

VRW056 MM 4 L 1 g' 3 4

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, $V_O = V_{ref} \sim 37V$; low operational cathode current, 400μA typical; 0.15Ω typical output impedance.

$$\tilde{\Omega}^H = \tilde{A}_H$$

/ Equivalent Circuit

PIN 3 χ A

BR431R

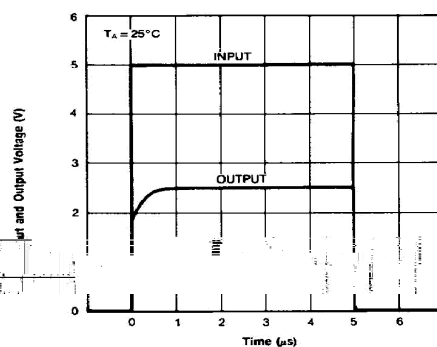
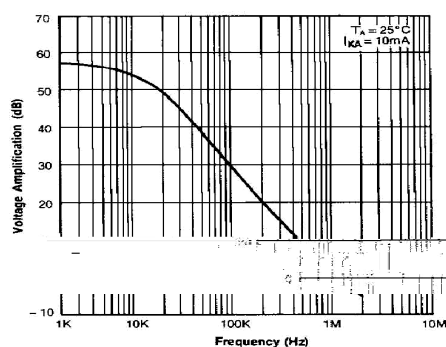
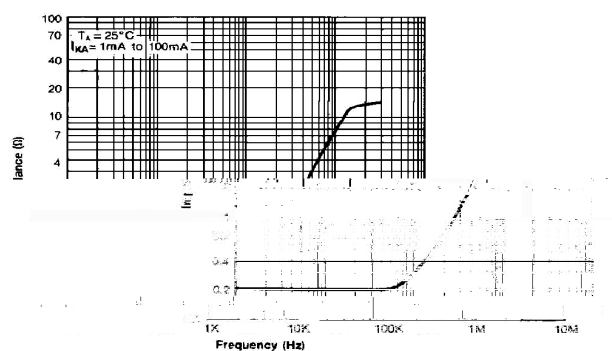
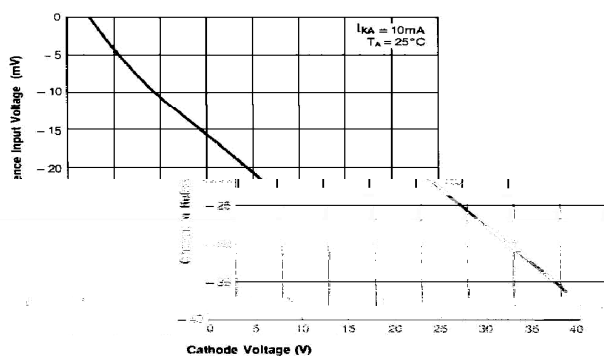
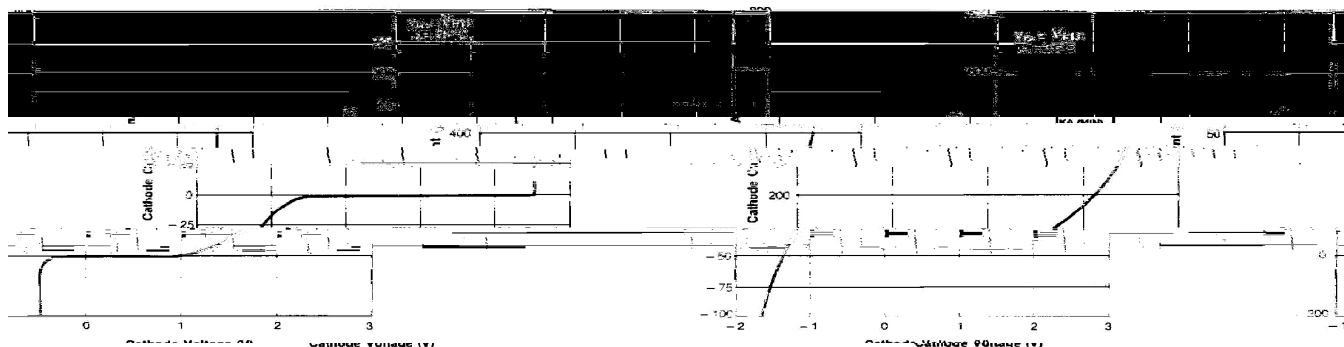
/ Absolute Maximum Ratings(Ta=25)

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)

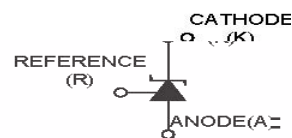
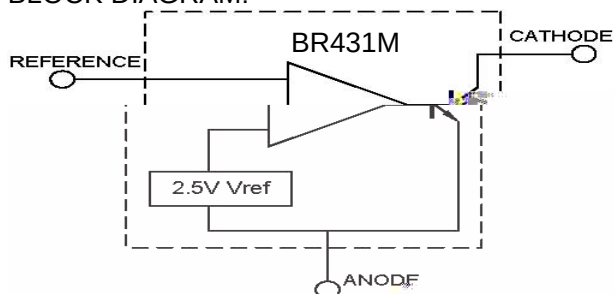
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Input voltage	V_{REF}	$V_{KA}=V_{REF}$ $I_K=10mA(A=0.4\%)$	2.490	2.500	2.510	V
		$V_{KA}=V_{REF}$ $I_K=10mA(B=0.8\%)$	2.480	2.500	2.520	V
Deviation of Reference Input Voltage Over-Temperature	$\Delta V_{REF}/T$	$V_{KA}=V_{REF}$ $I_K=10mA$ $T_A=-25\sim 85^{\circ}C$		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}	$I_K=10mA$ $R_1=10\Omega$ $R_2=open$		1.0	4.0	μA
Deviation of Reference Input Current Over Full Temperature Range	$\Delta I_{REF}/T$	$I_K=10mA$ $R_1=10K\Omega$, $R_2=open$ $T_A=-40\sim 125^{\circ}C$		0.4	1.2	μA
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	μA
Dynamic impedance	$ Z_{KA} $	$V_{KA}=V_{REF}$ $I_K=1mA$ to $100mA$ $f\leq 1.0KHz$		0.15	0.5	Ω

/ Electrical Characteristic Curve

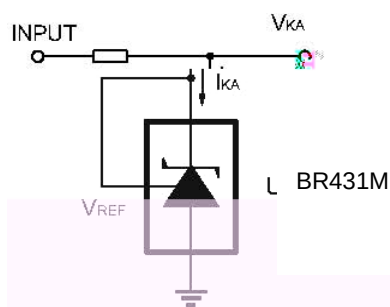


& Test circuits&Typical Application

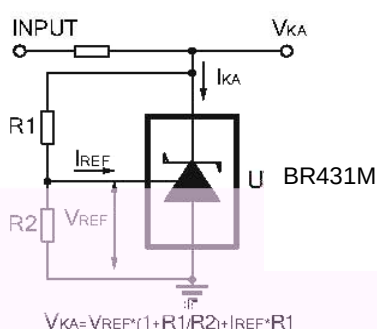
BLOCK DIAGRAM:



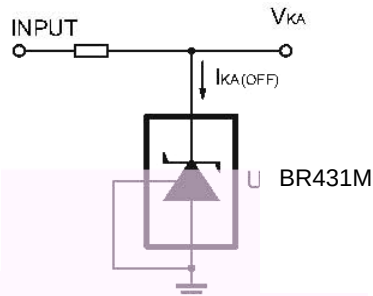
TEST CIRCUITS:



Test Circuit For $V_{KA} = V_{REF}$

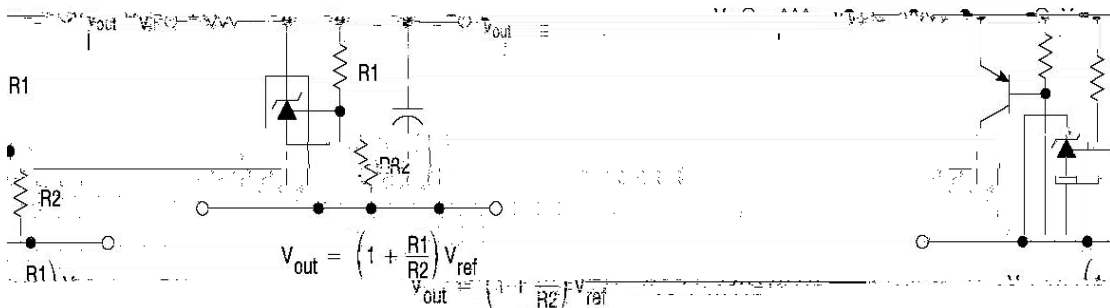


Test Circuit for $V_{KA} \geq V_{REF}$



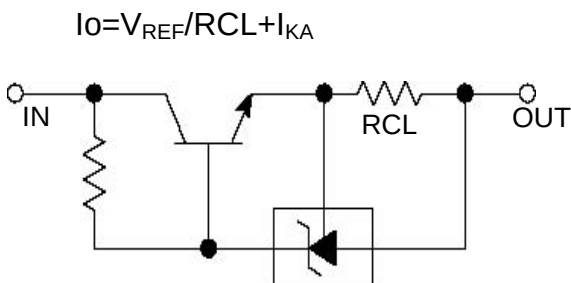
Test Circuit For $I_{KA}(\text{OFF})$

TYPICAL APPLICATION:

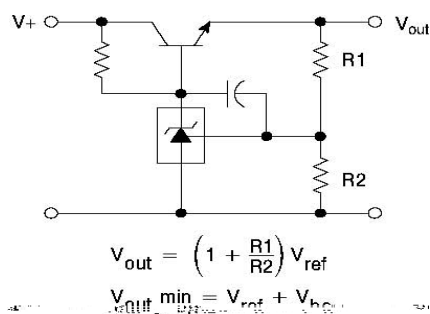


Shutdown Regulator

Higher-current Shunt



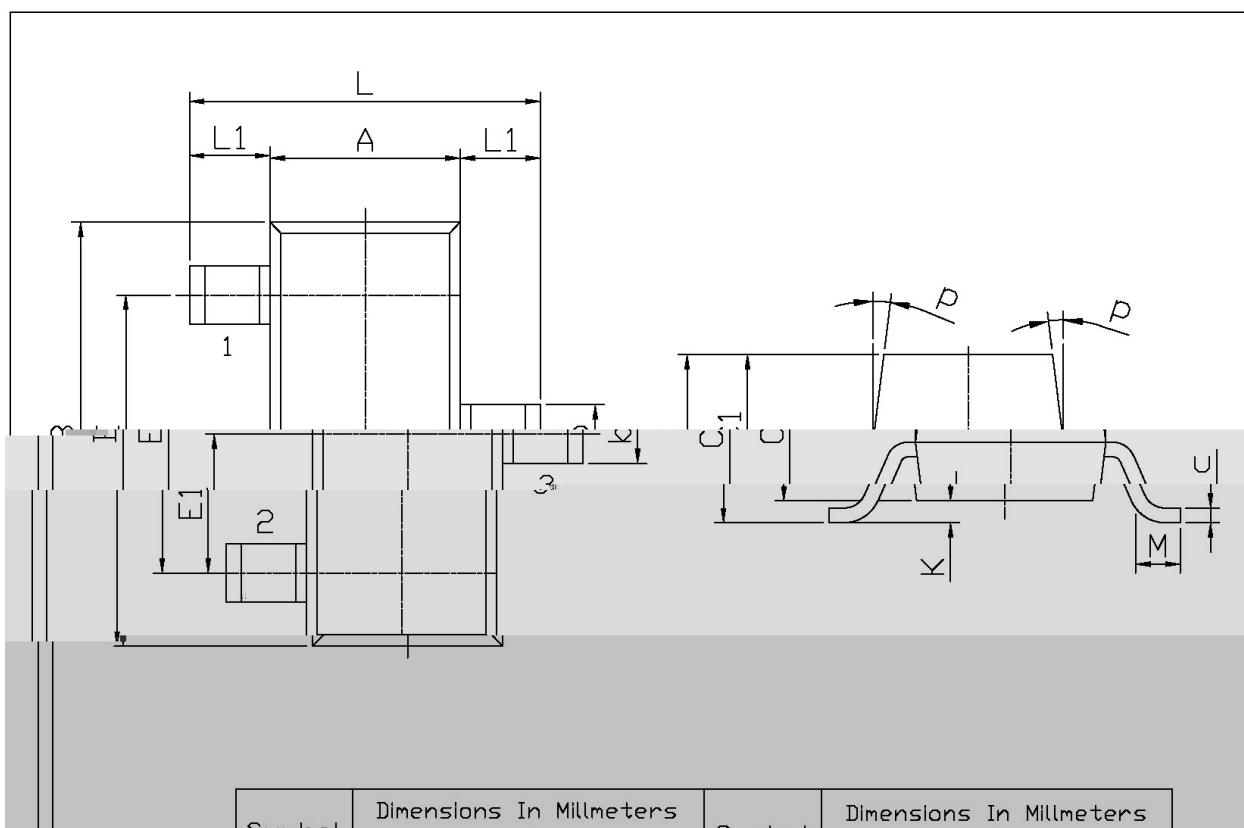
Constant Current Source **BR431M**



Series Pass Regulator

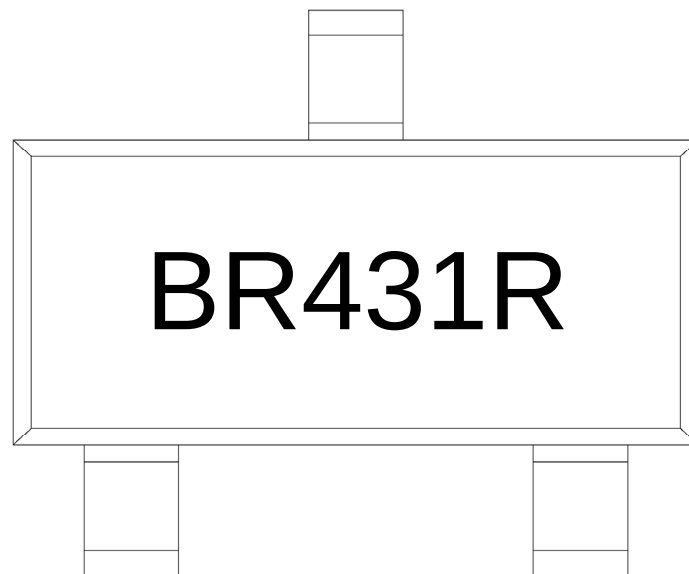
SOT-23

单位; 〇〇



Dimensions In Millimeters			Dimensions In Millimeters		
Symbol	Min	Max	Symbol	Min	Max
L	2.2	2.7	C	1.30	Max
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20	MIN
E1	0.85	1.05	P	7°	
b	0.35	0.55			

/ Marking Instructions



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EU X ㄟ 3 1 ㄱ

764 X ㄟ 3 1 ㄱ

U: ~ ㄴ EU764 P ㄱ U 3 N ㄴ ㄱ ㄴ

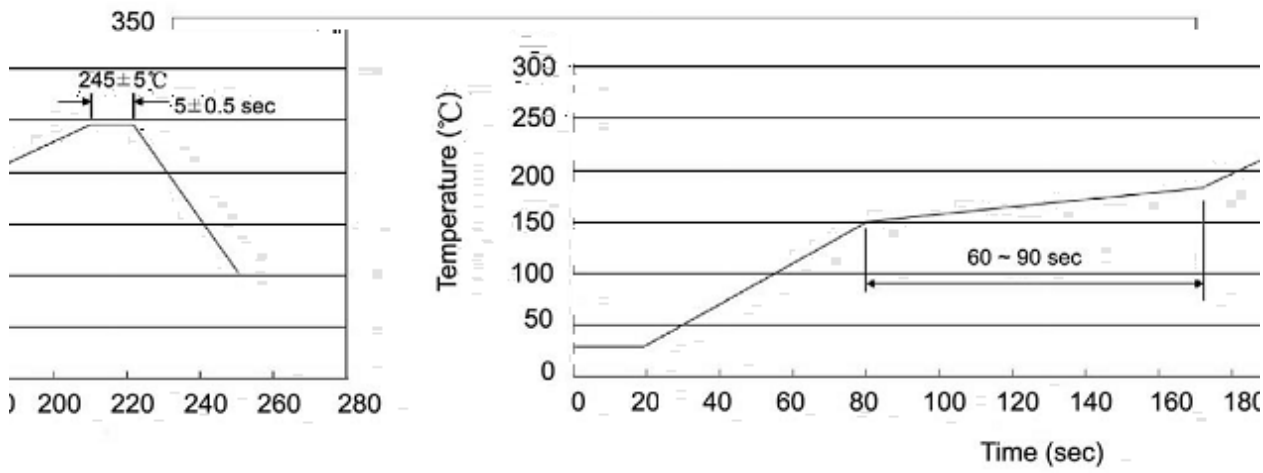
Note:

BR: Company Code.

431: Product Type.

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

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- Note:
1. Preheating: 150~180 °C, Time: 60~90sec;
 2. Peak Temp.: 245±5 °C, Duration: 5±0.5sec;
 3. Cooling Speed: 2~10 °C/sec.

/ Resistance to Soldering Heat Test Conditions

□ °C 260±5 °C °C 10±1 sec. Temp.: 260±5°C Time: 10±1 sec

/ Packaging SPEC.

□ °C / 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