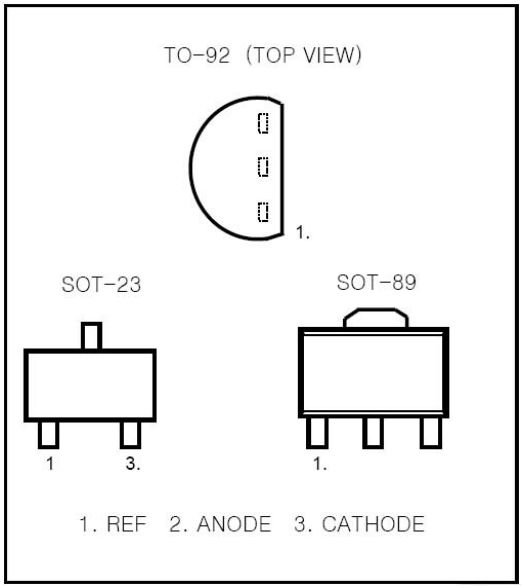
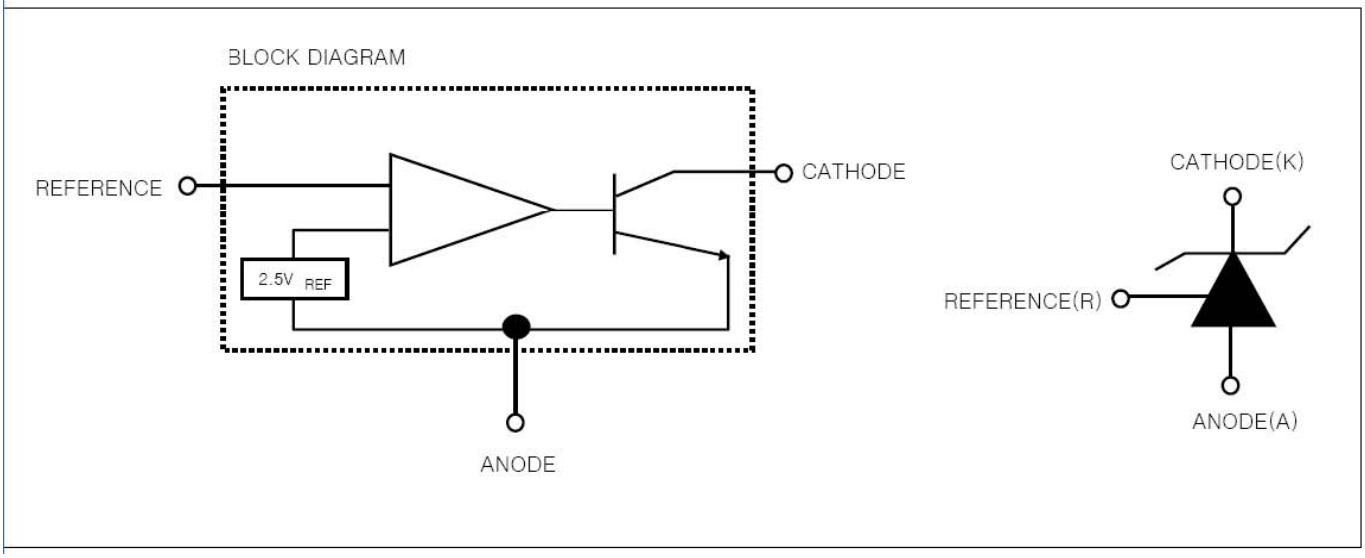
- Equivalent Full Range Temperature Coefficient 50PPM/℃
- Temperature Compensated For Operation Over Full Rate Operating Temperature Range
- Adjustable Output Voltage
- Fast Turn-on Response
- Sink Current Capability 1 mA to 100 mA
- Low (0.27ΩTyp.) Dynamic Output Impedance
- Low Output Noise



DESCRIPTION

The 431-214 is three-terminal adjustable shunt regulator with specified thermal stability. The output voltage may be set to any value between VREF(Approx. 2.495V) and 36V with two external resistors. This device has a typical output impedance of 0.2Ω.Active output circuitry provides a very sharp turn-on characteristic, making this device excellent replacement for zener diodes in many application

FUNCTION BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

(Full Operating Ambient Temperature Range Applies Unless Otherwise Noted)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Cathode Voltage	V_{KA}	40	V
Continuous Cathode Current Range	I_{KA}	−100~+150	mA
Reference Input Current Range	I_{REF}	0.05~10	mA
Junction Temperature	T_J	150	℃
Operating Temperature	T_{OPR}	−20 ~ 85	℃
Storage Temperature	T_{STG}	−65 ~ 150	℃
Total Power Dissipation	P_D	700	mW

ELECTRICAL CHARACTERISTICS

(T_a = 25°C, $V_{KA} = V_{REF}$, I_K = 10mA unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Reference Input Voltage	V_{REF}	$V_{KA} = V_{REF}$, I_K = 10mA	2.483	2.495	2.507	V
Deviation of Reference Input Voltage Over Full Temperature Range	$V_{REF(dev)}$	$T_{min} \le Ta \le T_{max}$		3	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\Delta V_{REF}/\Delta V_{KA}$	ΔV_{KA} = 10V-V_{REF}	-0.4	0.0	2.7	mV/V
		ΔV_{KA} = 36V- 10V	-0.4	0.0	2.0	
Reference Input Current	I_{REF}	R_1 = 10KΩ, R_2 = ∞		1.8	4	μA
Deviation of Reference Input Current Over Full Temperature Range	$I_{REF(dev)}$	R_1 = 10KΩ, R_2 = ∞		0.4	1.2	μA
Minimum Cathode Current for Regulation	$I_{K(min)}$			0.25	0.5	mA
Off-State Cathode Current	$I_{K(off)}$	V_{KA} = 40 V, V_{REF} = 0		0.17	0.9	μA
Dynamic Impedance	Z_{KA}	I_K = 10mA to 100 mA, f ≤ 1.0KHz		0.27	0.5	Ω

Fig. 1 Test Circuit for $V_{KA}=V_{REF}$

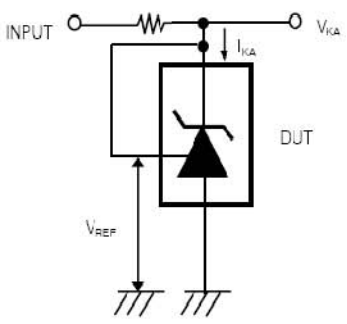


Fig. 2 Test Circuit for $V_{KA} \ge V_{REF}$

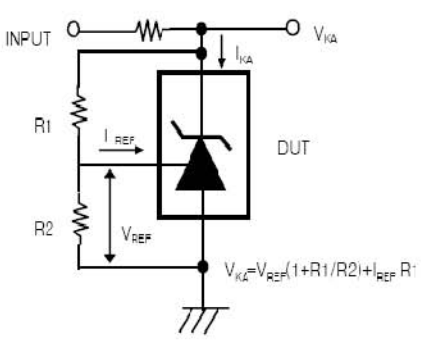


Fig. 3 Test Circuit for I_{KA} (off)