Description

The PJ72A series is manufactured using CMOS technology with a maximum input voltage of 24V. This series is a high-voltage linear regulator with multiple fixed output voltages.

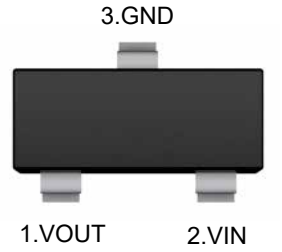
Features

- High Input Voltage Rating：Up to 24V
- Maximum Output Current: 150mA
- Low Dropout : 500mV @ 100mA
- Fixed Output Voltages：3V,3.3V,4V,5V
- Current Limiting Protection
- Thermal Shutdown Protection
- Available Packages：SOT-23、SOT-23-3、SOT-89、SOT-23-5

Applications

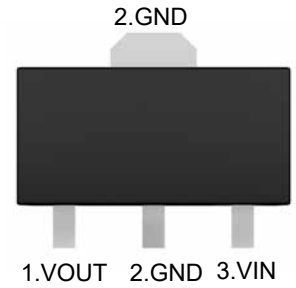
- Battery-Powered Equipment
- Communication device
- Security monitoring equipment

SOT-23

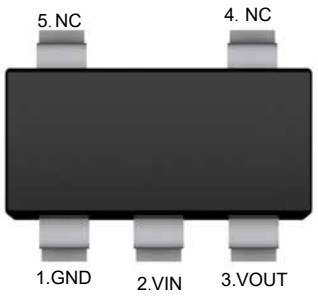


SOT-23-3

SOT-89



SOT-23-5



Functional Pin Description

Pin Name	Pin Function
NC	NO Connected
GND	Ground
VOUT	Output Voltage
VIN	Power Input Voltage

Ordering Information

PJ72- □□□□□ □

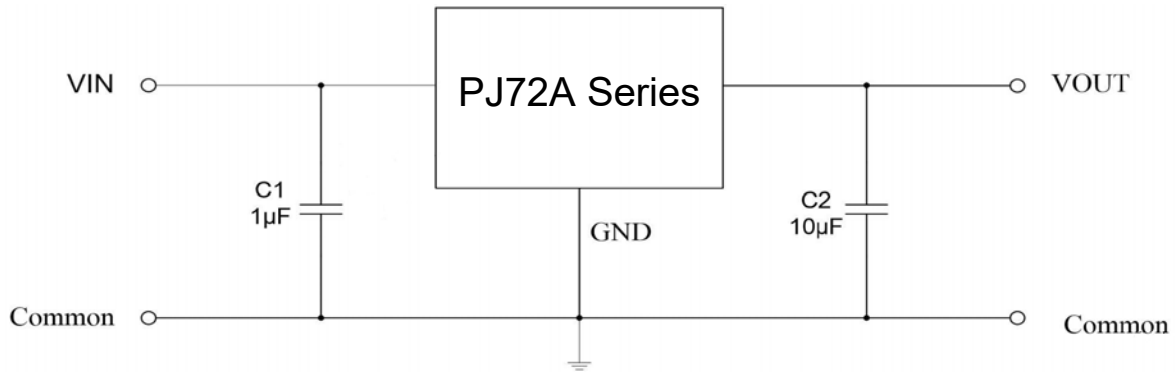
- Package Type
  SA:SOT-23 SC:SOT-23-3
  SQ:SOT-89 SE:SOT-23-5
- Pin arrangement version number: A
- Output Voltage
  30 : 3.0V 33 : 3.3V
  40 : 4.0V 50 : 5.0V
- Output current tap
  L : 150mA
- A:Revision NO.
- Series NO.

Marking Code Note

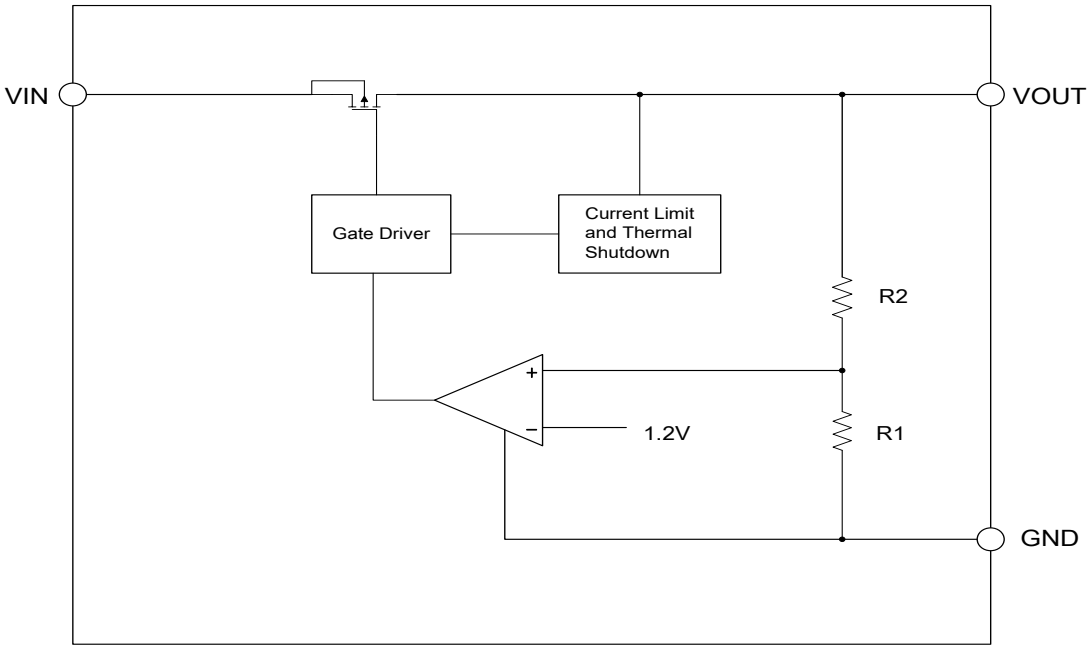
Output Voltage	Package	Marking Code
3V~5V	SOT-23	72XXA
3V~5V	SOT-23-3	72XXCA
3V~5V	SOT-23-5	72XXEA
3V~5V	SOT-89	72XXA

Note . XX : Output Voltage

Typical Application Circuit



Function Block Diagram



Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter		Value	Unit
VIN to GND Voltage		30	V
VOUT to GND Voltage		15	V
Output Current		Internally limited	--
Power Dissipation	SOT-23	260	mW
	SOT-23-3	330	mW
	SOT-23-5	330	mW
	SOT-89	550	mW
Thermal Resistance,Junction-to-Ambient	SOT-23	380	°C/W
	SOT-23-3	300	°C/W
	SOT-23-5	300	°C/W
	SOT-89	180	°C/W
Operating Ambient Temperature		-20 ~ +70	°C
Welding temperature		260	°C
Storage temperature range		-50 ~ +125	°C
ESD(HBM)		4	KV
ESD(CDM)		100	V

Electrical Characteristics

(V_{IN}=V_{OUT}+2, C_{IN}=10μF, C_{OUT}=10μF, T_A=25℃ , unless otherwise noted.)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	V_{IN}		3	--	24	V
Output Voltage Accuracy	ΔV_{OUT}	I_{OUT}=10mA	-2	--	+2	%
Output Current	I_{OUT}		--	150	--	mA
Quiescent Current	I_Q	I_{OUT}=0mA	--	--	3	μA
Dropout Voltage Note1	V_{DROP}	V_{OUT}=3V, I_{OUT}=100mA	--	500	600	mV
		V_{OUT}=3.3V, I_{OUT}=100mA	--	500	700	
		V_{OUT}=5V, I_{OUT}=100mA	--	500	700	
Dropout Voltage Note1	V_{DROP}	V_{OUT}=3V, I_{OUT}=150mA	--	700	900	mV
		V_{OUT}=3.3V, I_{OUT}=150mA	--	800	990	
		V_{OUT}=5V, I_{OUT}=150mA	--	800	990	
Line Regulation	ΔV_{LINE}	V_{IN}=V_{OUT}+2 to24V,I_{OUT}=10mA	--	0.15	--	%/V
Load Regulation	ΔV_{LOAD}	1mA<I_{OUT}<150mA	--	45	80	mV
Short circuit/start carrying current	I_{SHORT}		--	100	--	mA

Note 1. The dropout voltage is defined as V_{IN} – V_{OUT}, when V_{OUT} is 98% of the normal value of V_{OUT}.

Applications Information

Input Capacitor

A 1μF ceramic capacitor is recommended to connect between VIN and GND pins to decouple input power supply glitch and noise. The amount of the capacitance may be increased without limit. This input capacitor must be located as close as possible to the device to assure input stability and less noise. For PCB layout, a wide copper trace is required for both VIN and GND.

Output Capacitor

An output capacitor is required for the stability of the LDO. The recommended minimum output capacitance is 1μF, ceramic capacitor is recommended, and temperature characteristics are X7R or X5R. Higher capacitance values help to improve load/line transient response. The output capacitance may be increased to keep low undershoot/overshoot. Place output capacitor as close as possible to V_{OUT} and GND pins.

Current Limit and Short Circuit Protection

When output current at VOUT pin is higher than current limit threshold or the VOUT pin is direct short to GND, the current limit protection will be triggered and clamp the output current at a pre-designed level to prevent over-current and thermal damage.

Thermal Considerations

For continuous operation, do not exceed absolute maximum junction temperature. The maximum power dissipation depends on the thermal resistance of the IC package, PCB layout, rate of surrounding airflow, and difference between junction and ambient temperature. The maximum power dissipation can be calculated by the following formula :

$P_{D(MAX)} = (T_{J(MAX)} - T_A) / R_{\theta JA}$

Where $T_{J(MAX)}$ is the maximum operation junction temperature 125°C, T_A is the ambient temperature and the $R_{\theta JA}$ is the junction to ambient thermal resistance.

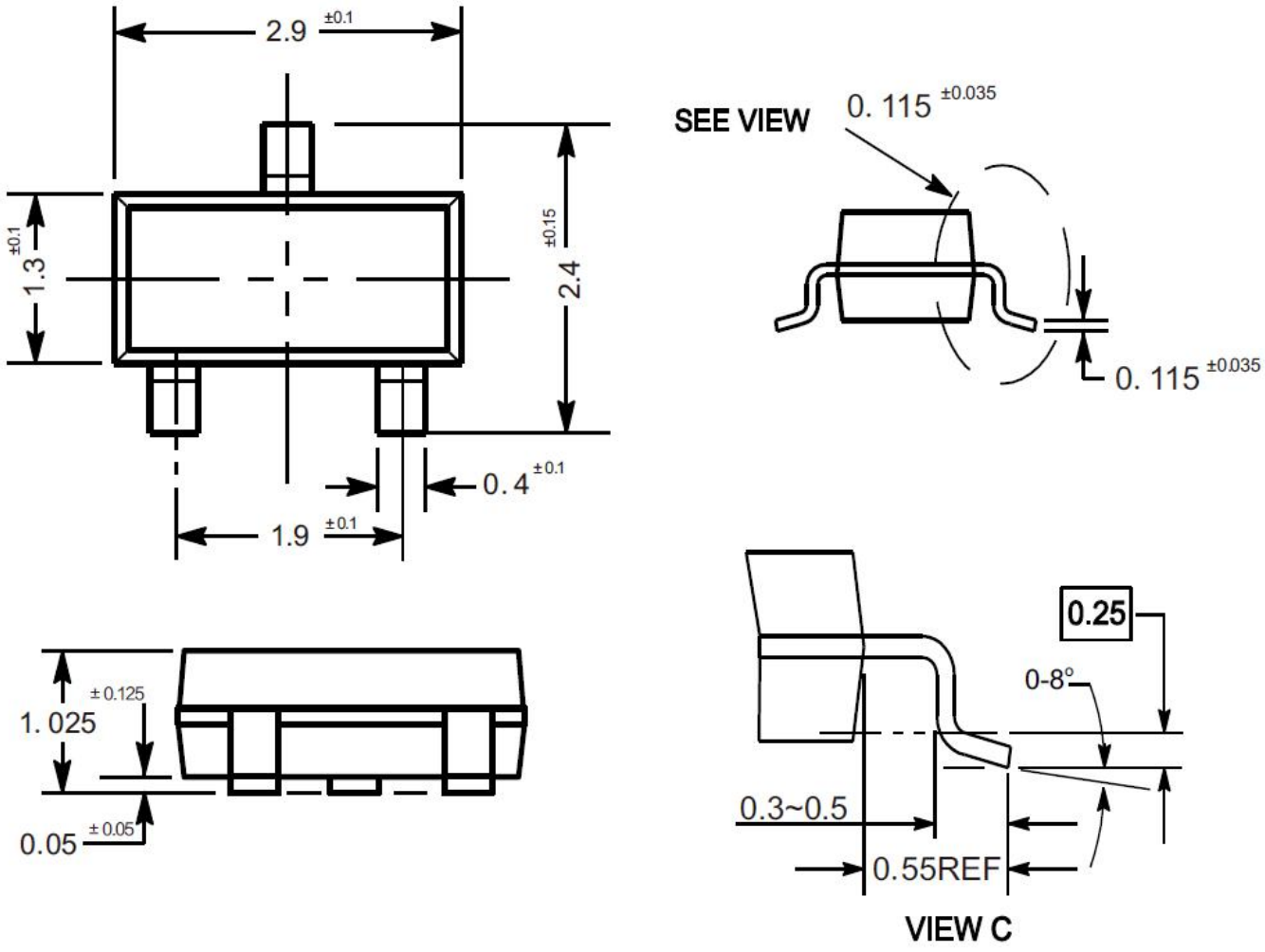
The power dissipation definition in device is:

$P_D = (V_{IN} - V_{OUT}) \times I_{OUT} + V_{IN} \times I_Q$

Package Outline

SOT-23

Dimensions in mm



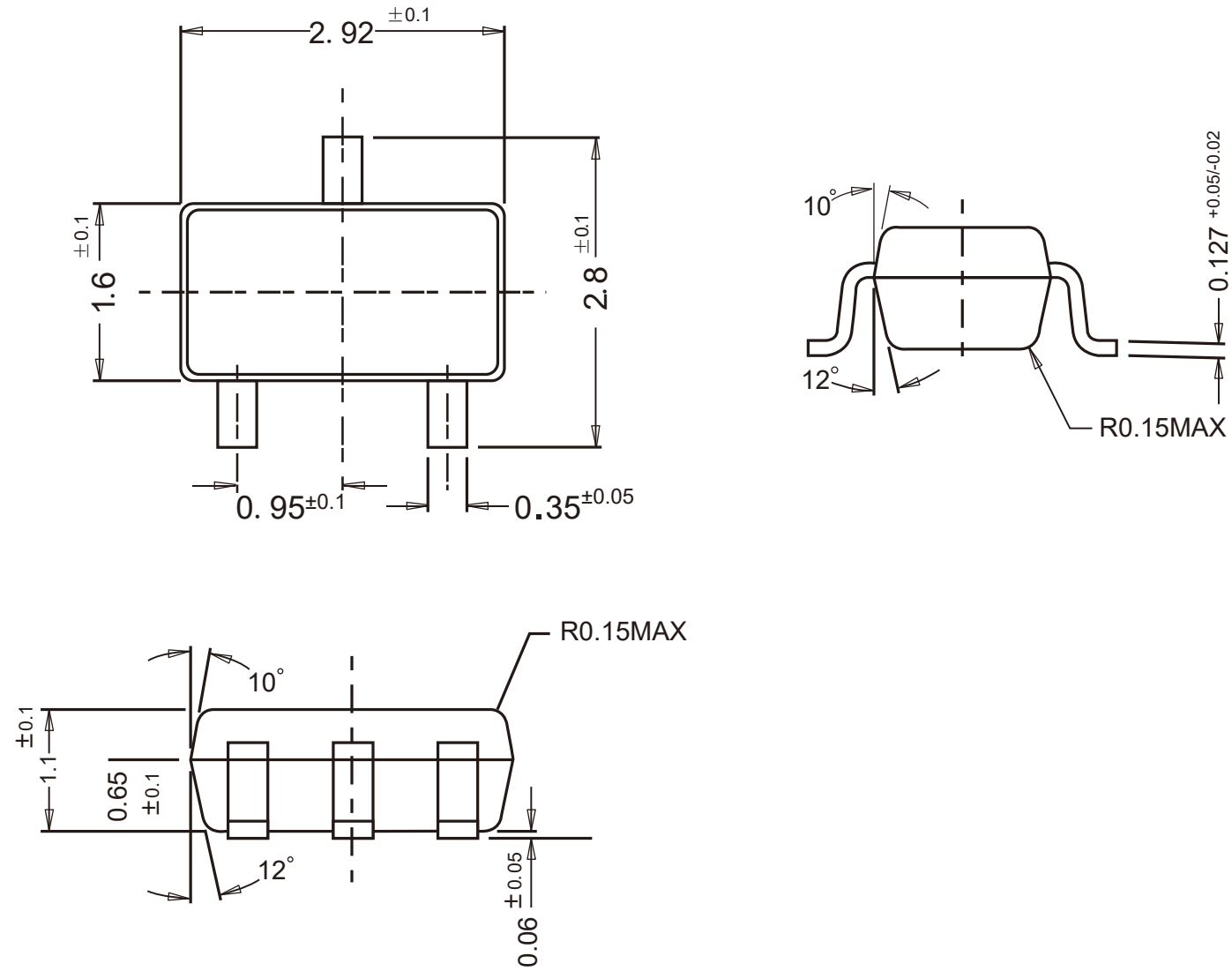
Ordering Information

Device	Package	Shipping
PJ72A Series	SOT-23	3,000PCS/Reel&7inches

Package Outline

SOT-23-3

Dimensions in mm



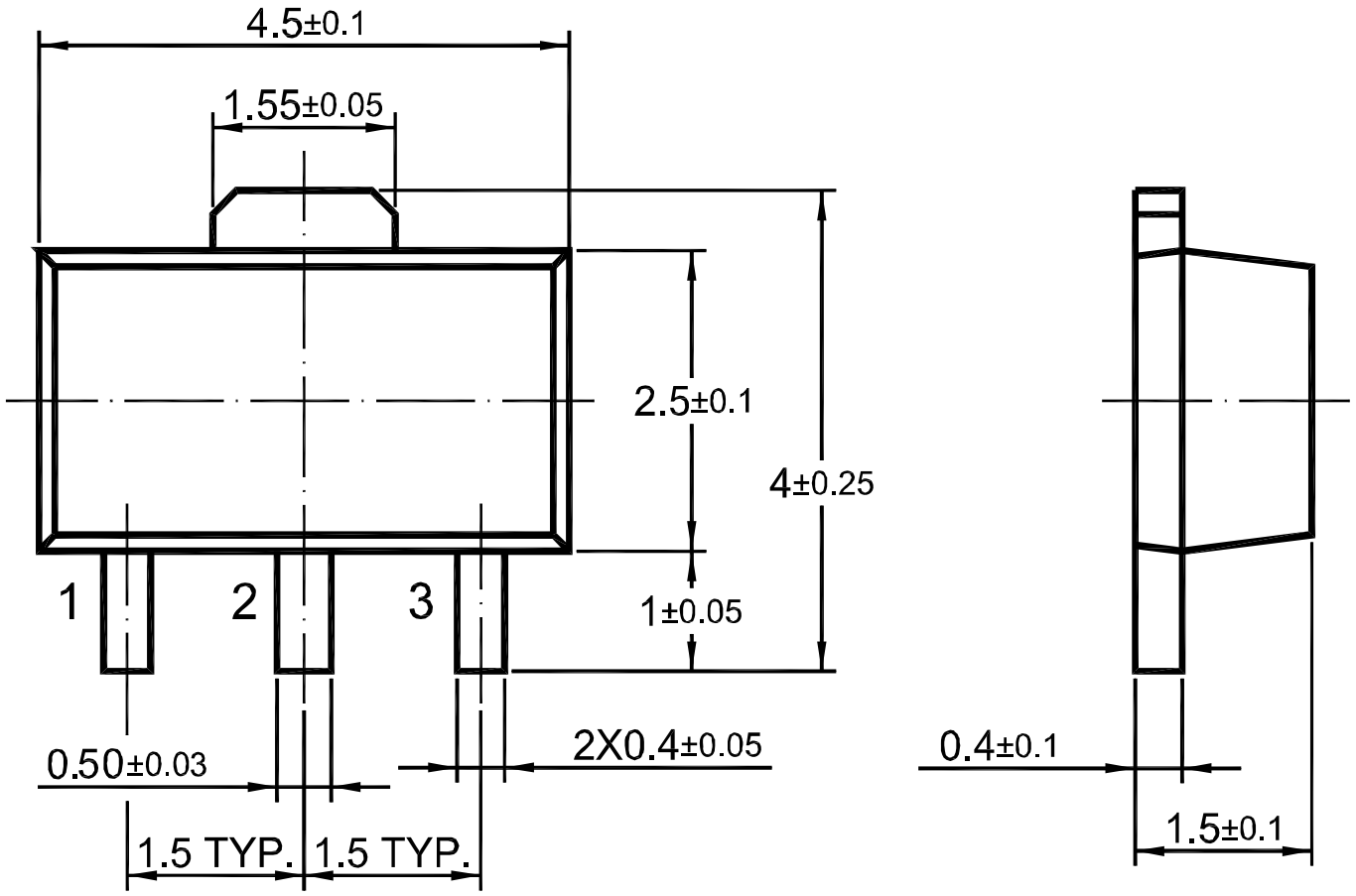
Ordering Information

Device	Package	Shipping
PJ72A Series	SOT-23-3	3,000PCS/Reel&7inches

Package Outline

SOT-89

Dimensions in mm



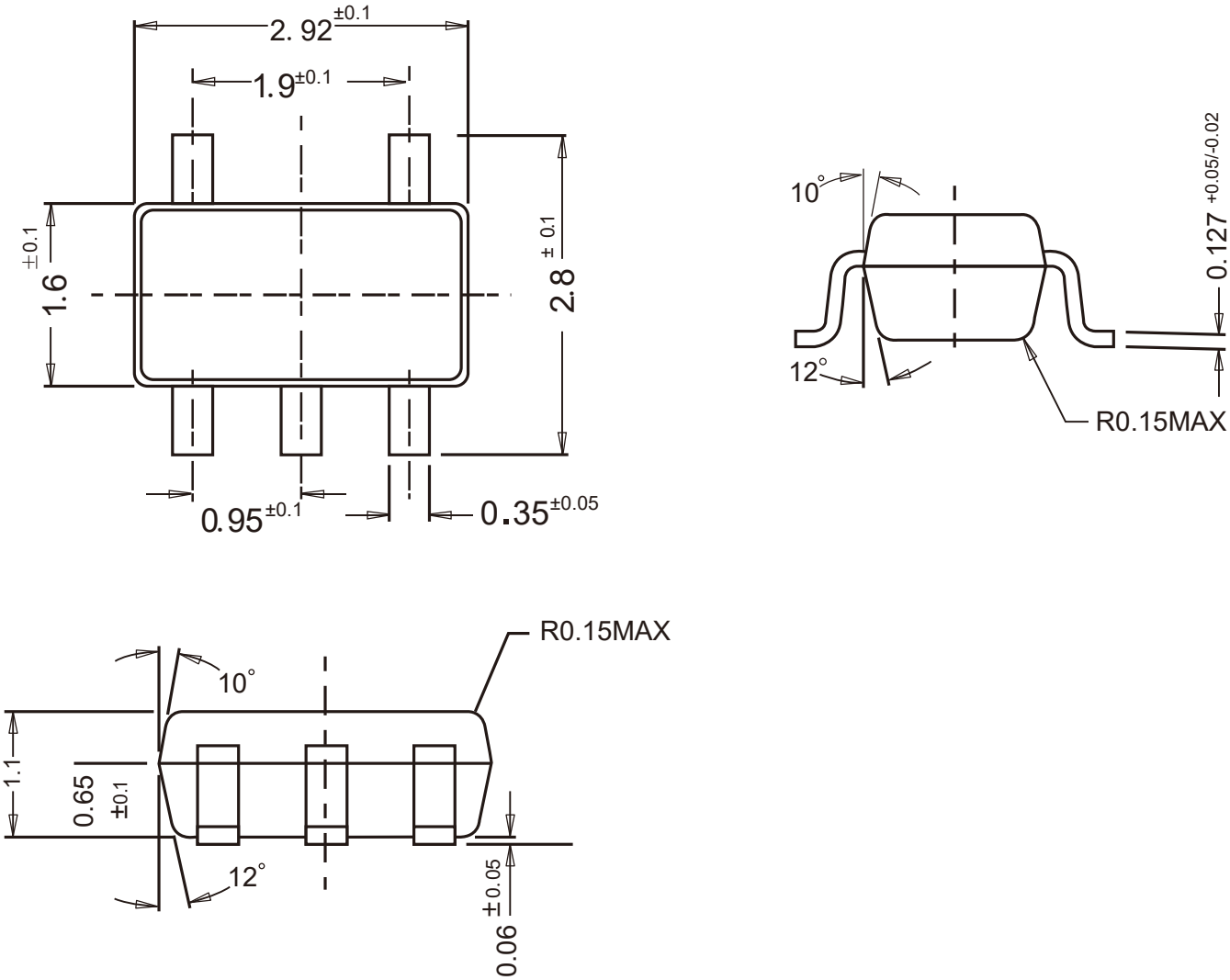
Ordering Information

Device	Package	Shipping
PJ72A Series	SOT-89	3,000PCS/Reel&13inches

Package Outline

SOT-23-5

Dimensions in mm



Ordering Information

Device	Package	Shipping
PJ72A Series	SOT-23-5	3,000PCS/Reel&7inches