

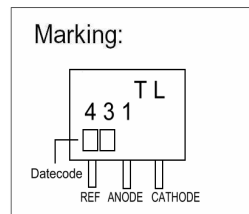
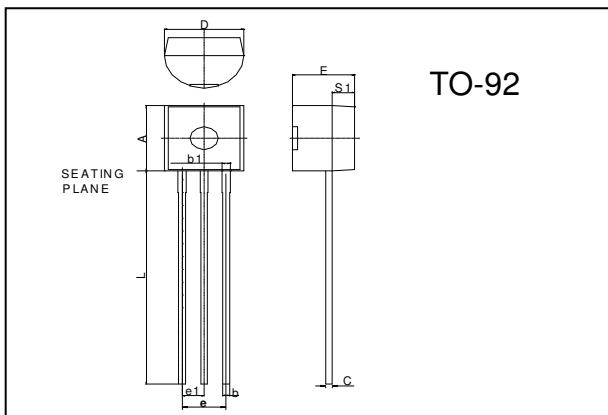
GTL431

Adjustable Shunt Regulator

Description

The GTL431 series are three-terminal adjustable regulators with guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between V_{REF} (approximately 2.495v) and 36v with two external resistors. It provides very wide applications, including shunt regulator, series regulator, switching regulator, voltage reference and others.

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.45	4.7	D	4.44	4.7
S1	1.02	-	E	3.30	3.81
b	0.36	0.51	L	12.70	-
b1	0.36	0.76	e1	1.150	1.390
C	0.36	0.51	e	2.42	2.66

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

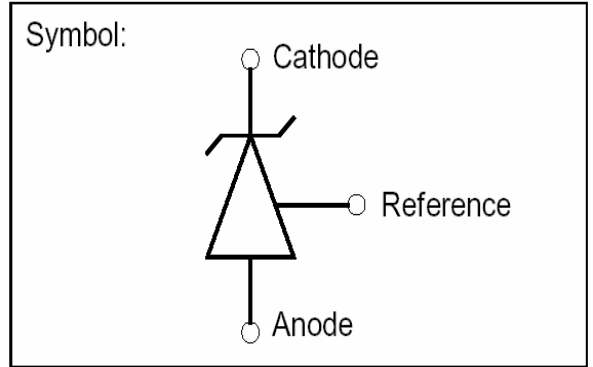
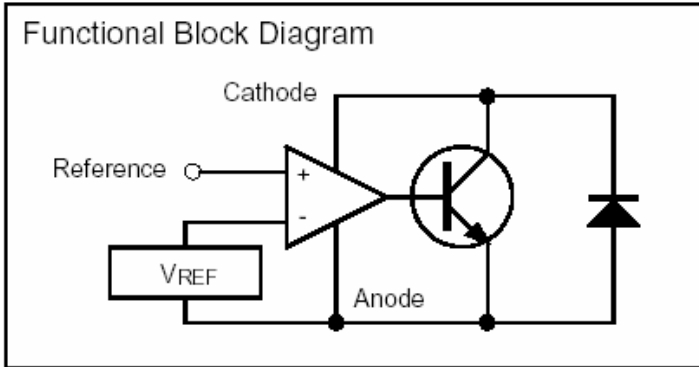
Parameter	Symbol	Ratings	Unit
Junction Temperature	T_j	+150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 ~ +150	$^\circ\text{C}$
Cathode Voltage	V_{KA}	37	V
Cathode Current Range(Continuous)	I_{KA}	-100~+150	mA
Reference Input Current Range	I_{REF}	-0.05~+10	mA
Total Power Dissipation	PD	625	mW

Characteristics at $T_a = 25^\circ\text{C}$

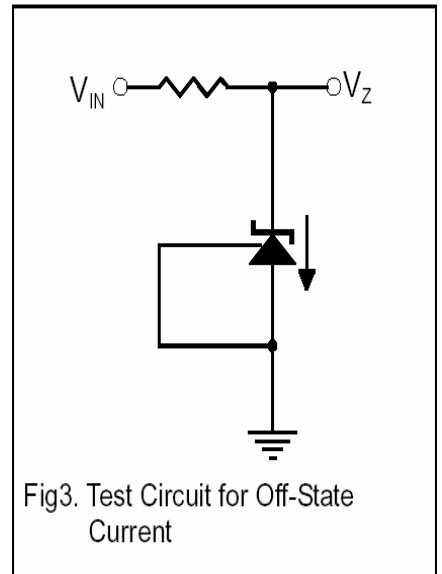
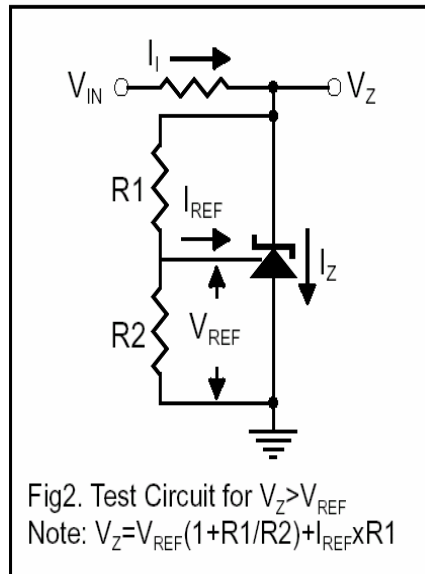
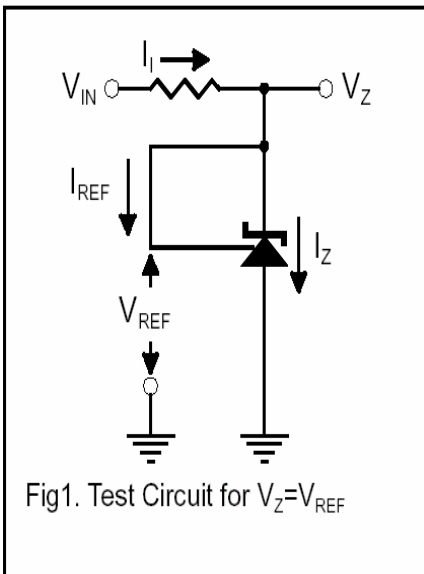
Parameter	Symbol	Min	Typ.	Max.	Unit	Test Conditions
Cathode Voltage	V_{KA}	V_{REF}	-	36	V	
Cathode Current	I_{KA}	1	-	100	mA	
Reference Input Voltage	V_{REF}	2.445	2.495	2.545	V	$V_{KA} = V_{REF}, I_{K} = 10\text{mA}$
		2.470	2.495	2.520		
		2.483	2.495	2.507		
Deviation of reference Input Voltage Over temperature(note)	$\Delta V_{REF}/\Delta T$	-	4.5	17	mV	$V_{KA} = V_{REF}, I_{K} = 10\text{mA}$ $T_{min} \leq T_a \leq T_{max}$
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\Delta V_{REF}/\Delta V_{KA}$	-	-1.0	-2.7	mV/V	$I_{K} = 10\text{mA}$ $\Delta V_{KA} = 10\text{V} \sim V_{REF}$ $\Delta V_{KA} = 36\text{V} \sim 10\text{V}$
		-	-0.5	-2.0		
Reference Input Current	I_{REF}	-	1.5	4	μA	$I_{K} = 10\text{mA}, R_1 = 10\text{K}\Omega, R_2 = \infty$
Deviation of reference Input Current Over Full Temperature Range	$\Delta I_{REF}/\Delta T$	-	0.4	1.2	μA	$I_{K} = 10\text{mA}, R_1 = 10\text{K}\Omega, R_2 = \infty$ $T_A = \text{Full Temperature}$
Minimum Cathode Current for Regulation	$I_{KA}(\text{min})$	-	0.45	1.0	mA	$V_{KA} = V_{REF}$
Off-State Cathode Current	$I_{KA}(\text{off})$	-	0.05	1.0	μA	$V_{KA} = 36\text{V}, V_{REF} = 0$
Dynamic Impedance	$ Z_{KA} $	-	0.15	0.5	Ω	$V_{KA} = V_{REF}, I_{K} = 1 \text{ to } 100\text{mA}, F \leq 1.0\text{KHz}$

Note: $T_{min} = 0^\circ\text{C}, T_{max} = +70^\circ\text{C}$

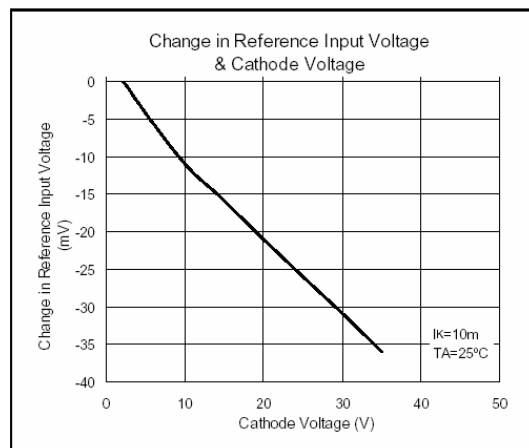
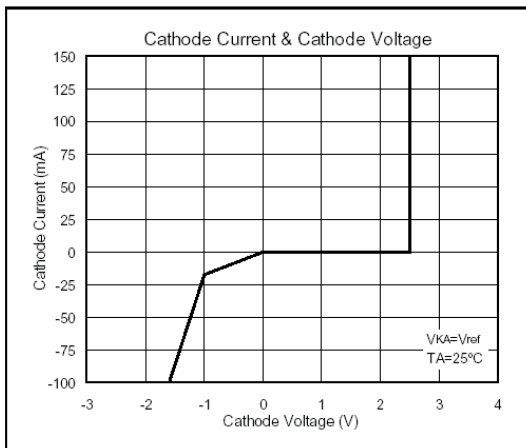
Functional Block Diagram & Symbol

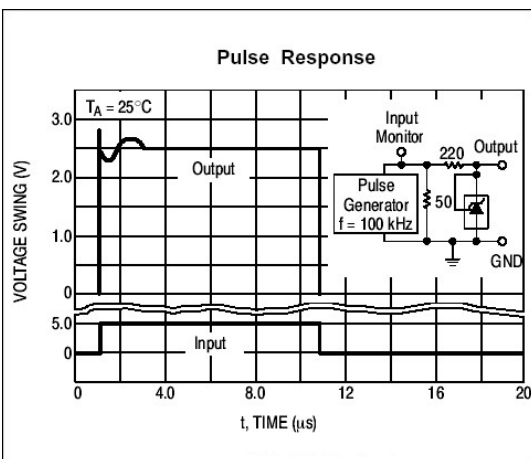
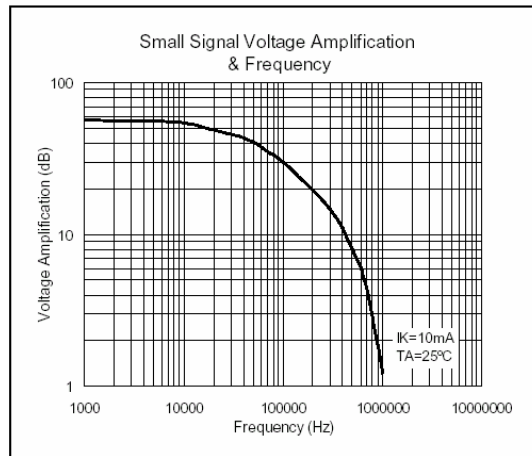
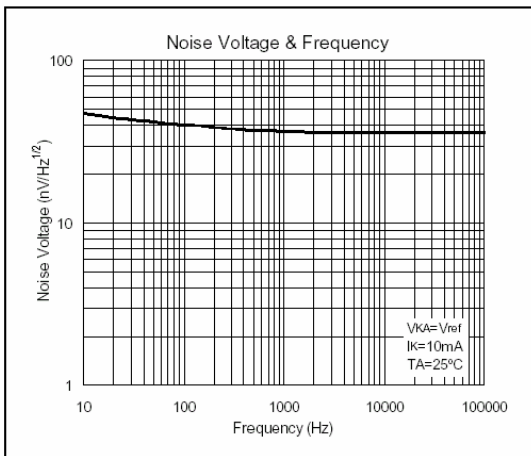
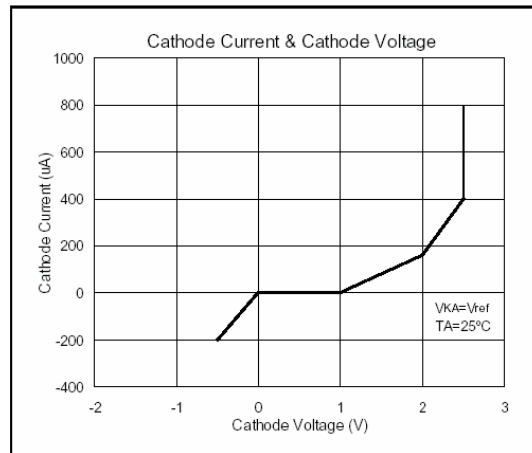
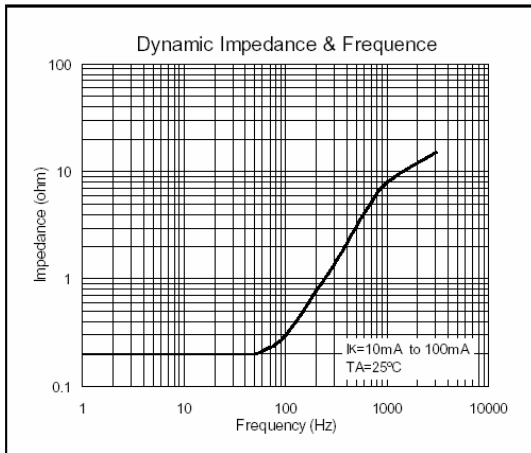


Test Circuits



Characteristics Curve





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