

/ Descriptions

VRW056
Precision adjustable shunt regulator in a SOT-23 Plastic Package.

/ Features

517<8Y> 318 (/4 (5 (> 413 p D 433 p D> >
Y_R@Y_{uhi} 69Y> + =830D,> + =3148 ~ ,
DHF0T 433
Precise reference voltage to 2.495V;guaranteed 0.5%,1% or 2% reference voltage Tolerance; sink current capability,1.0mA 100mA;quick turn-on; adjustable Output voltage, V_O=V_{ref} 36V;low operational cathode current,50μA typical; 0.15Ω typical output impedance, Qualified to AEC-Q100 Standards for High Reliability, HF Product.

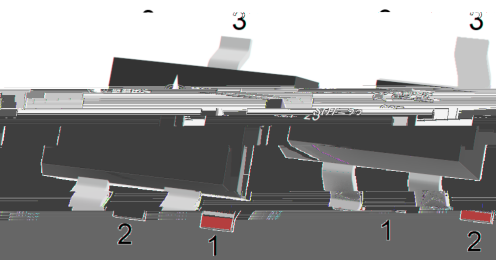
/ Applications

Linear regulators, adjustable power supply, switching power supply, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 R PIN 2 K PIN 3 A

/ Marking

Marking	Q431
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/ Absolute Maximum Ratings($T_a=25$)

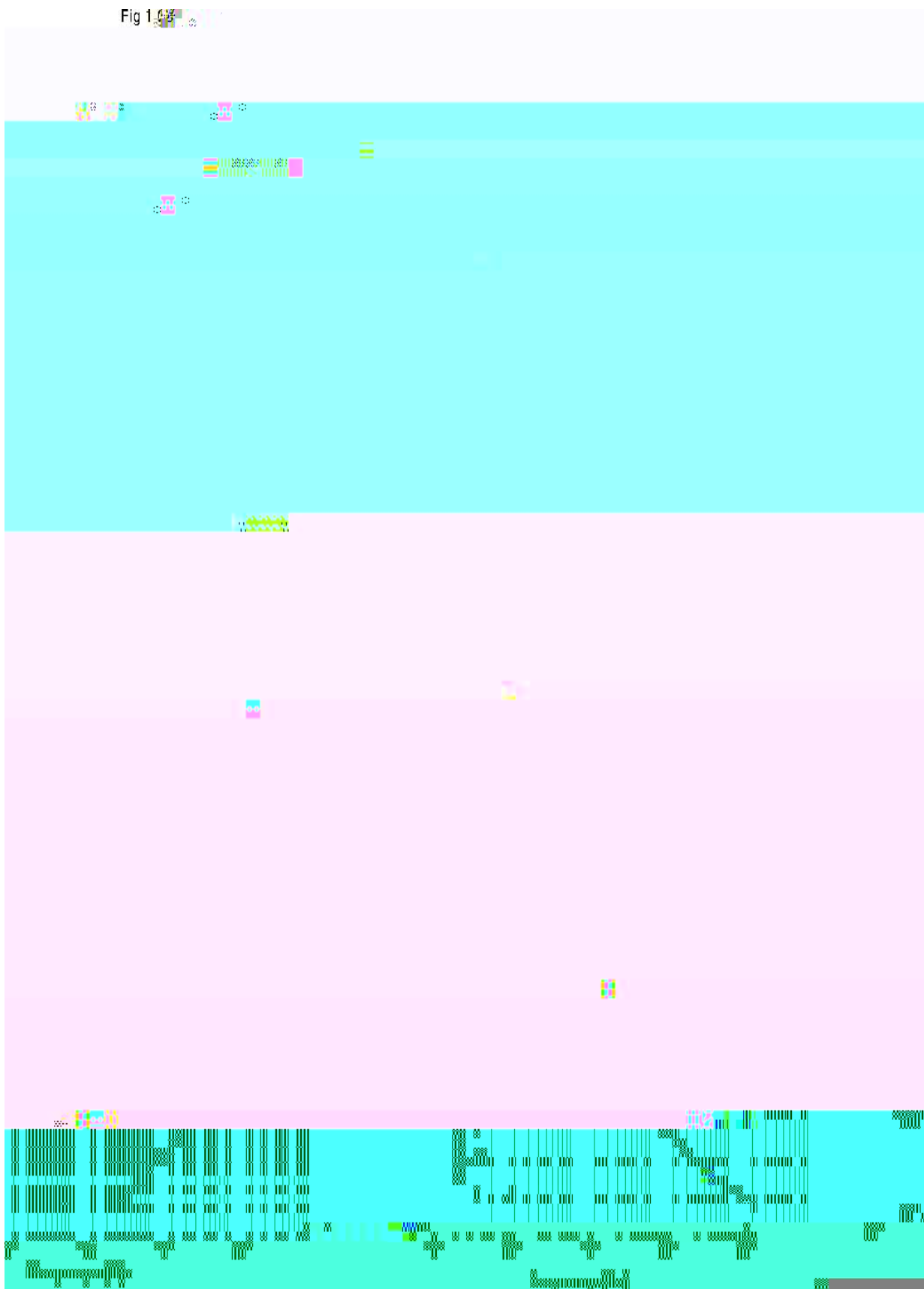
Parameter	Symbol	Rating	Unit
Cathode to Anode Voltage	V_{KA}	37	V
Cathode Current Range, Continuous	I_K	-100 +100	mA
Reference Input Current Range, Continuous	I_{REF}	0.05 +10	mA
Power Dissipation	P_D	370	mW
Operating Ambient Temperature	T_{amb}	-40 125	
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-65 150	

/ Electrical Characteristics($T_a=25$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Input Voltage	V_{REF}	$V_{KA}=V_{REF}$ $I_K=10mA(A=0.5\%)$	2.483	2.495	2.507	V
		$V_{KA}=V_{REF}$ $I_K=10mA(B=1\%)$	2.470	2.495	2.520	V
		$V_{KA}=V_{REF}$ $I_K=10mA(2\%)$	2.445	2.495	2.545	V
Deviation of Reference Input Voltage Over-Temperature	V_{REF} / T	$V_{KA}=V_{REF}$ $I_K=10mA$ $T_A=-40 \ 125$		4.5	25	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	V_{REF} / V_{KA}	$I_K=10mA$, $V_{KA}=10V$ to V_{REF}		-1	-2.7	mV/V
		$I_K=10mA$, $V_{KA}=36V$ to $10V$		-0.5	-2.0	mV/V
Reference Input Current	I_{REF}	$I_K=10mA$ $R_1=10K\Omega$ $R_2=open$		0.8	1.0	μA
Deviation of Reference Input Current Over Full Temperature Range	I_{REF} / T	$I_K=10mA$ $R_1=10K\Omega$ $R_2=open$ $T_A=-40 \ 125$		0.4	1.2	μA
Minimum Cathode Current for Regulation	$I_{K(min)}$	$V_{KA}=V_{REF}$		0.05	0.08	mA
Off-state cathode current	$I_{K(off)}$	$V_{KA}=36V$ $V_{REF}=0V$		0.05	1.0	μA
Dynamic Impedance	$ Z_{KA} $	$V_{KA}=V_{REF}$ $f \leq 1.0KHz$ $I_K=1mA$ to $100mA$		0.15	0.5	Ω

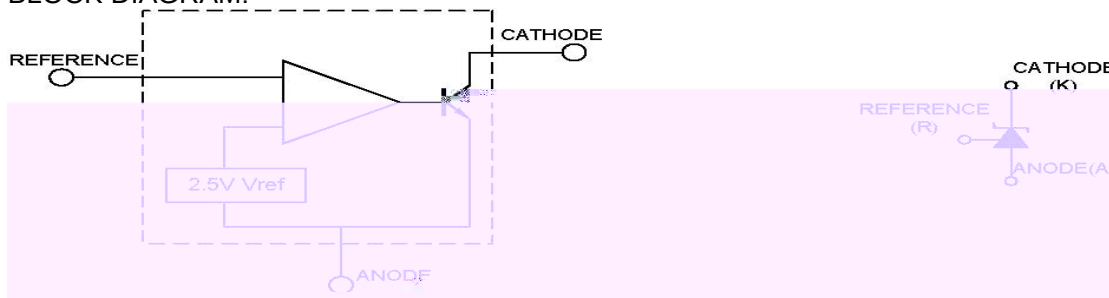
/ Electrical Characteristic Curve

Fig 1.1

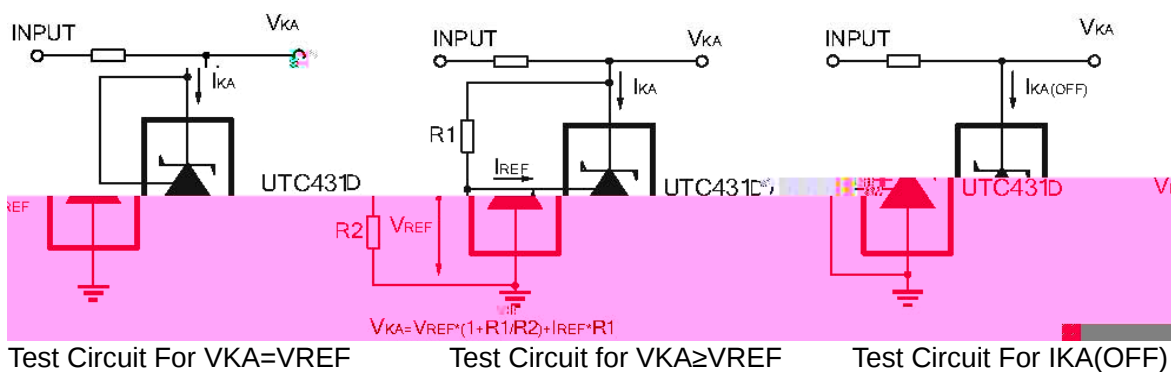


& Test circuits&Typical Application

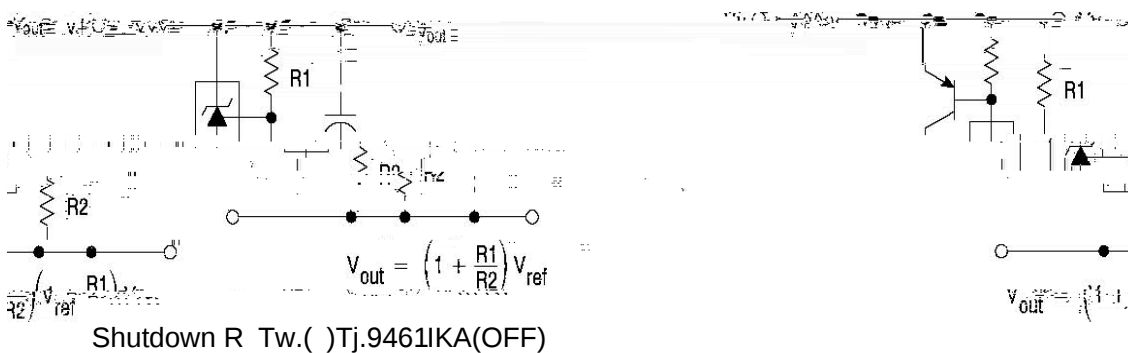
BLOCK DIAGRAM:



TEST CIRCUITS:



TYPICAL APPLICATION:



BRTL431MQ
Rev.A May.-2023

/ Marking Instructions



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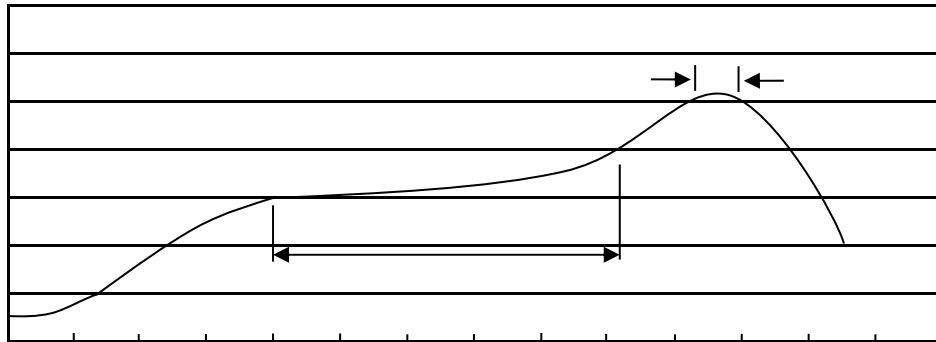
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Note:

Q: Automobile halogen-free product Code

431: Product Type

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-----|------|----------|----------|---|
| 1 | 150 | 200% | 60 | 120sec; | 1.Preheating:150~200%, Time:60~120sec. |
| 2 | 255 | ±5% | 5 | ±0.5sec; | 2.Peak Temp.:255 ±5%, Duration:5 ±0.5sec. |
| 3 | | 2 | 10%/sec. | | 3. Cooling Speed: 2~10%/sec. |

/ Resistance to Soldering Heat Test Conditions

260 ±5%

10 ±1 sec.

Temp.:260±5

Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
SOT-23	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205

/ Notices