5 é / Descriptions

9 5 : .> / / x ¤ % U ² Â Õ ›ož

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

¤ ª / Features

¤ G @ Á 9 < ! ª • 9 ¨ [ê ! ‡ â v S ' ½ S ' ! ½ , - * ! U ² - ÿ ß 9 < 5 # <X K½ < ! ‡ â W • v z Á º › f ' ! Á ÿ ß Š z Á º › S k … ` ' +) 7 ö Õ ä U ´ Å } L k —)í D }ož

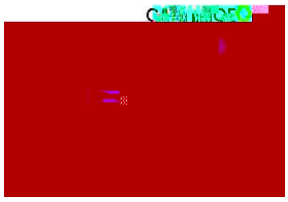
Precise reference voltage to 2.495V;guaranteed 0.5%,1% or 2% reference voltage Tolerance; sink current capability,1.0mA 100mA;quick turn-on; adjustable Output voltage, V_O=V_{ref} 36V;low operational cathode current,50 A typical; 0.15 typical output impedance, Qualified to AEC-Q100 Standards for High Reliability, HF Product.

÷ / Applications

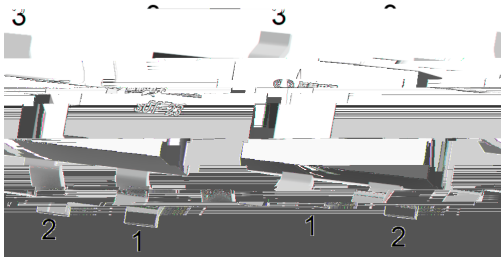
9 ¿ Å ² … ˜ k U ² - › y • ¼ › k á V ñ • } Ložž

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

Ã W] Ô · / Equivalent Circuit



• Û - æ / Pinning



PIN1 y R PIN 2 y K PIN 3 y A

, M V / Marking

Marking	Q431

@ ƒ Parameter	… Z Symbol	ƒ › Rating	% y 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	

@ ƒ Parameter	… Z Symbol	y ¡ Ú ^ Test Conditions	Â 4 › Min	Á º › Typ	Â Ý › Max	% y 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						

Ô ? d • Ž ¢ / Electrical Characteristic Curve

Fig 1 Cathode Current Vs Cathode Voltage

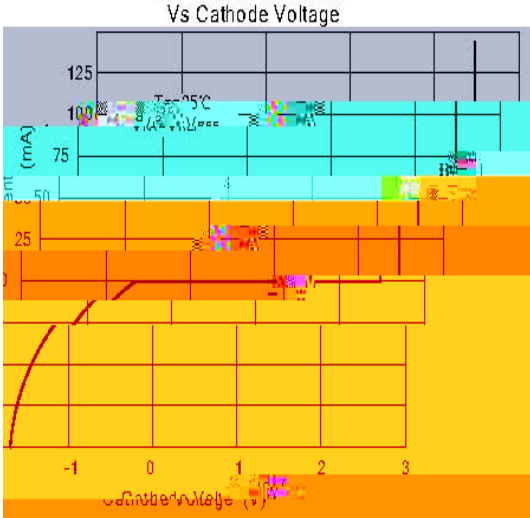
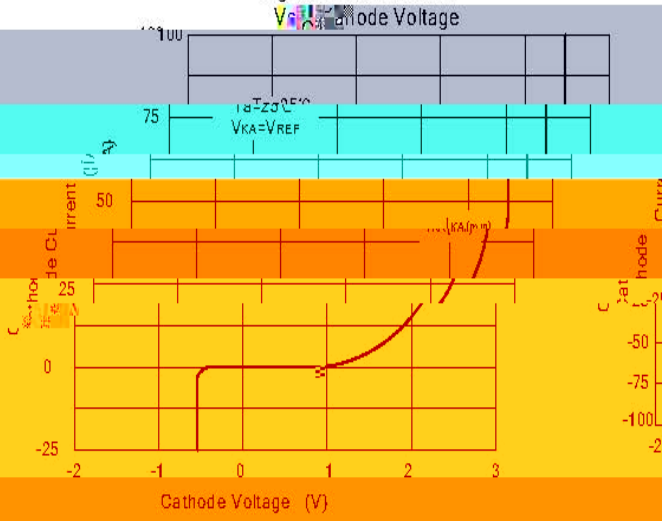


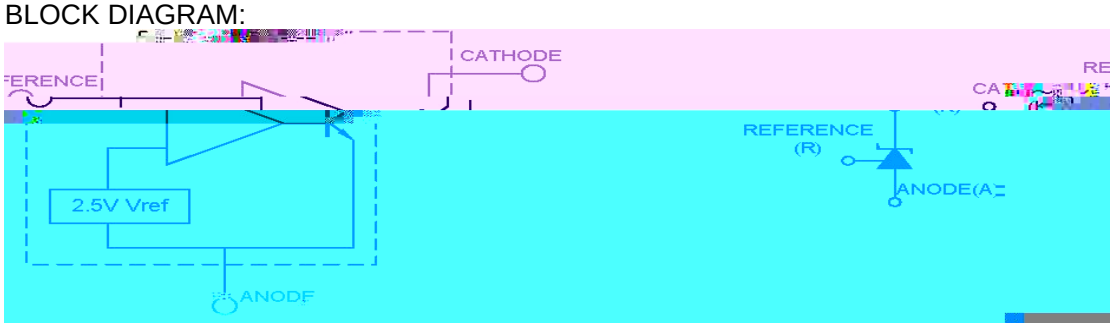
Fig 2 Cathode Current Vs Cathode Voltage



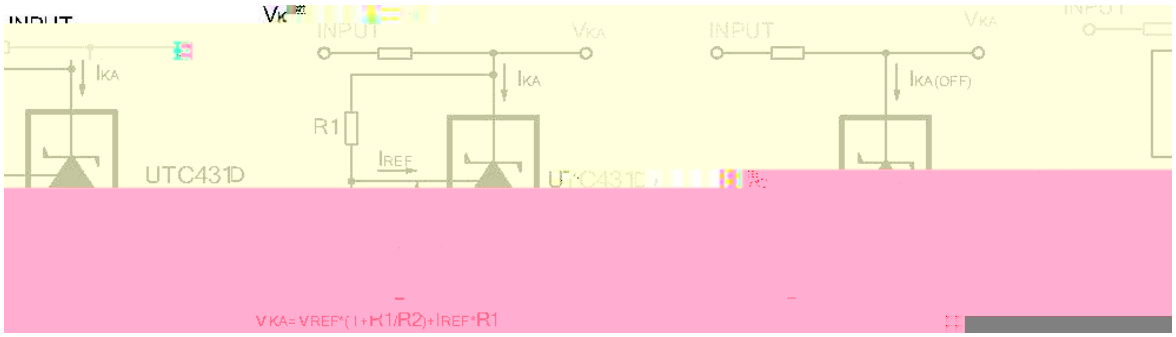
3 Change in Reference Input Voltage Vs Cathode

Z p Ô · ¢ & À ¹ € Đ ¢ Test circuits&Typical Application

BLOCK DIAGRAM:



TEST CIRCUITS:



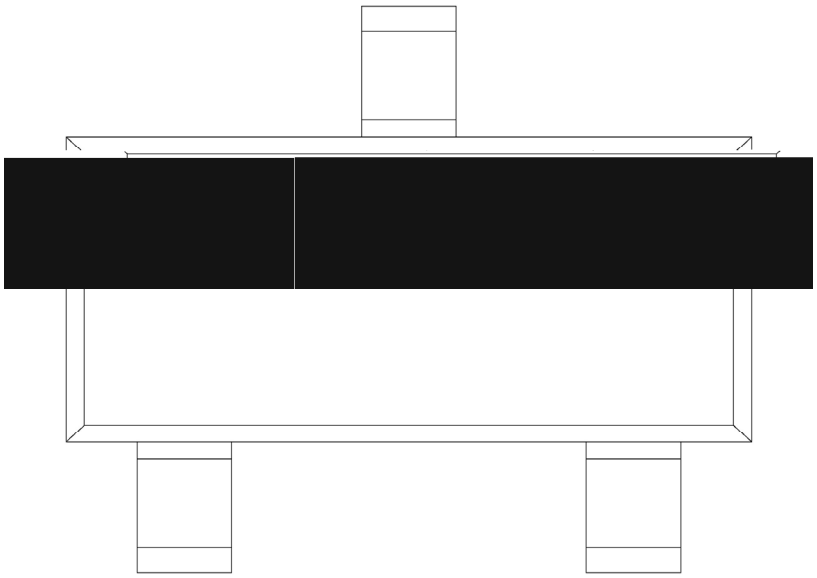
Test Circuit For VKA=VREF Test Circuit for VKA •VREF Test Circuit For IKA(OFF)

TYPICAL APPLICATION:

Shutdown R Tw.( )Tj.5(Sm6C5958 0 -69217.2(IKA(O)6.3(FF))]TJ 8.9963 0 0 9 62O)6.3(F -6 [(DA)14.4

BRTL431MQ

Rev.A May.-2023



š WD t … • Ž ¢ **(** x / **)** ***/*** : K S V K X G Z [X K 6 X U L O R K L U X / 8 8 K L R U] 9 U R J K X O T M 6

ª ¢ y

1o• Ä ½ “ † 150 ½200 - k ž • 60 ½120sec;

2o• Q › “ † 255 r5 - k ž • 4 Ò 5 r0.5sec;

3o•D N ò i Ò 0 , † 2 ½10 - /sec.

Note:

1.Preheating:150~200 - , Time:60~120sec.

2.Peak Temp.:255 r5 - , Duration:5 r0.5sec.

3. Cooling Speed: 2~10 - /sec.

ÂD /Cã p ¯ »] / Resistance to Soldering Heat Test Conditions

“ † y 260 r5 - ž • y 10 r1 sec. Temp.:260±5 Time:10±1 sec

G P á / Packaging SPEC.

2 & x / REEL

Package Type 7>û ˜ E	Units ;>û ¦H	Dimension ;>û p . (unit ÆEmm³)