

Adjustable Accurate Reference Source

Description

The TL432 is a three-terminal Shunt Voltage Reference providing a highly assurance 1.24V. The TL432 thermal stability and wide operating current, makes is suitable for all variety of applications that are looking for a low cost solution with high performance.

The output voltage can be set to any value between 1.24V and 18V through two external resistors.

Features

- Low dynamic output impedance
- The effective temperature compensation in the working Range of full temperature
- Low output noise voltage
- Fast on-state response
- Sink current capability of 0.1mA to 100mA

Application

- Shunt Regulator
- High-Current Shunt Regulator
- Precision Current Limiter

Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

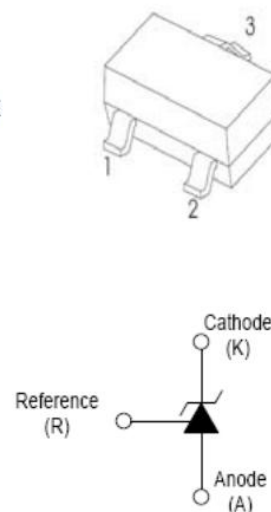
| Parameter | Symbol | Value | Unit |
|---|-----------------|----------|------|
| Cathode Voltage | V_{KA} | 18 | V |
| Cathode Current Range(Continuous) | I_{KA} | 100 | mA |
| Reference Input Current Range | I_{REF} | 10 | mA |
| Power Dissipation | P_D | 350 | mW |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | °C/W |
| Operating Temperature | T_{OPR} | -40~+125 | °C |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature | T_{STG} | -65~+150 | °C |

SOT-23

1. REFERENCE

2. CATHODE

3. ANODE



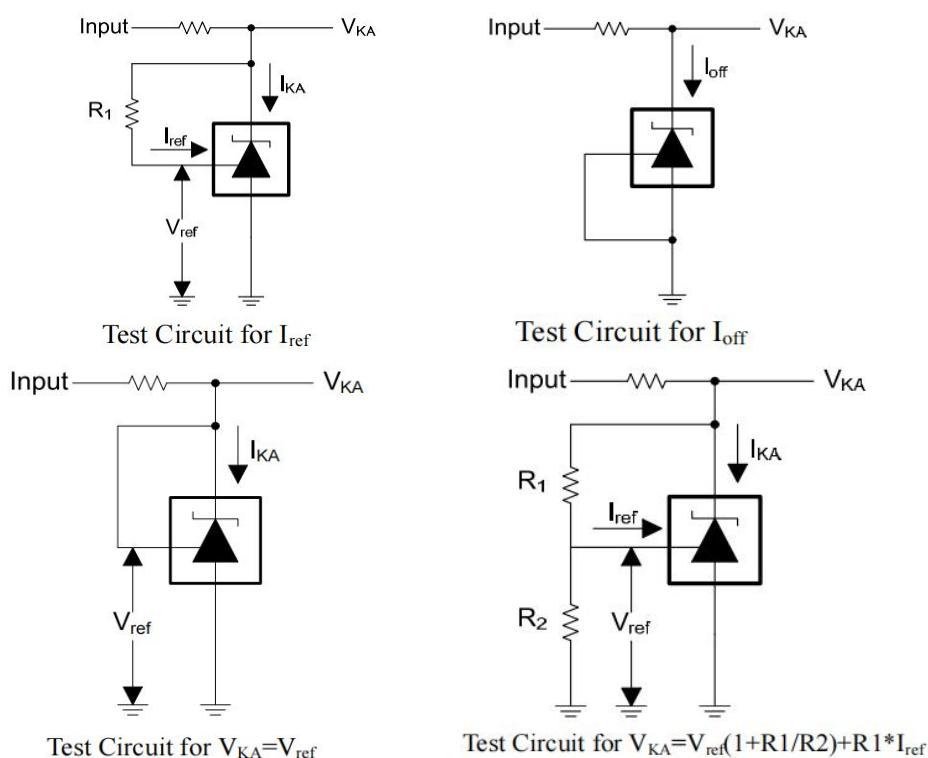
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|--|---|--------|-----|--------|---------------|
| Reference Input Voltage | V_{REF} | $V_{\text{KA}}=V_{\text{REF}}, I_{\text{KA}}=10\text{mA}$ | 1.2214 | | 1.2586 | V |
| Deviation of Reference Voltage Over Full Temperature Range | $\Delta V_{\text{REF(DEV)}}$ | $V_{\text{KA}}=V_{\text{REF}}, I_{\text{KA}}=10\text{mA}, 0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$ | | | 16 | mV |
| Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage | $\Delta V_{\text{REF}}/\Delta V_{\text{KA}}$ | $I_{\text{KA}}=10\text{mA}$ $\Delta V_{\text{KA}}=1.25\text{V} \sim 15\text{V}$ | | | 2.4 | mV/V |
| Deviation of Reference Input Current Over Full Temperature Range | $\Delta I_{\text{REF}}/\Delta T$ | $I_{\text{KA}}=10\text{mA}, R_1=10\text{k}\Omega, R_2=\infty, 0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$ | | | 0.6 | μA |
| Minimum Cathode Current for Regulation | $I_{\text{KA(min)}}$ | $V_{\text{KA}}=V_{\text{REF}}$ | | | 0.1 | mA |
| Off-Stage Cathode Current | $I_{\text{KA(OFF)}}$ | $V_{\text{KA}}=15\text{V}, V_{\text{REF}}=0$ | | | 0.5 | μA |
| Dynamic Impedance | Z_{KA} | $V_{\text{KA}}=V_{\text{REF}}, I_{\text{KA}}=0.1 \sim 20\text{mA}, f \leq 1\text{kHz}$ | | | 0.5 | Ω |

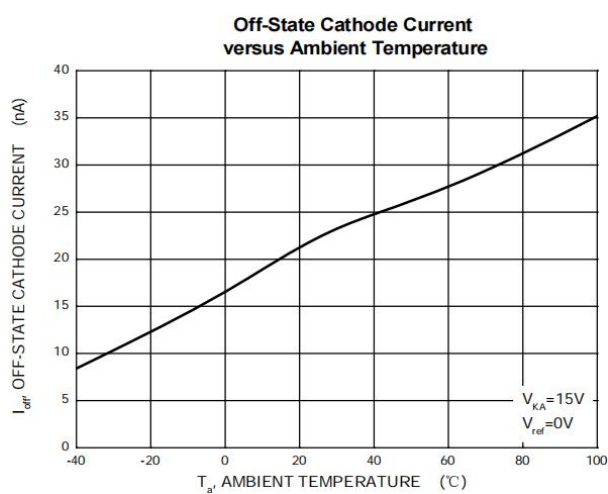
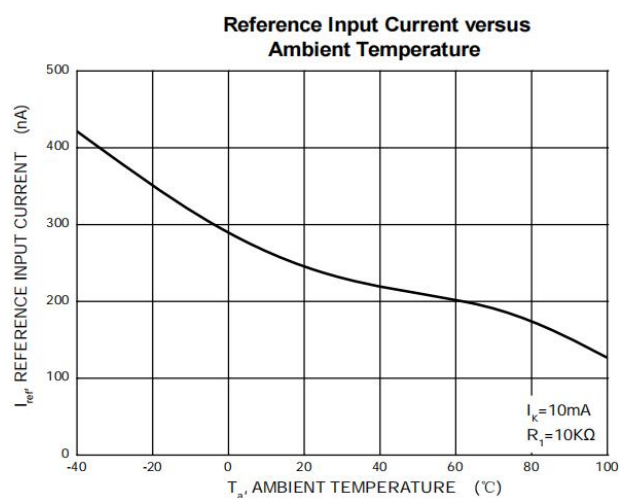
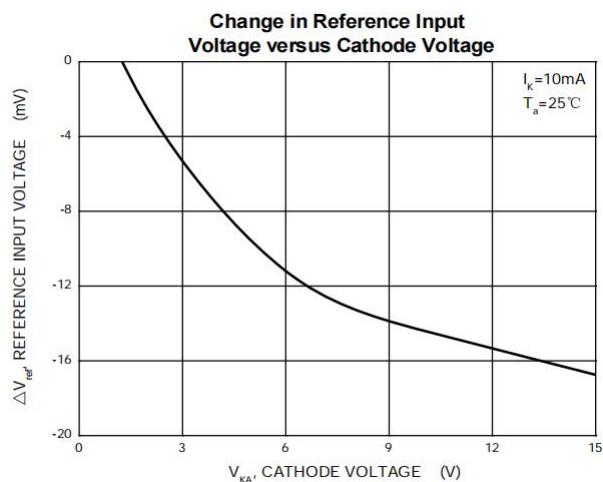
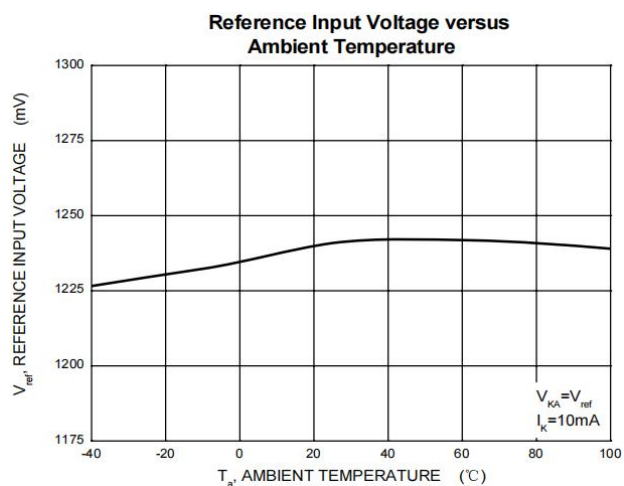
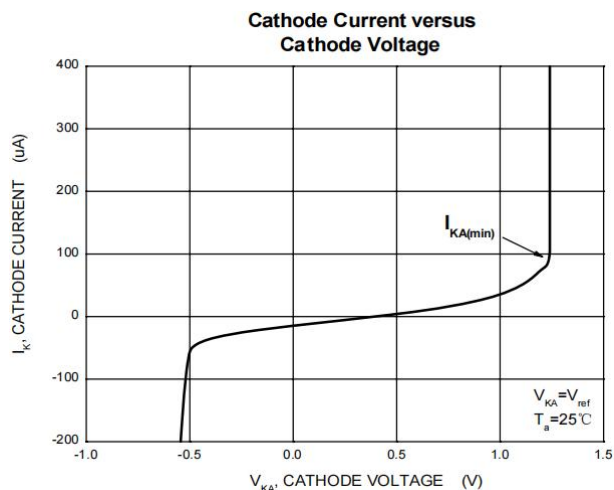
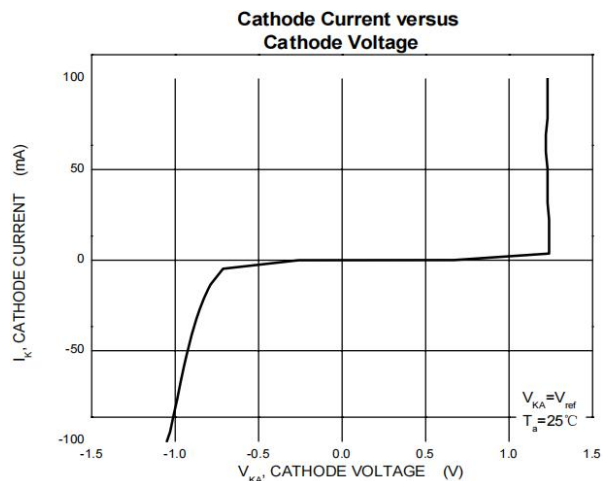
Classification OF V_{REF}

| Rank | 1% | 1.5% |
|-------|---------------|---------------|
| Range | 1.2276~1.2524 | 1.2214~1.2586 |

Test Circuit



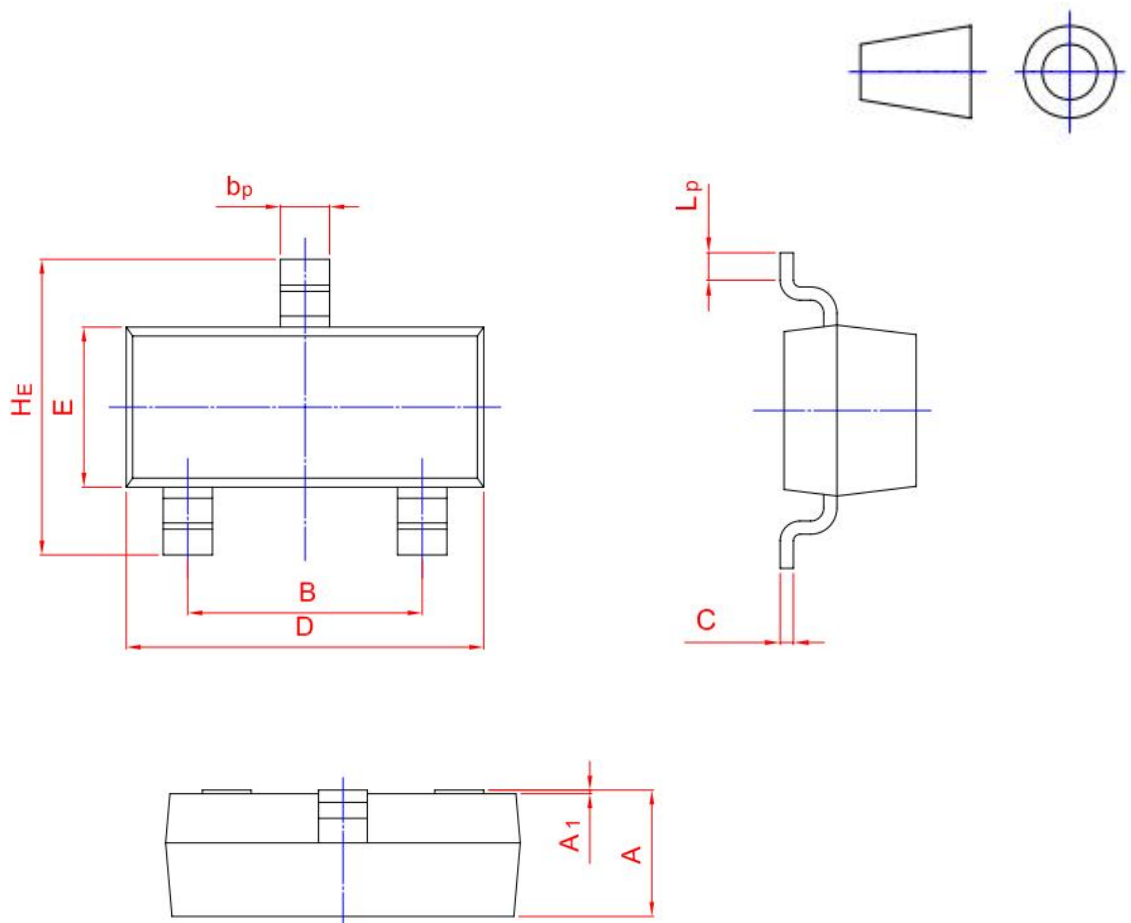
Typical Characteristics



Package Information

SOT-23

Dimensions in mm



| Unit | A | B | b_p | C | D | E | H_E | A_1 | L_p |
|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|--------------|
| mm | 1.40 0.95 | 2.04 1.78 | 0.50 0.35 | 0.19 0.08 | 3.10 2.70 | 1.65 1.20 | 3.00 2.20 | 0.100 0.013 | 0.50 0.20 |

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