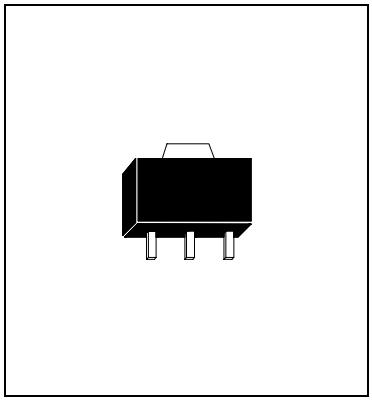
H431AM/BM/CM

AJDUSTABLE SHUNT REGULATOR



Description

The H431XM series are three-terminal adjustable regulators with guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between V_{REF}(approximately 2.495 volts) and 36 volts with two external resistors. These devices have a typical dynamic output impedance of 0.2Ω. Active output circuitry provides a very sharp turn-on characteristic, making these devices excellent replacement for zener diodes in many applications.

Features

- Programmable output voltage
- Temperature coefficient is 50ppm/°C typical
- Temperature compensated for operation over
- full temperature range
- Low output noise voltage
- Fast turn on response

Classification

Rank	A	B	C
V_{REF}	2.495±2%	2.495±1%	2.495±0.5%

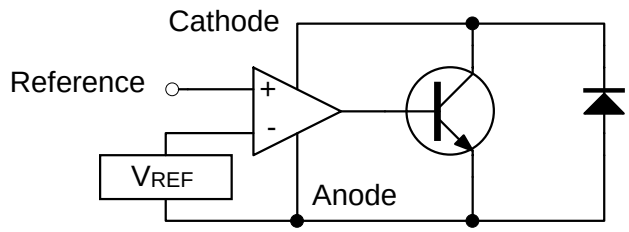
Absolute Maximum Ratings

(Operating temperature range applies unless otherwise specified)

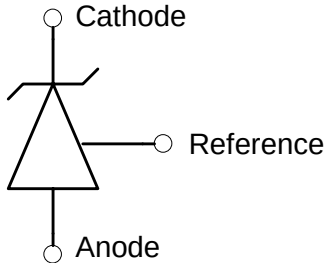
Characteristics	Symbol	Value	Unit
Cathode Voltage	V_{KA}	37	V
Cathode Current Range (Continuous)	I_K	-100~+150	mA
Reference Input Current Range	I_{REF}	0.05~+10	mA
Power Dissipation	P_D	770	mW
Operating Temperature Range	T_{opr}	0~+70	°C
Storage Temperature Range	T_{stg}	-65~+150	°C

Functional Block Diagram & Symbol

Functional Block Diagram :



Symbol :



Test Circuits

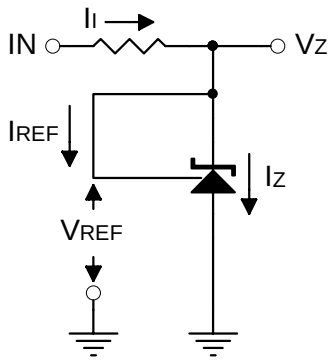


Fig1. Test Circuit for $V_Z=V_{REF}$

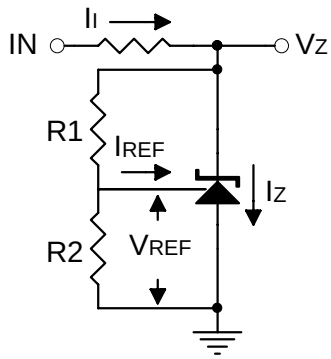


Fig 2. Test Circuit for $V_Z>V_{REF}$
Note : $V_Z=V_{REF}(1+R_1/R_2)+I_{REF}xR_1$

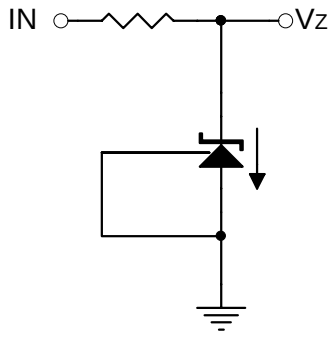
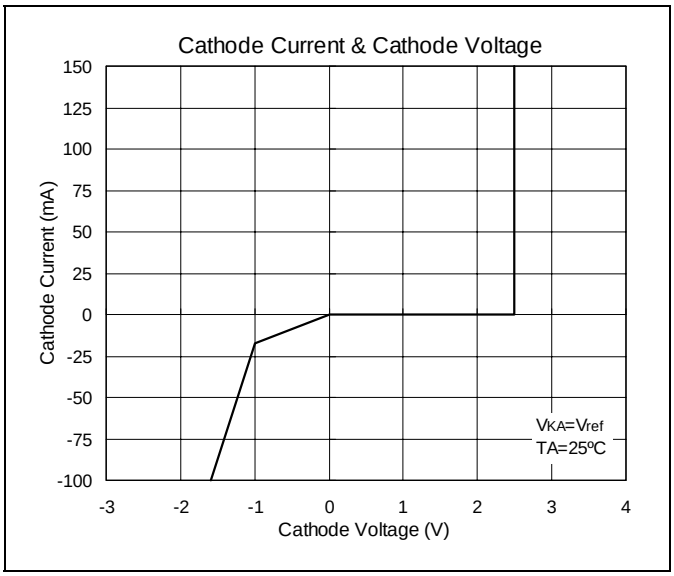


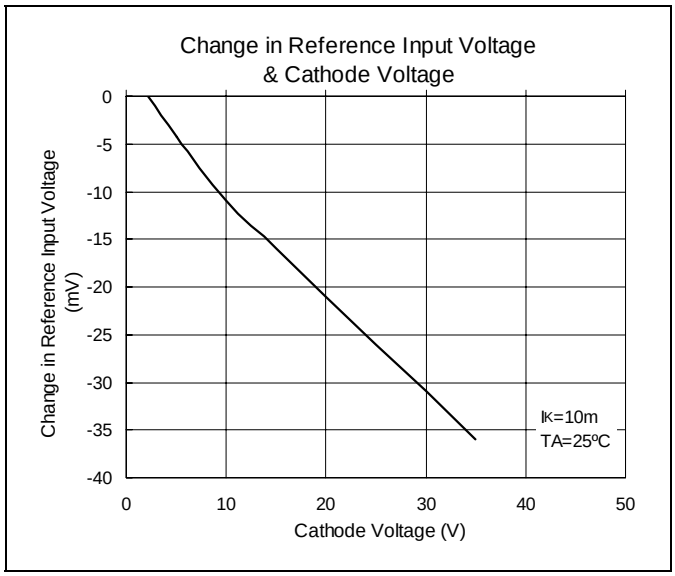
Fig3. Test Circuit for Off-State Current

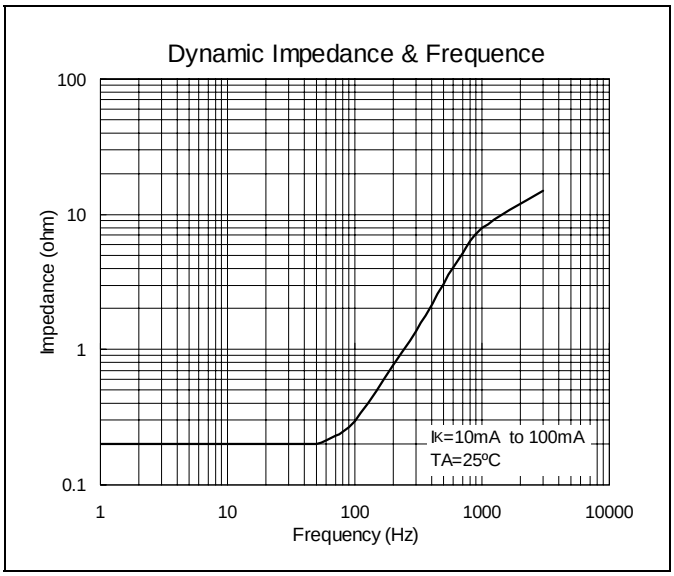
Electrical Characteristics (Ta=25°C unless otherwise specified)

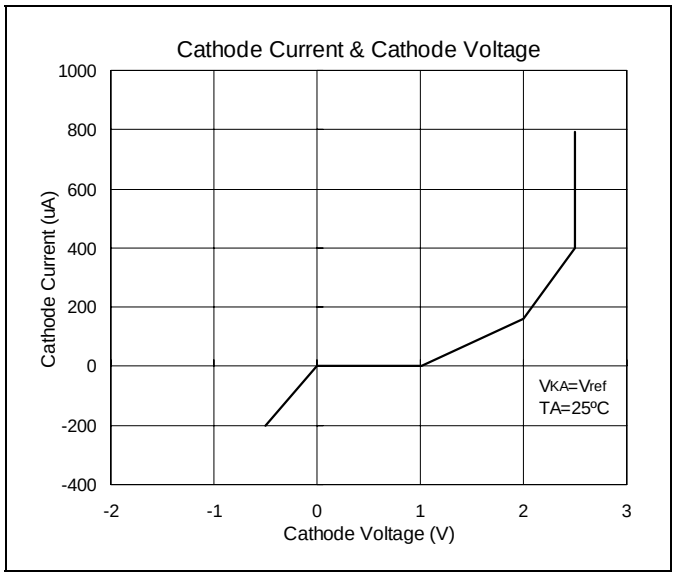
Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Input Voltage H431AM	V_{REF}	$V_{KA}=V_{REF}$, I_K=10mA	2.445	2.495	2.545	V
H431BM			2.470	2.495	2.520	
H431CM			2.480	2.495	2.510	
Deviation of Reference Input Voltage Over-Temperature	$V_{REF(dev)}$	$V_{KA}=V_{REF}$, I_K=10mA $T_{min}\leq T_a\leq T_{max}$	-	4	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\Delta V_{REF}/\Delta V_{KA}$	I_K=10mA, ΔV_{KA}=10V-V_{REF}	-	-1.4	-2.7	mV
		I_K=10mA, ΔK_{KA}=36V-10V	-	-1.0	-2.0	V
Reference Input Current	I_{REF}	I_K=10mA, R_1=10kΩ, R_2=∞	-	2	4	uA
Deviation of Reference Input Current Over Full Temperature Range	$I_{REF(dev)}$	I_K=10mA, R_1=10kΩ, R_2=∞, T_a=Full Range	-	0.4	1.2	uA
Minimum Cathode Current for Regulation	$I_{K(min)}$	$V_{KA}=V_{REF}$	-	0.4	1.0	mA
Off-State Cathode Current	$I_{K(off)}$	V_{KA}=36V, V_{REF}=0	-	0.1	1.0	uA
Dynamic impedance	Z_{KA}	$V_{KA}=V_{REF}$, f≤1.0KHz I_K=1 to 100mA	-	0.2	0.5	Ω

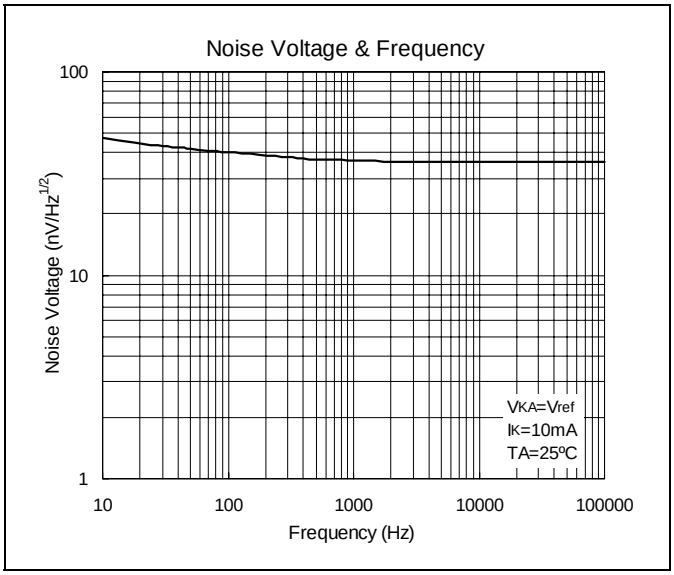
Characteristics Curve

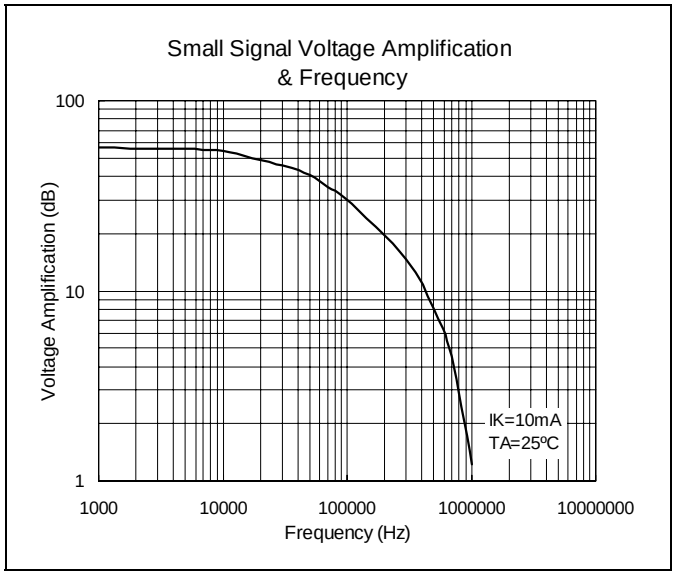




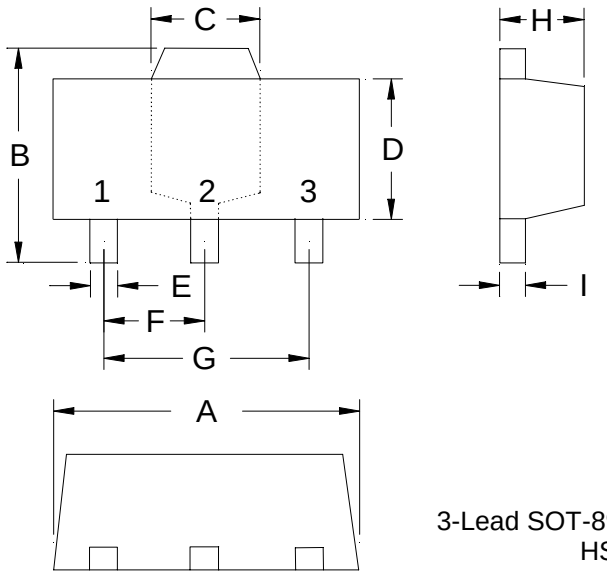




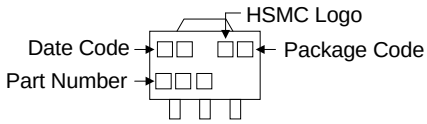




SOT-89 Dimension



Marking :



Style : Pin 1.Reference 2.Anode 3.Cathode

3-Lead SOT-89 Plastic Surface Mounted Package
HSMC Package Code : M

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0583	0.0598	1.48	1.52
B	0.1594	0.1673	4.05	4.25	G	0.1165	0.1197	2.96	3.04
C	0.0591	0.0663	1.50	1.70	H	0.0551	0.0630	1.40	1.60
D	0.0945	0.1024	2.40	2.60	I	0.0138	0.0161	0.35	0.41
E	0.0141	0.0201	0.36	0.51					

Notes : 1.Dimension and tolerance based on our Spec. dated May. 05,1996.
2.Controlling dimension : millimeters.
3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

Material :

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

Head Office And Factory :

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