BR431RM

Rev.A Apr.-2018

DATA SHEET

/ Descriptions

VRW056 ṂṂꝈ ꓢ Ḻ ˡ ꞵ ᵍ ˊ ꞓ ◊

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

/ Features

ꓢ. v Ł ꞓ я 51833Y›ы ꝑ ꞓ я ꞓ Ṯ ꞕ 317 (/31; (› ꞓ ǁ ꞓ ╙ ỉ ꓔ ꞕ 413 p D Ḱ 433 p D› ỗ Ṁ › ˡ ꞵ ˋ

ꞓ я ꞕ Y_R@Y_{uhi} Ḱ 6 : Y› ǁ Ṫ Ă ꞓ ╙ Ḩ+Ɛ ʒ Ӫ-733PD,› Ʊ ỗ ꞓ ꞕ Ḩ+Ɛ ʒ Ӫ-3148Ƒ,

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

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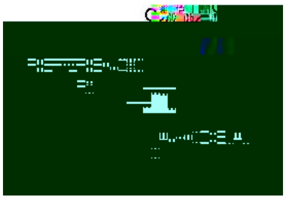
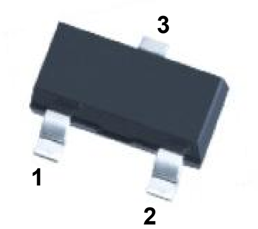
Linear regulators, adjustable power supply, switching power supply.

/ Equivalent Circuit



/ Pinning



PIN1 χ K PIN 2 χ R PIN 3 χ A

/ h_{FE} Classifications & Marking

Marking	BR431R

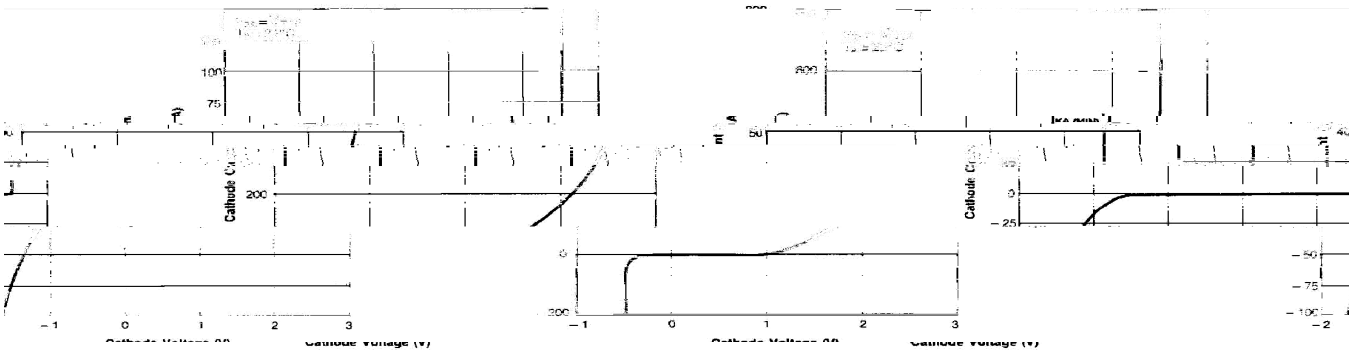
/ Absolute Maximum Ratings(Ta=25)

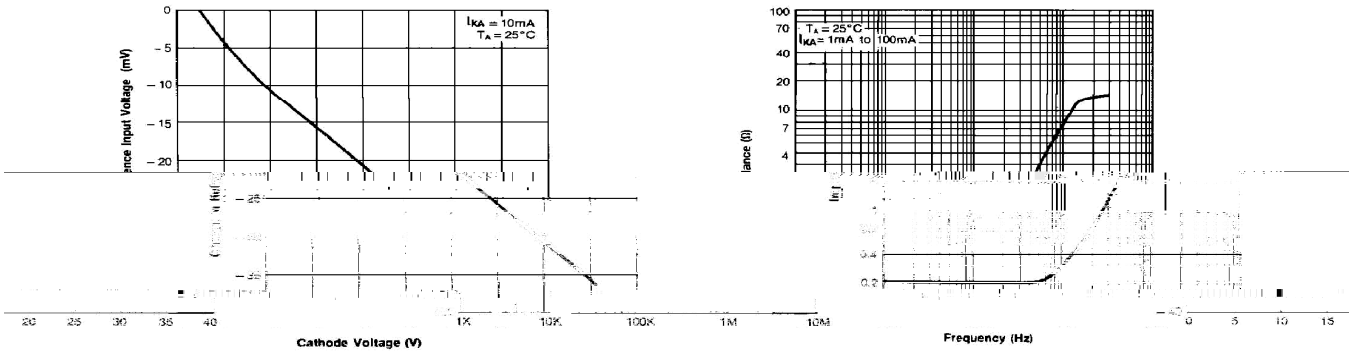
v ̈Ω Parameter	ϒ N Symbol	̈Ω Ö Rating	D Ч Unit
Cathode to Anode Voltage	V_{KA}	37	V
Cathode Current Range, Continuous	I_K	-100～+100	mA
Reference Input Current Range, Continuous	I_{REF}	0.05～+10	mA
Power Dissipation	P_D	370	mW
Operating Ambient Temperature	T_{amb}	-40～125	℃
Junction Temperature	T_j	160	℃
Storage Temperature Range	T_{stg}	-65～150	℃

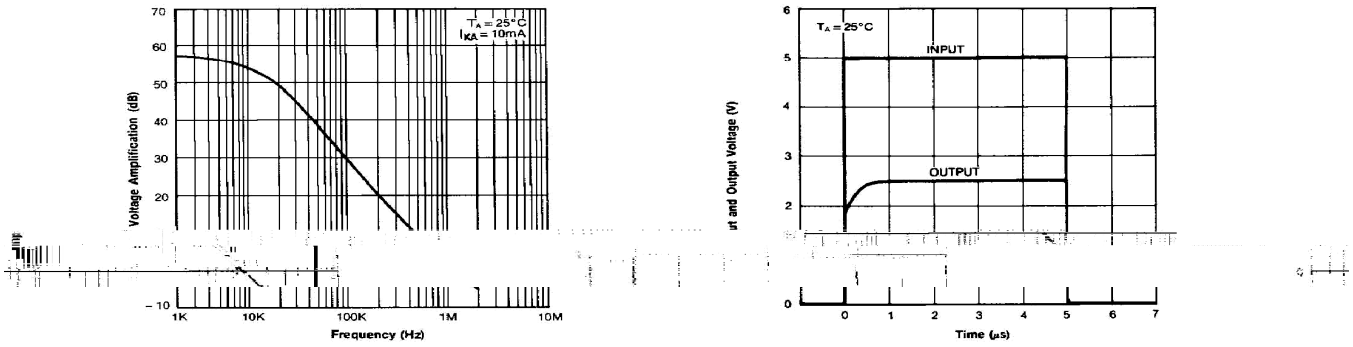
/ Electrical Characteristics(Ta=25)

v ̈Ω Parameter	ϒ N Symbol	Ш :† ţ Test Conditions	ω ņ Ö Min	Ɛ ʒ Ö Typ	ω ᶻ Ö Max	D Ч 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	$\triangle V_{REF}/T$	$V_{KA}=V_{REF}$ I_K=10mA T_A=-25～85℃		4.5	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\triangle V_{REF}/\triangle V_{KA}$	I_K=10mA $\triangle V_{KA}$ =10V to V_{REF}		-1	-2.7	mV/V
		I_K=10mA $\triangle V_{KA}$ =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	$\triangle I_{REF}/T$	I_K=10mA R_1=10K , R_2=open T_A=-40～125℃		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

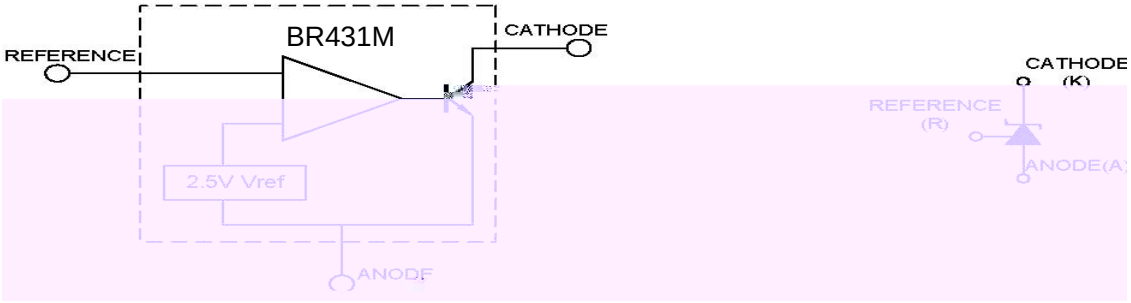




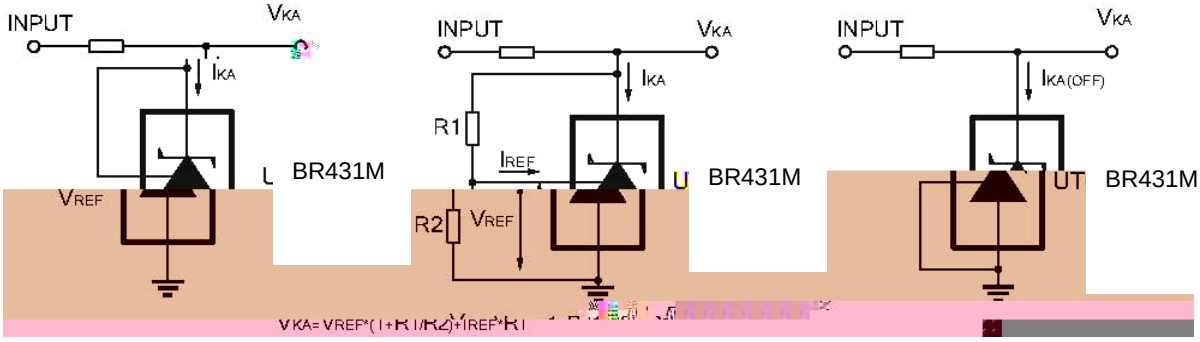


& Test circuits&Typical Application

BLOCK DIAGRAM:



TEST CIRCUITS:

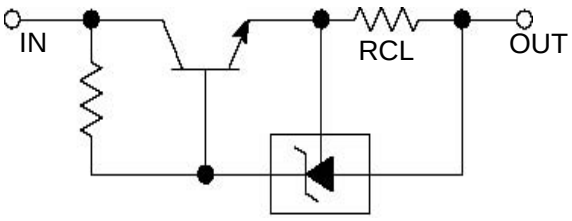


Test Circuit For VKA=VREF Test Circuit for VKA VREF Test Circuit For IKA(OFF)

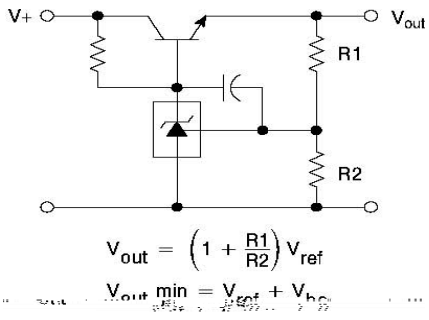
TYPICAL APPLICATION:

Shutdown Regulator Higher-current Shunt

$Io=V_{REF}/RCL+I_{KA}$



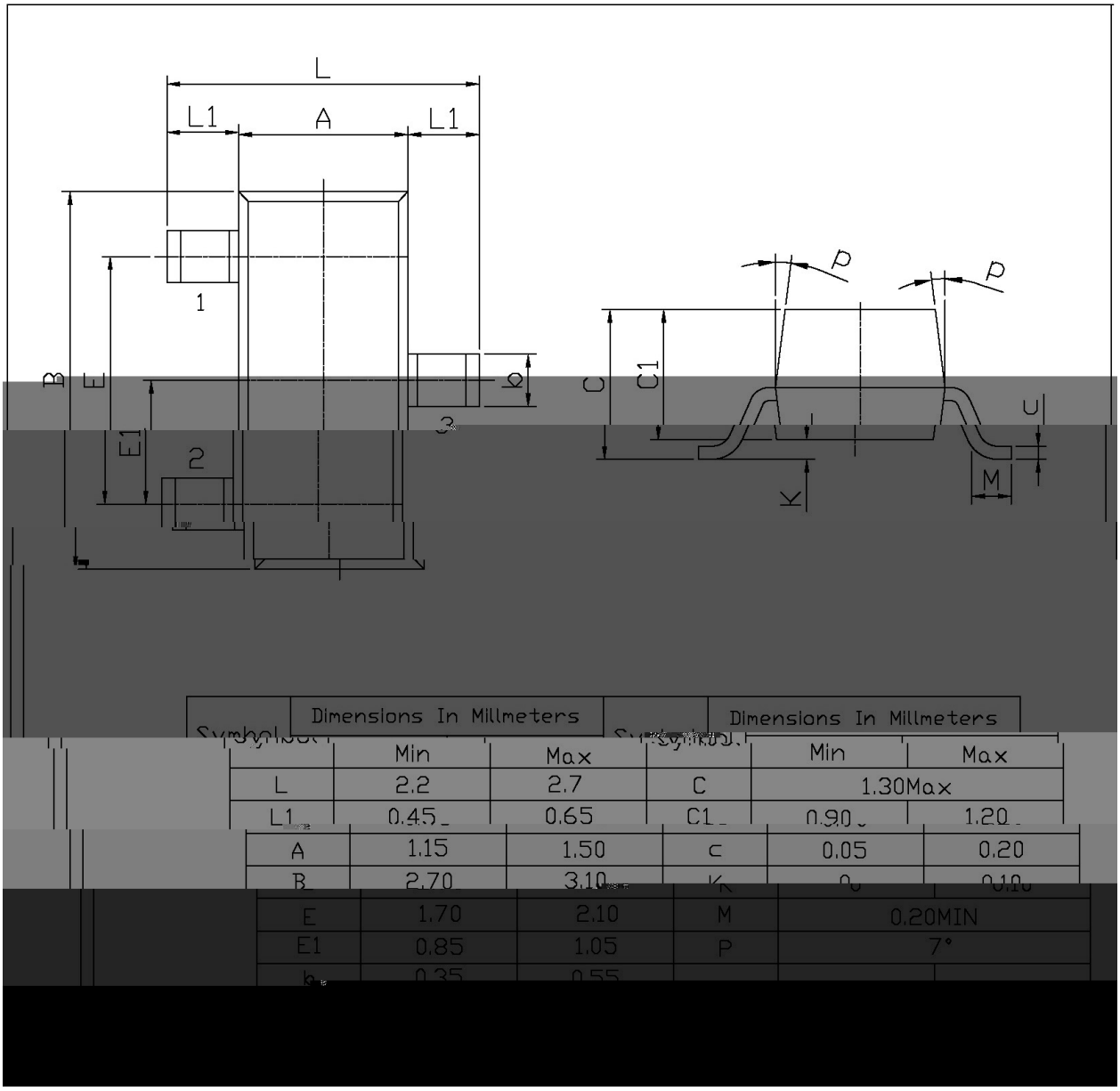
Constant Current Source BR431M



Series Pass Regulator

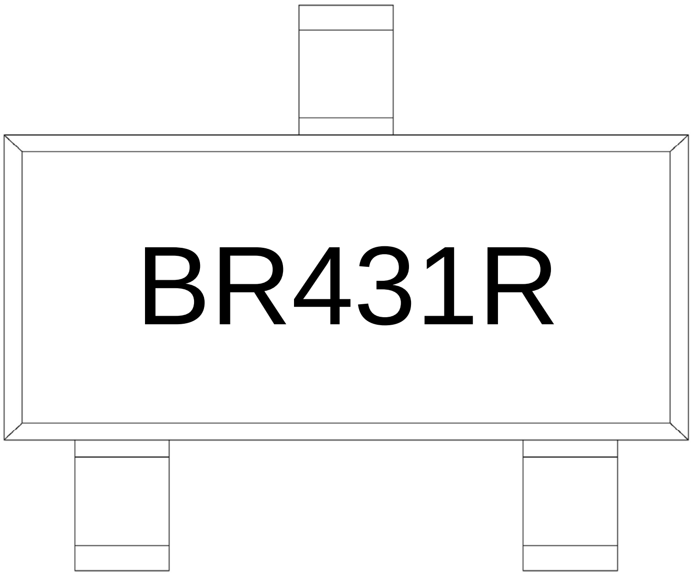
/ Package Dimensions

SOT-23 单位：mm



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
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	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

/ Marking Instructions



ب ˝ χ

EU χ ҹ ɜ ᴻ Ꮒ

764 χ ҹ ʒ ᴺ Ꮒ

U꞊ ˝˜ љ EU764 P U ˭ N ǁ̉ r ṅ̊

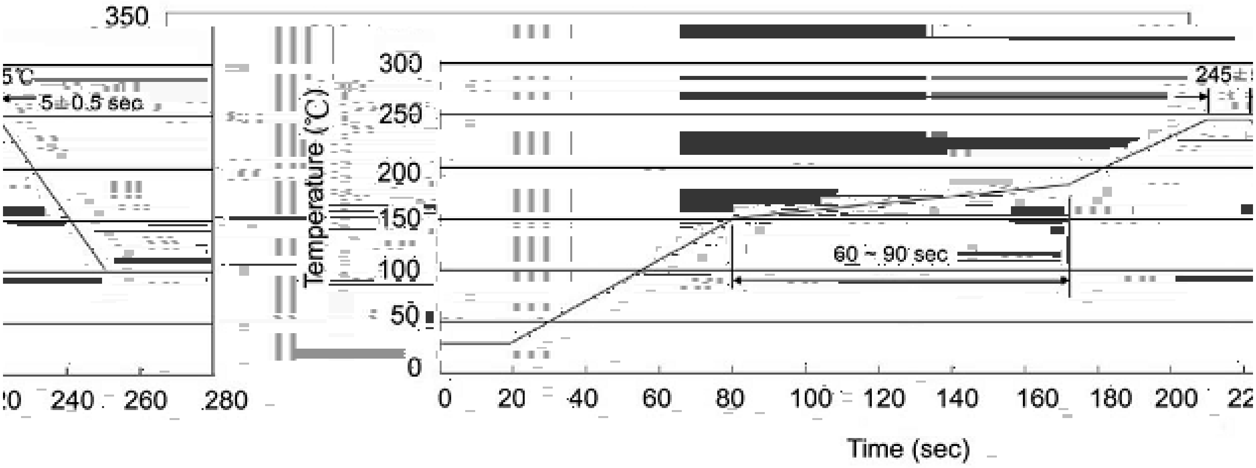
Note:

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)



ب ˝ χ
1 ỉ ♬ □ ŷ 150 Ḱ 180 ł ı `H ڑ 60 Ḱ 90sec;
2 Š Ö □ ŷ 245 ° 5 ł ı `H ڑ 'Y ﾊ 㽷 5 ° 0.5sec;
3 ì ˙ ﾄ ¸ ɔ ቇ ŷ 㽷 2 Ḱ 10 ł /sec.

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

/ Resistance to Soldering Heat Test Conditions

□ ŷ χ 260 ° 5 ł `H ڑ χ 10 ° 1 sec.

Temp.:260±5℃ Time:10±1 sec

/ Packaging SPEC.

ი ` ɣ ㅌ / 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