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# Sine On™

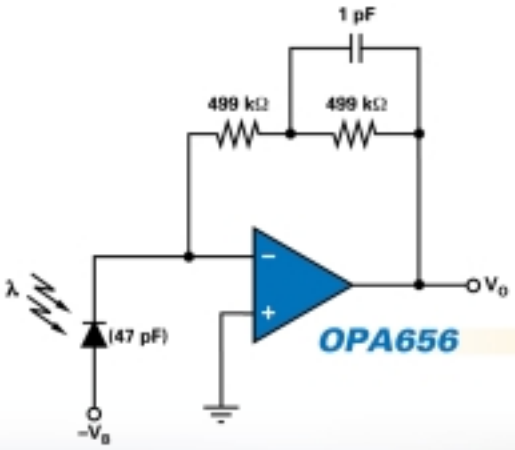
AN ANALOG AND MIXED-SIGNAL PRODUCT CATALOG

***this issue:***

# High-Speed Solutions

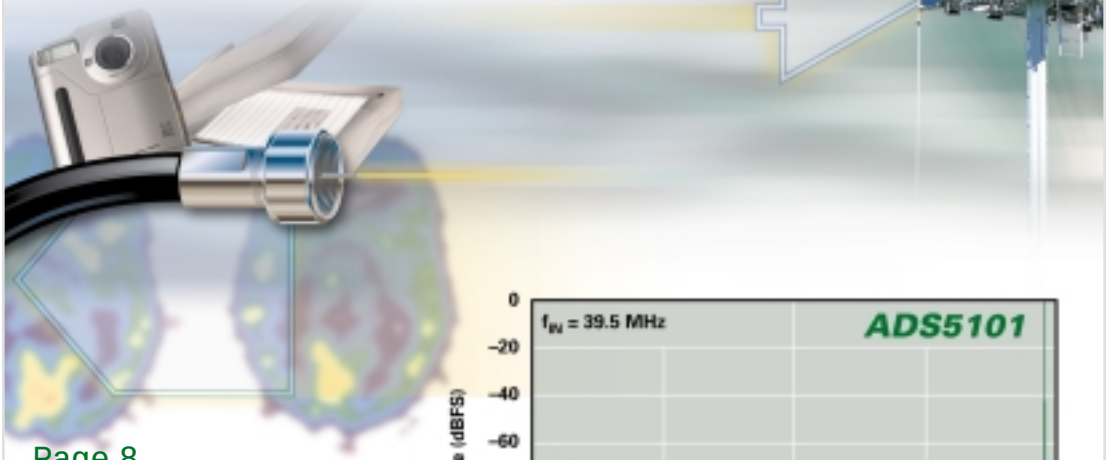
4Q 2001 Issue 1

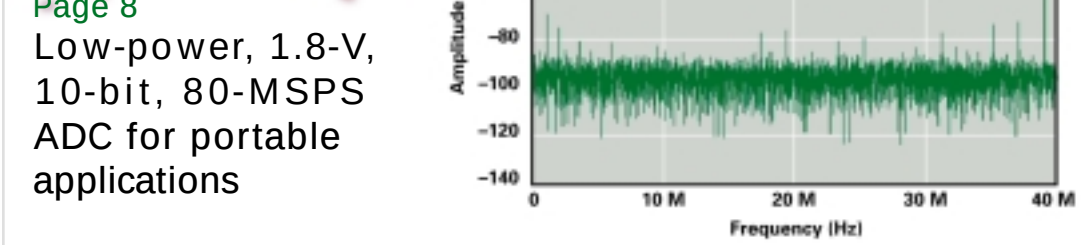





Page 3

240-MHz GBW product, low-noise, low-distortion JFET op amp






Page 8

Low-power, 1.8-V, 10-bit, 80-MSPS ADC for portable applications

Includes BB Burr-Brown Products from Texas Instruments

Amplifiers

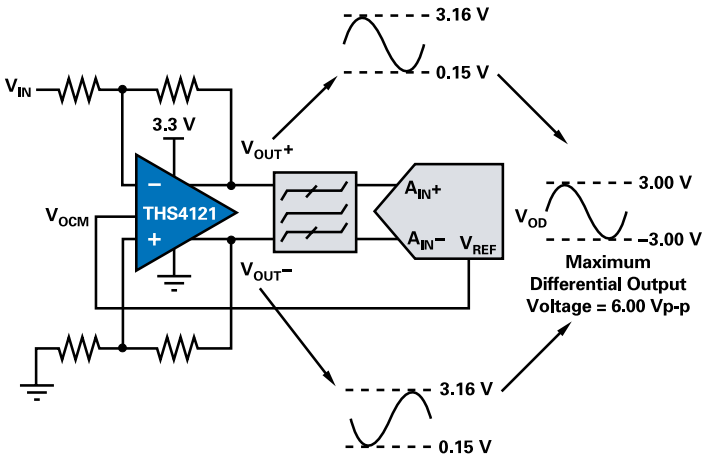
# 3-V, 100-MHz, fully differential I/O, low-voltage amplifiers

## THS4120, THS4121

Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/THS4120**
**www.ti.com/sc/device/THS4121**

- Small signal bandwidth: 100 MHz (Gain = +1)
- Slew rate: 50 V/µs
- THD at 1 MHz: –75 dB ($V_O$ = 2 $V_{PP}$)
- Input-referred noise: 5.4 nV/√Hz at 10 kHz
- Single supply: 3.3 V
- Shutdown available in THS4120
- Differential input/output
  – Balanced outputs reject common-mode noise
  – Reduced second harmonic distortion due to differential output
- Packaging: Available in 8-lead SOIC, 8-lead MSOP PowerPAD™
- Suggested resale price starts at $1.90 each in quantities of 1,000

**3.3-V, Single-Supply, Differential Amplifier Providing 6-Vp-p Output Voltage**




The THS4121's rail-to-rail fully differential output allows for maximum output voltage swing with reduced power supply voltage. Ideal for driving high performance ADCs in portable applications.

**Applications include:**
- Simple single-ended to differential conversion
- Differential ADC driver/differential antialiasing
- Differential transmitter and receiver
- Output level shifter

# 160-MHz, low-noise, fully differential I/O amplifiers

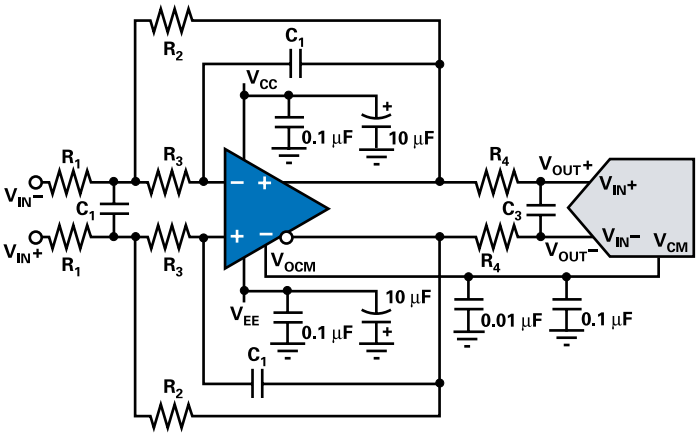
## THS4131, THS4141, THS4151

Get samples, datasheets, EVMs, app reports and spice models at:
**www.ti.com/sc/device/partnumber**
Replace partnumber in URL with THS4131, THS4141 or THS4151

- Differential input/output
  – Balanced outputs reject common-mode noise
  – Reduced second harmonic distortion due to differential output
- Wide power supply range:
  – Single supply: $V_{CC}$ = 5 V to 30 V
  – Dual supply: ±2.5 V to ±15 V
- Shutdown available on THS4130, THS4140 and THS4150
- Packaging: Available in 8-lead SOIC, 8-lead MSOP PowerPAD™
- Suggested resale price in quantities of 1,000:
  – THS4130/1 starts at $3.35 each
  – THS4140/1 starts at $3.26 each
  – THS4150/1 starts at $4.50 each

| Device | Bandwidth (MHz) | Slew Rate (V/µs) | THD (dB) | $V_N$ at 10 kHz (nV/√Hz) (typ) | Shutdown (µA) |
|---|---|---|---|---|---|
| THS4130/1 | 150 | 51 | –80 | 1.3 | 860 |
| THS4140/1 | 160 | 450 | –78 | 6.5 | 880 |
| THS4150/1 | 150 | 650 | –83 | 7.6 | 1 mA |

**Third-Order Low-Pass Filter Driving an ADC**




The multiple feedback (MFB) is a good topology to create a complex-pole pair and is easily adapted to fully differential amplifiers.

**Applications include:**
- Single-ended to differential conversion
- Differential ADC driver
- Differential antialiasing
- Differential transmitter and receiver
- Output level shifter
- High-performance audio

Amplifiers

# Industry's widest-bandwidth, FET-input op amp for ±15-V applications

## THS4601*

Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/THS4601**

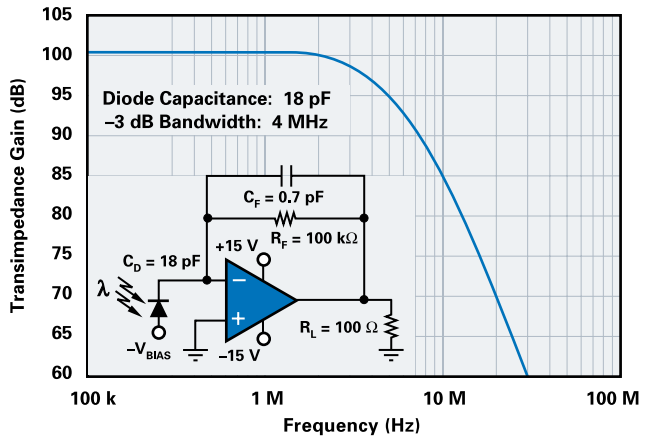
Product Preview*

- Gain-bandwidth product: 170 MHz
- Supply voltage range: ±5 to ±15 V
- Slew rate: 95 V/µs
- Input bias current: 160 pA
- Input voltage noise: 5.6 nV/√Hz at 10 kHz
- Input current noise: 5 fA/√Hz
- Packaging: Available in 8-lead SOIC PowerPAD™
- Suggested resale price starts at $9.95 each in quantities of 1,000

* *The THS4601 is in the product preview stage of development. Contact your distributor or local TI sales office for availability. Expected availability is 4Q01.*

| Device | GBW Product (MHz) | Slew Rate (V/µs) | $I_S$ (mA) | $I_{IB}$ (pA) | $V_N$ (at 10 kHz) (nV/√Hz) | Power Supply Range (V) |
|---|---|---|---|---|---|---|
| THS4601 | 170 | 95 | 9.5 | 160 | 5.6 | ±5 to ±15 |
| OPA627 | 16 | 55 | 7 | 5 | 4.5 | ±5 to ±18 |
| OPA637 | 80 | 135 | 7 | 5 | 4.5 | ±5 to ±18 |
| OPA655 | 240 | 290 | 24 | 125 | 6 | ±5 |
| OPA355 | 200 | 300 | 8.3 | 3 | 30 | +2.7 to +5.5 |

**THS4601 100-kΩ Transimpedance Bandwidth**




**Applications include:**

- Test and measurement systems
- High impedance sensors
- Wideband photodiode amplifier
- DAC output buffering
- Active filtering

# 400-MHz unity gain stable, FET op amp for ultra-high dynamic range applications

## OPA656*

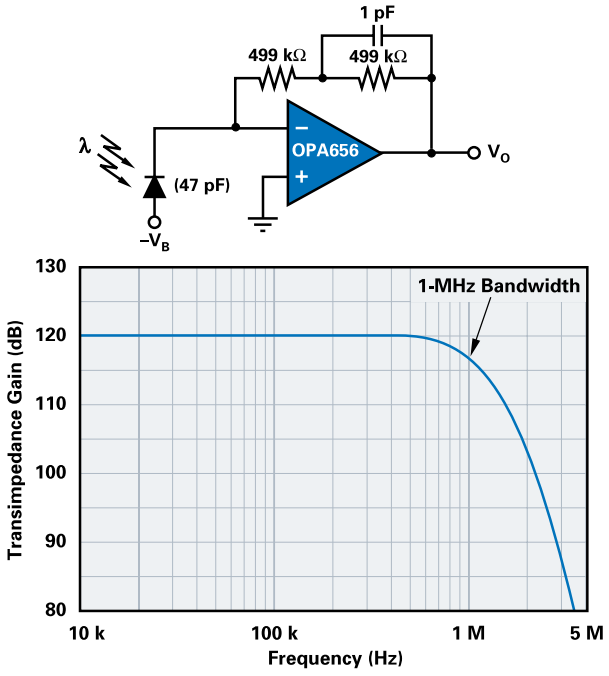
Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/OPA656**

Product Preview*

- Unity gain bandwidth: 400 MHz
- Gain bandwidth product: 240 MHz
- Low input bias current: 20 pA
- High input impedance: $10^{12}$ Ω || 1.0 pF
- Low distortion: 76-dB SFDR at 5 MHz
- High output current: 80 mA
- Low input voltage noise: 7nV/√Hz
- Supply voltage: ±5 V
- Packaging: Available in 8-lead SOIC, SOT23-5
- Suggested resale price starts at $7.85 each in quantities of 1,000

* *The OPA656 is in the product preview stage of development. Contact your distributor or local TI sales office for availability. Expected availability is 4Q01.*

**OPA656 Schematic and Transimpedance Gain vs. Frequency Plot**




A –3 dB bandwidth of 1 MHz is provided even for a high 1-MΩ transimpedance gain from a 47-pF source capacitance.

**Applications include:**

- Wideband photodiode amplifier
- Peak detector
- CCD output buffer
- ADC input buffer
- High-speed integrator

Amplifiers

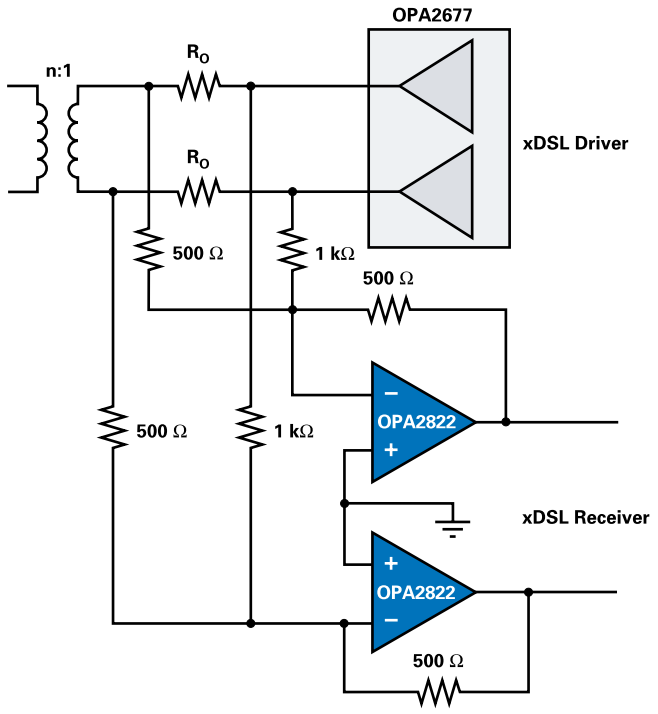
# Dual, low-noise, voltage-feedback op amp for xDSL receiver applications

## OPA2822

Get samples, datasheets and app reports at:
**www.ti.com/sc/device/OPA2822**

- High unity-gain bandwidth: 500 MHz
- High GBW product: 240 MHz
- Low input voltage noise: 2 nV/√Hz
- Low distortion: < –95 dBc SFDR at 1 MHz
- High output current: >90 mA
- Single supply: +5 V to +12 V operation
- Low supply current: 4.8 mA/ch
- Packaging: Available in 8-lead SOIC, 8-lead MSOP
- Suggested resale price starts at $2.16 each in quantities of 1,000

**OPA2822 in xDSL Line Driver/Receiver Application**




The OPA2822 combined with the OPA2677 line driver gives extremely low line referred noise and extends reach/rate in emerging ADSL applications.

**Applications include:**

- xDSL differential line receiver
- High-dynamic-range ADC driver
- Low-noise PLL feedback integrator
- Precision baseband I/Q amplifier
- Transimpedance amplifier
- Active filters

# Dual, wideband, high-output current op amps for ADSL and VDSL applications

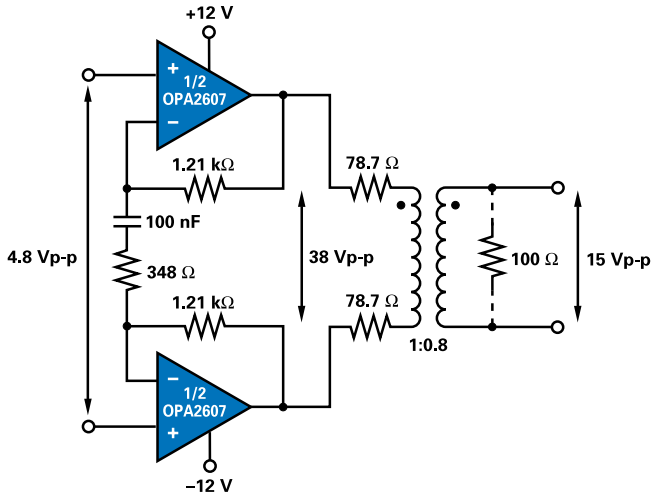
## OPA2607, OPA2677

Get samples, datasheets and app reports at:
**www.ti.com/sc/device/OPA2607**
**www.ti.com/sc/device/OPA2677**

- Supply range:
  - OPA2607: ±6 V to ±16 V
  - OPA2677: ±6-V supplies to support +12-V operation; will also support single +5-V or dual ±5-V supply
- OPA2607 is available in thermally enhanced SO-8 and SO-COOL™ packages with heat slug for power driver applications
- Packaging: Available in 8-lead SOIC, 8-lead PSO, 14-lead SOIC
- Suggested resale price in quantities of 1,000:
  - OPA2607 starts at $2.85 each
  - OPA2677 starts at $2.30 each

| Specification | OPA2607 | OPA2677 |
|---|---|---|
| Wideband Operation | ±12 V; 25 MHz at G = +8 | +12 V; 200 MHz at G = +4 |
| Unity Gain Stable | 35 MHz at G = +1 | 220 MHz at G = +1 |
| High Output Current | 180 mA | 500 mA |
| Output Voltage Swing | ±10.5 V (Vs = ±12 V) | ±5 V (Vs = ±6 V) |
| High Slew Rate | 600 V/µs | 1800 V/µs |
| Low Supply Current | 8 mA/ch | 9 mA/ch |

**OPA2607 in ADSL Upstream Driver Application**




The OPA2607, in a low turns ratio ADSL upstream driver application, can deliver a high 38-Vp-p voltage swing into a 1:0.8 step-down transformer to meet the ADSL CPE upstream power requirement by using a differential driver design.

**Applications include:**

- xDSL line driver
- Low-noise ADSL receiver
- Power line modem
- Matched I/Q channel amplifier

Amplifiers

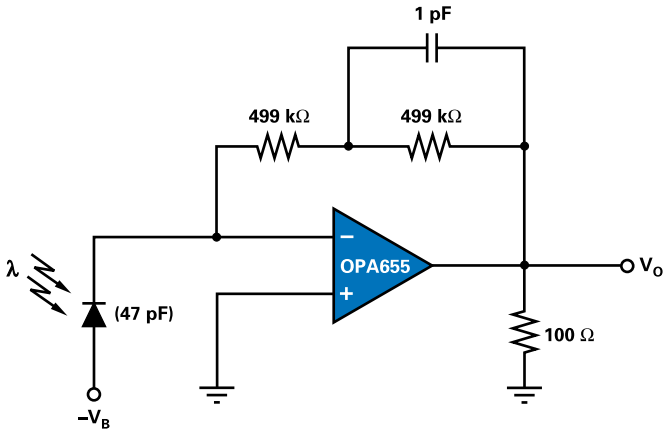
# Wideband, unity-gain stable, FET-input op amp

## OPA655

Get samples, datasheets, EVMs, app reports and spice models at:
**www.ti.com/sc/device/OPA655**

- High unity-gain bandwidth: 400 MHz
- Low input bias current: 5 pA
- High input impedance: $10^{12}$ Ω || 1.0 pF
- Ultra-low dG/dP: 0.006%/0.009°
- Low distortion: 90-dB SFDR at 5 MHz
- Fast settling: 17 ns (0.01%)
- High output current: 60 mA
- Fast overdrive recovery
- Packaging: Available in 8-pin DIP, 8-lead SOIC
- Suggested resale price starts at $9.13 each in quantities of 1,000

**OPA655 Used as Wideband Photodiode Amplifier**




OPA655's broad transimpedance bandwidths are achievable given its high 240-MHz GBW product. A –3 dB bandwidth of 1 MHz is provided even for a high 1-MΩ transimpedance gain from a 47-pF source capacitance.

**Applications include:**

- Wideband photodiode amplifier
- Peak detector
- CCD output buffer
- ADC input buffer
- High-speed integrator
- Test and measurement front end

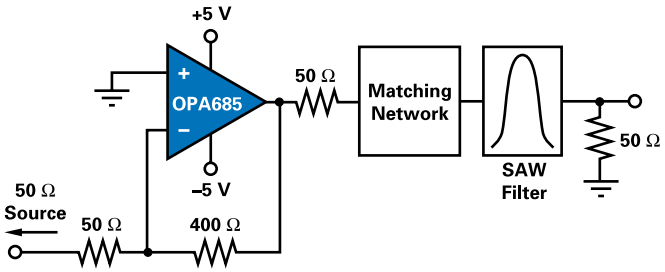
# Ultra-wideband, high-speed, current-feedback op amp with disable

## OPA685

Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/OPA685**

- Bandwidth: 900 MHz at G = +2; 420 MHz at G = +8
- Output voltage swing: ±3.6 V (±5 V supplies)
- Ultra-high slew rate: 4200 V/µs
- 3rd-order intercept: >40 dBm (f < 50 MHz)
- Low power: 129 mW
- Low disabled power: 3 mW
- Packaging: Available in SOT23-6, 8-lead SOIC
- Suggested resale price starts at $1.89 each in quantities of 1,000

**OPA685 Optimized for High-Gain Operation**




The OPA685 is optimized for high gain operation and is suited to buffering Surface Acoustic Wave (SAW) filters in an IF strip or delivering high output power at low distortion for cable modem upstream line drivers.

**Applications include:**

- Low-cost precision IF amplifier
- Cable modem upstream driver
- Broadband video line driver
- Portable instruments
- Active filters
- ARB waveform output driver

Amplifiers

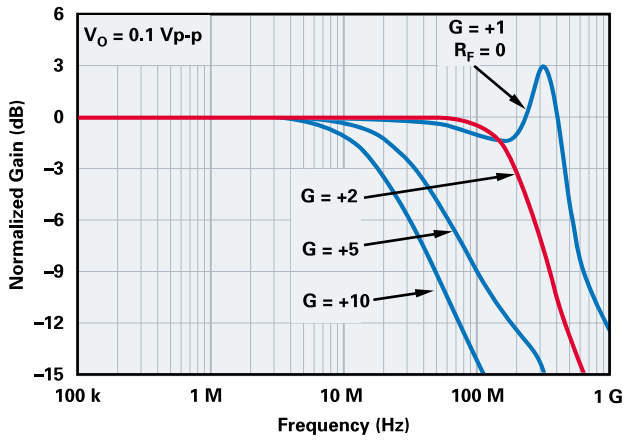
# Industry's fastest CMOS op amp at 200-MHz GBW

## OPA356, OPA355

Get samples and datasheets at:
**www.ti.com/sc/device/OPA356**
**www.ti.com/sc/device/OPA355**

- Unity gain bandwidth: 450 MHz
- Gain bandwidth product: 200 MHz
- High slew rate: 300 V/µs
- Single or dual supply: 2.5 V to 5.5 V (±1.25 V to ±2.75 V)
- Quiescent current: 8.3 mA/channel
- Low input bias current: 3 pA
- Low input voltage noise: 5.8 nV/$\sqrt{Hz}$
- Input common-mode range to 200 mV below ground
- Wide output swing: 100 mW to rails
- Low dG/dP: 0.02%/0.05°
- 0.1 dB gain flatness: 75 MHz
- Shutdown available on OPA355
- Packaging: Available in SOT23-6, 8-lead SOIC, 10-lead MSOP, 14-lead TSSOP, 14-lead SOIC
- Suggested resale price starts at $1.20 each in quantities of 1,000

### Non-Inverting Small-Signal Frequency Response




**Applications include:**
- Optical networking
- Tunable lasers
- Video processing
- Ultrasound
- High-speed integrators

# Dual, variable-gain amplifiers for imaging and wireless applications

## VCA2613, VCA2614*

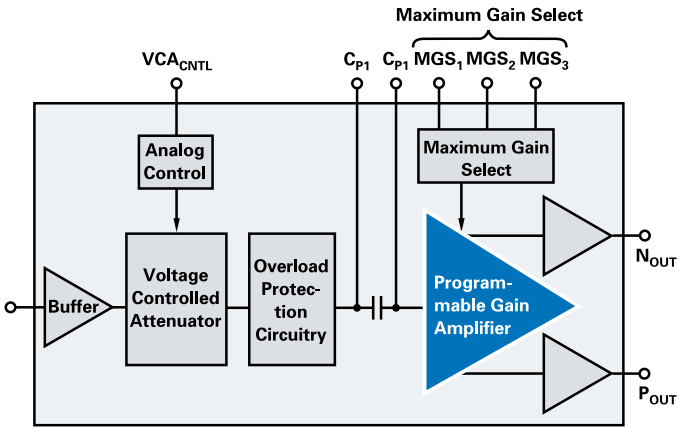
Product Preview*

Get samples and datasheets at:
**www.ti.com/sc/device/VCA2613**
**www.ti.com/sc/device/VCA2614**

- VCA2614 features VGA with independent gain control and input buffer
- Low noise variable-gain amplifiers:
  - Low input voltage noise: 3.7 nV/$\sqrt{Hz}$
  - Gain range: 24 dB to 45 dB
  - Bandwidth: 40 MHz
  - Differential input and output
- Low crosstalk: 52 dB at max gain, 5 MHz
- High-speed variable gain adjust
- VCA2613 features VGA plus low noise pre-amp:
  - Low input voltage noise: 1.0 nV/$\sqrt{Hz}$
  - Bandwidth: 80 MHz
  - Gain range: 5 dB to 25 dB
  - Active termination noise reduction
  - Switchable termination value
  - Differential input/output
- Packaging: Available in 32-lead TQFP (VCA2614), 48-lead TQFP (VCA2613)
- Suggested resale price in quantities of 1,000:
  - VCA2613 starts at $11.75 each
  - VCA2614 starts at $11.75 each

* *The VCA2614 is in the product preview stage of development. Contact your distributor or local TI sales office for availability. Expected availability is 4Q01.*

### VCA2614 Block Diagram




**Applications include:**
- Ultrasound
- Gamma cameras
- Wireless receivers
- Test equipment

DACs

# Dual, 10-, 12- and 14-bit, 125-MSPS DACs for communications systems

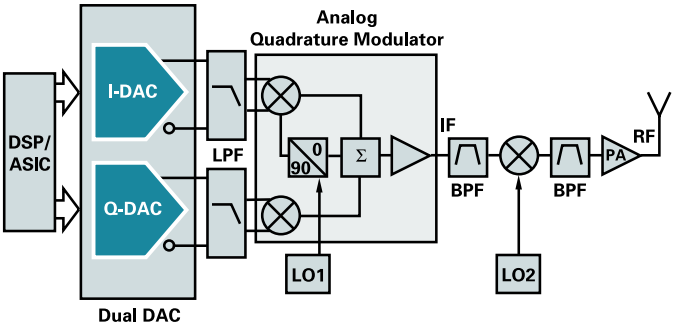
## DAC2900, DAC2902, DAC2904

Get samples, datasheets and EVMs at:
**www.ti.com/sc/device/partnumber**
Replace partnumber in URL with DAC2900, DAC2902 or DAC2904

- High SFDR:
  – DAC2900: 68 dB at $f_{OUT}$ = 20 MHz
  – DAC2902: 70 dB at $f_{OUT}$ = 20 MHz
  – DAC2904: 78 dB at $f_{OUT}$ = 10 MHz
- Power: 310 mW
- Power-down mode: 23 mW
- Low glitch: 2 pVs
- Internal reference
- Packaging: Available in 48-lead TQFP
- Suggested resale price in quantities of 1,000:
  – DAC2900 starts at $9.10 each
  – DAC2902 starts at $15.25 each
  – DAC2904 starts at $19.95 each

| Device | Res. (Bits) | Supply (V) | Update Rate (MSPS) | Settling Time (ns) | DNL (typ) (±LSB) | INL (typ) (±LSB) |
|---|---|---|---|---|---|---|
| DAC2900 | 2 x 10 | 3.3 to 5 | 125 | 30 to 0.1% | 0.25 | 0.25 |
| DAC2902 | 2 x 12 | 3.3 to 5 | 125 | 30 to 0.1% | 1.0 | 1.0 |
| DAC2904 | 2 x 14 | 3.3 to 5 | 125 | 30 to 0.1% | 4.0 | 4.5 |

**DAC290x Communications System Diagram**




In a communications transmitter application, the DAC2902 reconstructs digital I/Q baseband signals.

**Applications include:**
- Basestations, WLL, WLAN, baseband I/Q modulation
- Arbitrary waveform generators (ARB)
- Direct digital synthesis (DDS)
- Test and medical instrumentation

# Next generation, 240-MSPS triple DACs for video/graphics applications

## THS8135, THS8136*

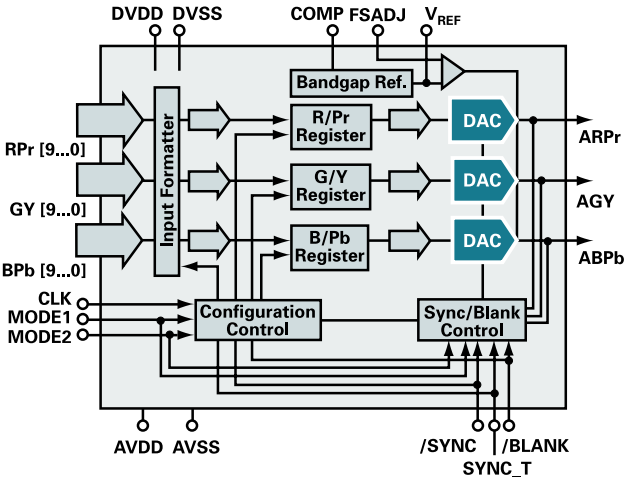
Product Preview*

Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/THS8135**
**www.ti.com/sc/device/THS8136**

- Resolution: 10 bits (THS8135), 8 bits (THS8136)
- Guaranteed up to 240-MSPS operation
- YUV/RGB configurable blanking for full (0-1023) or video (ITU-R.BT601)-compliant input code range
- Generic triple DAC mode (for non-video applications or composite video DAC)
- Direct drive of doubly terminated 75-Ω load into standard video levels
- Sampling formats: 3 x 10-bit 4:4:4, 2 x 10-bit 4:2:2 or 1 x 10-bit 4:2:2 (ITU-R.BT656) multiplexed YPbPr/GBR input modes
- Bi-level (EIA) or tri-level (SMPTE) sync generation
- Integrated insertion of sync-on-green/luminance or sync-on-all channels
- Internal voltage reference
- Supply voltage: 3.3 V analog and 1.8 V digital
- Packaging: Available in 48-lead TQFP PowerPAD™
- Suggested resale price in quantities of 1,000:
  – THS8135 starts at $14.00 each
  – THS8136 starts at $10.00 each

** The THS8135 and THS8136 are in the product preview stage of development. Contact your distributor or local TI sales office for availability. Expected availability is 4Q01 and 1Q02.*

**THS8135/THS8136 Block Diagram**




**Applications include:**
- High-definition TV receivers, DVD players, Web-enabled TVs
- Set-top boxes, Multimedia PC cards
- High-resolution image processing
- Professional broadcasting equipment

ADCs

# 10-bit, low-power, high-speed ADCs for portable applications

## ADS5103, ADS5102, ADS5101*

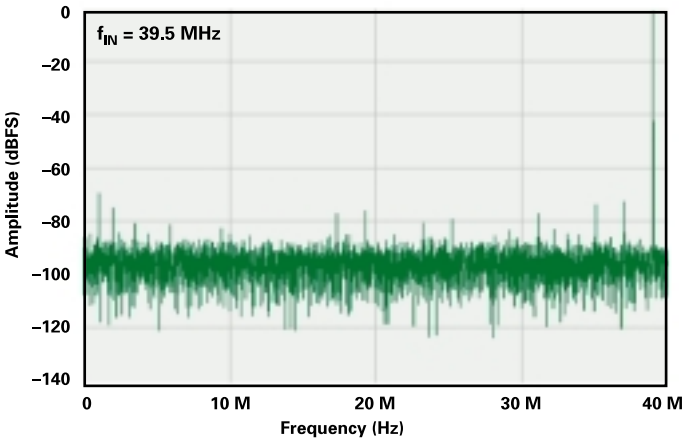
Product Preview*

Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/partnumber**
Replace partnumber in URL with ADS5103, ADS5102 or ADS5101

- Resolution and data rates:
  - ADS5103: 10 bit, 40 MSPS
  - ADS5102: 10 bit, 65 MSPS
  - ADS5101: 10 bit, 80 MSPS
- Supply voltage: 1.8 V (typ); digital I/O 1.8/3.3 V
- SNR: 58 dB at $f_{IN}$ = 17.4 MHz
- Power consumption:
  - ADS5103: 120 mW
  - ADS5102: 210 mW
  - ADS5101: 225 mW
- Differential inputs
- Input range: 1 Vp-p
- Internal/external reference
- Packaging: Available in 48-lead TQFP
- Suggested resale price in quantities of 1,000:
  - ADS5103 starts at $4.80 each
  - ADS5102 starts at $7.00 each
  - ADS5101 starts at $8.00 each

* *The ADS5101, ADS5102 and ADS5103 are in the product preview stage of development. Contact your distributor or local TI sales office for availability. Expected availability is 4Q01.*

**ADS5101 Amplitude vs. Frequency**




**Applications include:**
- Ultrasound
- Digital cameras, copiers
- Communications
- IF and baseband digitization

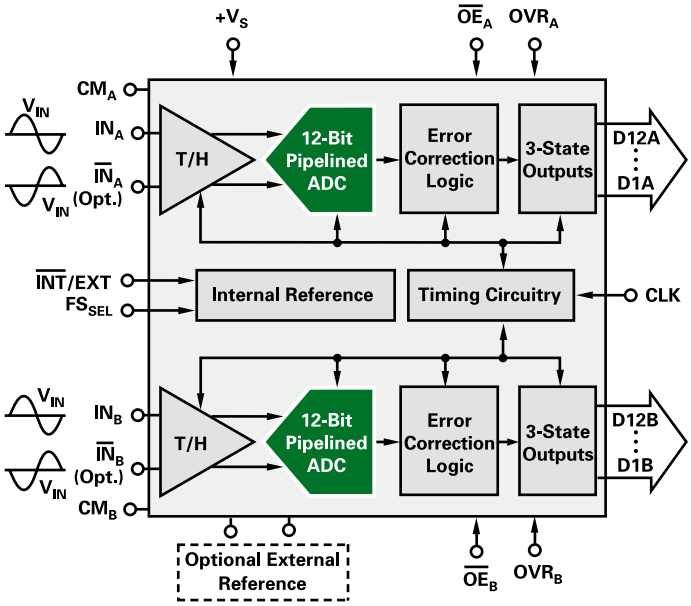
# Dual, 12-bit, 32- and 50-MSPS ADCs for imaging applications

## ADS2806, ADS2807

Get samples, datasheets, EVMs and app reports at:
**www.ti.com/sc/device/ADS2806**
**www.ti.com/sc/device/ADS2807**

- Data rate: 32 MSPS (ADS2806), 50 MSPS (ADS2807)
- Low power: 420 mW (ADS2606), 720 mW (ADS2807)
- High SFDR:
  - ADS2806: 73 dB at $f_{IN}$ = 10 MHz
  - ADS2807: 70 dB at $f_{IN}$ = 10 MHz
- High SNR:
  - ADS2806: 67 dB (2 Vp-p), 69 dB (3 Vp-p)
  - ADS2807: 66 dB (2 Vp-p), 68 dB (3 Vp-p)
- Internal or external reference
- Low DLE: ±0.4 LSB (ADS2806), ±0.6 LSB (ADS2807)
- Flexible input range: 2 Vp-p to 3 Vp-p
- Packaging: Available in 64-lead TQFP power package
- Suggested resale price in quantities of 1,000:
  - ADS2806 starts at $14.95 each
  - ADS2807 starts at $21.95 each

**ADS2806 and ADS2807 Block Diagram**




**Applications include:**
- Communications basestations and IF processing
- Test equipment
- Medical imaging
- Video digitizing
- CCD digitizing

ADCs

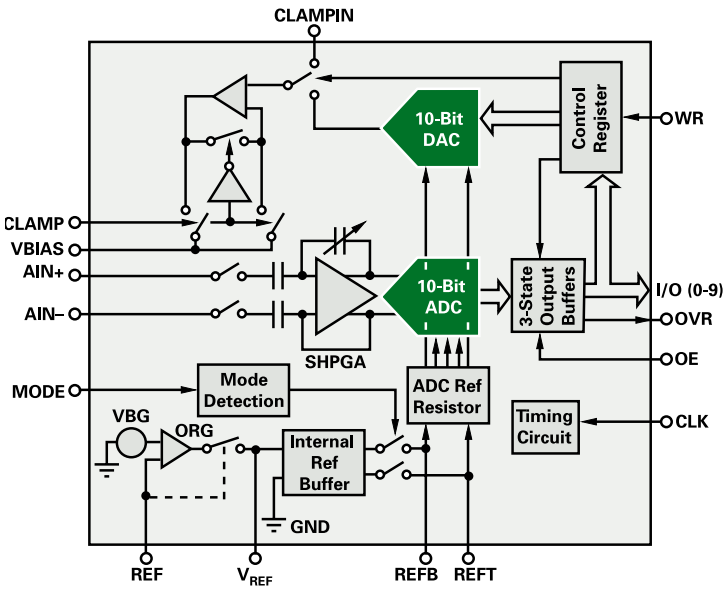
# 10-bit, 40-MSPS data acquisition system with integrated PGA

## THS1040, THS1041

Get samples, datasheets and EVMs at:
**www.ti.com/sc/device/THS1040**
**www.ti.com/sc/device/THS1041**

- Integrated 3-bit programmable gain amplifier (PGA) maintains small-signal SNR
- Integrated programmable 10-bit clamp DAC allowing 1-LSB accuracy on ADC input
- Configurable operation modes
- Power supply range: 3.0 to 3.6 V
- Adjustable internal voltage reference
- Low power: 94 mW
- THS1040 offers same features as THS1041 without the on-chip digital clamp or PGA
- Packaging: Available in 28-lead TSSOP, 28-lead SOIC
- Suggested resale price in quantities of 1,000:
  – THS1040 starts at $4.80 each
  – THS1041 starts at $5.10 each

**THS1041 Block Diagram**




**Applications include:**
- Set-top boxes
- Video/multimedia
- CCD imaging
- High-speed acquisition
- Communications

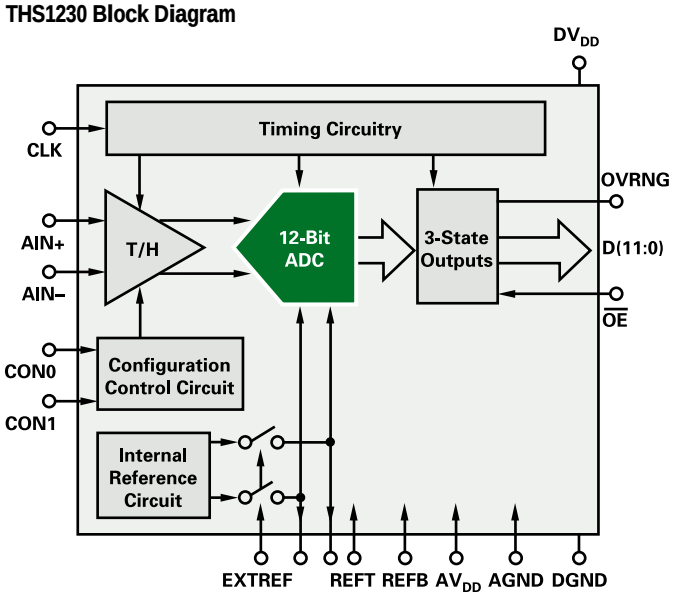
# 12-bit, 30-MSPS, low-power ADC with excellent 10.9 ENOB

## THS1215, THS1230

Get samples, datasheets and EVMs at:
**www.ti.com/sc/device/THS1215**
**www.ti.com/sc/device/THS1230**

- Resolution and data rate:
  – THS1215: 12 bit, 15 MSPS
  – THS1230: 12 bit, 30 MSPS
- Single supply: 3.3 V
- Low power: 148 mW (THS1215); 168 mW (THS1230)
- SNR: 68.9 dB (THS1215); 68 dB (THS1230)
- 10.9 effective number of bits (ENOB) at 10-MHz input
- Configurable input functions:
  – Single-ended
  – Single-ended with offset
  – Differential
- Internal voltage reference
- Out-of-range indicator included to monitor input range
- Packaging: Available in 28-lead TSSOP, 28-lead SOIC
- Suggested resale price in quantities of 1,000:
  – THS1215 starts at $13.35 each
  – THS1230 starts at $14.70 each

**THS1230 Block Diagram**




**Applications include:**
- Set-top boxes
- Camcorders
- Digital cameras
- Copiers
- Communications
- Test instrumentation
- IF and baseband digitization

ADCs

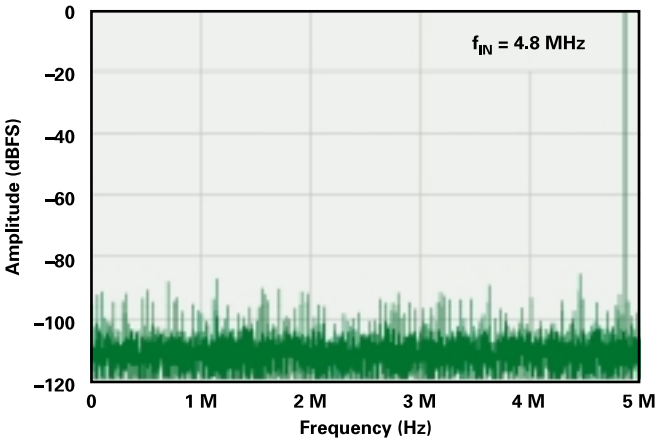
# High-speed, 14-bit, 10-MSPS self-calibrating ADC

## ADS850

Get samples and datasheets at:
**www.ti.com/sc/device/ADS850**

- Self-calibrating
- High SFDR: 85 dB at Nyquist
- High SNR: 76 dB
- Low power: 250 mW
- Differential or single-ended inputs
- Logic I/O compatible: +3 V/+5 V
- Flexible input range
- Internal or external reference
- Includes digital error correction techniques to provide excellent differential linearity for imaging applications
- Packaging: Available in 48-lead TQFP
- Suggested resale price starts at $19.00 each in quantities of 1,000

**ADS850 Amplitude vs. Frequency Spectral Performance**




**Applications include:**

- IF and baseband digitization
- CCD imaging scanners
- Test instrumentation

## Application Reports

To access any of the following application reports, type the URL www-s.ti.com/sc/techlit/litnumber and replace litnumber with the number in red.

**Amplifiers**

| | |
|---|---|
| A Differential Operational Amplifier Circuit Collection | sloa064 |
| Fully-Differential Amplifiers | sloa054 |
| High-Speed Operational Amplifier Layout Made Easy | sloa046 |
| MicroStar Junior™ Made Easy | ssya009 |
| Noise Analysis for High-Speed Op Amps | sboa066 |
| Noise Analysis of FET Transimpedance Amplifiers | sboa060 |
| Photodiode Monitoring with Op Amps | sboa035 |
| PowerPAD™ Made Easy | slma004 |
| Selecting an Amplifier for a Data Converter | sloa035 |
| Voltage Feedback vs. Current Feedback Op Amps | slva051 |
| Ultra High-Speed ICs | sboa070 |
| Noise Analysis for High-Speed Op Amps | sboa066 |
| Analog Applications Journal | slyt026 |
| Feedback Amplifier Analysis Tools | sloa017 |
| Active Low-Pass Filter Design | sloa049 |
| Current Feedback Amplifier Analysis and Compensation | sloa021 |
| Effect of Parasitic Capacitance in Op Amp Circuits | sloa013 |
| Filter Design On a Budget | sloa065 |
| Filters for Data Transmission | sloa063 |
| Video Designs Using High-Speed Amplifiers | sloa057 |

**ADCs**

| | |
|---|---|
| Dynamic Tests for A/D Converter Performance | sbaa002 |
| Clarification of Use: High-Speed S/H to Improve Sampling ADC Performance | sbaa053 |
| High-Speed Data Conversion | sbaa045 |
| Interfacing A/D Converters TLC5540/10 to the DSKPlus DSP Starter Kit TMS320C54x™ | slaae14 |
| Interfacing the TLC5510 Analog-to-Digital Converter to the TMS320C203 DSP | slaa029 |
| Using References to Generate Offsets for the TLV55xx Family Data Converters | slaa063 |

# Selection Guides

## Amplifiers

| Device | Supply Voltage ±15 (V) | Supply Voltage ±5 (V) | Supply Voltage 5 (V) | $A_{CL}$, min Stable Gain (V/V) | BW at $A_{CL}$ (MHz) | Slew Rate (V/µs) | $I_O$ (typ) (mA) | THD ($F_C$ = 1 MHz) (typ) (dB) | $V_N$ at 10 kHz (typ) (nV/√Hz) | $V_{IO}$ (max) (mV) | $I_O$/Amp (max) (mA) | Number of Channels | Package | Price[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Voltage Feedback** | | | | | | | | | | | | | | |
| OPA2631 | | Yes | Yes | 1 | 75 | 100 | 80 | 54 | 6 | 6 | 6.4 | 2 | SOIC | 2.09 |
| OPA2634 | | Yes | Yes | 1 | 150 | 250 | 80 | 76 | 5.6 | 3 | 12.5 | 2 | SOIC | 2.49 |
| OPA2650 | | Yes | | 1 | 360 | 240 | 85 | 80 | 8.4 | 2.5 | 15.5 | 2 | DIP, SOIC | 1.95 |
| OPA2652 | | Yes | | 1 | 700 | 335 | 140 | 77 | 8 | 7 | 13.2 | 2 | SOIC, SOT23 | 1.19 |
| OPA2680 | | Yes | Yes | 1 | 400 | 1800 | 150 | 80 | 4.8 | 4.5 | 6 | 2 | SOIC | 2.89 |
| OPA2686 | | Yes | Yes | 7 | 250 | 600 | 80 | 83 | 1.3 | 1 | 12.9 | 2 | SOIC | 4.59 |
| OPA2822 | | Yes | | 1 | 200 | 170 | 150 | 90 | 2 | 1.2 | 4.8 | 2 | SOIC, MSOP | 2.14 |
| OPA355 | | 5.5 | 2.7 | 2 | 200 | 300 | 100 | 81 | 8 | 10 | 12 | 1 | SOT23, SOIC, DIP | 1.20 |
| OPA3680 | | Yes | Yes | 1 | 400 | 1800 | 150 | 80 | 4.8 | 4.5 | 6 | 3 | SOIC, SSOP | 3.79 |
| OPA4650 | | Yes | | 1 | 560 | 240 | 85 | 80 | 8.4 | 2.5 | 27 | 4 | DIP, SOIC | 4.99 |
| OPA620 | | Yes | | 1 | 300 | 250 | 100 | 65 | 2.3 | 1 | 28 | 1 | DIP, SOIC | 7.20 |
| OPA621 | | Yes | | 2 | 500 | 500 | 100 | 80 | 2.3 | 0.5 | 28 | 1 | SOIC | 7.20 |
| OPA627 | ±18 | Yes | | 1 | 16 | 55 | 45 | — | 4.5 | 0.1 | 7.5 | 1 | TO-99, DIP, SOIC | 9.52 |
| OPA631 | | Yes | Yes | 1 | 75 | 100 | 80 | 54 | 6 | 6 | 6.4 | 1 | SOIC, SOT23 | 1.29 |
| OPA632 | | Yes | Yes | 1 | 75 | 100 | 80 | 54 | 6 | 6 | 6.4 | 1 | SOIC, SOT23 | 1.29 |
| OPA634 | | Yes | Yes | 1 | 150 | 250 | 80 | 76 | 5.6 | 3 | 12.5 | 1 | SOIC, SOT23 | 1.49 |
| OPA635 | | Yes | Yes | 1 | 150 | 250 | 80 | 76 | 5.6 | 3 | 12.5 | 1 | SOIC, SOT23 | 1.49 |
| OPA637 | ±18 | Yes | | 2 | 80 | 135 | 45 | — | 4.5 | 0.1 | 7.5 | 1 | TO-99, DIP, SOIC | 9.52 |
| OPA640 | | Yes | | 1 | 1300 | 350 | 45 | 92 | 2.9 | 2 | 22 | 1 | SOIC | 6.63 |
| OPA642 | | Yes | | 1 | 450 | 380 | 60 | 95 | 2.3 | 1 | 29 | 1 | DIP, SOIC, SOT23 | 3.75 |
| OPA643 | | Yes | | 5 | 300 | 1000 | 60 | 92 | 1.8 | 1.5 | 27 | 1 | SOIC, SOT23 | 3.75 |
| OPA650 | | Yes | | 1 | 560 | 240 | 85 | 80 | 8.4 | 2.5 | 7.75 | 1 | SOIC, SOT23 | 1.29 |
| OPA655 | | Yes | | 1 | 400 | 290 | 60 | 92 | 6 | 2 | 30 | 1 | DIP, SOIC | 9.13 |
| OPA656 | | Yes | | 1 | 400 | 290 | 80 | 81 | 7 | 2.45 | 14 | 1 | SOIC, SOT23 | 7.85 |
| OPA680 | | Yes | Yes | 1 | 400 | 1800 | 150 | 80 | 4.8 | 4.5 | 6 | 1 | DIP, SOIC, SOT23 | 1.79 |
| OPA686 | | Yes | Yes | 7 | 250 | 600 | 80 | 83 | 1.3 | 1 | 12.9 | 1 | SOIC, SOT23 | 2.89 |
| OPA687 | | Yes | | 12 | 600 | 900 | 80 | 85 | 0.95 | 1 | 19 | 1 | SOIC, SOT23 | 3.49 |
| OPA688 | | Yes | Yes | 1 | 530 | 1000 | 100 | — | 6.3 | 6 | 17 | 1 | DIP, SOIC | 2.65 |
| OPA689 | | Yes | Yes | 4 | 280 | 1600 | 100 | 64 | 4.6 | 5 | 17 | 1 | DIP, SOIC | 2.95 |
| THS4001 | Yes | Yes | Yes | 1 | 270 | 400 | 100 | 72 | 12.5 | 8 | 8 | 1 | SOIC | 2.01 |
| THS4011 | Yes | Yes | | 1 | 290 | 310 | 110 | 80 | 7.5 | 6 | 9.5 | 1 | DIP, LCCC, MSOP, SOIC | 2.29 |
| THS4012 | Yes | Yes | | 1 | 290 | 310 | 110 | 80 | 7.5 | 6 | 9.5 | 2 | MSOP, SOIC | 3.82 |
| THS4021 | Yes | Yes | | 10 | 350 | 470 | 100 | 68 | 1.5 | 2 | 9 | 1 | MSOP, SOIC | 2.18 |
| THS4022 | Yes | Yes | | 10 | 350 | 470 | 100 | 68 | 1.5 | 2 | 9 | 2 | MSOP, SOIC | 3.65 |
| THS4031 | Yes | Yes | | 2 | 100 | 100 | 90 | 72 | 1.6 | 2 | 10 | 1 | DIP, LCCC, MSOP, SOIC | 2.04 |
| THS4032 | Yes | Yes | | 2 | 100 | 100 | 90 | 72 | 1.6 | 2 | 10 | 2 | MSOP, SOIC | 3.38 |
| THS4041 | Yes | Yes | | 1 | 165 | 400 | 100 | 75 | 14 | 10 | 9.5 | 1 | MSOP, SOIC | 1.65 |
| THS4042 | Yes | Yes | | 1 | 165 | 400 | 100 | 75 | 14 | 10 | 9.5 | 2 | MSOP, SOIC | 3.26 |
| THS4051 | Yes | Yes | | 1 | 70 | 240 | 100 | 82 | 14 | 10 | 10.5 | 1 | DIP, LCCC, MSOP, SOIC | 1.10 |
| THS4052 | Yes | Yes | | 1 | 70 | 240 | 100 | 82 | 14 | 10 | 10.5 | 2 | MSOP, SOIC | 1.42 |
| THS4061 | Yes | Yes | | 1 | 180 | 400 | 115 | 72 | 14.5 | 8 | 10.5 | 1 | DIP, LCCC, SOIC | 1.39 |
| THS4062 | Yes | Yes | | 1 | 180 | 400 | 115 | 72 | 14.5 | 8 | 10.5 | 2 | MSOP, SOIC | 1.96 |
| THS4081 | Yes | Yes | | 1 | 175 | 230 | 85 | 64 | 10.2 | 4.5 | 3.4 | 1 | DIP, LCCC, MSOP, SOIC | 1.78 |
| THS4082 | Yes | Yes | | 1 | 175 | 233 | 85 | 64 | 10.2 | 4.5 | 3.4 | 2 | MSOP, SOIC | 2.98 |
| THS4120/1 | | | 3 | 1 | 100 | 50 | 40 | 75 | 5.4 | 2.8 | 5.6 | 1 | MSOP | 1.90 |
| THS4130/1 | Yes | Yes | Yes | 1 | 150 | 51 | 85 | 80 | 1.3 | 2 | 15 | 1 | MSOP, SOIC | 3.35 |
| THS4140/1 | Yes | Yes | Yes | 1 | 160 | 450 | 85 | 78 | 6.5 | 7 | 16 | 1 | MSOP, SOIC | 3.26 |
| THS4150/1 | Yes | Yes | Yes | 1 | 150 | 650 | 85 | 83 | 7.6 | 7 | 17.5 | 1 | MSOP, SOIC | 4.50 |
| THS4601 | Yes | Yes | | 1 | 170 | 95 | 75 | 70 | 5.6 | — | — | 1 | SOIC | 9.95 |

[1]*Suggested resale price in U.S. dollars in quantities of 1,000.*

*Preview devices appear in RED.*

## Selection Guides

### Amplifiers (continued)

| Device | Supply Voltage ±15 (V) | Supply Voltage ±5 (V) | Supply Voltage 5 (V) | $A_{CL}$, min Stable Gain (V/V) | BW at $A_{CL}$ (MHz) | Slew Rate (V/µs) | $I_O$ (typ) (mA) | THD ($F_C$ = 1 MHz) (typ) (dB) | $V_N$ at 10 kHz (typ) (nV/√Hz) | $V_{IO}$ (max) (mV) | $I_O$/Amp (max) (mA) | Number of Channels | Package | Price[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Voltage Feedback (continued)** | | | | | | | | | | | | | | |
| THS7001 | Yes | Yes | | 1 | 75 | 175 | 50 | 69 | 1.7 | 5 | 8 | 1 | TSSOP-PP | 3.74 |
| THS7002 | Yes | Yes | | 1 | 75 | 175 | 50 | 69 | 1.7 | 5 | 8 | 2 | TSSOP-PP | 5.96 |
| **Current Feedback** | | | | | | | | | | | | | | |
| OPA2607 | Yes | | | 1 | 35 | 600 | 180 | — | 1.7 | 7 | 16.8 | 2 | SOIC | 2.85 |
| OPA2658 | | Yes | | 1 | 900 | 1700 | 80 | 82 | 2.7 | 4.5 | 15.5 | 2 | DIP, SOIC | 2.39 |
| OPA2677 | | Yes | Yes | 1 | 220 | 1800 | 500 | 75 | 2 | 5.5 | 18.5 | 2 | SOIC | 2.30 |
| OPA2681 | | Yes | Yes | 1 | 280 | 2100 | 150 | 77 | 2.5 | 5 | 4.1 | 2 | SOIC | 2.89 |
| OPA2682 | | Yes | Yes | 1 | 240 | 2100 | 150 | 75 | 2.2 | 5 | 6.1 | 2 | SOIC | 2.94 |
| OPA3681 | | Yes | Yes | 1 | 280 | 2100 | 150 | 77 | 2.5 | 5 | 4.1 | 3 | SOIC, SSOP | 3.78 |
| OPA3682 | | Yes | Yes | 1 | 240 | 2100 | 150 | 75 | 2.2 | 5 | 6.1 | 3 | SOIC, SSOP | 3.85 |
| OPA603 | Yes | Yes | | 1 | 100 | 1000 | 150 | — | — | 6 | 25 | 1 | DIP, SOL | 4.65 |
| OPA658 | | Yes | | 1 | 900 | 1700 | 80 | 82 | 2.7 | 4.5 | 7.75 | 1 | DIP, SOIC, SOT23 | 1.49 |
| OPA681 | | Yes | Yes | 1 | 280 | 2100 | 150 | 77 | 2.5 | 5 | 5.3 | 1 | DIP, SOIC, SOT23 | 1.79 |
| OPA682 | | Yes | Yes | 1 | 240 | 2100 | 150 | 75 | 2.2 | 5 | 6.1 | 1 | DIP, SOIC, SOT23 | 1.83 |
| OPA685 | | Yes | Yes | 1 | 1200 | 4200 | 90 | 80 | 1.7 | 3.5 | 12.9 | 1 | SOIC, SOT23 | 1.89 |
| THS3001 | Yes | Yes | | 1 | 420 | 6500 | 120 | 96 | 1.6 | 3 | 9 | 1 | SOIC | 3.09 |
| **xDSL Drivers and Receivers** | | | | | | | | | | | | | | |
| DRV1100 | | | Yes | 3 | 5 | 80 | 230 | — | — | 5 | 16 | 1 | DIP, SOIC | 2.95 |
| DRV1101 | | | Yes | 3 | 10 | 100 | 230 | — | — | 3 | 38 | 1 | SOIC | 2.95 |
| OPA2607 | Yes | | | 1 | 35 | 600 | 180 | — | 1.7 | 7 | 8 | 2 | SOIC | 2.85 |
| OPA2677 | | Yes | Yes | 1 | 220 | 1800 | 500 | 75 | 2 | 5.5 | 9 | 2 | SOIC | 2.30 |
| OPA2681 | | Yes | Yes | 1 | 280 | 2100 | 150 | 77 | 2.5 | 5 | 4.1 | 2 | SOIC | 2.89 |
| OPA2822 | | Yes | | 1 | 200 | 170 | 150 | 90 | 2 | 1.2 | 4.8 | 2 | SOIC, MSOP | 2.14 |
| THS6002 | Yes | Yes | | 1 | 140 | 1000 | 480 | 62 | 1.7 | 5 | 8.5 | 4 | SOIC | 5.24 |
| THS6007 | Yes | Yes | | 1 | 140 | 1300 | 500 | 65 | 1.7 | 5 | 13 | 2 | TSSOP-PP | 5.40 |
| THS6012 | Yes | Yes | | 1 | 140 | 1300 | 500 | 65 | 1.7 | 5 | 13 | 2 | SOIC, VFBGA | 4.38 |
| THS6022 | Yes | Yes | | 1 | 210 | 1900 | 250 | 66 | 1.7 | 4 | 9 | 2 | TSSOP-PP | 2.90 |
| THS6032 | Yes | Yes | | 1 | 100 | 1200 | 440 | 62 | 2.4 | 5 | 4 | 2 | SOIC, VFBGA | 4.49 |
| THS6042 | Yes | Yes | | 1 | 120 | 1200 | 350 | 80 | 2.1 | 20 | 10 | 2 | SOIC, SOIC-PP | 2.65 |
| THS6043 | Yes | Yes | | 1 | 120 | 1200 | 350 | 80 | 2.1 | 20 | 10 | 2 | SOIC, TSSOP-PP | 2.65 |
| THS6052 | Yes | Yes | | 1 | 100 | 1200 | 125 | 85 | 1.9 | 15 | 7 | 2 | SOIC, SOIC-PP | 2.28 |
| THS6053 | Yes | Yes | | 1 | 100 | 1200 | 125 | 85 | 1.9 | 15 | 7 | 2 | SOIC, TSSOP-PP | 2.28 |
| THS6062 | Yes | Yes | Yes | 2 | 100 | 100 | 90 | 72 | 1.6 | 6 | 10 | 2 | MSOP, SOIC | 2.25 |
| THS6072 | Yes | Yes | | 1 | 175 | 230 | 85 | 79 | 10 | 7 | 4.2 | 2 | MSOP, SOIC | 2.25 |
| THS6092 | | Yes | Yes | 1 | 80 | 800 | 300 | 77 | 2.1 | 20 | 9 | 2 | SOIC, SOIC-PP | 2.14 |
| THS6093 | | Yes | Yes | 1 | 80 | 800 | 300 | 77 | 2.1 | 20 | 9 | 2 | SOIC, TSSOP-PP | 2.14 |

*[1] Suggested resale price in U.S. dollars in quantities of 1,000.*

# Selection Guides

## Voltage-Controlled Gain Amplifiers

| Device | VN (nV/√Hz) | Gain Bandwidth (typ) (MHz) | Specified at $V_S$ (V) | Number of Channels | Variable Gain Range (dB) | Package | Price[1] |
|---|---|---|---|---|---|---|---|
| VCA2612 | 1.25 | 80 | 5 | 2 | 45 | TQFP | 11.75 |
| VCA2613 | 3.3 | 80 | 5 | 2 | 45 | TQFP | 11.75 |
| VCA2614 | 3.7 | 40 | 5 | 2 | 45 | TQFP | 11.75 |
| VCA610 | 2.2 | 1 | 5 | 1 | 77 | SOIC | 10.98 |

## DACs

| Device | Resolution (Bits) | Supply (V) | Update Rate (MSPS) | Settling Time (ns) | Number of DACs | Power (typ) (mW) | DNL (max) (±LSB) | INL (max) (±LSB) | Package | Price[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| **14-Bit** | | | | | | | | | | |
| DAC904 | 14 | 2.7 to 5.5 | 200 | 30 to 0.1% | 1 | 170 | 2.5 | 3 | SOIC, TSSOP | 9.95 |
| DAC2904 | 14 | 3.0 to 5.5 | 125 | 30 to 0.1% | 2 | 310 | 4 | 5 | TQFP | 19.95 |
| THS5671A | 14 | 3.0 to 5.0 | 125 | 35 | 1 | 175 | 0.5 | 0.75 | SOIC, TSSOP | 9.24 |
| **12-Bit** | | | | | | | | | | |
| DAC902 | 12 | 2.7 to 5.5 | 200 | 30 to 0.1% | 1 | 170 | 1.75 | 2.5 | SOIC, TSSOP | 7.75 |
| DAC2902 | 12 | 3.0 to 5.5 | 125 | 30 to 0.1% | 2 | 310 | 2.5 | 3 | TQFP | 15.25 |
| THS5661A | 12 | 3.0 to 5.0 | 125 | 35 | 1 | 175 | 2 | 4 | SOIC, TSSOP | 6.94 |
| **10-Bit** | | | | | | | | | | |
| DAC900 | 10 | 2.7 to 5.5 | 200 | 30 to 0.1% | 1 | 170 | 0.5 | 1 | SOIC, TSSOP | 5.15 |
| DAC2900 | 10 | 3.0 to 5.5 | 125 | 30 to 0.1% | 2 | 310 | 1 | 1 | TQFP | 9.10 |
| THS5651A | 10 | 3.0 to 5.0 | 125 | 35 | 1 | 175 | 0.5 | 1 | SOIC, TSSOP | 4.96 |
| THS8133 | 10 | 3.0 to 5.0 | 80 | 5 | 3 | 525 | 1.2 | 1 | TQFP | 8.06 |
| THS8133A | 10 | 3.0 to 5.0 | 80 | 5 | 3 | 525 | 1.2 | 1 | TQFP | 8.06 |
| THS8133B | 10 | 3.0 to 5.0 | 80 | 5 | 3 | 525 | 1.2 | 1 | TQFP | 8.06 |
| THS8135 | 10 | 1.8 to 3.0 | 240 | — | 3 | — | — | — | TQFP | 14.00 |
| **8-Bit** | | | | | | | | | | |
| DAC908 | 8 | 2.7 to 5.5 | 200 | 30 to 0.1% | 1 | 170 | 0.5 | 0.5 | SOIC, TSSOP | 3.15 |
| THS5641 | 8 | 3.0 to 5.0 | 100 | 35 | 1 | 100 | 0.5 | 1 | — | Call[2] |
| THS5641A | 8 | 3.0 to 5.0 | 100 | 35 | 1 | 100 | 0.5 | 1 | SOIC, TSSOP | 2.99 |
| THS8134A | 8 | 3.0 to 5.0 | 80 | 5 | 3 | 525 | 1.2 | 1 | TQFP | 6.16 |
| THS8134B | 8 | 3.0 to 5.0 | 80 | 5 | 3 | 635 | 1.2 | 1 | TQFP | 6.16 |
| TLC5602 | 8 | 5 | 30 | 30 | 1 | 80 | 0.5 | 0.5 | DIP, SOIC | 1.36 |
| THS8136 | 8 | 1.8 to 3.0 | 240 | — | 3 | — | — | — | TQFP | 10.00 |

## ADCs

| Device | Resolution (Bits) | Sample Rate (MSPS) | Supply (V) | Analog Inputs | Power (typ) (mW) | Analog Input BW (MHz) | DNL (max) (±LSB) | INL (max) (±LSB) | SNR (dB) | Package | Price[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **14-Bit** | | | | | | | | | | | |
| ADS850 | 14 | 10 | 5 | 1 | 250 | 300 | 1 | 3 | 76 | TQFP | 19.00 |
| THS1408 | 14 | 8 | 3.3 | 1 | 270 | 140 | 1 | 5 | 72 | TQFP | 15.00 |
| THS1403 | 14 | 3 | 3.3 | 1 | 270 | 140 | 1 | 5 | 72 | TQFP | 12.01 |
| THS14F03 | 14 | 3 | 3.3 | 1 | 270 | 140 | 1 | 2.5 | 72 | TQFP | 12.74 |
| THS1401 | 14 | 1 | 3.3 | 1 | 270 | 140 | 1 | 5 | 72 | TQFP | 9.00 |
| THS14F01 | 14 | 1 | 3.3 | 1 | 270 | 140 | 1 | 2.5 | 72 | TQFP | 9.74 |

*[1] Suggested resale price in U.S. dollars in quantities of 1,000.*

*[2] See Product Information Center listings on the back cover for more information.*

*Preview devices appear in RED.*

## Selection Guides

### ADCs (continued)

| Device | Resolution (Bits) | Sample Rate (MSPS) | Supply (V) | Analog Inputs | Power (typ) (mW) | Analog Input BW (MHz) | DNL (max) (±LSB) | INL (max) (±LSB) | SNR (dB) | Package | Price[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **12-Bit** | | | | | | | | | | | |
| ADS809 | 12 | 80 | 5 | 1 | 880 | 1000 | 1.7 | 6 | 65 | TQFP | 29.95 |
| ADS808 | 12 | 70 | 5 | 1 | 900 | 1000 | 1.7 | 7 | 65 | TQFP | 19.95 |
| ADS807 | 12 | 53 | 5 | 1 | 335 | 270 | 1 | 4 | 69 | SSOP | 17.95 |
| ADS2807 | 12 | 50 | 5 | 2 | 720 | 270 | 1 | 5 | 68 | TQFP | 21.95 |
| ADS800 | 12 | 40 | 5 | 1 | 390 | 65 | 1 | — | 62 | SOIC, SSOP | 29.00 |
| THS1240 | 12 | 40 | 5 | 1 | 380 | 120 | — | — | 64 | TQFP | 16.95 |
| ADS2806 | 12 | 32 | 5 | 2 | 420 | 270 | 1 | 4 | 69 | TQFP | 14.95 |
| THS1230 | 12 | 30 | 3.3 | 1 | 168 | 180 | 1 | 2.5 | 68 | SOIC, TSSOP | 15.95 |
| ADS801 | 12 | 25 | 5 | 1 | 270 | 65 | 1 | — | 61 | SOIC, SSOP | 20.55 |
| ADS805 | 12 | 20 | 5 | 1 | 300 | 270 | 0.75 | 2 | 67 | SOIC, SSOP | 15.35 |
| THS1215 | 12 | 15 | 3.3 | 1 | 168 | 180 | 1 | 2.5 | 68 | TSSOP | 13.74 |
| ADS802 | 12 | 10 | 5 | 1 | 250 | 65 | 1 | 2.75 | 66 | SOIC, SSOP | 12.25 |
| ADS804 | 12 | 10 | 5 | 1 | 180 | 270 | 0.75 | 2 | 69 | SOIC, SSOP | 9.95 |
| ADS802 | 12 | 10 | 5 | 1 | 250 | 65 | 1 | 2.75 | 66 | SOIC, SSOP | 12.25 |
| ADS803 | 12 | 5 | 5 | 1 | 116 | 270 | 0.75 | 2 | 69 | SOIC, SSOP | 6.95 |
| **10-Bit** | | | | | | | | | | | |
| ADS5101 | 10 | 80 | 1.8 to 3.3 | 1 | 225 | — | 0.6 | 0.5 | 58 | TQFP | 8.00 |
| ADS828 | 10 | 75 | 5 | 1 | 315 | 300 | 1 | 3 | 58 | SSOP | 9.75 |
| ADS824 | 10 | 70 | 5 | 1 | 315 | 300 | 1 | 3 | 58 | SSOP | 8.80 |
| ADS5102 | 10 | 65 | 1.8 to 3.3 | 1 | 210 | — | 0.5 | 0.6 | 57 | TQFP | 7.00 |
| ADS823 | 10 | 60 | 5 | 1 | 265 | 300 | 1 | 2 | 60 | SSOP | 7.91 |
| ADS826 | 10 | 60 | 5 | 1 | 265 | 300 | 1 | 2 | 60 | SSOP | 7.91 |
| THS1060 | 10 | 60 | 5 | 1 | 600 | 82 | 0.95 | 3 | 60 | TQFP | 4.99 |
| THS1050 | 10 | 50 | 5 | 1 | 500 | 82 | 0.6 | 2.5 | 61 | TQFP | 4.99 |
| ADS821 | 10 | 40 | 5 | 1 | 380 | 65 | 1 | 2 | 58 | SOIC, SSOP | 12.25 |
| ADS822 | 10 | 40 | 5 | 1 | 190 | 300 | 1 | 2 | 60 | SSOP | 4.91 |
| ADS825 | 10 | 40 | 5 | 1 | 190 | 300 | 1 | 2 | 60 | SSOP | 4.91 |
| THS1040 | 10 | 40 | 3.0 to 3.6 | 1 | 94 | 150 | .5 | 1 | 58 | SOIC, TSSOP | 4.80 |
| THS1041 | 10 | 40 | 3.0 to 3.6 | 1 | 94 | 150 | .5 | 1 | 58 | SOIC, TSSOP | 5.70 |
| ADS5103 | 10 | 40 | 1.8 to 3.3 | 1 | 120 | — | 0.4 | 0.7 | 57 | TQFP | 4.80 |
| THS1030 | 10 | 30 | 2.7 to 5.5 | 1 | 87 | 150 | 1 | 2 | 57 | SOIC, TSSOP | 3.50 |
| THS1031 | 10 | 30 | 2.7 to 5.5 | 1 | 94 | 150 | 1 | 2 | 57 | SOIC, TSSOP | 3.87 |
| ADS820 | 10 | 20 | 5 | 1 | 195 | 65 | 1 | 2 | 60 | SOIC, SSOP | 6.36 |
| ADS900 | 10 | 20 | 2.7 | 1 | 52 | 100 | 1 | — | 50 | SSOP | 2.75 |
| ADS901 | 10 | 20 | 2.7 | 1 | 48 | 100 | 1 | — | 54 | SSOP | 2.65 |
| TLC876 | 10 | 20 | 5 | 1 | 107 | 200 | 0.75 | 1.2 | 55 | SOIC, SSOP, TSSOP | 2.66 |
| **8-Bit** | | | | | | | | | | | |
| ADS831 | 8 | 80 | 5 | 1 | 265 | 300 | 1 | 2 | 49 | SSOP | 2.95 |
| THS8083 | 8 | 80 | 3.3 | 3 | 1280 | 500 | — | 2 | 40 | TQFP | 6.98 |
| TLV5580 | 8 | 80 | 3.3 | 1 | 165 | 700 | — | 2.4 | 46 | SOIC, TSSOP | 4.54 |
| ADS830 | 8 | 60 | 5 | 1 | 180 | 300 | 1 | 1.5 | 49 | SSOP | 2.55 |
| THS0842 | 8 | 40 | 3.3 | 2 | 275 | 600 | — | 2.2 | — | TQFP | 3.94 |
| TLC5540 | 8 | 40 | 5 | 1 | 85 | 75 | 0.75 | 1 | 45 | SOP, TSSOP | 2.92 |
| TLV5535 | 8 | 35 | 3.3 | 1 | 90 | 600 | — | 1.5 | 46 | TSSOP | 2.99 |
| ADS930 | 8 | 30 | 2.7 to 5.0 | 1 | 66 | 100 | 1 | 2.5 | 46 | SSOP | 2.25 |
| ADS931 | 8 | 30 | 2.7 to 5.0 | 1 | 63 | 100 | 1 | 2.5 | 48 | SSOP | 2.15 |
| TLC5733A | 8 | 20 | 5 | 3 | 250 | 14 | 0.5 | 1 | — | QFP | 5.14 |
| TLV5510 | 8 | 10 | 3 | 1 | 42 | 36 | 0.75 | 1 | 40 | SOP, TSSOP | 1.88 |
| TLV571 | 8 | 1.25 | 2.7 to 5.5 | 1 | 12 | 30 | 0.5 | 0.5 | 49 | SOIC, TSSOP | 2.20 |

*[1] Suggested resale price in U.S. dollars in quantities of 1,000.*

*Preview devices appear in RED.*

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| THS4001EVM | 270-MHz, Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4011EVM | 290-MHz, Low-Distortion Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4021EVM | 350-MHz, Low-Noise Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4031EVM | 100-MHz, Low-Noise Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4041EVM | 165-MHz, C-Stable Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4051EVM | 70-MHz, Voltage-Feedback Video Amplifier Evaluation Board | $50 |
| THS4052EVM | 70-MHz, Dual Voltage-Feedback Video Amplifier Evaluation Board | $50 |
| THS4061EVM | 180-MHz, High Output Video Amplifier Evaluation Board | $50 |
| THS4062EVM | 180-MHz, Dual High Output Video Amplifier Evaluation Board | $50 |
| THS4081EVM | 175-MHz, Low Power Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4082EVM | 175-MHz, Dual Low Power Voltage-Feedback Amplifier Evaluation Board | $50 |
| THS4120EVM | 3.3-V, Fully Differential Amplifier (with Shutdown) Evaluation Board | $50 |
| THS4121EVM | 3.3-V, Fully Differential Amplifier Evaluation Board | $50 |
| THS4130EVM | Low-Noise, Fully Differential Amplifier (with Shutdown) Evaluation Board | $50 |
| THS4131EVM | Low-Noise, Fully Differential Amplifier Evaluation Board | $50 |
| THS4140EVM | 160-MHz, Fully Differential Amplifier (with Shutdown) Evaluation Board | $50 |
| THS4141EVM | 160-MHz, Fully Differential Amplifier Evaluation Board | $50 |
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| THS4151EVM | 150-MHz, Fully Differential Amplifier Evaluation Board | $50 |

## DACs

| | | |
|---|---|---|
| DAC290x-EVM | For DAC2900/2902/2904; board is with specified (x)DAC unit | $149 |
| DEM-DAC90xU | For DAC908/900/902/904 in SO-28; board is w/o DAC unit | $150 |
| DEM-DAC90xE | For DAC908/900/902/904 in TSSOP-28; board is with specified (x)DAC unit | $150 |
| THS56x1EVM | THS56x1 EVM for THS5641/5651/5661/5671 DACs | $99 |
| THS8083EVM | Triple 8-bit, 80- or 95-MSPS, 3.3-V video and graphics digitizer with digital PLL | $400 |
| THS8133BEVM | Triple 10-bit, 80-MSPS video DAC with tri-level sync generation | $99 |
| THS8134BEVM | Triple 8-bit, 80-MSPS video DAC with tri-level sync generation | $99 |

## ADCs

| | | |
|---|---|---|
| ADS280xEVM-OPA | Dual, 12-bit w/o ADC | $200 |
| ADS280xEVM-XFR | Dual, 12-bit w/o ADC | $200 |
| ADS850-EVM | 14-bit, 10-MSPS ADS850 | $149 |
| DEM-ADS80xU | 12-bit, 5-MSPS ADS803, 10-MSPS ADS804, 20-MSPS ADS805; board is w/o ADC unit | $149 |
| DEM-ADS807E | 12-bit, 53-MSPS ADS807; offers single-ended and differential input configuration | $200 |
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| DEM-ADS824E | 10-bit, 70-MSPS ADC in SSOP-28; also accommodates ADS828E | $149 |
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| TLC5510EVM | 8-bit, high-speed ADC | $50 |
| TLC5540EVM | 8-bit, 40-MSPS ADC | $50 |
| TLC876EVM | 10-bit, 20-MSPS ADC | $50 |
| TLV5535EVM | 8-bit, 35-MSPS, low-power ADC | $99 |
| TLV5580EVM | 8-bit, 80-MSPS ADC | $99 |

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