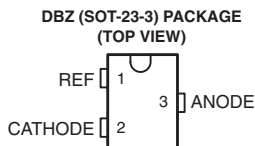
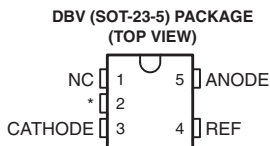
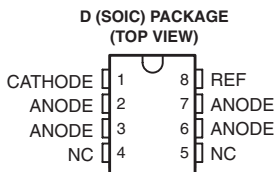


TLV431, TLV431A, TLV431B

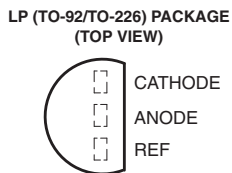
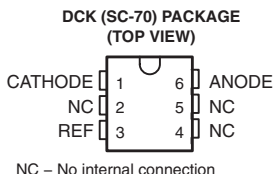
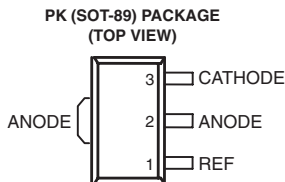
LOW-VOLTAGE ADJUSTABLE PRECISION SHUNT REGULATOR

SLVS139T – JULY 1996 – REVISED JUNE 2007

- **Low-Voltage Operation . . . $V_{REF} = 1.24\text{ V}$**
- **Adjustable Output Voltage, $V_O = V_{REF}$ to 6 V**
- **Reference Voltage Tolerances at 25°C**
 - 0.5% for TLV431B
 - 1% for TLV431A
 - 1.5% for TLV431
- **Typical Temperature Drift**
 - 4 mV (0°C to 70°C)
 - 6 mV (–40°C to 85°C)
 - 11 mV (–40°C to 125°C)
- **Low Operational Cathode Current . . . 80 μA Typ**
- **0.25- Ω Typical Output Impedance**
- **Ultra-Small SC-70 Package Offers 40% Smaller Footprint Than SOT-23-3**
- **See TLVH431 and TLVH432 for**
 - Wider V_{KA} (1.24 V to 18 V) and I_K (80 mA)
 - Additional SOT-89 Package
 - Multiple Pinouts for SOT-23-3 and SOT-89 Packages



NC – No internal connection
 * For TLV431, TLV431A: NC – No internal connection
 * For TLV431B: Pin 2 is attached to Substrate and must be connected to ANODE or left open.



description/ordering information

The TLV431 is a low-voltage 3-terminal adjustable voltage reference with specified thermal stability over applicable industrial and commercial temperature ranges. Output voltage can be set to any value between V_{REF} (1.24 V) and 6 V with two external resistors (see Figure 2). These devices operate from a lower voltage (1.24 V) than the widely used TL431 and TL1431 shunt-regulator references.

When used with an optocoupler, the TLV431 is an ideal voltage reference in isolated feedback circuits for 3-V to 3.3-V switching-mode power supplies. These devices have a typical output impedance of 0.25 Ω . Active output circuitry provides a very sharp turn-on characteristic, making them excellent replacements for low-voltage Zener diodes in many applications, including on-board regulation and adjustable power supplies.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS
INSTRUMENTS**

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TLV431, TLV431A, TLV431B LOW-VOLTAGE ADJUSTABLE PRECISION SHUNT REGULATOR

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ORDERING INFORMATION

T _J	25°C V _{REF} TOLERANCE	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING‡
0°C to 70°C	0.5%	SC-70 (DCK)	Reel of 3000	TLV431BCDCKR	YE_
			Reel of 250	TLV431BCDCKT	
		SOT-23-5 (DBV)	Reel of 3000	TLV431BCDBVR	Y3G_
			Reel of 250	TLV431BCDBVT	
		SOT-23-3 (DBZ)	Reel of 3000	TLV431BCDBZR	Y3G_
			Reel of 250	TLV431BCDBZT	
		SOT-89 (PK)	Reel of 1000	TLV431BCPK	VE
		TO-92 (LP)	Bulk of 1000	TLV431BCLP	TV431B
			Reel of 2000	TLV431BCLPR	
		1%	SOT-23-5 (DBV)	Reel of 3000	TLV431ACDBVR
	Reel of 250			TLV431ACDBVT	
	SOT-23-3 (DBZ)		Reel of 3000	TLV431ACDBZR	YAC_
			Reel of 2000	TLV431ACDBZT	
	TO-92 (LP)		Bulk of 1000	TLV431ACLPR	V431AC
			Reel of 2000	TLV431ACLPR	
	1.5%	SOT-23-5 (DBV)	Reel of 3000	TLV431CDBVR	Y3C_
			Reel of 250	TLV431CDBVT	
		SOT-23-3 (DBZ)	Reel of 3000	TLV431CDBZR	Y3C_
			Reel of 2000	TLV431CDBZT	
		TO-92 (LP)	Bulk of 1000	TLV431CLP	V431C
Reel of 2000			TLV431CLPR		

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

‡ DBV/DBZ/DCK: The actual top-side marking has one additional character that designates the wafer fab/assembly site.