

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	TL432
▶ Overseas	Part Number	TL432
▶ Equivalent	Part Number	TL432

EV is the abbreviation of name EVVO

Description

The TL432 is a Three-terminal adjustable shunt regulator highly accurate 1.24V bandgap reference. The device offers thermal stability, wide operating current and an extended temperature range of 0 to 105 °C for operation in power supply applications. The TL432 offers a wide operating voltage range of up to 18V and is an excellent choice for voltage reference requirements in an isolated feedback circuit for 3.0V to 3.3V switching mode power supplies.

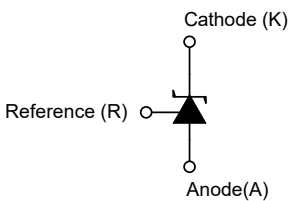
Feature

- Wide programmable output voltage from 1.24V to 18V
- Sink current capability from 55µA to 100mA.
- Low output noise
- Wide Operating Range of -40 to 125°C

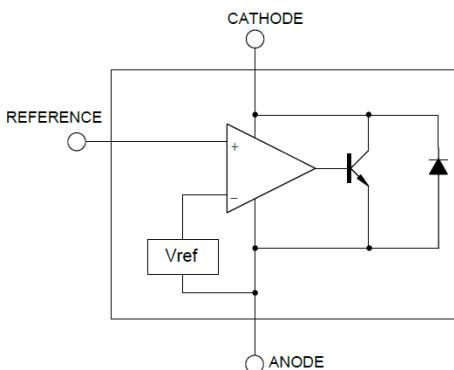
Application

- Adjustable voltage and current references
- Voltage monitoring
- Replacement of zener diode
- Comparator with integrated reference

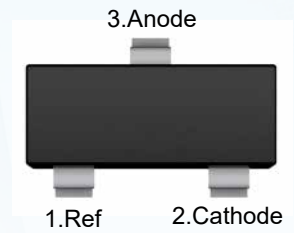
Schematic diagram



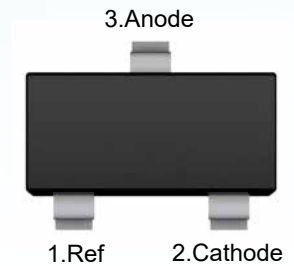
Functional block diagram



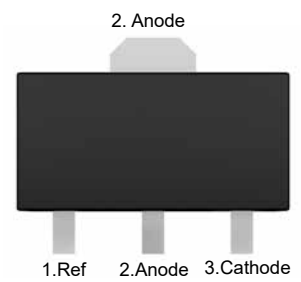
SOT-23



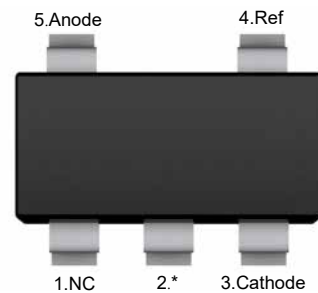
SOT-23-3



SOT-89

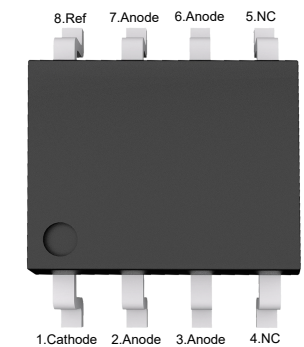


SOT-23-5



NC:No internal connection
*: Attached to substrate and must be connected to Anode or left open

SOP-8



NC:No internal connection

Ordering Information

TL432-□ □ □ □

└ Package Type

□□(Blank): SOT-23

SC: SOT-23-3

SQ: SOT-89

SE: SOT-23-5

PA: SOP-8

└ V_{REF} tolerance

□(Blank): 1%

C: 0.5%

Absolute Maximum Ratings (Ta=25°C unless otherwise specified)

Parameter	Symbol	Value	Units
Cathode Voltage	V _{KA}	20	V
Cathode Current Range(Continuous)	I _{KA}	-100 ~ +100	mA
Reference Input Current Range	I _{REF}	10	mA
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Units
Cathode Voltage	V _{KA}	V _{REF}	18	V
Cathode Current	I _{KA}	0.1	100	mA
Operating Ambient Temperature Range	T _{OPR}	-40	125	°C

Thermal Information

Parameter	Symbol	Value		Units
Junction-to-Ambient thermal resistance	R _{θJA}	SOT-23	416	°C/W
		SOT-23-3	416	°C/W
		SOT-23-5	416	°C/W
		SOT-89	156	°C/W
		SOP-8	208	°C/W

Electrical Characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	
Reference Input Voltage Fig1	V _{REF}	V _{KA} =V _{REF} , I _{KA} =10mA	TL432(1%)	1.228	1.24	1.252	V
			TL432C(0.5%)	1.234	1.24	1.246	V
Deviation of Reference Input Voltage Over Temperature Fig1	ΔV _{REF}	V _{KA} =V _{REF} , I _{KA} =10mA	0°C ≤ T _A ≤ 70°C	--	2	10	mV
			-20°C ≤ T _A ≤ 125°C	--	3	15	mV
			-40°C ≤ T _A ≤ 125°C	--	8	25	mV
Ratio of Change in Reference Input Voltage to The Change in Cathode Voltage Fig2	$\frac{\Delta V_{REF}}{\Delta V_{KA}}$	I _{KA} =10mA, ΔV _{KA} =V _{REF} ~16V	--	-0.5	-1.5	mV/V	
Reference Input Current Fig2	I _{REF}	I _{KA} =10mA, R1=10KΩ, R2=∞	--	0.15	0.4	μA	
Deviation of Reference Input Current Over Full Temperature Range Fig2	ΔI _{REF}	I _{KA} =10mA, R1=10KΩ, R2=∞, -20°C ≤ T _A ≤ +85°C	--	--	0.4	μA	
Minimum Cathode Current for Regulation Fig1	I _{KA(MIN)}	V _{KA} =V _{REF}	--	--	80	μA	
Off-State Cathode Current Fig3	I _{KA(OFF)}	V _{KA} =18V, V _{REF} =0	--	0.04	0.5	μA	
Dynamic Impedance	Z _{KA}	V _{KA} =V _{REF} , I _{KA} =1~100mA, f ≤ 1.0KHz	--	0.05	0.15	Ω	

Figure 1. Test Circuit for V_{KA} = V_{REF}

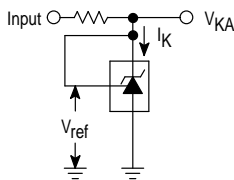


Figure 2. Test Circuit for V_{KA} > V_{REF}

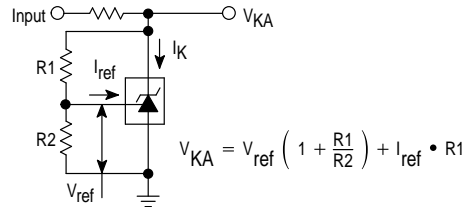
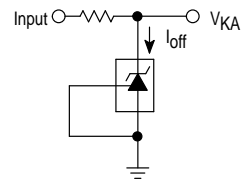
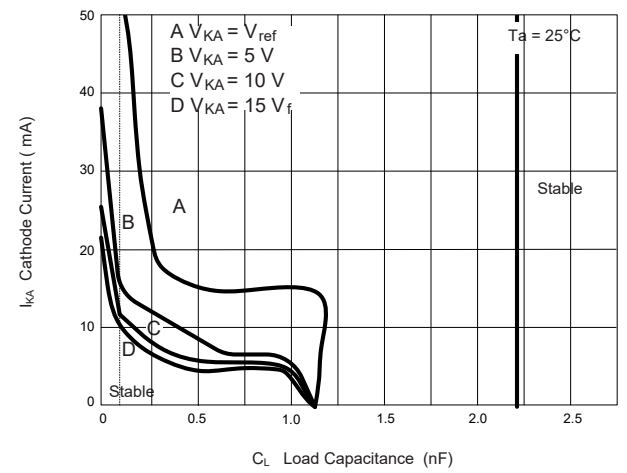
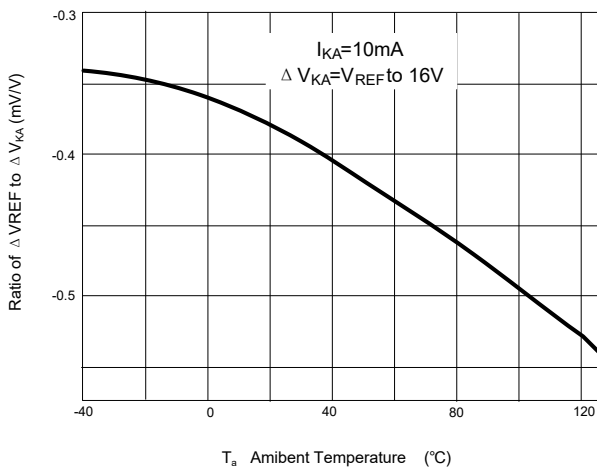
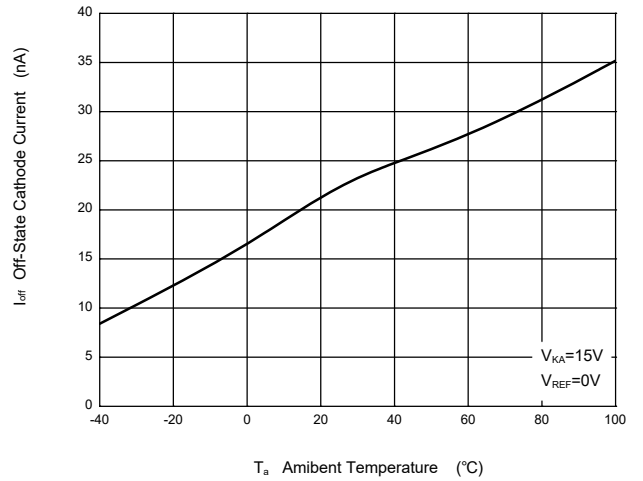
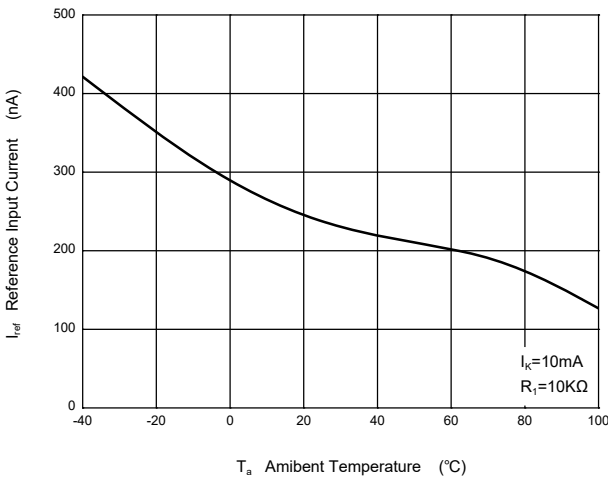
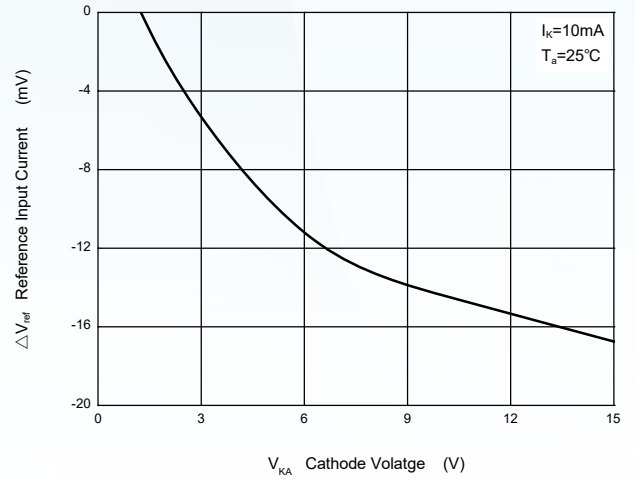
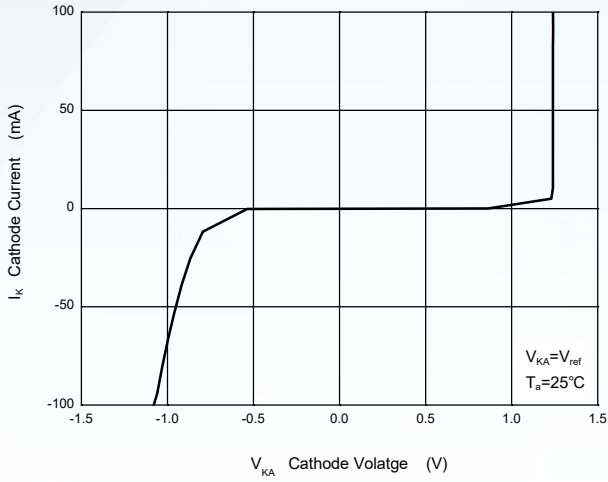


Figure 3. Test Circuit for I_{OFF}



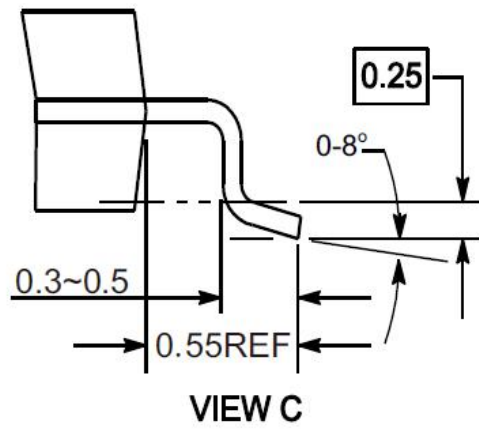
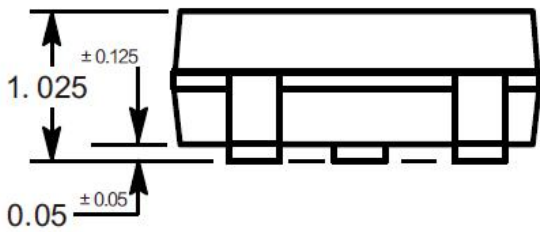
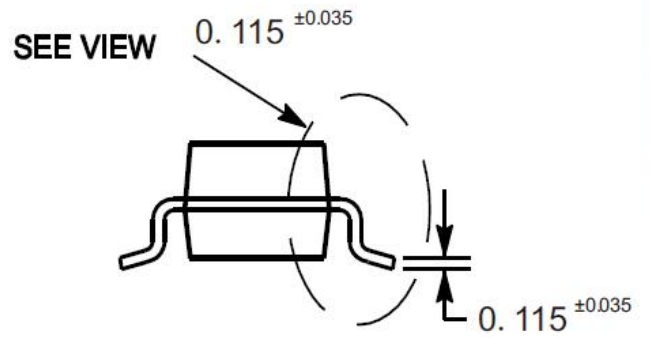
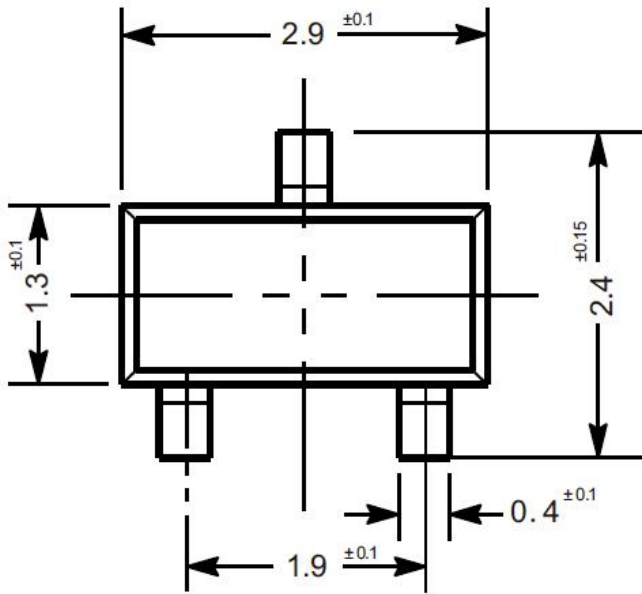
Typical Characteristic Curves



Package Outline

SOT-23

Dimensions in mm



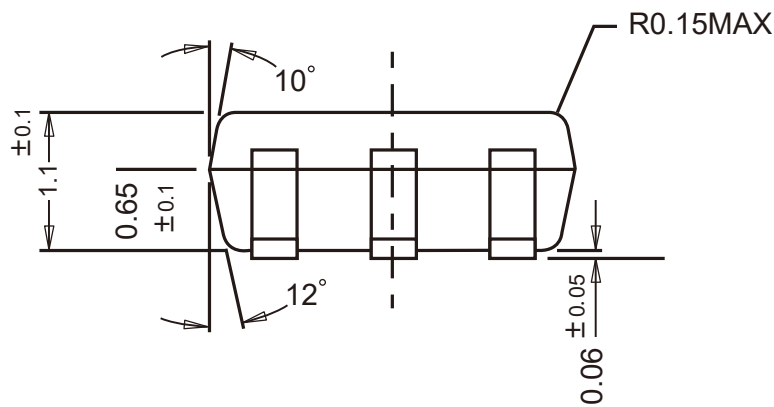
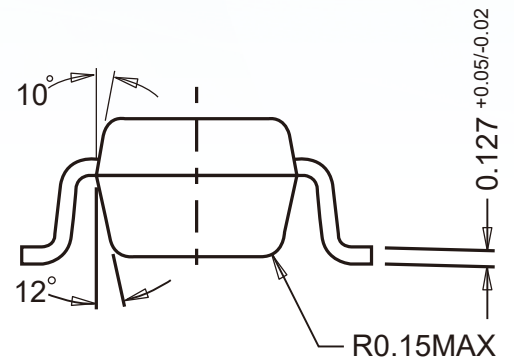
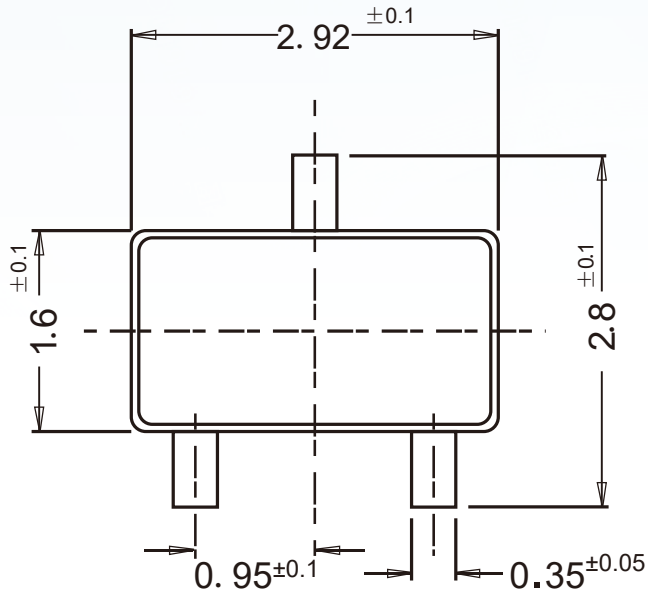
Ordering Information

Device	Package	Shipping
TL432/TL432C	SOT-23	3,000PCS/Reel&7inches

Package Outline

SOT-23-3

Dimensions in mm



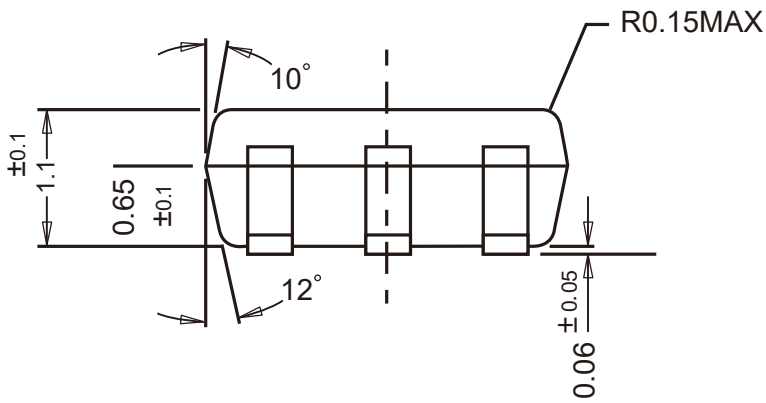
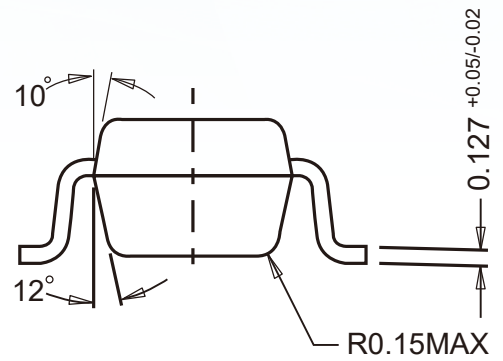
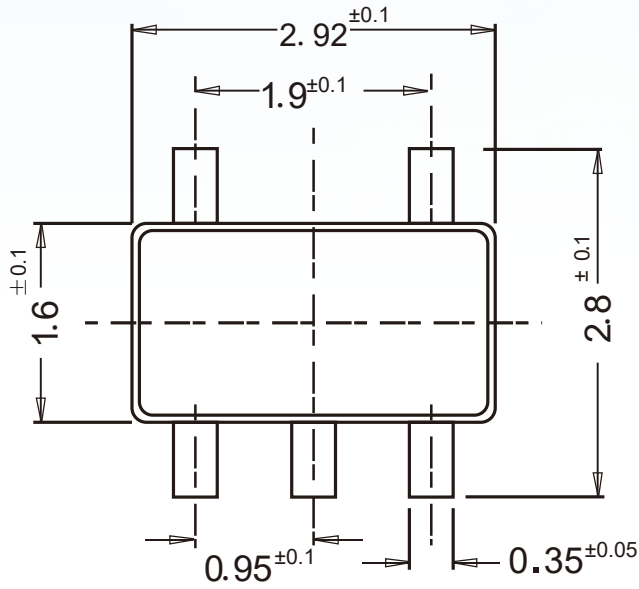
Ordering Information

Device	Package	Shipping
TL432SC/TL432CSC	SOT-23-3	3,000PCS/Reel&7inches

Package Outline

SOT-23-5

Dimensions in mm



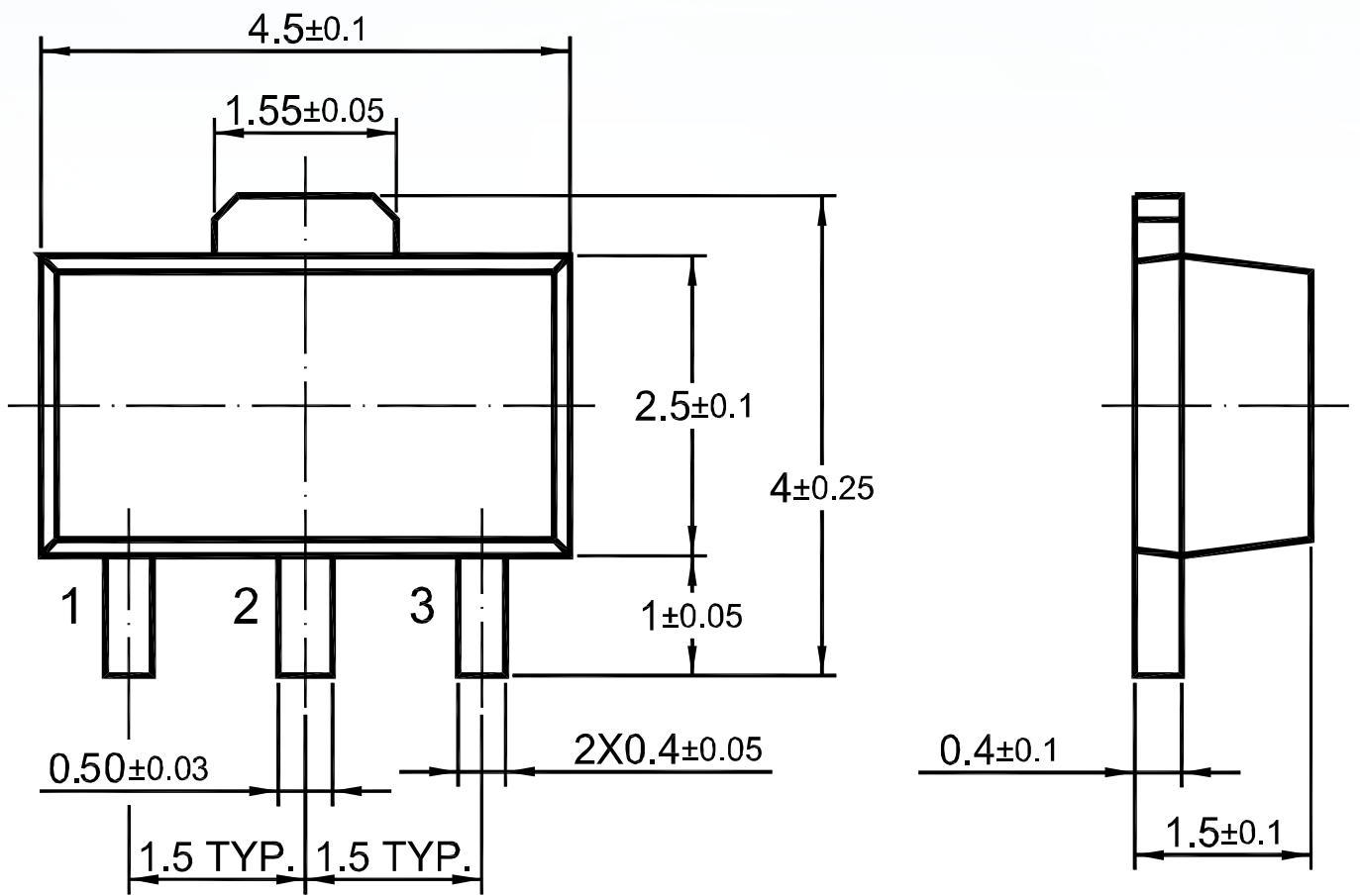
Ordering Information

Device	Package	Shipping
TL432SE/TL432CSE	SOT-23-5	3,000PCS/Reel&7inches

Package Outline

SOT-89

Dimensions in mm



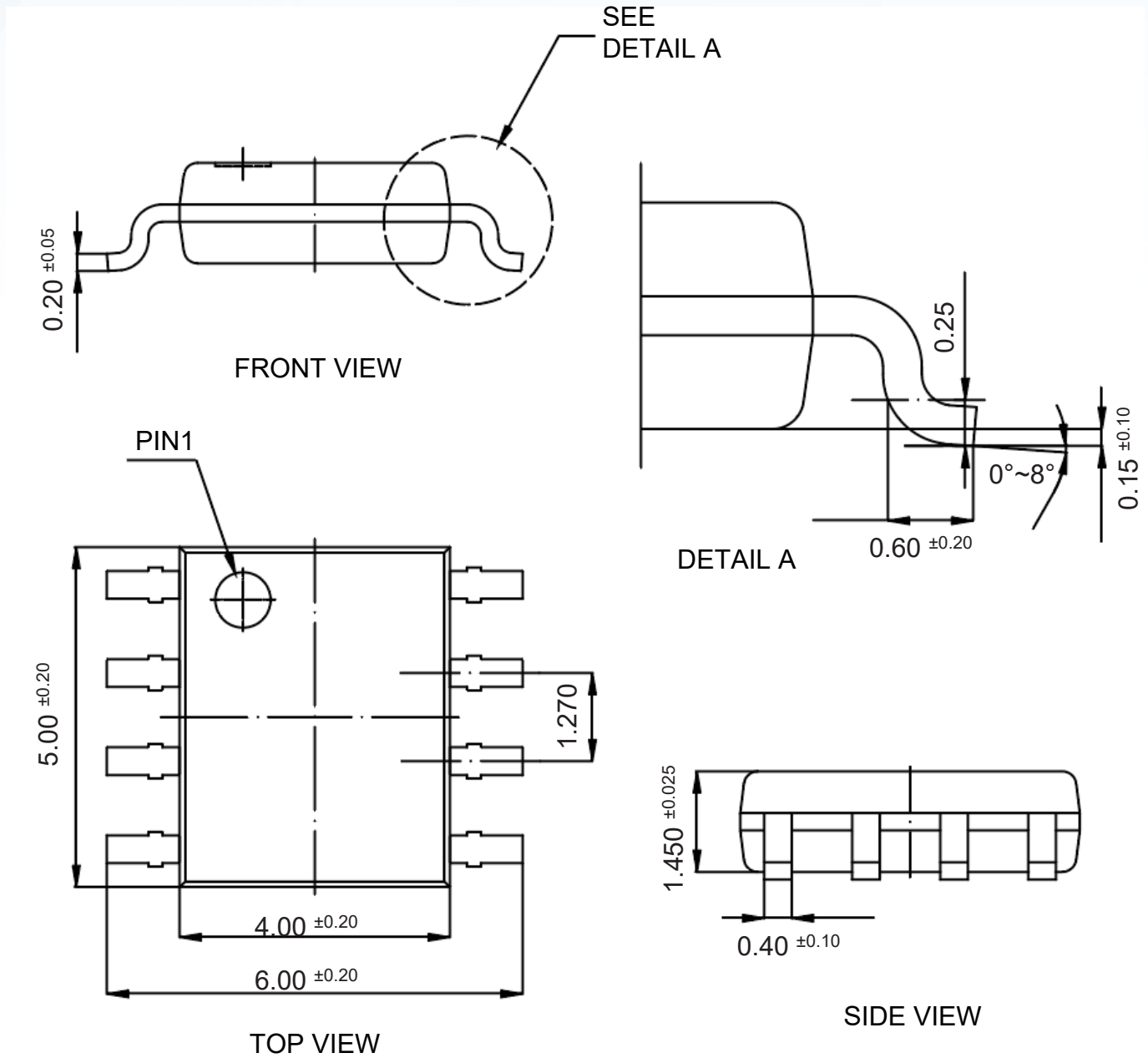
Ordering Information

Device	Package	Shipping
TL432SQ/TL432CSQ	SOT-89	1,000PCS/Reel&7inches
		3,000PCS/Reel&13inches

Package Outline

SOP-8

Dimensions in mm



Ordering Information

Device	Package	Shipping
TL432PA/TL432CPA	SOP-8	4,000PCS/Reel&13inches

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