

Product Overview

TL431: Voltage Reference, Programmable Precision, Shunt Regulator

For complete documentation, see the data sheet.

The TL431, A, B integrated circuits are three-terminal programmable shunt regulator diodes. These monolithic IC voltage references operate as a low temperature coefficient zener which is programmable from V_{ref} to 36 V with two external resistors. These devices exhibit a wide operating current range of 1.0 mA to 100 mA with a typical dynamic impedance of 0.22 Ω . The characteristics of these references make them excellent replacements for zener diodes in many applications such as digital voltmeters, power supplies, and op amp circuitry. The 2.5 V reference makes it convenient to obtain a stable reference from 5.0 V logic supplies, and since the TL431, A, B operates as a shunt regulator, it can be used as either a positive or negative voltage reference.

Features

- Programmable Output Voltage to 36 V
- Voltage Reference Tolerance: $\pm 0.4\%$, Typ @ 25°C (TL431B)
- Low Dynamic Output Impedance, 0.22 Ω Typical
- Sink Current Capability of 1.0 mA to 100 mA
- Equivalent Full-Range Temperature Coefficient of 50 ppm/°C Typical
- Temperature Compensated for Operation over Full Rated Operating Temperature Range
- Low Output Noise Voltage
- Pb-Free Packages are Available

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Type	V _(BR) Typ (V)	Tolerance (%)	I _O Typ (mA)	I _R Min (mA)	V _F Max (V)	T _A Min (°C)	T _A Max (°C)	Package Type
NCV431AIDMR2G	0.2471	AEC Qualified	Active	Adjustable	2.5	1	0.5	1	36	-40	125	Micro8™
		PPAP Capable										
		Pb-free										
		Halide free										
NCV431AIDR2G	0.28	AEC Qualified	Active	Adjustable	2.5	1	0.5	1	36	-40	125	SOIC-8
		PPAP Capable										
		Pb-free										
		Halide free										
NCV431BVDMR2G	0.336	AEC Qualified	Active	Adjustable	2.5	0.4	0.5	1	36	-40	125	Micro8™
		PPAP Capable										
		Pb-free										
		Halide free										
NCV431BVDR2G	0.2683	AEC Qualified	Active	Adjustable	2.5	0.4	0.5	1	36	-40	125	SOIC-8
		PPAP Capable										
		Pb-free										
		Halide free										
TL431CDG	0.0888	Pb-free	Active	Adjustable	2.5	2.2		1	36	0	70	SOIC-8
		Halide free										
TL431CDMR2G	0.1096	Pb-free	Active	Adjustable	2.5	2.2		1	36	0	70	Micro8™
		Halide free										
TL431CDR2G	0.1333	Pb-free	Active	Adjustable	2.5	2.2		1	36	0	70	SOIC-8
		Halide free										
TL431CLPG	0.0729	Pb-free	Active	Adjustable	2.5	2.2		1	36	0	70	TO-92
		Halide free										
TL431CLPRAG	0.112	Pb-free	Active	Adjustable	2.5	2.2		1	36	0	70	TO-92
		Halide free										
TL431CLPRPG	0.0752	Pb-free	Active	Adjustable	2.5	2.2		1	36	0	70	TO-92
		Halide free										
TL431IDG	0.1157	Pb-free	Active	Adjustable	2.5	2.2		1	36	-40	85	SOIC-8
		Halide free										
TL431IDMR2G		Pb-free	Active	Adjustable	2.5	2.2		1	36	-40	85	Micro8™
		Halide free										
TL431IDR2G	0.0817	Pb-free	Active	Adjustable	2.5	2.2		1	36	-40	85	SOIC-8
		Halide free										
TL431ILPG	0.1007	Pb-free	Active	Adjustable	2.5	2.2		1	36	-40	85	TO-92
		Halide free										
TL431ILPRAG	0.1051	Pb-free	Active	Adjustable	2.5	2.2		1	36	-40	85	TO-92
		Halide free										
TL431ILPRPG	0.1168	Pb-free	Active	Adjustable	2.5	2.2		1	36	-40	85	TO-92
		Halide free										

For more information please contact your local sales support at www.onsemi.com.

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