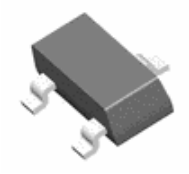
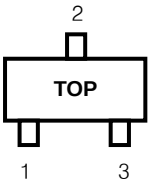
PROGRAMMABLE PRECISION SHUNT REGULATOR TJR431A/C

FEATURES

- Programmable Output Voltage to 28V
- Guaranteed 0.5% Reference Voltage Tolerance
- Cathode Current Range(Continuous) 100 mA
- Temperature Compensated For Operation Over Full Rate Operating Temperature Range
- Low Output Noise Voltage
- Fast Turn-on Response
- SOT-23 3L Package

SOT-23 PKG





PIN 1. Cathode 2. Anode 3. Reference

ORDERING INFORMATION

Device	Package
TJR431SF	SOT-23 3L

APPLICATION

- Shunt Regulator
- Precision High-Current Series Regulator
- High-Current Shunt Regulator
- Crowbar Circuit
- PWM Converter With Reference
- Voltage Monitor
- Precision Current Limiter

DESCRIPSION

The TJR431 is a three-terminal adjustable shunt regulator with specified thermal stability over applicable temperature V_{REF} and 28V with two external resistors. This device has a typical dynamic output impedance of 0.25Ω. Active output circuitry provides a very sharp turn-on characteristic, making this device excellent replacement for zener diodes in many applications. The TJR431 is characterized for operation from -40℃ to +125℃.

Absolute Maximum Ratings

(Operating temperature range applies unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN.	MAX.	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
Junction Temperature Range	TJR	-40	150	℃
Operating Temperature Range	T_{OPR}	-40	125	℃
Storage Temperature Range	T_{STG}	-65	150	℃

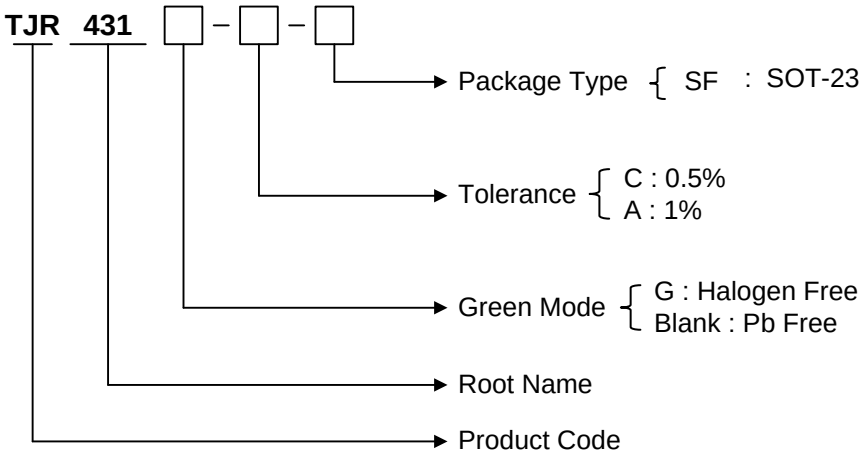
RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
Cathode Voltage	V_{KA}	V_{REF}	28	V
Cathode Current	I_K	1.0	100	mA

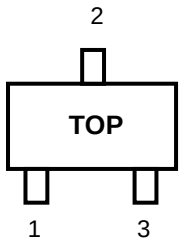
Ordering Information

V_{REF}	Package	Tolerance	Order No.	Package Marking	Supplied As
2.495	SOT-23	0.5%	TJR431CSF	-	Reel
			TJR431GCSF	-	
		1%	TJR431ASF	-	Reel
			TJR431GASF	-	

Ordering Information (continued)



PIN CONFIGURATION



SOT-23 PKG

PIN DESCRIPTION

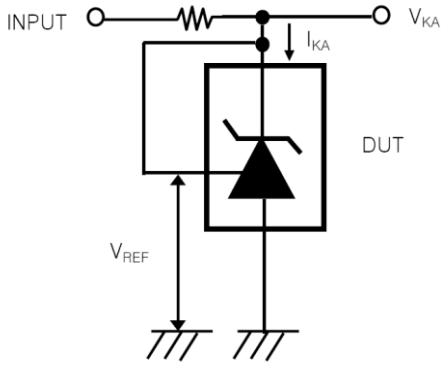
Pin No.	TO-92 / SOT-23 / SOT-89	
	Name	Function
1	Cathode	Input Supply Voltage
2	Anode	Ground
3	Reference	Reference Voltage

TJR431 ELECTRICAL CHARACTERISTICS

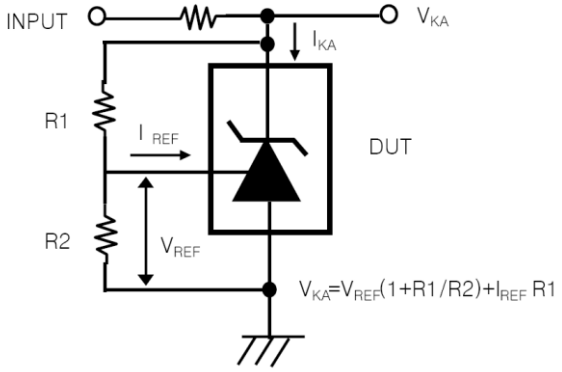
(T_A=25℃, unless otherwise specified)

CHARACTERISTIC	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Reference Input Voltage	V_{REF}	$V_{KA}=V_{REF}$, I_K=10mA	TJR431C	2.483	2.495	2.507	V
			TJR431A	2.470	2.495	2.520	
Deviation of Reference Input Voltage	$\Delta V_{REF}/\Delta T$	$V_{KA}=V_{REF}$, I_K=10mA T_A=Full Range			24		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 to V_{REF}	-2.7	-1.0		mV/V
			ΔV_{KA}=28V to 10V	-2	-0.4		
Reference Input Current	I_{REF}	I_{KA}=10mA, R_1=10kΩ, R_2=∞			0.5	1.2	uA
Deviation of Reference Input Current	$\Delta I_{REF}/\Delta T$	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}=28V, V_{REF}=0			0.1	1.0	uA
Dynamic Impedance	Z_{KA}	$V_{KA}=V_{REF}$, I_K=1mA~100mA f ≤ 1kHz			0.25	0.50	Ω

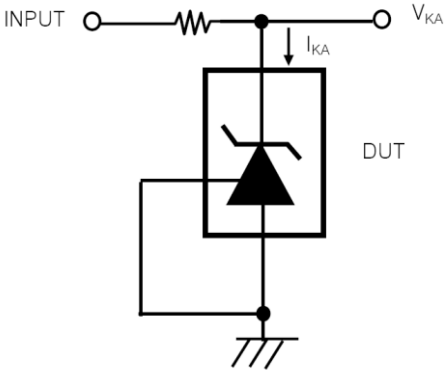
TEST CIRCUITS



< Fig 1. Test circuit for $V_{KA} = V_{REF}$ >



< Fig 2. Test circuit for $V_{KA} \geq V_{REF}$ >



< Fig 3. Test circuit for $I_{KA(OFF)}$ >