



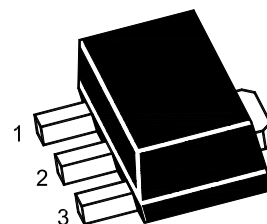
# TL432RSQ TL432CRSQ

## Programmable Precision Reference

### Features

- Programmable output voltage to 18V
- Sink current capability of 1 to 100mA
- Low dynamic output impedance
- Low output noise voltage
- Fast turn on response

SOT-89



1. Cathode 2. Anode 3. Reference

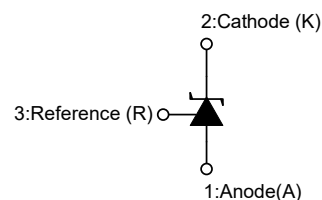
### Marking Code:

TL432RSQ: 432R

TL432CRSQ: 432CR

### Application

- It provides very wide applications, including shunt regulator, series regulator, switching regulator, voltage reference and others.



### 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
Maximum Power Dissipation	$P_D$	350	mW
Operating Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-65 ~ +150	°C

### Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Units
Cathode Voltage	$V_{KA}$	$V_{REF}$	18	V
Cathode Current	$I_{KA}$	1	100	mA
Operating Ambient Temperature Range	$T_{OPR}$	-20	125	°C

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	
Reference Input Voltage Fig1	V <sub>REF</sub>	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =10mA	TL432RSQ(1%)	1.228	1.24	1.252	V
			TL432CRSQ(0.5%)	1.234	1.24	1.246	V
Deviation of Reference Input Voltage Over Temperature Fig1	ΔV <sub>REF</sub>	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =10mA	0°C ≤ T <sub>A</sub> ≤ 70°C	--	2	10	mV
			-20°C ≤ T <sub>A</sub> ≤ 125°C	--	3	15	mV
			-40°C ≤ T <sub>A</sub> ≤ 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 <sub>KA</sub> =10mA ΔV <sub>KA</sub> =V <sub>REF</sub> ~16V	--	-0.5	-1.5	mV/V	
Reference Input Current Fig2	I <sub>REF</sub>	I <sub>KA</sub> =10mA, R1=10KΩ, R2=∞	--	0.15	0.4	μA	
Deviation of Reference Input Current Over Full Temperature Range Fig2	ΔI <sub>REF</sub>	I <sub>KA</sub> =10mA, R1=10KΩ, R2=∞, -20°C ≤ T <sub>A</sub> ≤ +85°C	--	--	0.4	μA	
Minimum Cathode Current for Regulation Fig1	I <sub>KA(MIN)</sub>	V <sub>KA</sub> =V <sub>REF</sub>	--	--	80	μA	
Off-State Cathode Current Fig3	I <sub>KA(OFF)</sub>	V <sub>KA</sub> =18V, V <sub>REF</sub> =0	--	0.04	0.5	μA	
Dynamic Impedance	Z <sub>KA</sub>	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =1~100mA, f ≤ 1.0KHz	--	0.2	0.4	Ω	

Figure 1. Test Circuit for V<sub>KA</sub> = V<sub>REF</sub>

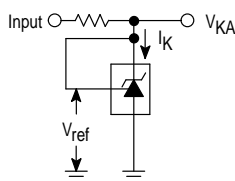


Figure 2. Test Circuit for V<sub>KA</sub> > V<sub>REF</sub>

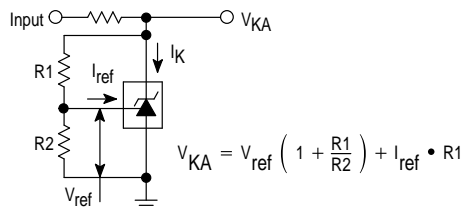
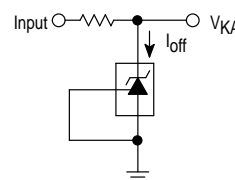
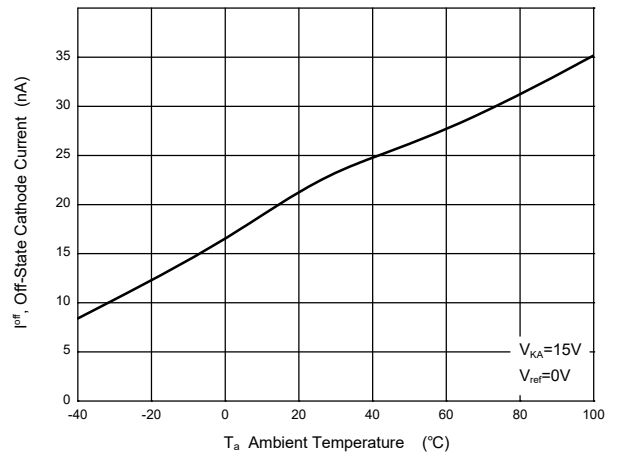
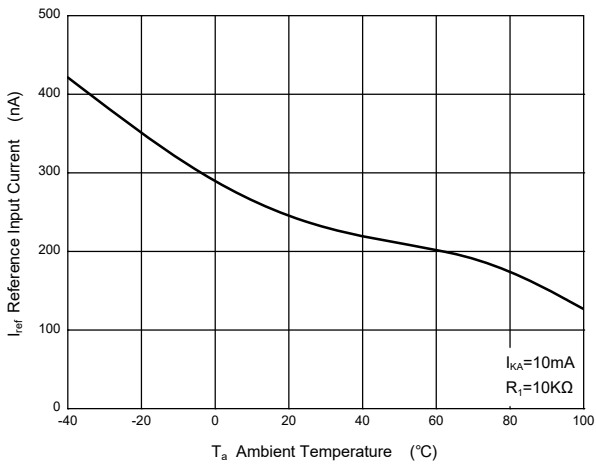
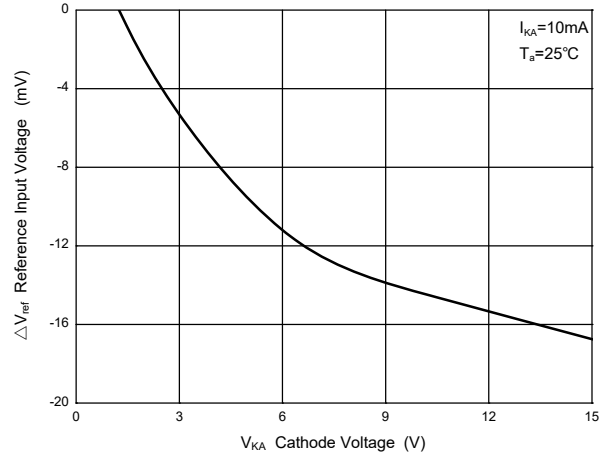
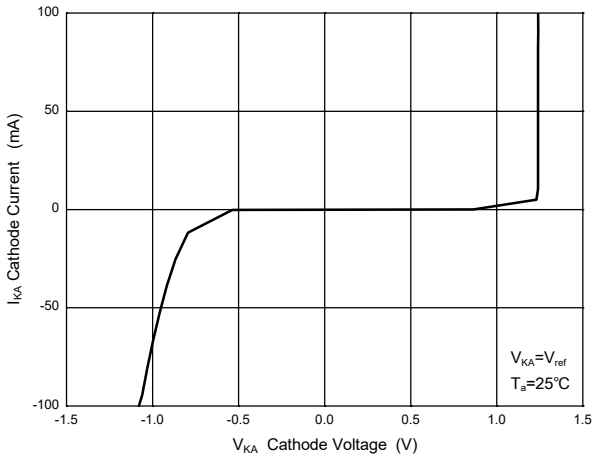


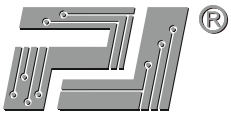
Figure 3. Test Circuit for I<sub>OFF</sub>





### Typical Characteristic Curves

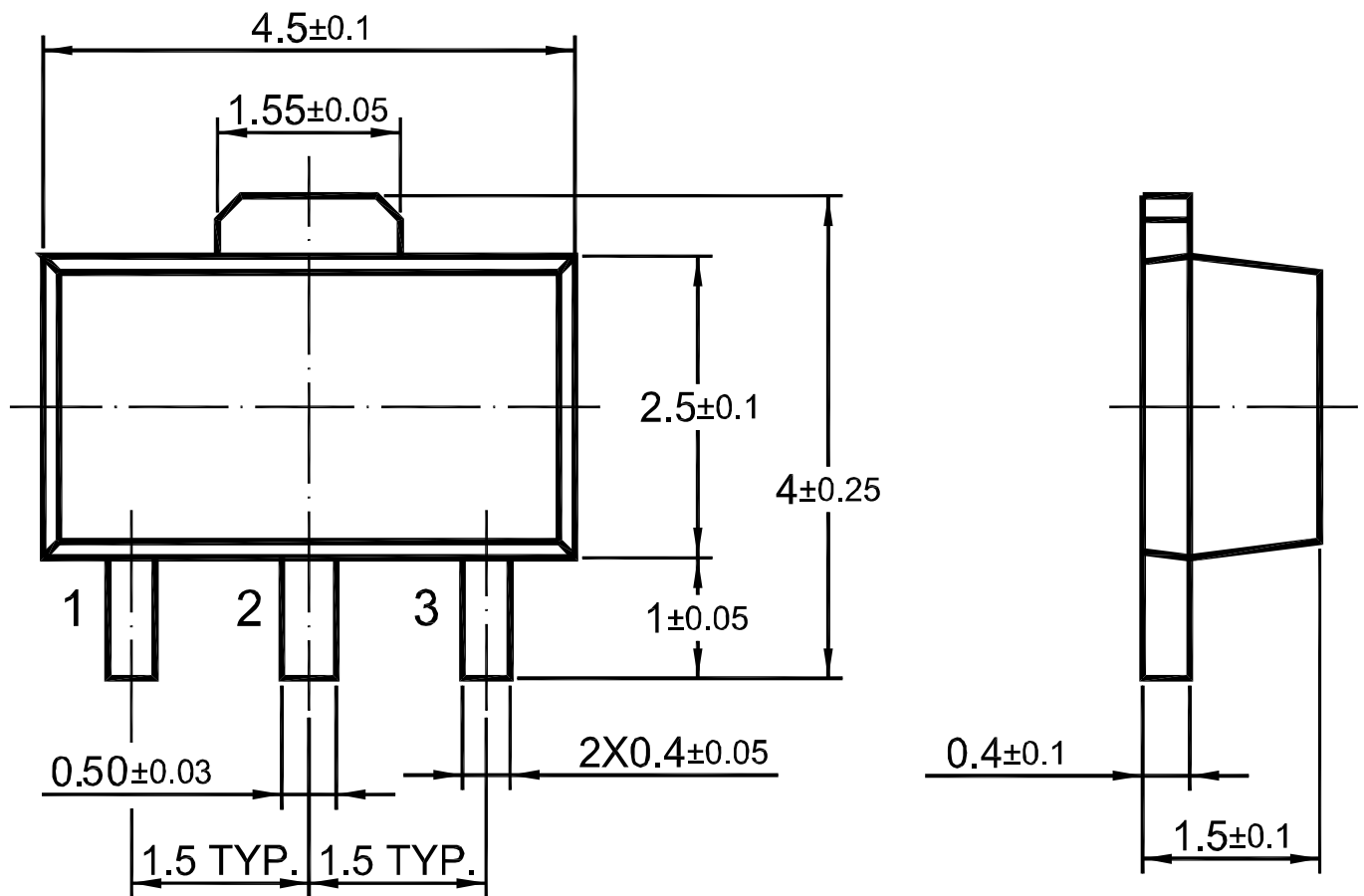




### Package Outline

SOT-89

Dimensions in mm



### Ordering Information

Device	Package	Shipping
TL432RSQ、 TL432CRSQ	SOT-89	1,000PCS/Reel&7inches
		3,000PCS/Reel&13inches