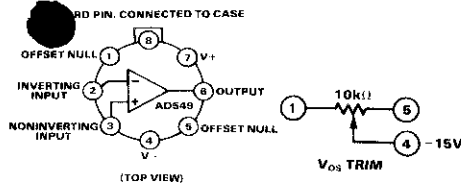


Electrometer Op-Amp

AD549JH



Supplied to RS by Analog Devices

A monolithic electrometer op-amp featuring very low input bias current. The $10^{10} \Omega$ common-mode impedance, as a result of the bootstrapped input stage, ensures that the input current is essentially independent of common-mode voltage.

The AD549 is suited to applications requiring very low input current and low input offset voltage. It is ideal for use as a pre amp for a variety of current output transducers such as photo-diodes and photomultiplier tubes. The device can also be used as a precision integrator or low droop sample and hold.

Pin compatibility with standard FET and electrometer op-amps allows easy up-grade in performance of existing systems at little extra cost.

Technical specification

Input bias current	150 fA typ.
Input offset voltage	1 mV max.
Drift	20 μ V/°C max.
Open loop gain	120 dB typ.
Common-mode voltage range	-10 V to +10 V
Slew rate	3 V/ μ s typ.
Operating voltage	± 5 to ± 18 V
Quiescent current	0.6 mA typ.
Internal power dissipation	500 mW Abs. max.
Operating temperature range	0°C to +70°C

S.S.M. = 1

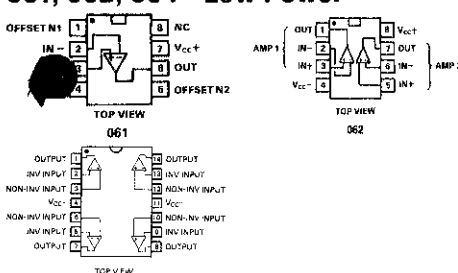
stock no.	price each	1-24	25-99	100+
656-580	£18-23	£13-25	£9-72	

BIFET™ Op-Amps

A range of high performance general purpose BIFET operational amplifiers featuring low power consumption, wide operating voltage range, high slew rate and wide bandwidth.

BIFET™ is a trademark of Texas Instruments Int.

061, 062, 064 - Low Power



Supplied to RS by Texas Instruments

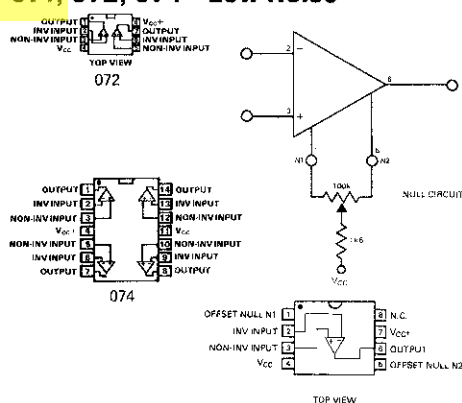
Low power versions of the 081 series op-amps. Featuring a supply current of 200 μ A (per amplifier) these devices are ideal for use in power-conscious applications, particularly portable instrumentation, battery powered circuits, etc.

S.S.M. = 1

type	stock no.	price each	1-24	25-99	100+
TL061CP (S)*	638-891	£0-73	£0-55	£0-37	
TL062CP (D)*	638-908	£0-81	£0-61	£0-41	
TL064CN (Q)*	304-251	£1-03	£0-79	£0-53	

* S single D dual Q quad

071, 072, 074 - Low Noise



Supplied to RS by Texas Instruments

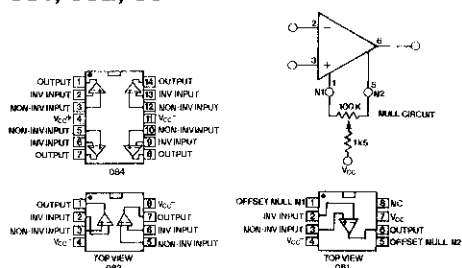
Low noise and low distortion versions of the 081, 082 and 084 BIFET op-amps. Featuring 18 nV/ $\sqrt{\text{Hz}}$ equivalent input noise voltage at 1 kHz and a T.H.D. of 0.01% at 10 V r.m.s. output at 1 kHz. These devices are ideally suited for employment as audio preamplifiers, filters, etc. The 071 and 072 are housed in 8-pin d.i.l. plastic packages and the 074 is housed in a 14-pin d.i.l. package.

S.S.M. = 1

type	stock no.	price each	1-24	25-99	100+
TL071CP (S)*	304-245	£0-73	£0-55	£0-37	
TL072CP (D)*	304-239	£0-80	£0-61	£0-41	
TL074CN (Q)*	302-621	£1-03	£0-78	£0-52	

* S single D dual Q quad

081, 082, 084



Supplied to RS by Texas Instruments

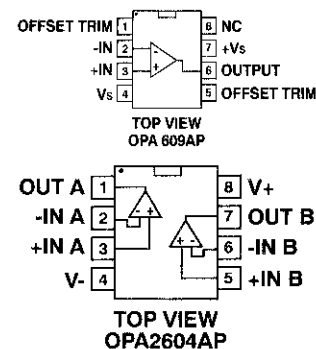
The 081 is a single op-amp with provision for offset null adjustment. The 082 is a dual op-amp and the 084 is a quad op-amp, both with common supply rails and typical channel separations of 120dB. These devices are ideal for fast integrators, amplifiers, active filters, instrumentation filters, etc. The 081 and 082 are housed in 8-pin d.i.l. plastic packages and the 084 is housed in a 14-pin d.i.l. plastic package.

S.S.M. = 1

type	stock no.	price each	1-24	25-99	100+
TL081CP (S)*	304-223	£0-73	£0-55	£0-37	
TL082CP (D)*	304-217	£0-80	£0-61	£0-41	
TL084CN (Q)*	304-201	£1-04	£0-78	£0-52	

* S single D dual Q quad

Low Distortion OPA604AP and OPA2604AP NEW



Supplied to RS by Burr Brown

Two FET-input operational amplifiers designed for enhanced a.c. performance. The low noise input provides wide dynamic range, even with high source impedance. Both devices feature new circuit techniques and special laser trimming of dynamic circuit performance results in very low harmonic distortion.

OPA604: single
OPA2604: dual

Device features:

- Low noise
- Low distortion
- High slew rate
- Wide supply voltage range

Typical applications include audio equipment, active filters and current to voltage converters.

8-pin plastic DIP packages

technical specification

	OPA604	OPA2604
Input offset voltage (typ.)	± 1 mV	± 1 mV
Input bias current (typ.)	50 pA	100 pA
Noise density @ 1 kHz (typ.)	11 nV/ $\sqrt{\text{Hz}}$	11 nV/ $\sqrt{\text{Hz}}$
Open loop gain (min.)	80 dB	80 dB
Gain bandwidth (typ.) @ G=100	20 MHz	20 MHz
Slew rate (min.)	15 V/ μ s	15 V/ μ s
THD - noise (typ.)	0.0003%	0.0003%
Supply voltage	± 4 to ± 24 V	± 4 to ± 24 V
Operating temperature	-25 to +85°C	-25 to +85°C

All parameters measured at $V_s = \pm 15$ V

S.S.M. = 1

type	stock no.	price each	1-24	25-99	100+
OPA604AP	828-662	£1-37	£1-22	£0-80	
OPA2604AP	828-678	£2-20	£1-96	£1-29	

Reproduction Manufacturers' Data Sheets Available On Request

Data

type stock no.
OPA604AP 834-544
OPA2604AP 844-550

Guaranteed Next Day

Datapost

A Royal Mail Parcelforce Service

For delivery by 10.00 a.m. next day, specify Datapost when ordering.

£11.20 per order.

How to Order

- ◆ Please order the number of priced units you require of each stock number ensuring that the quantity ordered is divisible by the S.S.M.
- ◆ Products are only available in multiples of the S.S.M.
- ◆ For more information, see the first page of this catalogue

S.S.M. = Standard Supply Multiple

Bulk Pack - Refer to the Stock Number Index and Quantity Price List at the back of Part 3 for availability and size.

IC2

Quad - continued

	Mfr.	Pins	Description	Mfrs. List No.	Order Code	1+					
6144	NSC	14	Quad, High Speed, Low Power, 17MHz Rail-to-Rail, I/O Operational Amp. Vos = 1V, Av = 100. (IND TEMP)	LM6144AIM	SMD 954-093	7.01	4.88	3.69	---	---	---
6144	NSC	14/DIL	Quad, High Speed, Low Power, 17MHz Rail-to-Rail, I/O Operational Amp. Vos = 1V, Av = 100. (IND TEMP)	LM6144AIN	954-100	7.01	4.88	3.69	---	---	---
6144	NSC	14	Quad, High Speed, Low Power, 17MHz Rail-to-Rail, I/O Operational Amp. Vos = 2.5V, Av = 80. (IND TEMP)	LM6144BIM	SMD 954-111	5.18	3.61	2.72	---	---	---
6144	NSC	14/DIL	Quad, High Speed, Low Power, 17MHz Rail-to-Rail, I/O Operational Amp.	LM6144BIN	597-120	5.31	3.70	2.85	2.52	2.34	---
6154	NSC	14/DIL	Quad, High Speed, Low Power Operational Amp. with Rail-to-Rail I/O.	LM6154BCN	705-093	4.71	3.28	2.47	2.13	1.99	---
8054	AD	14	Quad, High Speed, Rail-to-Rail, 3V/5V or ±5V operated, Operational Amp.	AD8054AR	NEW SMD 283-964	4.96	3.56	1.98	---	---	---
33074	MOT	14/DIL	Quad, High Performance Operational Amp. (AUTO TEMP)	MC33074P	793-218	1.39	0.83	0.64	0.52	---	---
33174	MOT	14	Quad, Low Power, Single Supply, Operational Amp	MC33174D	SMD 642-060	1.35	0.95	0.80	0.70	---	---
33174	ST	14/DIL	Quad, Low Power, Single Supply, Operational Amp	MC33174N	504-919	1.20	0.96	0.80	0.69	---	---
33174	MOT	14/DIL	Quad, Low Power, Single Supply, Operational Amp	MC33174P	400-270	1.26	0.75	0.58	0.48	---	---
33179	MOT	14/DIL	Quad, High Output Current, Low Power, Low Noise Operational Amp. (AUTO TEMP)	MC33179P	793-231	1.37	0.82	0.69	0.61	---	---
33204	MOT	14	Quad, Single Supply Rail-to-Rail Input and Output Operational Amp	MC33204D	SMD 791-672	1.64	0.98	0.76	---	---	---
33204	MOT	14/DIL	Quad, Single Supply Rail-to-Rail Input and Output Operational Amp	MC33204P	791-684	1.64	0.98	0.76	---	---	---
33207	MOT	16	Quad, Single Supply Rail-to-Rail Input and Output Operational Amp	MC33207D	SMD 791-714	2.95	1.55	0.75	---	---	---
33207	MOT	16/DIL	Quad, Single Supply Rail-to-Rail Input and Output Operational Amp	MC33207P	791-726	1.90	1.14	0.95	---	---	---
33274	MOT	14	Quad, High Slew Rate Single Supply Operational Amp (AUTO TEMP)	MC33274AD	NEW SMD 101-242	1.66	1.26	0.81	---	---	---
33274	MOT	14/DIL	Quad, High Slew Rate, Single Supply Operational Amp. (AUTO TEMP)	MC33274AP	793-280	2.17	1.30	1.02	0.85	---	---
33284	MOT	14	Quad, High Slew Rate, Single Supply Operational Amp (AUTO TEMP)	MC33284AD	NEW SMD 101-308	2.46	1.42	0.98	---	---	---
33304	MOT	14/DIL	Quad, Rail-to-Rail Sleepmode Operational Amp. (AUTO TEMP)	MC33304P	792-974	2.43	1.46	1.12	1.05	---	---
34074	MOT	14	Quad, High Performance Operational Amp.	MC34074D	NEW SMD 101-280	0.98	0.60	0.42	---	---	---
34084	MOT	14/DIL	Internally Compensated Operational Amplifier	MC34084P	NEW 104-140	1.90	1.18	0.79	---	---	---

Motorola Selection Guide Order Code 941-876
NSC Data Library on CDROM Order Code 789-343

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Analog Devices Designer's CDROM Reference Manual Order Code 745-029.
SGS Standard Linear ICs Order Code 182-837.

2.00 each
2.95 each
5.00 each

FET Operational Amplifiers

Single

	Mfr.	Pins	Description	Mfrs. List No.	Order Code	1+	25+	100+	300+	1K+
031	TI	8	BI-FET Operational Amp. – Low Power	TL031CD	SMD 400-324	0.64	0.44	0.35	---	---
0032	NSC	12/TO-8	FET High Speed Operational Amp.	LH0032CG	400-348	24.43	19.50	15.04	13.96	13.03
42	AD	8/DIL	JFET High Speed, Fast Settling, Precision Operational Amp	OP42FZ	400-543	6.18	4.51	3.31	---	---
051	TI	8/DIL	BI-FET Operational Amp. – Low Noise enhanced TL071	TL051CP	400-579	0.83	0.58	0.46	---	---
061	ST	8/DIL	BI-FET Operational Amp. – Low Power	TL061CN	400-580	0.49	0.36	0.28	0.23	---
061	TI	8/DIL	BI-FET Operational Amp. – Low Power	TL061CP	400-592	0.80	0.60	0.41	---	---
071	TI	8	BI-FET Operational Amp. – Low Noise	TL071CD	SMD 400-622	0.71	0.54	0.35	---	---
071	ST	8/DIL	BI-FET Operational Amp. – Low Noise	TL071CN	400-634	0.43	0.32	0.24	0.20	---
071	TI	8/DIL	BI-FET Operational Amp. – Low Noise	TL071CP	BV 400-646	0.40	0.30	0.22	---	---
081	TI	8	BI-FET Operational Amp.	TL081CD	SMD 594-519	0.71	0.54	0.35	---	---
081	ST	8/DIL	BI-FET Operational Amp.	TL081CN	400-658	0.43	0.32	0.24	---	---
081	TI	8/DIL	BI-FET Operational Amp.	TL081CP	400-660	0.44	0.36	0.28	---	---
111	BB	8/TO-99	DI-FET Precision Operational Amp. – Low noise, low offset and low bias current.	OPA111AM	400-671	9.84	7.62	5.79	---	---
	BB	8/DIL	DI-FET Precision Operational Amp. – Low noise, low offset and low bias current.	OPA121KP	400-683	4.92	3.44	2.98	---	---
129	BB	8/DIL	DI-FET Operational Amp. – Ultra Low Bias Current	OPA129P	559-143	4.31	3.24	2.59	---	---
131	BB	8/DIL	General Purpose FET-Input Operational Amp.	OPA131PA	632-909	1.27	1.11	0.95	---	---
351	NSC	8/DIL	BI-FET Operational Amp	LF351N	400-737	0.62	0.43	0.33	0.26	0.24
355	NSC	8/TO-99	BI-FET Low Power Operational Amp.	LF355H	400-750	1.99	1.36	0.99	0.85	0.78
356	NSC	8/TO-99	BI-FET General Purpose Operational Amp.	LF356H	400-798	1.99	1.36	0.99	0.85	0.79
356	NSC	8	BI-FET General Purpose Operational Amp.	LF356M	SMD 400-804	0.68	0.47	0.34	0.29	0.27
356	NSC	8/DIL	BI-FET General Purpose Operational Amp.	LF356N	400-816	0.74	0.52	0.40	0.31	0.29
411	NSC	8/DIL	BI-FET Low Offset Operational Amp – Vos 0.5mV max. @ 25°C	LF411ACN	400-877	5.28	3.63	2.64	2.24	2.09
544	BB	5/TO-220	High Voltage, High Current, Power Operational Amp.	OPA544T	791-040	12.31	9.27	7.12	---	---
548	AD	8/DIL	BI-FET Low Power Operational Amp.	AD548JN	400-920	2.18	1.59	1.17	---	---
602	BB	8/DIL	DI-FET High Speed Precision Operational Amp – 6.5MHz bandwidth	OPA602AP	400-932	6.57	5.48	4.56	---	---
604	BB	8/DIL	FET Operational Amp. – Low Noise, Low Distortion, High GBW	OPA604AP	558-977	1.07	0.93	0.81	---	---
606	BB	8/DIL	DI-FET 13MHz Bandwidth Operational Amp. Low bias current, offset voltage and distortion	OPA606KP	400-944	4.55	3.80	3.05	---	---
627	BB	8/DIL	DI-FET High Speed Precision Operational Amp. Low noise, low offset. Unity gain stable	OPA627AP	400-956	11.79	9.82	7.87	---	---
637	BB	8/DIL	DI-FET High Speed Precision Operational Amp. Low noise, low offset. Stable in gain ≥ 5	OPA637AP	400-968	11.79	9.82	7.87	---	---
655	BB	8/DIL	Wideband, FET-Input Voltage Feedback Operational Amp.	OPA655P	642-125	14.62	11.36	8.79	---	---
711	AD	8/DIL	BI-FET High Speed Operational Amp.	AD711JN	400-970	1.36	0.99	0.73	---	---
711	AD	8	BI-FET High Speed Operational Amp.	AD711JR	SMD 594-933	1.64	1.20	0.88	0.79	---
743	AD	8/DIL	BI-FET Ultra Low Noise Operational Amp.	AD743JN	246-207	7.15	5.23	3.76	---	---
744	AD	8/DIL	BI-FET High Speed Precision Op. Amp – 500ns to 0.01% for 10V step.	AD744JN	400-981	3.38	2.47	1.81	---	---
820	AD	8	Single Supply, Rail-to-Rail FET - Input Operational Amp. (IND TEMP)	AD820AR	SMD 796-657	2.24	1.64	1.28	1.21	---

† Available until stocks are exhausted