

TLE2027, TLE2037, TLE2027A, TLE2037A, TLE2027Y, TLE2037Y EXCALIBUR LOW-NOISE HIGH-SPEED PRECISION OPERATIONAL AMPLIFIERS

SLOS192A – FEBRUARY 1997 REVISED MARCH 2002

- **Outstanding Combination of dc Precision and AC Performance:**

Unity-Gain Bandwidth . . . 15 MHz Typ

V_n 3.3 nV/ $\sqrt{\text{Hz}}$ at $f = 10$ Hz Typ,
2.5 nV/ $\sqrt{\text{Hz}}$ at $f = 1$ kHz Typ

V_{IO} 25 μV Max

A_{VD} . . . 45 V/ μV Typ With $R_L = 2$ k Ω ,
19 V/ μV Typ With $R_L = 600$ Ω

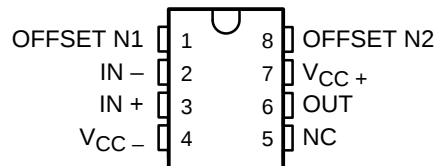
- Available in Standard-Pinout Small-Outline Package
- Output Features Saturation Recovery Circuitry
- Macromodels and Statistical information

description

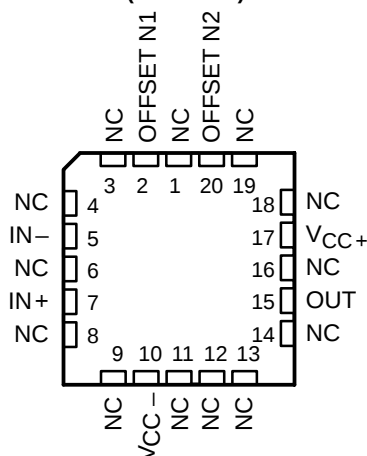
The TLE20x7 and TLE20x7A contain innovative circuit design expertise and high-quality process control techniques to produce a level of ac performance and dc precision previously unavailable in single operational amplifiers. Manufactured using Texas Instruments state-of-the-art Excalibur process, these devices allow upgrades to systems that use lower-precision devices.

In the area of dc precision, the TLE20x7 and TLE20x7A offer maximum offset voltages of 100 μV and 25 μV , respectively, common-mode rejection ratio of 131 dB (typ), supply voltage rejection ratio of 144 dB (typ), and dc gain of 45 V/ μV (typ).

D, JG, OR P PACKAGE
(TOP VIEW)



FK PACKAGE
(TOP VIEW)



AVAILABLE OPTIONS

T_A	$V_{IO\text{max}}$ AT 25°C	PACKAGED DEVICES				CHIP FORM [‡] (Y)
		SMALL OUTLINE [†] (D)	CHIP CARRIER (FK)	CERAMIC DIP (JG)	PLASTIC DIP (P)	
0°C to 70°C	25 μV	TLE2027ACD TLE2037ACD	— —	— —	TLE2027ACP TLE2037ACP	TLE2027Y TLE2037Y
	100 μV	TLE2027CD TLE2037CD	— —	— —	TLE2027CP TLE2037CP	TLE2027Y TLE2037Y
–40°C to 105°C	25 μV	TLE2027AID TLE2037AID	— —	— —	TLE2027AIP TLE2037AIP	—
	100 μV	TLE2027ID TLE2037ID	— —	— —	TLE2027IP TLE2037IP	—
–55°C to 125°C	25 μV	TLE2027AMD TLE2037AMD	TLE2027AMFK TLE2037AMFK	TLE2027AMJG TLE2037AMJG	TLE2027AMP TLE2037AMP	—
	100 μV	TLE2027MD TLE2037MD	TLE2027MFK TLE2037MFK	TLE2027MJG TLE2037MJG	TLE2027MP TLE2037MP	—

[†] The D packages are available taped and reeled. Add R suffix to device type (e.g., TLE2027ACDR).

[‡] Chip forms are tested at 25°C only.



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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PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
5962-9089601M2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	Level-NC-NC-NC
5962-9089601MPA	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	Level-NC-NC-NC
5962-9089602MPA	OBSOLETE	CDIP	JG	8		TBD	Call TI	Call TI
5962-9089603Q2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	Level-NC-NC-NC
5962-9089603QPA	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	Level-NC-NC-NC
TLE2027ACD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TLE2027ACP	OBSOLETE	PDIP	P	8		Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
TLE2027AID	OBSOLETE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2027AIP	OBSOLETE	PDIP	P	8		Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
TLE2027AMD	ACTIVE	SOIC	D	8	75	TBD	CU NIPDAU	Level-1-220C-UNLIM
TLE2027AMFKB	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	Level-NC-NC-NC
TLE2027AMJG	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	Level-NC-NC-NC
TLE2027AMJGB	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	Level-NC-NC-NC
TLE2027CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2027CDG4	ACTIVE	SOIC	D	8	75	TBD	Call TI	Call TI
TLE2027CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2027CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TLE2027ID	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2027IDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2027IDRG4	ACTIVE	SOIC	D	8	2500	TBD	Call TI	Call TI
TLE2027IP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TLE2027MD	ACTIVE	SOIC	D	8	75	TBD	CU NIPDAU	Level-1-220C-UNLIM
TLE2027MFKB	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	Level-NC-NC-NC
TLE2027MJG	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	Level-NC-NC-NC
TLE2027MJGB	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	Level-NC-NC-NC
TLE2037ACD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TLE2037ACP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TLE2037AID	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TLE2037AIP	OBSOLETE	PDIP	P	8		Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
TLE2037AMD	ACTIVE	SOIC	D	8	75	TBD	CU NIPDAU	Level-1-220C-UNLIM
TLE2037AMJGB	OBSOLETE	CDIP	JG	8		TBD	Call TI	Call TI
TLE2037CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2037CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2037CDRG4	ACTIVE	SOIC	D	8	2500	TBD	Call TI	Call TI
TLE2037CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
TLE2037ID	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2037IDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TLE2037IP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TLE2037MD	ACTIVE	SOIC	D	8	75	TBD	CU NIPDAU	Level-1-220C-UNLIM
TLE2037MFKB	OBSOLETE	LCCC	FK	20		TBD	Call TI	Call TI
TLE2037MJGB	OBSOLETE	CDIP	JG	8		TBD	Call TI	Call TI

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS) or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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