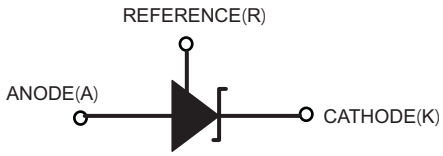
DESCRIPTION

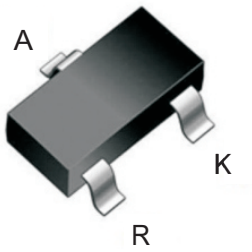
The JD432 is a three-terminal adjustable regulatorwith a guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between VREF （approximately 1.24V) and 18V with two external resistors. It provides very wide applications,including shunt regulator,series regulator,switching regulator,voltage reference and others.

SOT-23

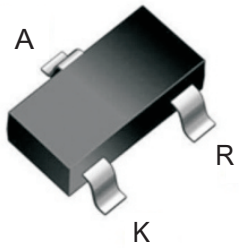


Features

- Precise Reference Voltage to 1.24V
- The JD432/JD432S precision reference is offered in two voltage tolerance: 0.5% and 1.0%.
- Fast turn-on response
- Sink current capability 55uA to 100mA
- 0.05Ω Typical Output Impedance



JD432



JD432S

Application

- Shunt regulor
- High-current shunt regulator
- Preceision current limiter

Absolute Maximum Ratings (Note 1)

Symbol	Parameter		Rating	Unit
V_{KA}	Cathode Voltage		20	V
I_{KA}	Cathode Current Range (Continuous)		-100 to 100	mA
I_{REF}	Reference Input Current Range		10	mA
P_D	Power Dissipation		Z, R Package: 770	mW
			N Package: 370	
θ_{JA}	Thermal Resistance (Junction to Ambient)	SOT-23	380	°C/W
T_J	Junction Temperature		+150	°C
T_{STG}	Storage Temperature Range		-65 to +150	°C

Note 1: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{KA}	Cathode Voltage	V_{REF}	18	V
I_{KA}	Cathode Current	0.1	100	mA
T_A	Operating Ambient Temperature Range	-40	+125	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Symbol	Parameter			Conditions		Min	Typ	Max	Unit
V_{REF}	Reference Voltage	0.5%	JD432A	V_{KA} = V_{REF}, I_{KA} = 10mA		1.234	1.240	1.246	V
			JD432SA						
		1%	JD432B			1.228	1.240	1.252	
			JD432SB						
ΔV_{REF}	Deviation of Reference Voltage Over Full Temperature Range			V_{KA} = V_{REF} I_{KA} = 10mA	0 to 70 ℃		2	10	mV
					-20 to 125 ℃		3	15	
					-40 to 125 ℃		8	25	
$\frac{\Delta V_{REF}}{\Delta V_{KA}}$	Ratio of Change in Reference Voltage to the Change in Cathode Voltage			I_{KA} = 10mA ΔV_{KA} = V_{REF} to 16V			-0.5	-1.5	mV/V
I_{REF}	Reference Current			IKA = 10mA, R1 = 10kΩ, R2 = ∞			1.5	0.4	μA
ΔI_{REF}	Deviation of Reference Current Over Full Temperature Range			I_{KA} = 10mA, R1 = 10kΩ R2 = , T = -20 to 85 ℃			0.1	0.4	μA
I_{KA} (Min)	Minimum Cathode Current for Regulation			V_{KA} = V_{REF}			55	80	uA
I_{KA} (Off)	Off-state Cathode Current			V_{KA} = 18V, V_{REF} = 0			0.04	0.50	μA
				V_{KA} = 6V, V_{REF} = 0			0.01	0.05	
Z_{KA}	Dynamic Impedance			V_{KA} = V_{REF}, I_{KA} = 1 to 100mA, f ≤ 1.0kHz			0.05	0.15	Ω

FIGURE 1. TEST CIRCUIT FOR VKA = VREF

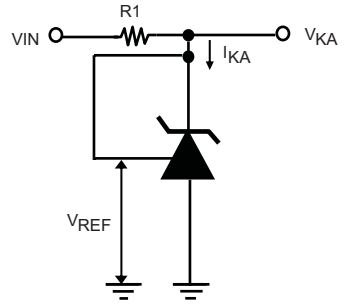


FIGURE 2. TEST CIRCUIT FOR VKA > VREF

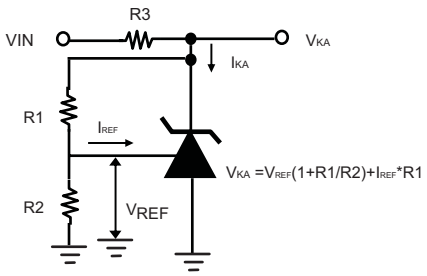
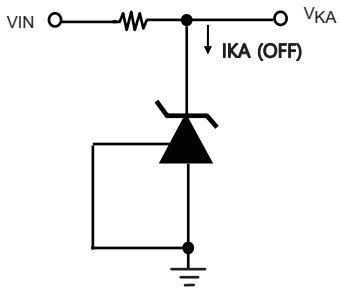


FIGURE 3. TEST CIRCUIT FOR IKA (OFF)



Typical Characteristics

Fig.1 Cathode Current Vs Cathode Voltage

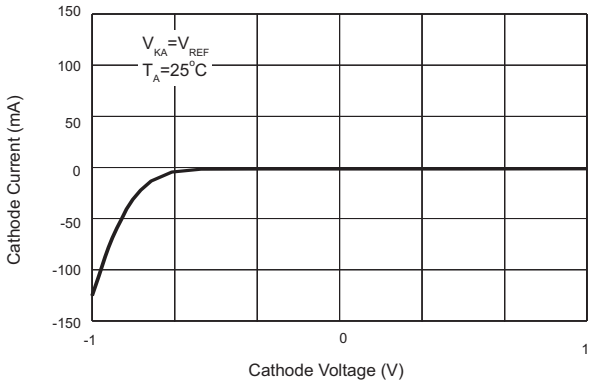


Fig.2 Cathode Current Vs Cathode Voltage

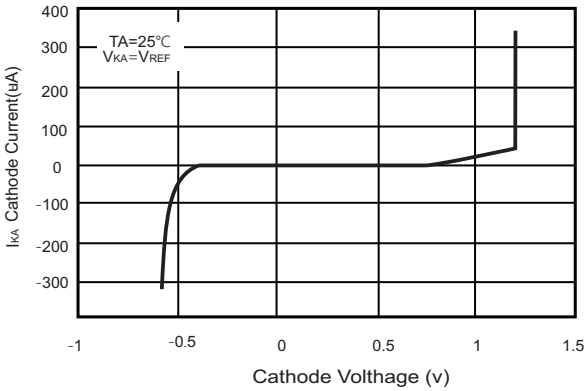


Fig.3 Reference Voltage vs. Ambient Temperature

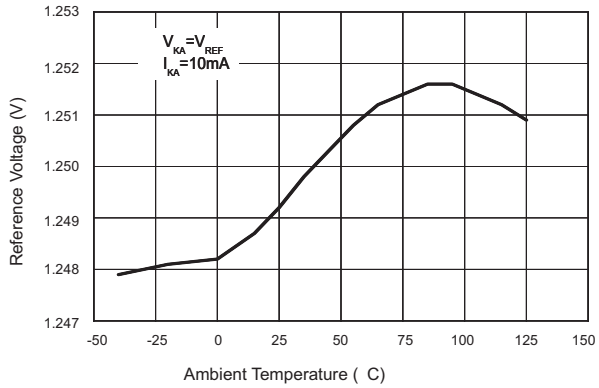


Fig.4 Pulse Response of Input and Output Voltage

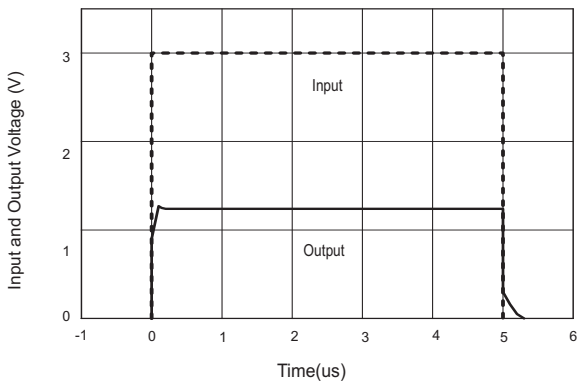


Fig.5 Dynamic Impedance vs. Frequency

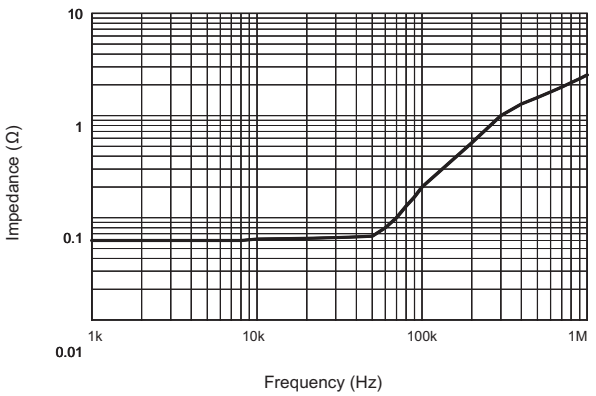


Fig.6 Small Signal Voltage Gain vs. Frequency

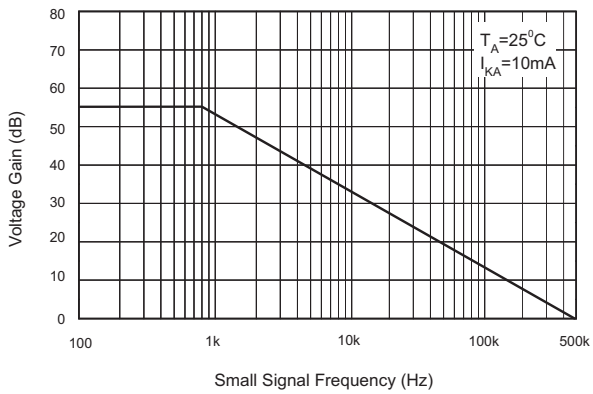


Fig.7 Ratio of Delta Reference Voltage to the Ratio of Delta Cathode Voltage vs. Ambient Temperature

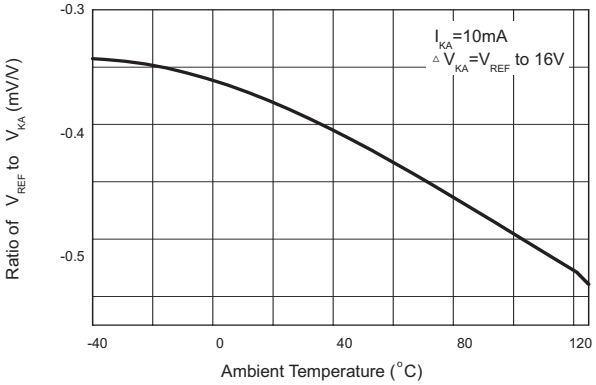
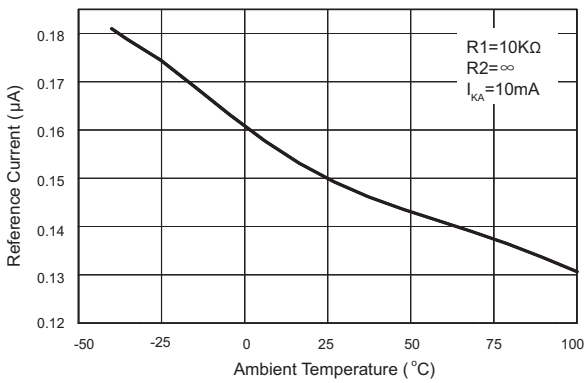
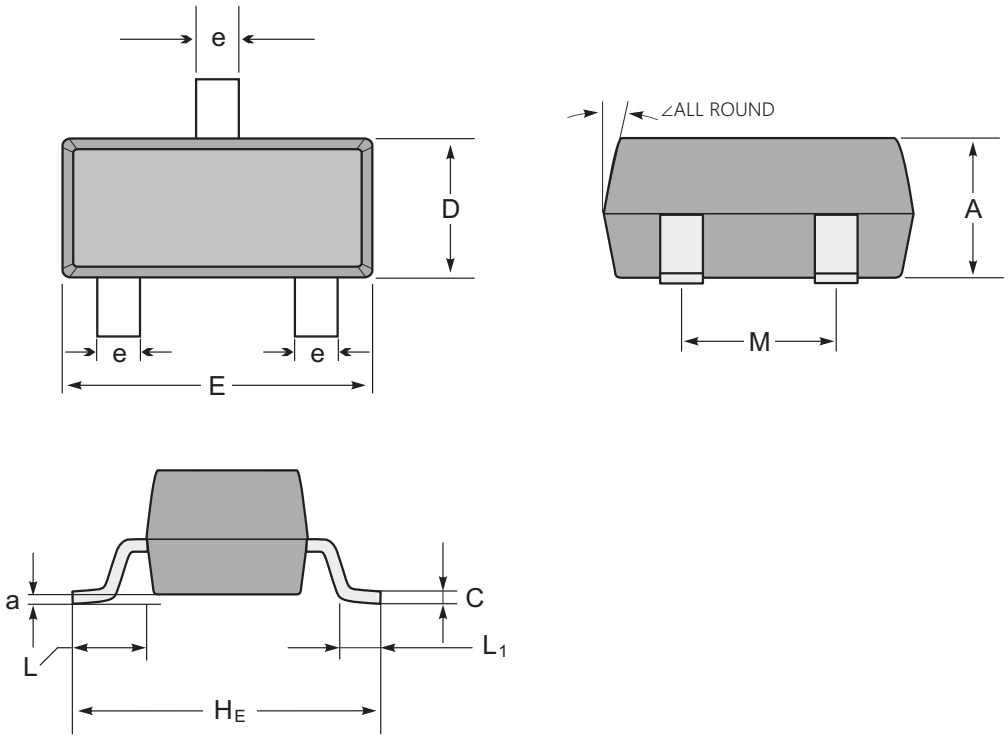


Fig.8 Reference Current vs. Ambient Temperature



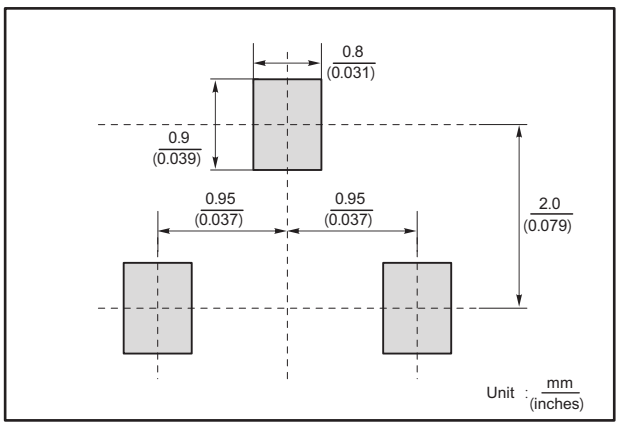
SOT-23 Package Outline Dimensions



SOT-23 mechanical data

UNIT		A	C	D	E	HE	e	M	L	L1	a	∠
mm	max	1.1	0.20	1.4	3.0	2.6	0.6	1.95	0.55 (ref)	0.36 (ref)	0.15	12°
	min	0.9	0.08	1.2	2.8	2.2	0.35	1.7			0.0	
mil	max	43	7.9	55	118	102	24	77	22 (ref)	14 (ref)	6	
	min	35	3.1	47	110	87	13	67			0.0	

The recommended mounting pad size



Marking

Number Type	Marking code
JD432A	J432A
JD432B	J432B
JD432SA	432JA
JD432SB	432JB