

/ Descriptions

VRW056

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

/ Features

51833Y> 317 (/31; (> 413 p D 433 p D> >
Y_R@Y_{uh} 6: Y> + =7330D,> + =3148 ~ ,
Precise reference voltage to 2.500V;guaranteed 0.4%,0.8% reference voltage Tolerance; sink
current capability,1.0mA~100mA;quick turn-on; adjustable Output voltage, V_O=V_{ref}~37V;low
operational cathode current,400 A typical; 0.15 typical output impedance.

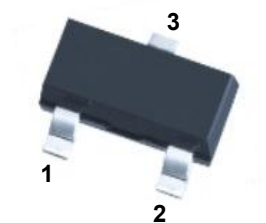
/ Applications

Linear regulators, adjustable power supply, switching power supply.

/ Equivalent Circuit



/ Pinning



PIN1 K PIN 2 R PIN 3 A

/ h_{FE} Classifications & Marking

Marking	BR431R
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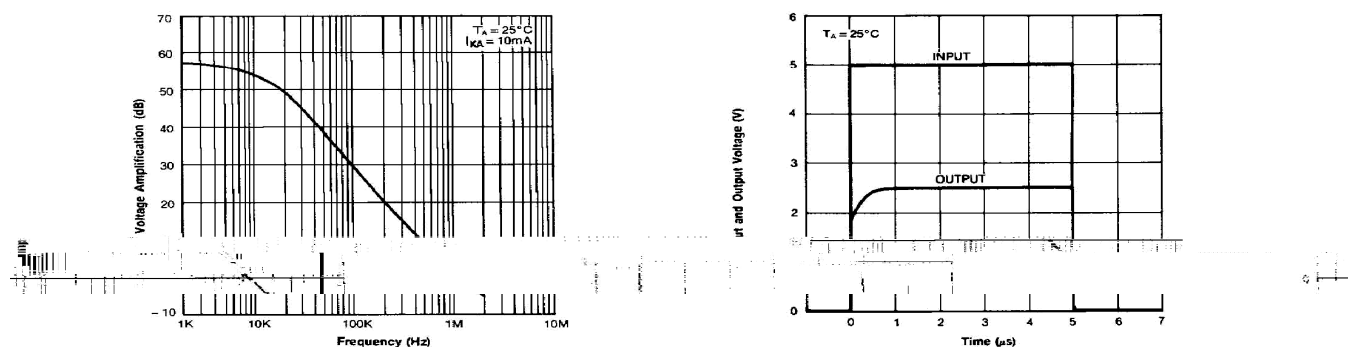
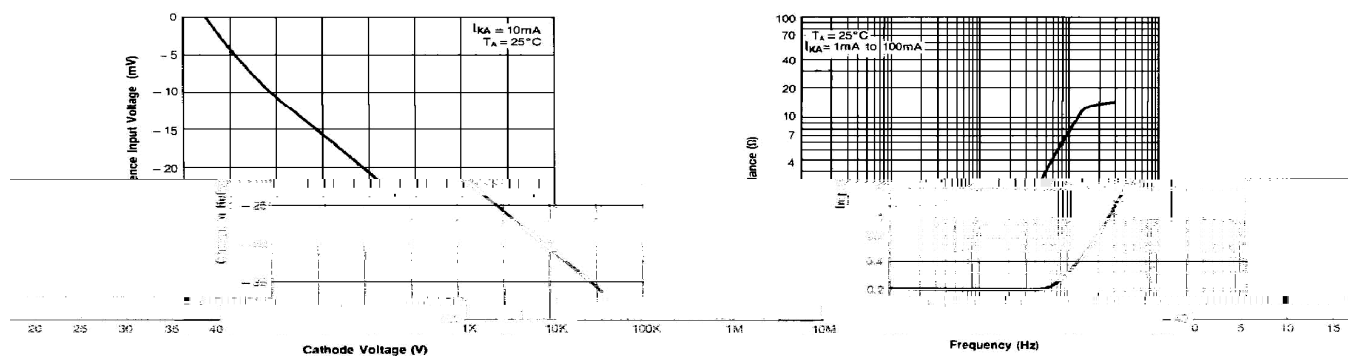
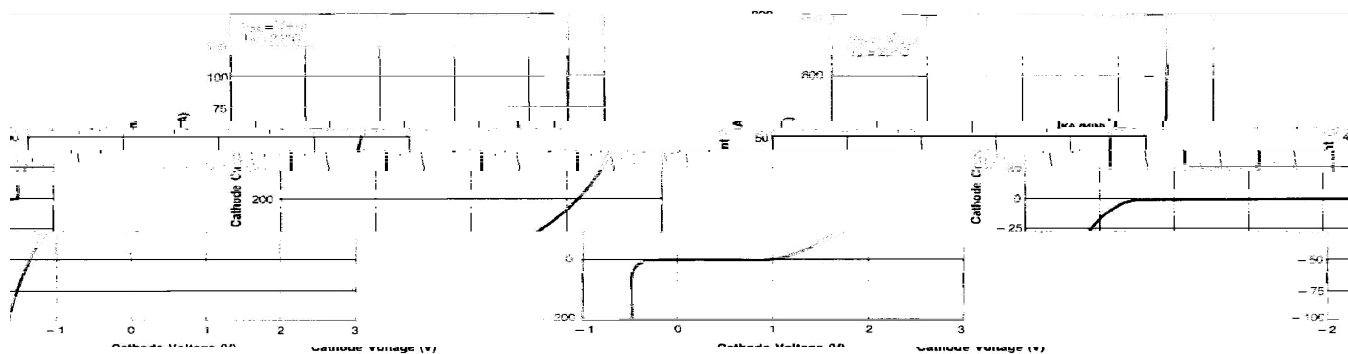
/ Absolute Maximum Ratings(Ta=25)

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	°C
Junction Temperature	T_j	160	°C
Storage Temperature Range	T_{stg}	-65~150	°C

/ Electrical Characteristics(Ta=25)

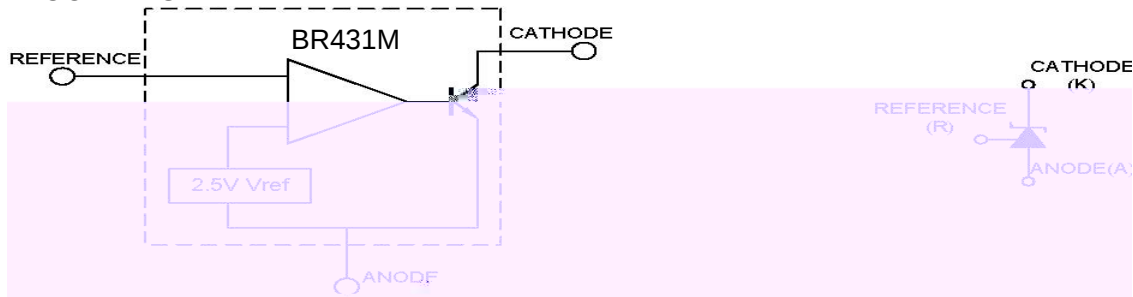
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Input voltage	V_{REF}	$V_{KA}=V_{REF}$ $I_K=10mA(A=0.4\%)$	2.490	2.500	2.510	V
		$V_{KA}=V_{REF}$ $I_K=10mA(B=0.8\%)$	2.480	2.500	2.520	V
Deviation of Reference Input Voltage Over-Temperature	$\Delta V_{REF}/T$	$V_{KA}=V_{REF}$ $I_K=10mA$ $T_A=-25\sim 85^{\circ}C$		4.5	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\Delta V_{REF}/\Delta V_{KA}$	$I_K=10mA$ $\Delta V_{KA}=10V$ to V_{REF}		-1	-2.7	mV/V
		$I_K=10mA$ $\Delta V_{KA}=36V$ to $10V$		-0.45	-2.0	mV/V
Reference Input current	I_{REF}	$I_K=10mA$ $R_1=10$ $R_2=open$		1.0	4.0	A
Deviation of Reference Input Current Over Full Temperature Range	$\Delta I_{REF}/T$	$I_K=10mA$ $R_1=10K$, $R_2=open$ $T_A=-40\sim 125^{\circ}C$		0.4	1.2	A
Minimum Cathode Current for Regulation	$I_{K(min)}$	$V_{KA}=V_{REF}$		0.4	1	mA
Off-state cathode current	$I_{K(off)}$	$V_{KA}=36V$ $V_{REF}=0V$		0.05	1.0	A
Dynamic impedance	$ Z_{KA} $	$V_{KA}=V_{REF}$ $I_K=1mA$ to $100mA$ f 1.0KHz		0.15	0.5	

/ Electrical Characteristic Curve

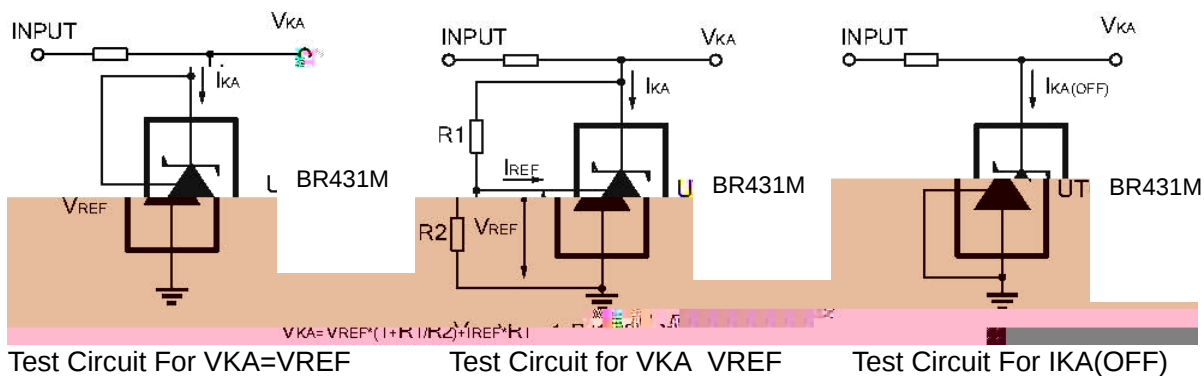


& Test circuits&Typical Application

BLOCK DIAGRAM:



TEST CIRCUITS:

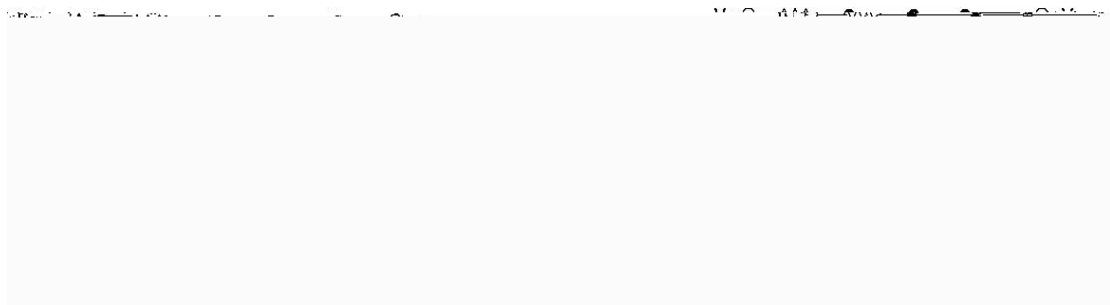


Test Circuit For VKA=VREF

Test Circuit for VKA = VREF

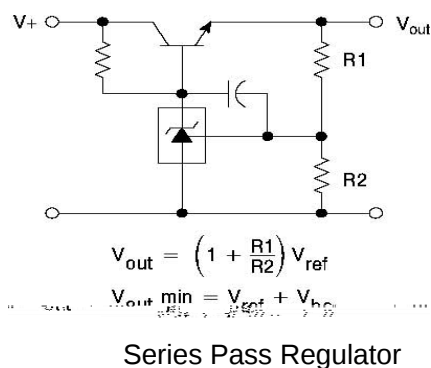
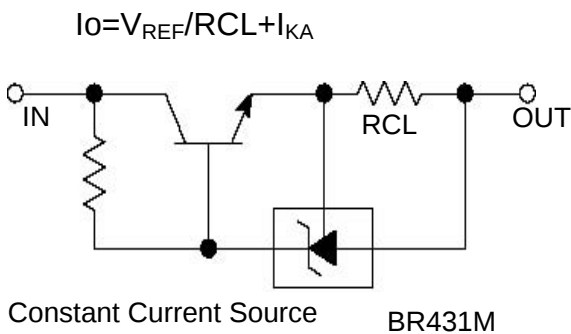
Test Circuit For IKA(OFF)

TYPICAL APPLICATION:



Shutdown Regulator

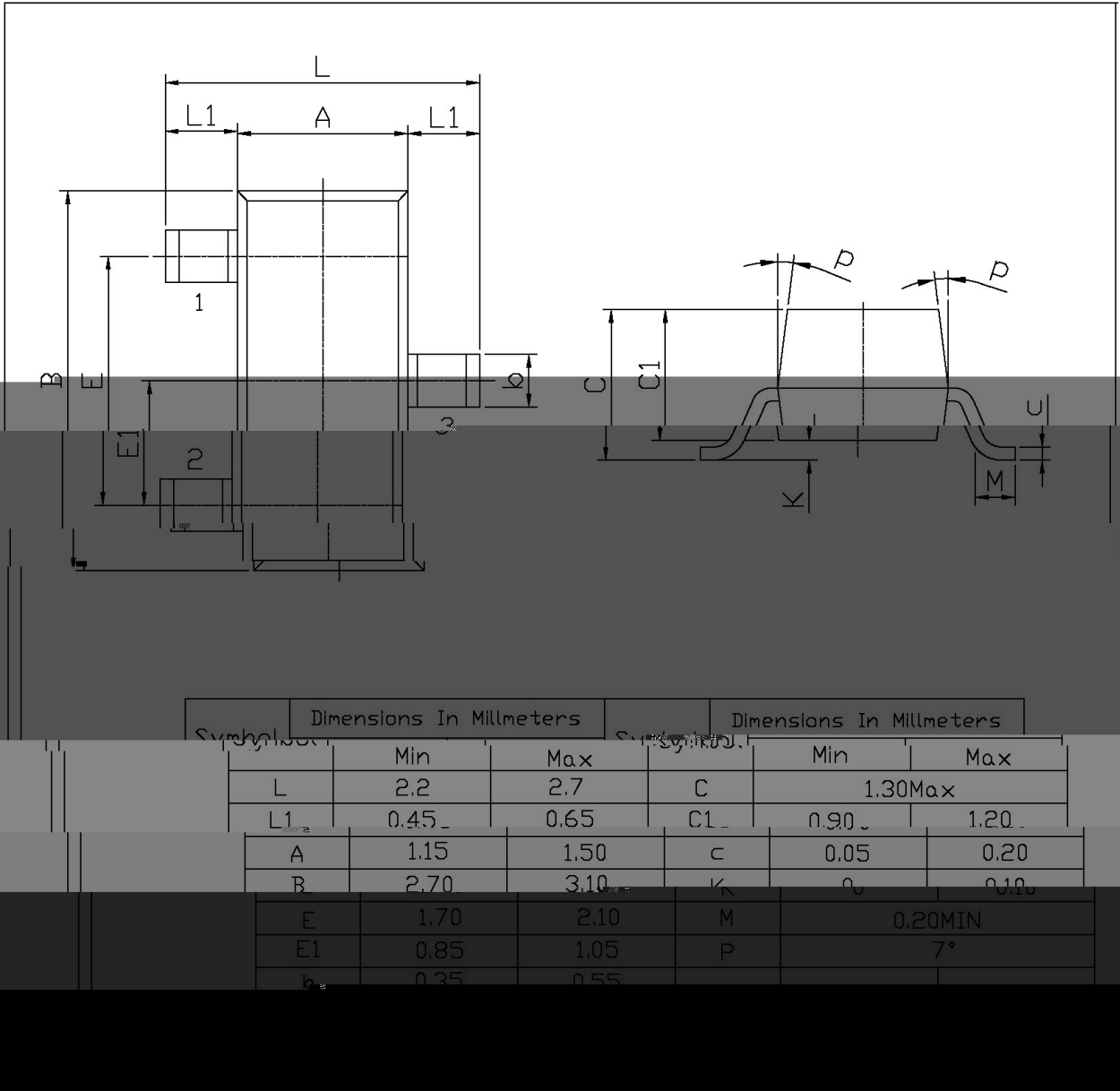
Higher-current Shunt



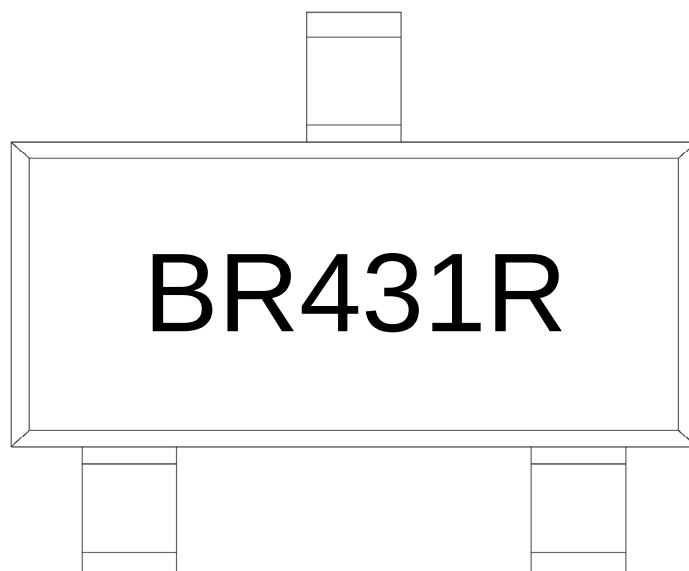
/ Package Dimensions

SOT-23

单位：mm



/ **Marking Instructions**



EU

764

U- EU764 P U N

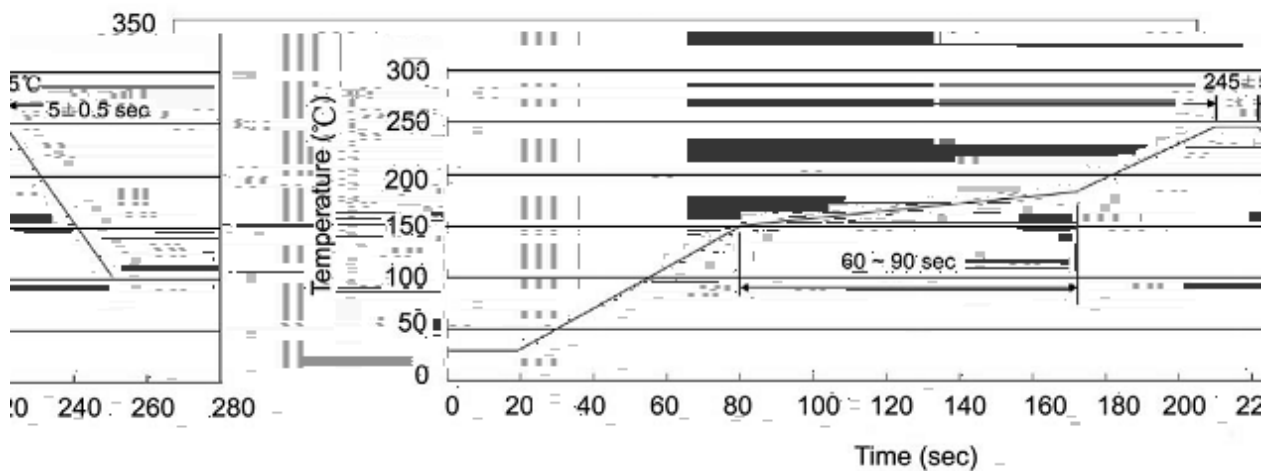
Note:

BR: Company Code.

431: Product Type.

R: It represents the opposite arrangement of R and K to BR431M.

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



Note:

- | | | | | | |
|---|-----|------|----------|-----------|---|
| 1 | 150 | 180% | 60 | 90sec; | 1.Preheating:150~180%, Time:60~90sec. |
| 2 | 245 | ± 5% | 5 | ± 0.5sec; | 2.Peak Temp.:245 ± 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