

深圳市晶泰源电子有限公司

TL431 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

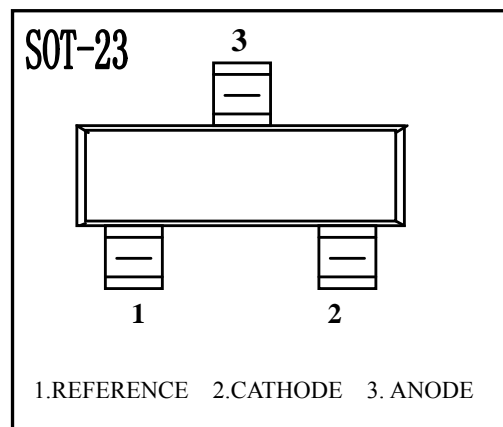
The typical value of the equivalent temperature factor in the whole

temperature scope is $50\text{ ppm}/^\circ\text{C}$

The effective temperature compensation in the working range of full

temperatureLow output noise voltage

Fast on-state response



ABSOLUTE MAXIMUM RATINGS(Operating temperature range applies unless otherwise specified)

Parameter	SYMBOL	VALUE	UNITS
Cathode Voltage	V_{KA}	36	V
Cathode Current(Continous)	I_{KA}	-100-+150	mA
Reference input Current Range	I_{ref}	0.05-+10	mA
Power Dissipation	P_D	0.2	W
Operating temperature	T_{opr}	0-70	$^\circ\text{C}$
Storage temperature Range	T_{stg}	-65-+150 $^\circ\text{C}$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amp}=25^\circ\text{C}$ unless otherwise specified) Note: $T_{MIN}=0^\circ\text{C}, T_{MAX}=+70^\circ\text{C}$

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Reference Input Voltage	V_{ref}	$V_{KA}=V_{REF}, I_{KA}=10\text{mA}$	2.445	2.495	2.545	V
Deviation of reference Input Voltage Over temperature(note)	$\Delta V_{ref}/\Delta T$	$V_{KA}=V_{REF}, I_{KA}=10\text{mA}$ $T_{min} \leq T_a \leq T_{max}$		4.5	17	mV
Ratio Of Change in Reference Input Voltage to the change in Cathode Voltage	$\Delta V_{ref}/\Delta V_{KA}$	$I_{KA}=10\text{mA}$ $\Delta V_{KA} = 10\text{V} \sim V_{REF}$		-1.0	-2.7	mV/V
		$\Delta V_{KA} = 36\text{V} \sim 10\text{V}$		-0.5	-2.0	mV/V
Reference Input Current	I_{ref}	$I_{KA}=10\text{ mA}, R_1=10\text{ K } \Omega, R_2=\infty$		1.5	4	μA
Deviation Of Reference Input Current Over Full Temperature Range	$\Delta I_{ref}/\Delta T$	$I_{KA}=10\text{ mA}, R_1=10\text{ K } \Omega, R_2=\infty$ $T_A=\text{full Temperature}$		0.4	1.2	μA
Minimum cathode current for regulation	$I_{KA}(\text{min})$	$V_{KA} = V_{REF}$		0.45	1.0	mA
Off-state cathode Current	$I_{KA}(\text{OFF})$	$V_{KA}=36\text{V}, V_{REF}=0$		0.05	1.0	μA
Dynamic Impedance	Z_{KA}	$V_{KA} = V_{REF}, I_{KA}=1\text{ to }100\text{mA}$ $f \leq 1.0\text{KHZ}$		0.15	0.5	Ω

Note: $T_{MIN}=0^\circ\text{C}, T_{MAX}=+70^\circ\text{C}$

CLASSIFICATION OF V_{ref}

Rank	0.5%	1%	2%
Range	2.483-2.507	2.470-2.520	2.445-2.545