

BRTL431MQ

Rev.A May.-2023

5 é / Descriptions

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

² á / Features

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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, $V_O = V_{ref} \cdot 36V$; low operational cathode current, 50 A typical; 0.15 typical output impedance, Qualified to AEC-Q100 Standards for High Reliability, HF Product.

÷ / Applications

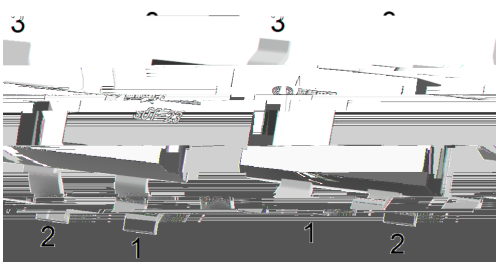
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Linear regulators, adjustable power supply, switching power supply, Meet the stringent requirements of automotive applications.

Ã W] Ô . / Equivalent Circuit



• Ū - æ / Pinning



PIN 1 y R

PIN 2 y K

PIN 3 y A

, M V / Marking

Marking

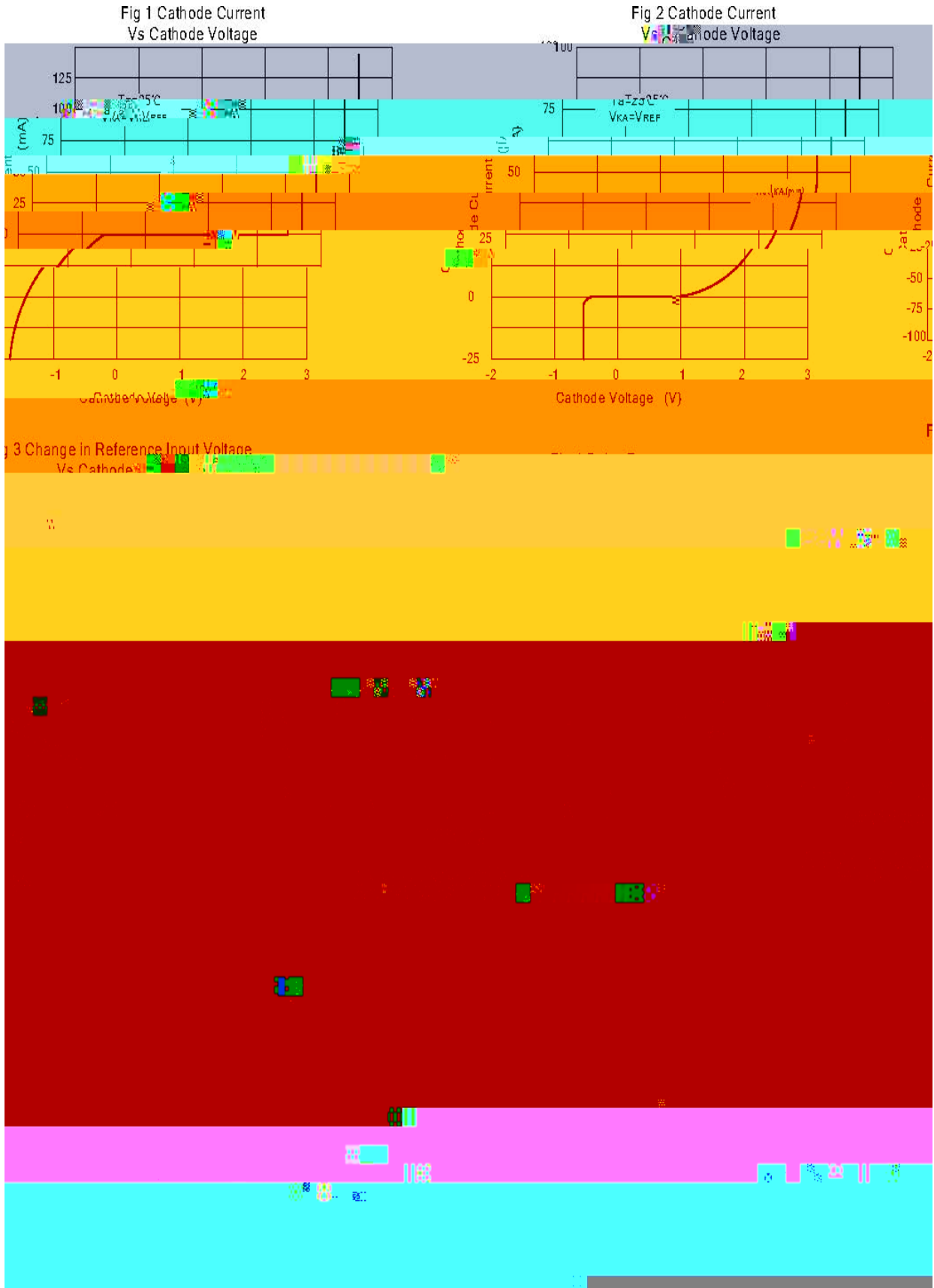
Q431

@ f Parameter	... Z Symbol	f › 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	

@ f Parameter	... Z Symbol	y ; Ú ^ Test Conditions	Â 4 › Min	Á ° › 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

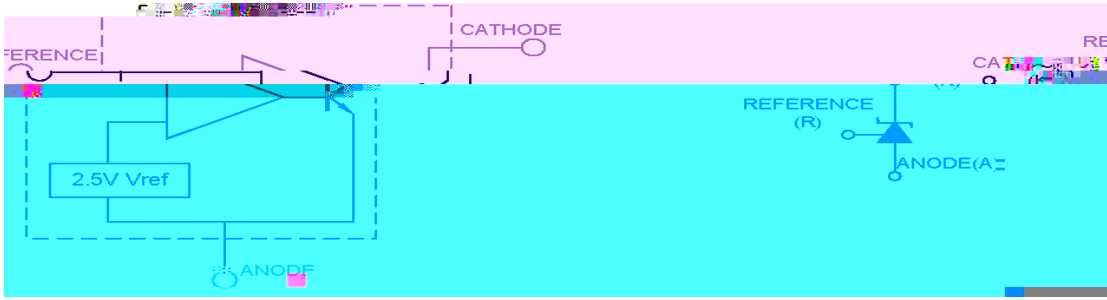
Ratio of Change in Reference Input Voltage

Electrical Characteristic Curve

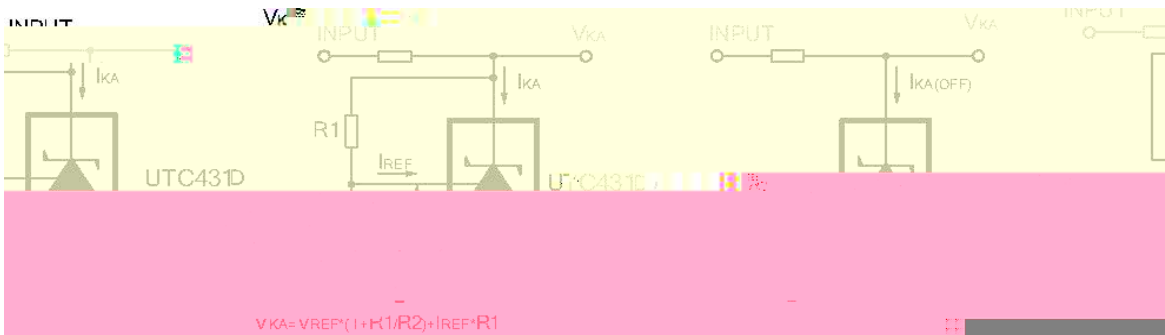


Test circuits&Typical Application

BLOCK DIAGRAM:



TEST CIRCUITS:

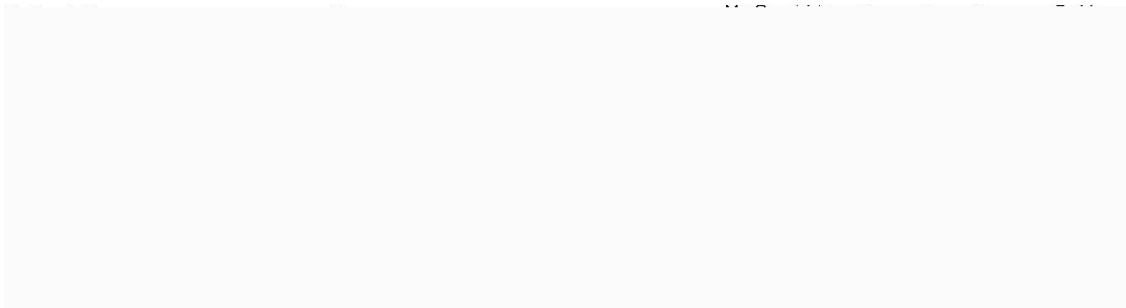


Test Circuit For $V_{KA}=V_{REF}$

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

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

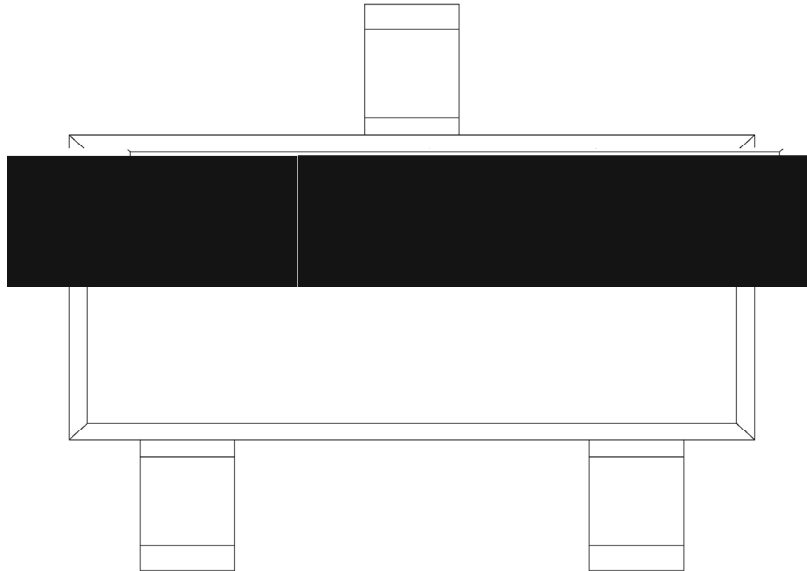
TYPICAL APPLICATION:



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

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Note:

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

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

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

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

3o•D N ò i Ò 0 , † 2 ½10 - /sec.

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 Åmm³)