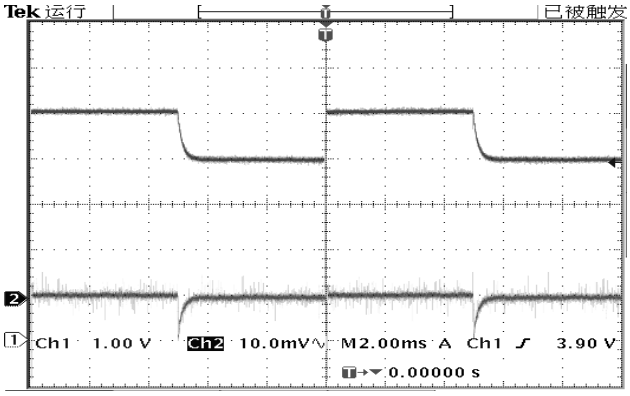


TEST WAVEFORMS

Line Transient Response (C_{IN}=C_{OUT}=1uF, VIN=4↔5V, VOUT=3V)

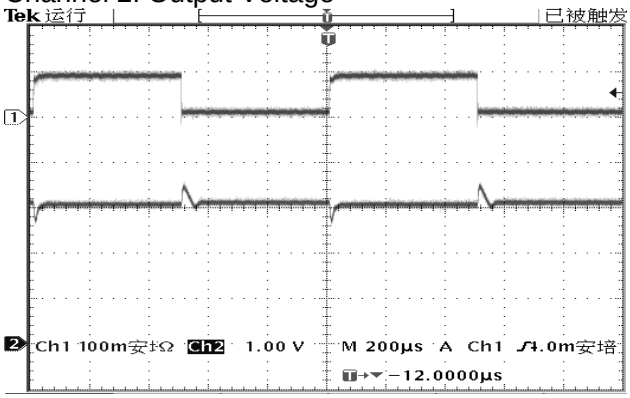
Channel 1: Input Voltage
Channel 2: Output Voltage

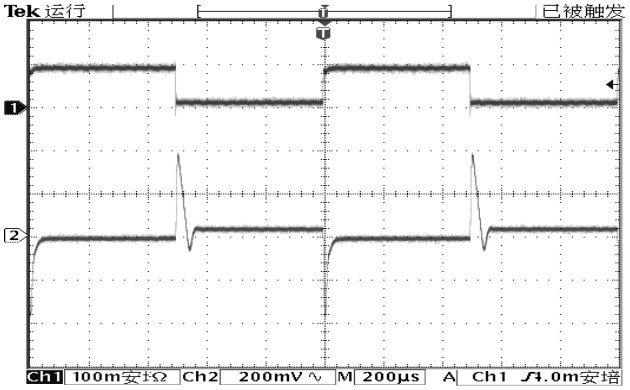




Load Transient Response (C_{IN}=C_{OUT}=1uF, I_{OUT}=1↔100mA, VOUT=3V)

Channel 1: Output Current
Channel 2: Output Voltage

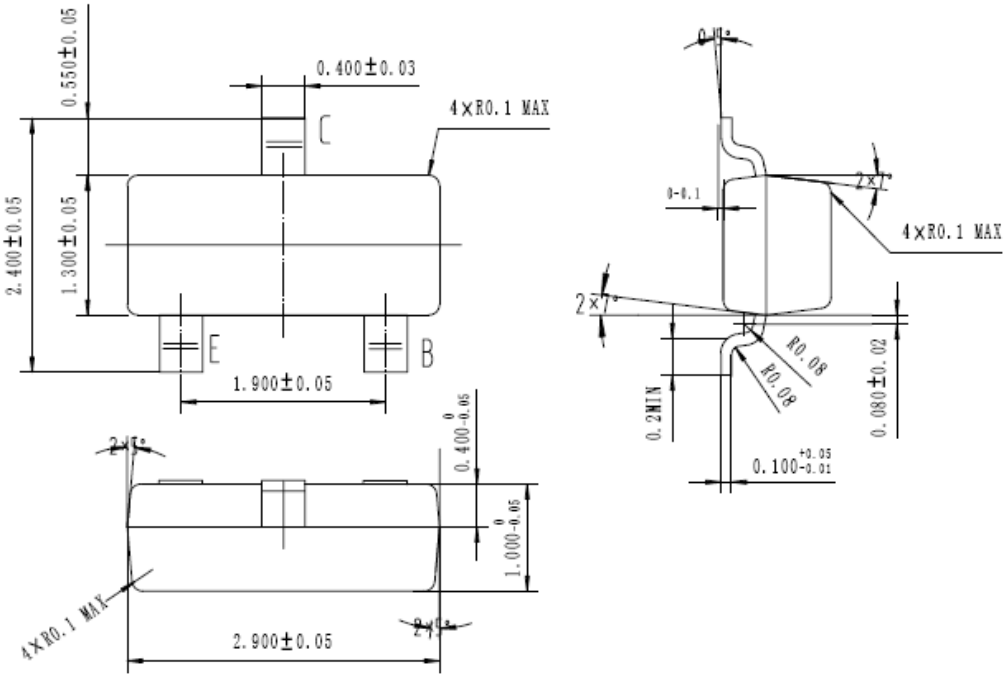




PACKAGE LINE

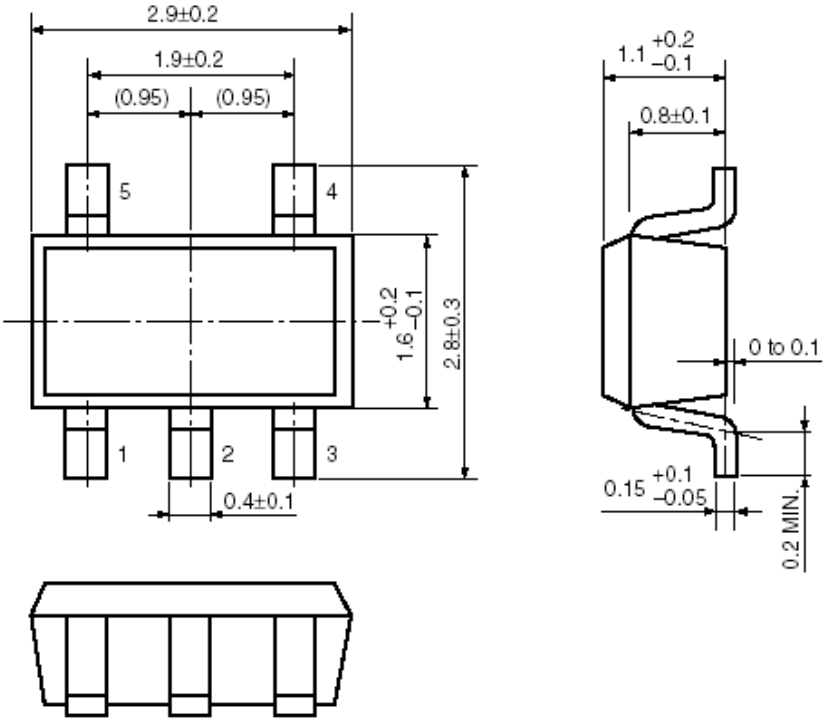
Package	SOT23-3	Devices per reel	3000Pcs	Unit	mm

Package dimension：



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

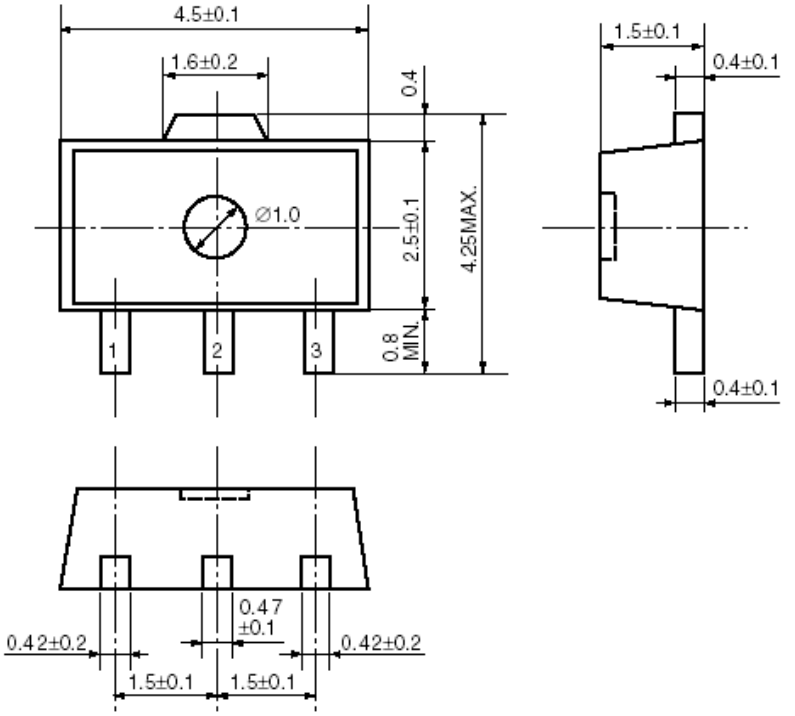
Package Dimension:

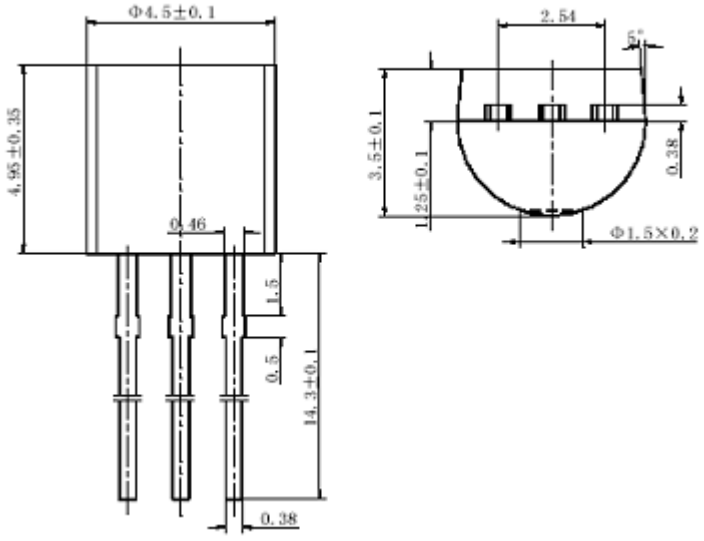


PACKAGE LINE(Continued)

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

Package Dimension:



Package	TO-92	Devices per Bag	1000Pcs	Unit	mm

Package Dimension: