

Description

The SL432 series are 3-terminal precision shunt regulators that are programmable over a wide voltage range of 1.24V to 16V with 1.0%, 2.0% tolerance. The SL432 series have a low dynamic impedance of 0.25Ω . These features make the SL432 series an excellent replacement for zener diodes in numerous applications circuits that require a precision reference voltage.

Features

- Low voltage operation 1.24V
- Programmable output voltage from 1.24V to 16 V
- Voltage reference tolerance 1.0%, 2.0%
- Wide operating current range of 60uA to 30mA

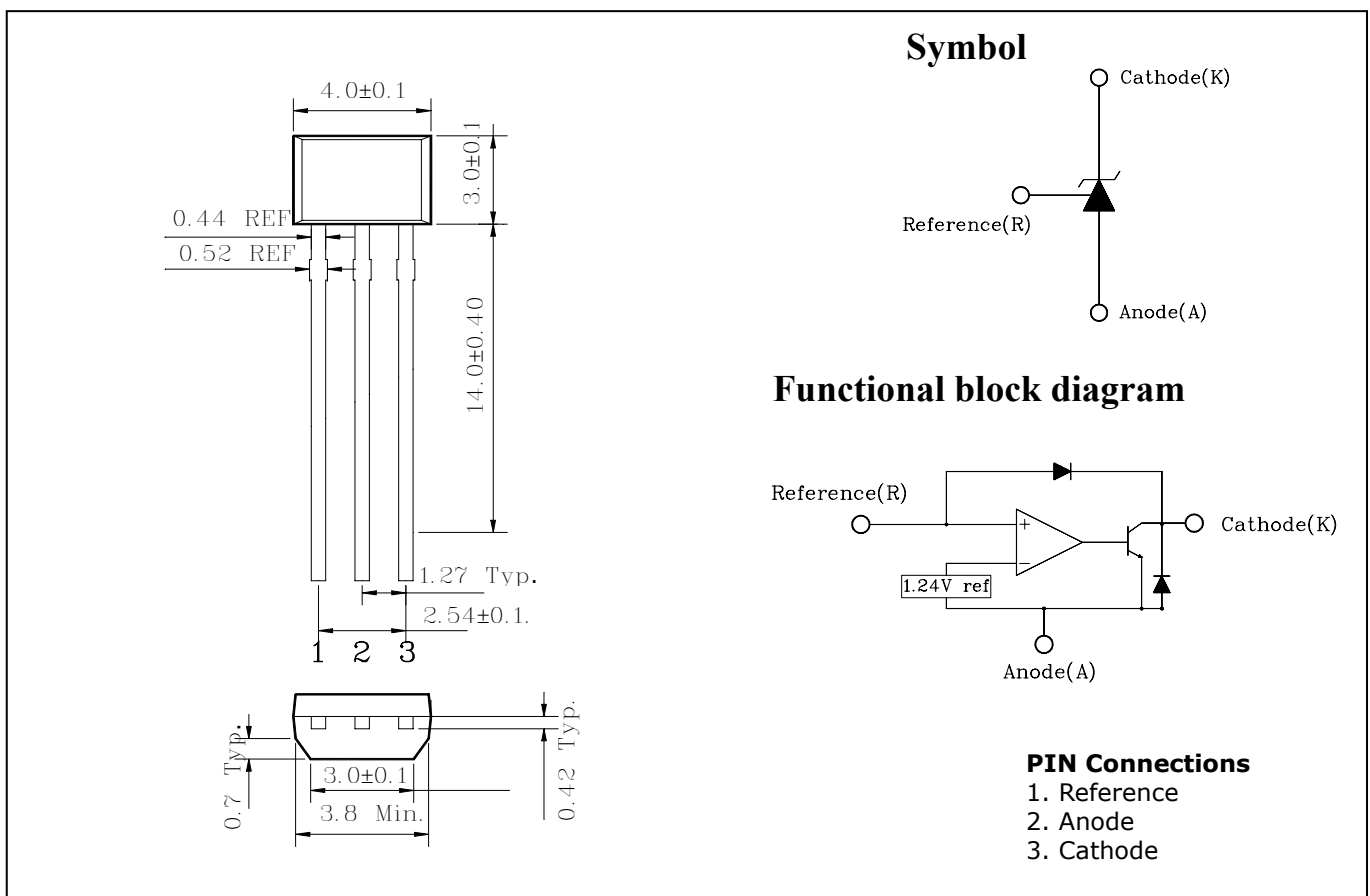
Ordering Information

Type NO.	Marking	Package Code
SL432xM	SL432□	TO-92M

□: Grade => None:±2% , A:±1%

Outline Dimensions

unit : mm



Absolute maximum ratings

(Operating ambient temperature range applies unless other specified)

Parameter	Symbol	Ratings	Unit
Cathode to Anode voltage	V_{KA}	18	V
Cathode current range	I_{KA}	-20 ~ +30	mA
Reference input current range	I_{ref}	-0.05 ~ +10	mA
Power dissipation	P_D	500	mW
Operating temperature range	T_{opr}	-40 ~ +85	°C
Storage temperature range	T_{stg}	-65 ~ +150	°C

Recommended operating conditions

Parameter	Symbol	Ratings		Unit
		Min.	Max.	
Cathode to Anode voltage	V_{KA}	V_{ref}	16	V
Cathode current range	I_{KA}	0.1	30	mA

Electrical Characteristics

(Ambient temperature at 25°C, $C_L=0.1\mu F$, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reference input voltage (Fig. 1, Note 1)	V_{ref}	$V_{KA}=V_{ref}, I_{KA}=10mA$	SL432AM	1.228	1.252	V
			SL432M	1.215	1.265	
Deviation of reference input voltage Over temperature(Fig. 1, Note 1,2)	ΔV_{ref}	$V_{KA}=V_{ref}, I_{KA}=10mA$ @ $T_A=T_{LOW}$ to T_{HIGH}	-	10	20	mV
Ratio of change in reference input Voltage to the change in cathode Voltage(Fig. 2)	$\frac{\Delta V_{ref}}{\Delta V_{KA}}$	$I_{KA}=10mA$ $\Delta V_{KA}=V_{ref}-16V$	-	1.0	2.7	mV/V
Reference input current(Fig. 2)	I_{ref}	$I_{KA}=10mA$ $R1=10K\Omega, R2=\infty$	-	0.7	1.0	μA
Deviation of reference input current over temperature(Fig. 2)	ΔI_{ref}	$I_{KA}=10mA$ $R1=10K\Omega, R2=\infty$	-	0.04	0.08	μA
Minimum cathode current for Regulation(Fig. 1)	I_{MIN}	$V_{KA}=V_{ref}$	-	55	80	μA
Off-state cathode current(Fig. 3)	I_{OFF}	$V_{KA}=16V, V_{ref}=0V$	-	5	50	nA
Dynamic impedance(Fig. 1, Note 3)	Z_{KA}	$V_{KA}=V_{ref}, f \leq 1.0KHz$ $I_{KA}=0.1mA-30mA$	-	0.25	0.4	Ω

Fig. 1

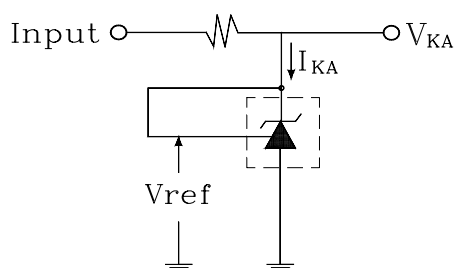


Fig. 2

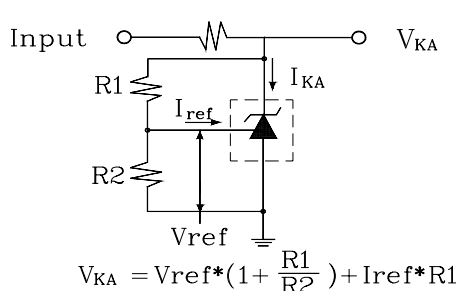
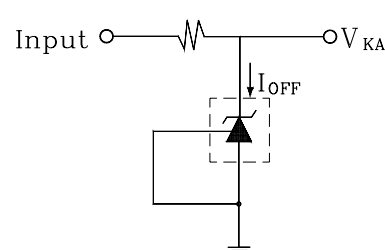


Fig. 3



<Note 1> : $T_{LOW}=-40^{\circ}C, T_{HIGH}=+85^{\circ}C$, <Note 2> : $\Delta V_{ref}=V_{ref} \text{ Max. } - V_{ref} \text{ Min. }$, <Note 3> : $Z_{KA}= \Delta V_{KA}/ \Delta I_{KA}$

Electrical Characteristics Curves

Fig.1 I_{KA} vs V_{KA}

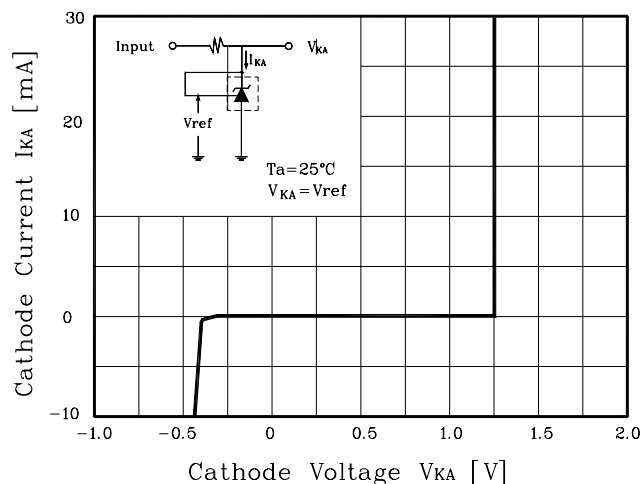


Fig. 2 I_{MIN} vs V_{KA}

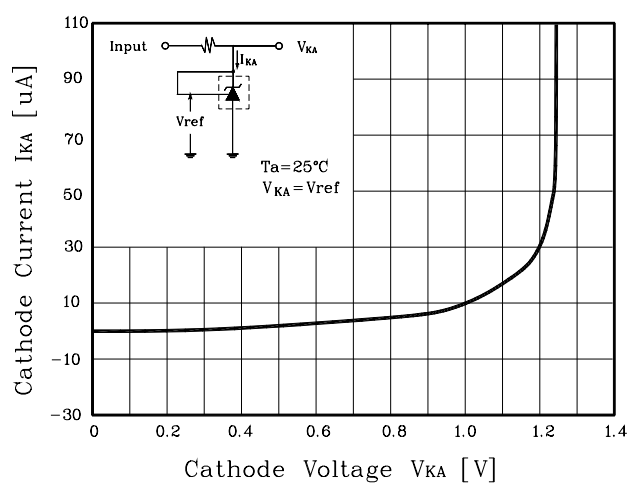


Fig. 3 ΔI_{off} vs T_a

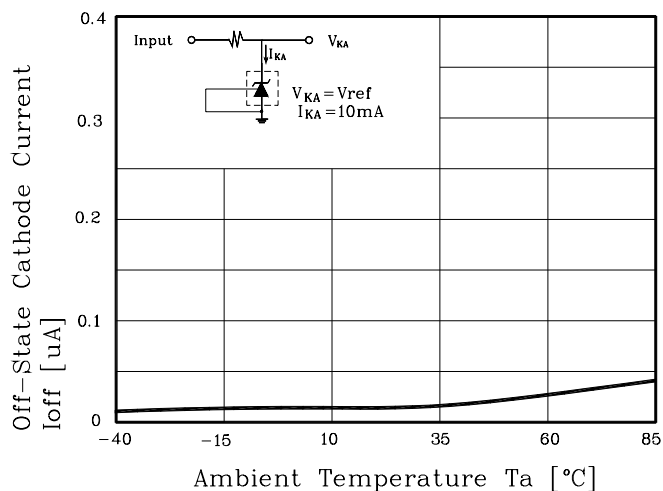


Fig. 4 ΔV_{ref} vs T_a

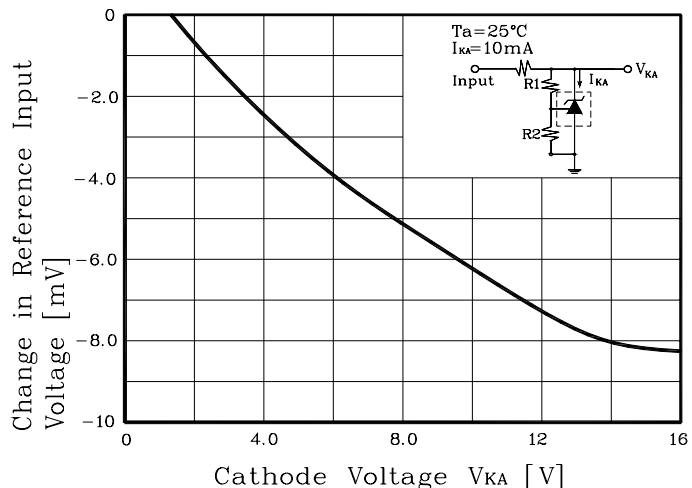


Fig. 5 G_v vs. frequency

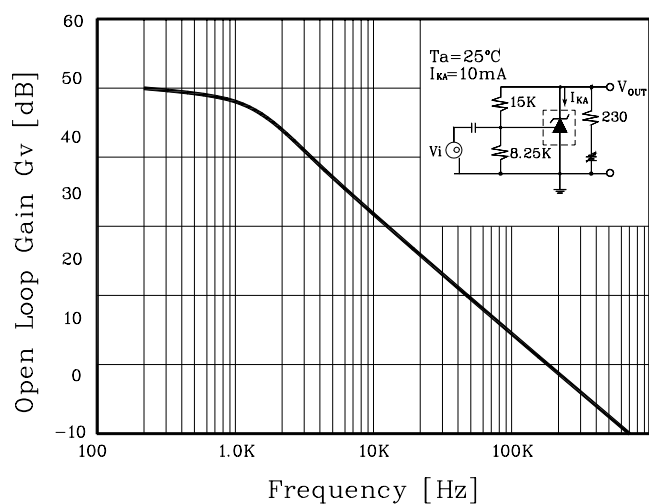
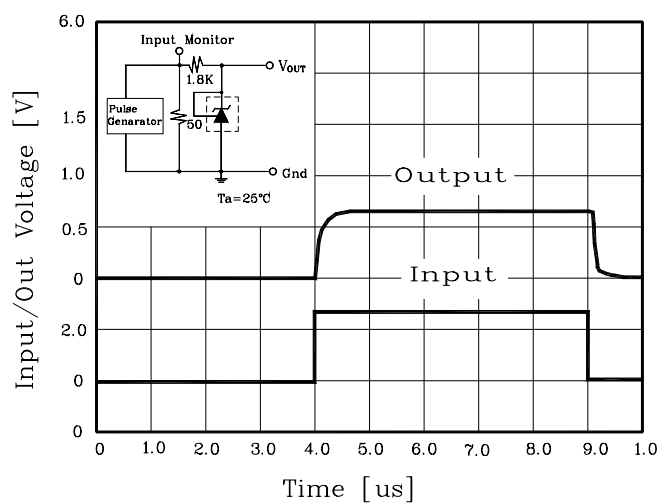


Fig. 6 Pulse Response



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