

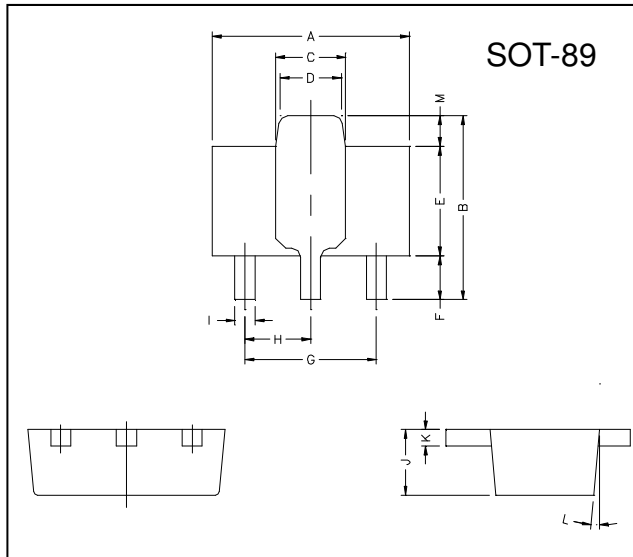
## GM431

### Adjustable Shunt Regulator

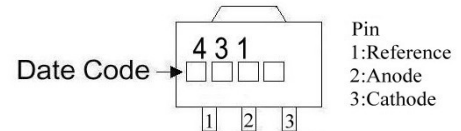
#### Description

The GM431 series are three-terminal adjustable regulators with guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between VREF (approximately 2.495v) and 36v with two external resistors. It provides very wide applications, including shunt regulator, series regulator, switching regulator, voltage reference and others.

#### Package Dimensions



#### Marking :



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.4	4.6	G	3.00	REF.
B	4.05	4.25	H	1.50	REF.
C	1.50	1.70	I	0.40	0.52
D	1.30	1.50	J	1.40	1.60
E	2.40	2.60	K	0.35	0.41
F	0.89	1.20	L	5°	TYP.
			M	0.70	REF.

#### Absolute Maximum Ratings at Ta = 25°C

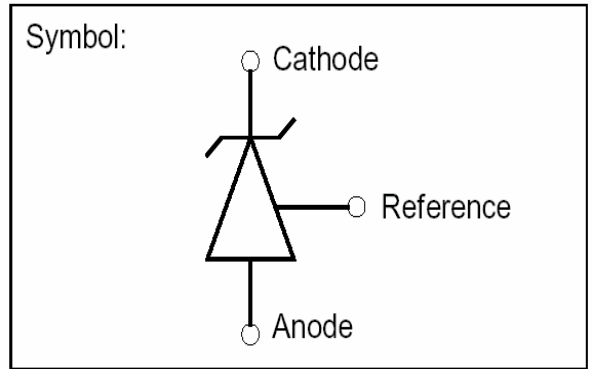
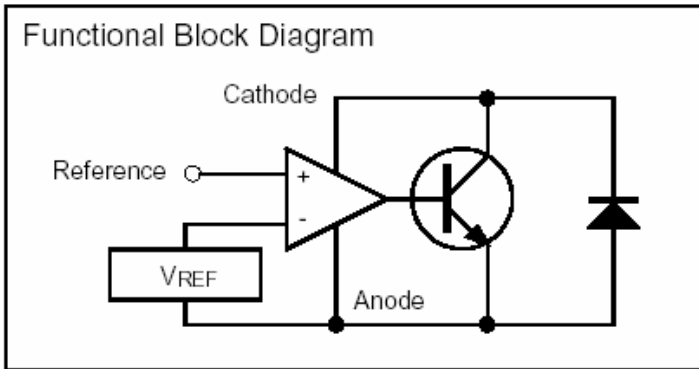
Parameter	Symbol	Ratings	Unit
Junction Temperature	Tj	+150	°C
Storage Temperature	Tstg	-65 ~ +150	°C
Cathode Voltage	VKA	37	V
Cathode Current Range(Continuous)	IKA	-100~+150	mA
Reference Input Current Range	IREF	-0.05~+10	mA
Total Power Dissipation	PD	1.0	W

#### Characteristics at Ta = 25°C

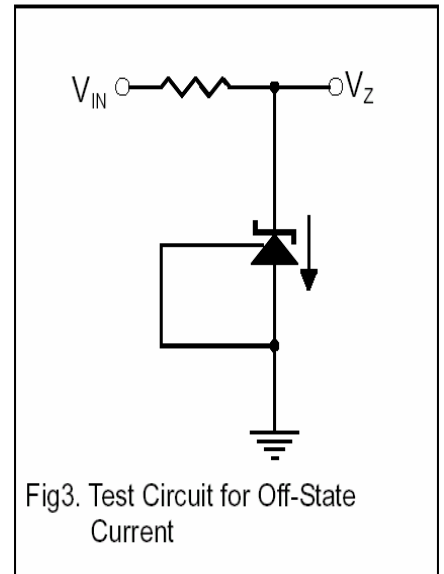
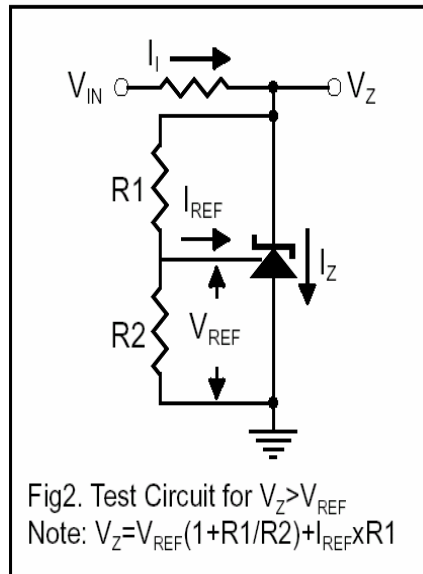
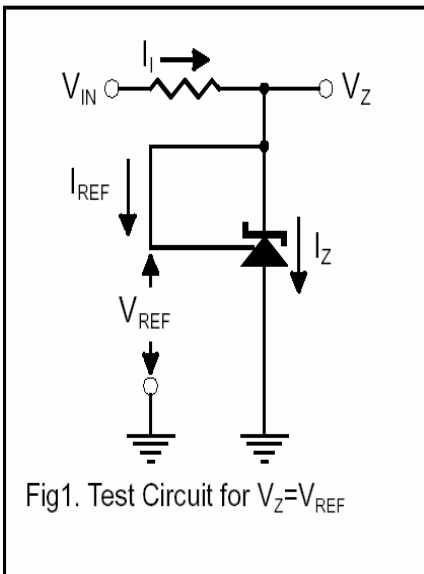
Parameter	Symbol	Min	Typ.	Max.	Unit	Test Conditions
Cathode Voltage	VKA	VREF	-	36	V	
Cathode Current	IKA	1	-	100	mA	
Reference Input Voltage	VREF	2.445	2.495	2.545	V	VKA= VREF, I <sub>k</sub> =10mA
GM431B		2.470	2.495	2.520		
GM431A		2.483	2.495	2.507		
Deviation of reference Input Voltage Over temperature(note)	ΔVREF/ΔT	-	4.5	17	mV	VKA=VREF, I <sub>k</sub> =10mA T <sub>min</sub> ≤ Ta ≤ T <sub>max</sub>
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	ΔVREF/ΔVKA	-	-1.0	-2.7	mV/V	I <sub>k</sub> =10mA ΔVKA=10V~VREF ΔVKA=36V~10V
		-	-0.5	-2.0		
Reference Input Current	IREF	-	1.5	4	uA	I <sub>k</sub> =10mA, R1=10KΩ, R2=∞
Deviation of reference Input Current Over Full Temperature Range	ΔIREF/ΔT	-	0.4	1.2	uA	I <sub>k</sub> =10mA, R1=10KΩ, R2=∞ TA=Full Temperature
Minimum Cathode Current for Regulation	IKA(min)	-	0.45	1.0	mA	VKA=VREF
Off-State Cathode Current	IKA(off)	-	0.05	1.0	uA	VKA=36V, VREF=0
Dynamic Impedance	Z <sub>k</sub>	-	0.15	0.5	Ω	VKA=VREF, I <sub>k</sub> =1 to 100mA, F≤1.0KHz

Note: T<sub>min</sub>= 0°C, T<sub>max</sub>=+70°C

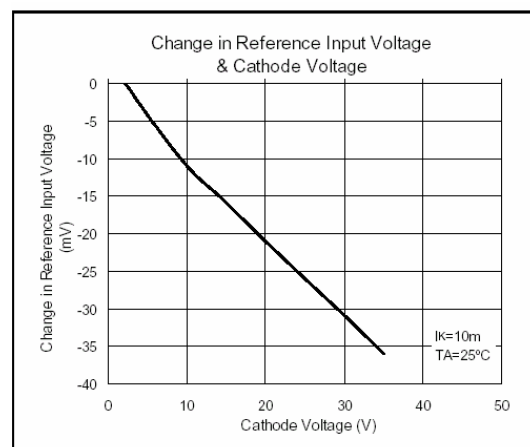
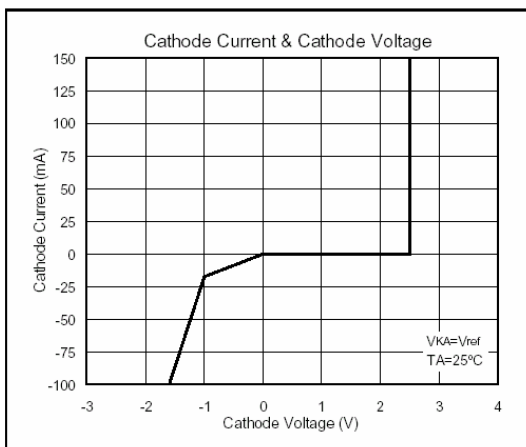
## Functional Block Diagram & Symbol

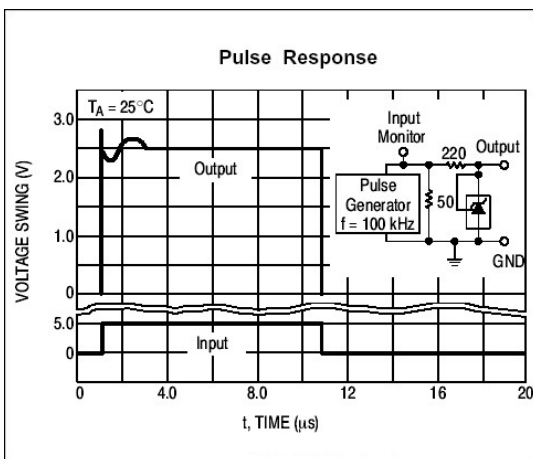
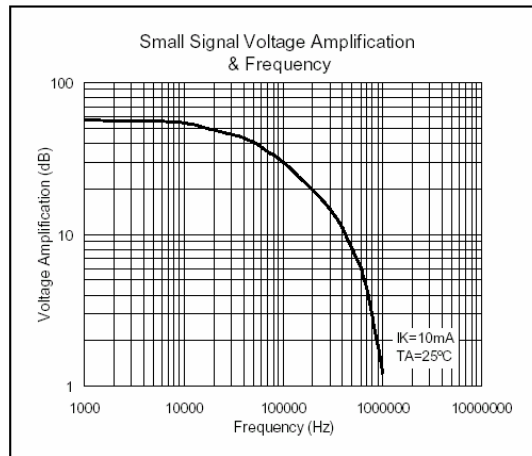
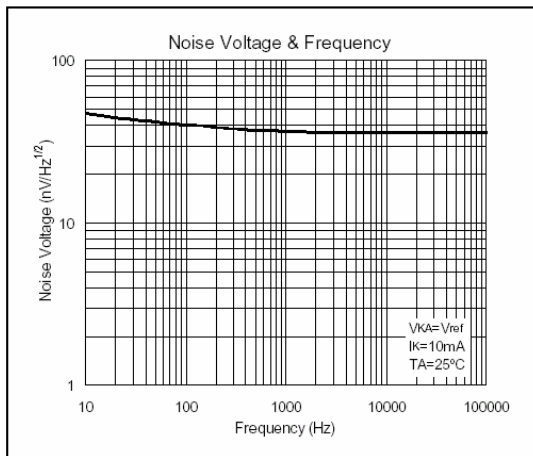
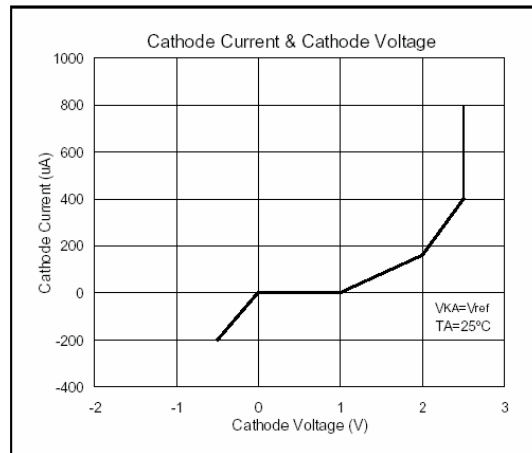
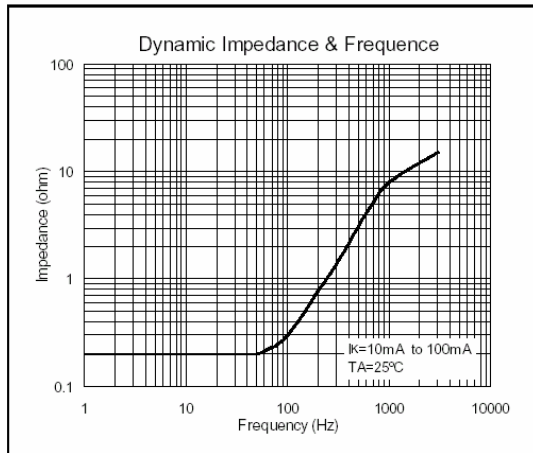


## Test Circuits



## Characteristics Curve





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