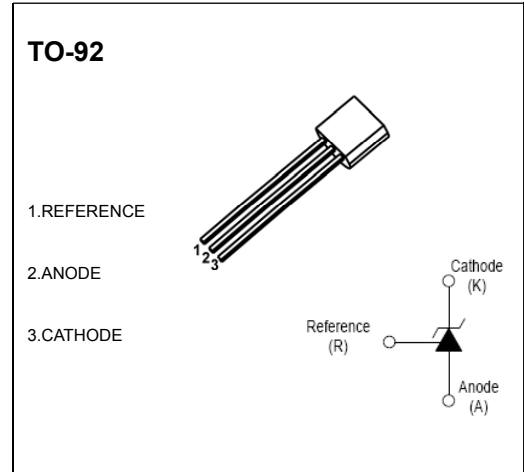


## TO-92 Encapsulate Adjustable Reference Source

CJ431K Adjustable Accurate Reference Source

### 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
- The typical value of the equivalent temperature factor in the whole temperature scope is 50 ppm/°C
- The effective temperature compensation in the working range of full temperature
- Low output noise voltage
- Fast on-state response
- ESD protected up to 2KV



### 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	$P_D$	770	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	162	°C/W
Operating temperature	$T_{opr}$	-40~+85	°C
Storage temperature Range	$T_{stg}$	-65~+150	°C

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reference input voltage (Fig.1)	$V_{ref}$	$V_{KA}=V_{REF}, I_{KA}=10mA$	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)	$\Delta V_{ref}/\Delta V_{KA}$	$I_{KA}=10mA$	$\Delta V_{KA}=10V \sim V_{REF}$	-1.0	-2.7	mV/V
			$\Delta V_{KA}=36V \sim 10V$	-0.5	-2.0	mV/V
Reference input current (Fig.2)	$I_{ref}$	$I_{KA}=10mA, R_1=10k\Omega$ $R_2=\infty$		1.5	4	$\mu A$
Deviation of reference input current over full temperature range (Fig.2)	$\Delta I_{ref}/\Delta T$	$I_{KA}=10mA, R_1=10k\Omega$ $R_2=\infty$ $T_A=full\ Temperature$		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:  $T_{MIN}=0^\circ C, T_{MAX}=+70^\circ C$

### CLASSIFICATION OF $V_{ref}$

Rank	0.5%	1%
Range	2.482-2.508	2.47-2.52