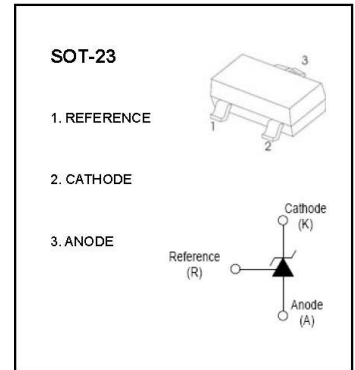


贴片线性调整器 NSP- 431K系列 SOT-23 Encapsulate Adjustable Reference Source

※ DEVICE DESCRIPTION

The NSP- 431K is a three-terminal adjustable shunt regulator offering excellent temperature stability . This device has a typical dynamic Output impedance of 0.2Ω. The device can be used as a replacement for zener diodes in many applications.



※ FEATURES

- ❖ The output voltage can be adjusted to 36V
- ❖ Low dynamic output impedance, its typical value is 0.2Ω
- ❖ Trapping Current capability is 1 to 100mA
- ❖ Low output noise voltage
- ❖ Fast on -state response
- ❖ The effective temperature compensation in the working range of full temperature
- ❖ The typical value of the equivalent temperature factor in the whole temperature scope is 50 ppm/°C

※ APPLICATIONS

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

※ ABSOLUTE MAXIMUM RATINGS

Operating temperature range applies unless otherwise specified

Parameter	Symbol	Value	Units
Cathode Voltage	$V_{KA}$	37	V
Cathode Current Range (Continuous)	$I_{KA}$	-100~+150	mA
Reference Input Current Range	$I_{ref}$	0.05~+10	mA
Power Dissipation	$P_D$	300	mW
Operating Ambient Temperature Range	$T_A$	-40~+85	°C
Storage Temperature Range	$T_{stg}$	-65~+150	°C
Operating Junction Temperature	$T_j$	150	°C

※ ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Reference Input Voltage (Fig.1)	Vref	$V_{KA}=V_{REF}, I_{KA}=10mA$	2.445		2.545	V	
Deviation of reference input Voltage Over temperature (note) (Fig.1)	$\Delta V_{ref} / \Delta T$	$V_{KA}=V_{REF}, I_{KA}=10mA, T_{min} \leq T_a \leq T_{max}$		4.5	17	mV	
Ratio Of Change in Reference Input Voltage to the change in Cathode Voltage (Fig.2)	$\Delta V_{ref} / \Delta V_{KA}$	$I_{KA}=10mA$	$\Delta V_{KA}=10V-V_{REF}$		-1.0	-2.7	mV/V
			$\Delta V_{KA}=36V-10V$		-0.5	-2.0	mV/V
Reference Input Current (Fig.2)	Iref	$I_{KA}=10mA, R1=10K\Omega, R2=\infty$		1.5	4	$\mu A$	
Deviation Of Reference Input Current Over Full Temperature Range (Fig.2)	$\Delta I_{ref} / \Delta T$	$I_{KA}=10mA, R1=10K\Omega, R2=\infty, T_a=full$ Temperature		0.4	1.2	$\mu A$	
Minimum cathode Current for Regulation (Fig.1)	$I_{KA}(min)$	$V_{KA}=V_{REF}$		0.45	1.0	mA	
Off-state cathode Current (Fig.3)	$I_{KA}(OFF)$	$V_{KA}=40V, V_{REF}=0$		0.05	0.5	$\mu A$	
Dynamic Impedance	$Z_{KA}$	$V_{KA}=V_{REF}, I_{KA}=1$ to $100mA, f \leq 1.0kHz$		0.15	0.5	$\Omega$	

note: TMIN=0°C ,TMAX=+70°C

※ CLASSIFICATION OF Vref

Rank	0.5%	1%	2%
Range	2.482-2.508	2.47-2.52	2.445-2.545

Figure 1. Test Circuit for  $V_{KA} = V_{ref}$

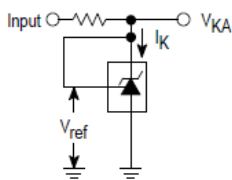


Figure 2. Test Circuit for  $V_{KA} > V_{ref}$

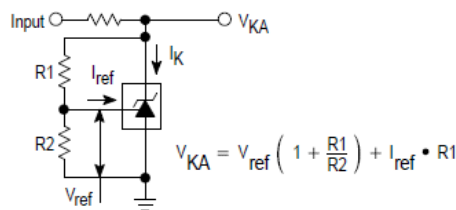


Figure 3. Test Circuit for  $I_{off}$

