Operational Amplifiers (Precision and General-Purpose, <50 MHz)

Part Number			Supply Voltage		Rail-to-Rail		A_{CL} Min	BW @ A_{CL} Min (MHz)	Slew Rate (V/µs)	V_{OS} Max (mV)	TCV_{OS} Typ (µV/°C)	CMRR Min (dB)	PSRR Min (dB)	AVO Min (dB)	Noise @ 1 kHz (nV/√Hz)	Noise @ 1 kHz (pA/√Hz)	I_S/Amp Max (mA)	I_B Max	I_{SC} (mA)	Temp Range	Micro CSP	SC70	SOT-23	MSOP	SOIC	LFCSP	TSSOP	PDIP	Price @ 1k (OEM $U.S.)
Single	**Dual**	**Quad**	**Min**	**Max**	**In**	**Out**																						
Max Voltage < 6 V																												
AD8628	AD8629	AD8630	2.7	6	•	•	1	2.5	1	0.005	0.002	120	115	125	22		0.850	100 pA	50	H			S	D	S/D/Q		Q		0.96/1.47/2.73
ADA4051-1[1]	ADA4051-2		1.8	5.5	•	•	1	0.1	0.03	0.01	0.02	106	106	106	95	0.1	0.015	200 pA	25	H		S	S	D		D			0.95/1.50
AD8538	AD8539		2.7	5.5	•	•	1	0.43	0.35	0.013	0.03	115	105	115	50		0.180	25 pA	25	H			S	D	S/D				0.90/1.31
AD8551	AD8552	AD8554	2.7	6	•	•	1	1.5	0.4	0.005	0.005	120	120	125	42		0.975	50 pA	50	H				S	S/D/Q		D/Q		1.20/1.90/3.36
AD8571	AD8572	AD8574	2.7	6	•	•	1	1.5	0.4	0.005	0.005	120	120	125	51		0.850	50 pA	50	H				S	S/D/Q		D/Q		1.11/1.78/3.40
ADA4505-1	ADA4505-2	ADA4505-4	1.8	5.5	•	•	1	0.050	0.006	3	2	90	100	105	65	0.02	0.010	2 pA	40	H	S/D/Q		S	D			Q		0.55/0.67/1.15
AD8505[2]	AD8506	AD8508	1.8	5.5	•	•	1	0.095	0.013	2.5	2	90	100	105	45	0.015	0.020	10 pA	45	H	S/D/Q		S	D			Q		0.59/0.71/1.20
AD8515			1.8	6	•	•	1	5	2.7	6	4	60	65	113	22	0.05	0.550	30 pA	20	H		S	S						0.28
AD8613	AD8617	AD8619	1.8	5.5	•	•	1	0.4	0.1	2.2	1	68	67	107	25	0.05	0.040	1 pA	80	H		S	S	D	D/Q		Q		0.46/0.71/1.11
AD8603	AD8607	AD8609	1.8	6	•	•	1	0.4	0.1	0.3	1	85	80	112	25	0.05	0.040	1 pA	80	H			S	D	D/Q		Q		0.68/1.02/1.85
	AD8602	AD8604	2.7	6	•	•	1	8.2	5.2	6	2	56	56	86	33	0.05	1.200	200 pA	30	H				D	D/Q		Q		0.44/0.90
AD8601A	AD8602A	AD8604A	2.7	6	•	•	1	8.2	5.2	0.5	2	74	67	89	33	0.05	1.200	60 pA	30	H			S	D	D/Q		Q		0.63/0.83/1.13
AD8691	AD8692	AD8694	2.7	6	N	•	1	10	5	2	1.3	70	80	108	8	0.05	1.050	1 pA	80	H		S	S	D	D/Q		Q		0.51/0.64/0.90
AD8605	AD8606	AD8608	2.7	6	•	•	1	10	5	0.3	1	85	80	109	8	0.01	1.200	1 pA	80	H	S/D		S	D	D/Q		Q		0.68/1.19/1.58
	AD8502	AD8504	1.8	5.5	•	•	1	0.007	0.004	3	5	67	85	98	190	0.1	0.001	10 pA	5	H			D				Q		0.70/1.00
AD8500			1.8	5.5	•	•	1	0.007	0.004	1	3	75	90	98	190	0.1	0.001	10 pA	5	H		S							0.71
AD8615	AD8616	AD8618	2.7	6	•	•	1	24	12	0.5	1.5	80	70	105	10	0.05	1.300	1 pA	150	H			S	D	D/Q		Q		0.76/1.29/2.29
	AD8646	AD8648	2.7	6	•	•	1	24	11	2.5	1.8	67	63	104	8		1.500	1 pA	120	H				D	D/Q		Q		0.61/0.88
	AD8647 SD		2.7	6	•	•	1	24	11	2.5	1.8	67	63	104	8		1.500	1 pA	120	H				D					0.71
AD8655	AD8656		2.7	5.5	•	•	1	28	11	0.25	0.4	85	88	100	2.7[3]		4.500	10 pA	220	H				S/D	S/D				0.71/1.11
AD8651	AD8652		2.7	5.5	•	•	1	50	41	0.35	4	80	76	100	4.5[3]	0.025	14.000	10 pA	80	H				S/D	S/D				1.13/1.99
AD8591 SD	AD8592 SD	AD8594 SD	2.7	6	•	•	1	3	5	25	20	38	45	83	45	0.05	0.700	50 pA	250[3]	I			S		D/Q		Q		0.29/0.39/0.57
	ADA4692-2	ADA4692-4	2.7	6	N	•	1	3.6	1.3	2.5	1	75	80	95	16	0.05	0.225	5 pA	55	H					D	D	Q		0.55/TBD
	ADA4691-2 SD	ADA4691-4[2]	2.7	6	N	•	1	3.6	1.3	2.5	1	75	80	95	16	0.05	0.225	5 pA	55	H	D					D/Q			0.57/TBD
AD8531	AD8532	AD8534	2.7	6	•	•	1	3	5	25	20	38	45	83	45	0.05	0.700	50 pA	250[3]	I		S	S	D	D/Q		D/Q		0.27/0.43/0.60
AD8541	AD8542	AD8544	2.7	6	•	•	1	1	0.92	6	4	40	65	86	40	0.1	0.045	60 pA	60	H		S	S	D	S/D/Q		D/Q		0.27/0.38/0.54
Max Voltage < 16 V																												
AD8661	AD8662	AD8664	5	16	N	•	1	4	3.5	0.16	4	90	95	106	12	0.1	1.550	1 pA	140	H				D	S/D/Q	S	Q		1.08/1.37/2.23
AD8665	AD8666	AD8668	5	16	N	•	1	4	3.5	2.5	3	90	98	130	10	0.1	1.550	1 pA	140	H			S	D	S/D/Q		Q		0.83/0.93/1.75
AD8663	AD8667	AD8669	5	16	N	•	1	0.54	0.6	0.3	1.5	87	95	115	23	0.05	0.285	0.3 pA typ	50	H				D	S/D/Q	S	Q		1.17/1.58/2.70
	ADA4665-2		5	16	•	•	1	1.2	1	6	3	55	70	85	32		0.400	1 pA	10	H				S	S				0.70
AD8638	AD8639		5	16	N	•	1	1.5	2	0.009	0.03	127	127	130	60		1.500	75 pA	37	H			S	D	S/D	D			1.27/2.22
OP191	OP291	OP491	2.7	12	•	•	1	1.5	0.5	0.5	1.1	75	80	88	42	0.8	0.420	65 nA	16	H					S/D/Q		Q	Q	1.69/2.22/3.60
AD8565	AD8566	AD8567	4.5	16	•	•	1	5	6	10	5	54	70	69	26	0.8[3]	0.850	600 nA	35[3]	I		S		D		Q	Q		0.56/0.71/0.93
OP196	OP296	OP496	3	15	•	•	1	0.45	0.3	0.3	1.5	65[3]	110	109	26	0.19	0.060	50 nA	4[3]	H					S/D/Q		D/Q	D/Q	1.41/1.85/2.66
OP162	OP262	OP462	2.7	12	N	•	1	15	13	0.325	1	70	60	97	9.5	0.4	0.800	500 nA	30[3]	H				S	S/D/Q		S/D/Q		1.69/2.23/4.03
AD8519	AD8529		2.7	12	N	•	1	8	2.9	1.1	2	70[3]	60	94	10	0.4	1.200	300 nA	70	H		S	S	D	S/D				0.92/1.22
	OP281	OP481	2.7	12	N	•	1	0.105	0.028	1.5	10	65	76	74	85	1	0.005	10 nA	12	I					S/D		S/D		2.74/3.58

[1]Planned. [2]Prerelease. [3]Check data sheet for condition.

S = single, D = dual, Q = quad, SD = shutdown. C = commercial (0°C to +70°C), H = extended industrial (–40°C to +125°C), I = industrial (–40°C to +85°C).

BP = bipolar, ZD = zero drift, ZCO = zero crossover, *i*CMOS = 16 V or 30 V CMOS, OVP = overvoltage protection, LT = laser trim, ZZ = Zener zap.

ANALOG DEVICES

Part Number			Supply Voltage		Rail-to-Rail		A_{CL} Min	BW @ A_{CL} Min (MHz)	Slew Rate (V/μs)	V_{OS} Max (mV)	TCV_{OS} Typ (μV/°C)	CMRR Min (dB)	PSRR Min (dB)	AVO Min (dB)	Noise @ 1 kHz (nV/√Hz)	Noise @ 1 kHz (pA/√Hz)	I_S/Amp Max (mA)	I_B Max	I_{SC} (mA)	Temp Range	Micro CSP	SC70	SOT-23	MSOP	SOIC	LFCSP	TSSOP	PDIP	Price @ 1k (OEM $U.S.)
Single	Dual	Quad	Min	Max	In	Out																							
Max Voltage < 44 V																													
AD8510A	AD8512A	AD8513A	±5	±18			1	8	20	1	1.7	86	86	101	8		2.500	80 pA	70	H				S/D	S/D/Q		Q		0.95/1.49/3.71
AD8510B	AD8512B		±5	±18			1	8	20	0.4	1	86	86	101	8		2.500	80 pA	70	H				S/D	S/D				2.33/4.76
AD8610A	AD8620A		±5	±13			1	25	60	0.25	0.8	90	100	100	6	0.005	3.500	10 pA	65	H				S	S/D				3.75/7.50
AD8610B	AD8620B		±5	±13			1	25	60	0.1	0.5	90	100	100	6	0.005	3.500	10 pA	65	H				S	S/D				9.86/16.70
AD8627	AD8626	AD8625	±5	±13	N	•	1	5	5	0.75	2.5	76	80	103	16	0.5	0.850	1 pA	15[3]	I		S		D	S/D/Q		Q		1.60/2.63/4.09
AD8641	AD8642	AD8643	±2.5	±13	N	•	1	3.5	3	0.75	2.5	90	90	106	27.5	0.0005	0.290	1 pA	12[3]	H		S		D	S/D/Q	Q			1.47/2.35/3.85
	ADTL082A	ADTL084A	±4	±18	P		1	5	20	5.5	10	80	80	100	16		1.800	100 pA	27	H				D	D/Q		Q		0.42/0.90
	OP282	OP482	±4.5	±18	P		1	4	9	3	10	70	110	86	36	0.01	0.250	100 pA	10	I				D	D/Q			Q	1.31/2.06
	AD8682	AD8684	±4.5	±18	P		1	3.5	9	1	10	70	92	86	36	0.01	0.250	20 pA	10	I				D	D/Q		Q		1.66/2.44
ADA4000-1	ADA4000-2	ADA4000-4	±4	±18	P		1	5	20	1.7	2	80	82	100	16	0.01	1.650	40 pA	28	H			S	D	S/D/Q		Q		0.73/1.31/2.22
AD549J			±2.5	±18			1	5	3	1	20	80	80	109	35	0.22	0.700	250 fA	20	C	TO-99								13.00
AD549K			±2.5	±18			1	5	3	0.25	5	90	90	109	35	0.22	0.700	100 fA	20	C	TO-99								18.15
AD549L			±2.5	±18			1	5	3	0.5	10	90	90	109	35	0.22	0.700	60 fA	20	C	TO-99								22.44
AD820A	AD822A	AD824A	±2.5	±18	N	•	1	1.9	3	2	2	70	70	114	16	0.008	0.900	25 pA	45	I				S/D	S/D/Q			S/D	1.82/2.76/4.55
AD820B	AD822B		±2.5	±18	N	•	1	1.9	3	1	2	74	70	114	16	0.008	0.900	10 pA	45	I				D	S/D/Q			S/D	2.66/4.11
	ADA4062-2A	ADA4062-4A	±4	±18			1	1.4	3.3	2.5	3	74	74	76	36	0.005	0.200	50 pA	20	H					D	Q			0.75/1.21
	ADA4062-2B	ADA4062-4B[2]	±4	±18			1	1.4	3.3	1.5	3	80	80	76	36	0.005	0.200	50 pA	20	H					D	Q			1.25/TBD
ADA4627-1A/ ADA4627-1B			±4	±18			1	20	60	0.25/ 0.10	2/1	100	100/ 106	114	5.5	0.0015	7.500	10 pA	55	I/H					S	S			6.75/10.75
	OP275		±4.5	±22			1	9	22	1	2	80	85	108	6	1.5	2.500	350 nA	14	I					D			D	1.00
AD711J	AD712J	AD713J	±5	±18			1	4	20	2	7	76	76	103	18	0.01	3.400	50 pA	25	C					S/D/Q			S/D/Q	1.20/1.66/4.62
AD711K	AD712K		±5	±18			1	4	20	0.5	5	80	80	106	18	0.01	3.000	50 pA	25	C					S/D			S/D	2.10/3.36
	OP285		±4.5	±18			1	9	22	0.25	1	80	85	108	6	0.9	2.500	350 nA	30	I					D			D	2.40
	ADA4091-2	ADA4091-4	±1.5	±18	•	•	1	1.27	0.46	0.5	1.1	95	100	116	25	0.8	0.250	55 nA	41	H					D	D/Q	Q		2.22/3.60
AD8677			±4	±18			1	0.6	0.2	0.13	0.5	120	115	120	10	0.074	1.300	1 nA	30	H			S		S				0.76
ADA4004-1	ADA4004-2	ADA4004-4	±5	±18			1	12	2.7	0.125	0.7	110	110	114	1.8	1.2[3]	2.200	90 nA	25	H			S	D	S/D/Q	Q			1.75/2.65/4.25
OP113E	OP213E	OP413E	±2	±18	N		1	3.4	1.2	0.075	0.2	100	103	120	4.7	0.4	3.000	600 nA	40	I					S/D/Q			D	3.42/6.53/9.41
OP113F	OP213F	OP413F	±2	±18	N		1	3.4	1.2	0.15	0.2	96	100	120	4.7	0.4	3.000	600 nA	40	I					S/D/Q			D	1.76/2.10/4.52
AD8675			±5	±18		•	1	10	2.5	0.075	0.2	114	120	123	2.8	0.3[3]	2.900	2 nA	40	H				S	S				1.18
	AD8676A		±5	±18		•	1	10	2.5	0.1	0.2	111	106	123	2.8	0.3[3]	3.400	2 nA	40	H				D	D				1.66
	AD8676B		±5	±18		•	1	10	2.5	0.05	0.2	111	106	123	2.8	0.3[3]	3.400	2 nA	40	H				D	D				2.14
OP07D			±4	±18			1	0.6	0.2	0.15	0.5	120	115	120	10	0.074	1.300	1 nA	30	H					S			S	0.45
OP07			±3	±18			1	0.6	0.3	0.075	0.3	106	94	106	9.6	0.12	4.000	4 nA	30	H					S			S	0.65
AD8597	AD8599		±4.5	±18			1	10	16.8	0.12	0.8	120	120	110	1.07	1.9	5.700	200 nA	52	H					S/D	S			2.25/3.24
	AD8622A	AD8624A[1]	±2	±18		•	1	0.6	0.45	0.12	0.2	125	125	125	12	0.15	0.250	200 pA	40	H				D	D	Q	Q		1.90/TBD
AD797A			±5	±18			1	8	20	0.04	0.2	114	114	120	0.9	2	10.500	1500 nA	80	I					S			S	4.32
AD797B			±5	±18			1	8	20	0.08	0.2	120	120	126	0.9	2	10.500	900 nA	80	I					S			S	5.88
AD8671	AD8672	AD8674	±5	±18			1	10	4	0.075	0.3	100	110	120	2.8	0.3	3.500	12 nA	30	H				S/D	S/D/Q		Q		1.06/1.72/3.24
OP27G			±4.5	±22			1	8	2.8	0.1	0.3	100	140	116	3.2	0.4	5.700	80 nA	30	I					S			S	1.19
OP37G			±4.5	±22			5	40	17	0.1	0.3	100	140	116	3.2	0.4	4.700	75 nA	30	I					S			S	1.14
OP184	OP284	OP484	±1.5	±18	•	•	1	4.25	4	0.1	0.2	86	90	103	3.9	0.4	2.000	350 nA	10[3]	H					S/D/Q			D/Q	1.66/3.01/5.01
	OP295	OP495	±1.5	±18	N	•	1	0.085	0.03	0.5	1	90	90	120	45	0.1	0.175	20 nA	25[3]	H					D/Q			D/Q	2.18/4.53
OP1177	OP2177	OP4177	±2.5	±18			1	1.3	0.7	0.06	0.2	120[3]	120	120	7.9	0.2	0.500	2 nA	25	H				S/D	S/D/Q		Q		0.81/1.53/3.60
OP97F	OP297F	OP497F	±2	±20			1	0.9	0.2	0.075	0.3	110	110	106	14	0.02[3]	0.380	150 pA	10	I					S/D/Q			S/D/Q	1.25/3.18/6.16
	OP297G	OP497G	±2	±20			1	0.9	0.2	0.2	0.3	110	110	106	14	0.02[3]	0.380	200 pA	10	I					D/Q			D/Q	2.36/4.07
OP777	OP727	OP747	2.7	36	N	•	1	0.7	0.2	0.1	0.3	110	120	120	15	0.13	0.350	10 nA	30[3]	I				S	S/D/Q		D/Q		1.20/1.80/3.31
	OP270G	OP470G[3]	±4.5	±18			1	5	2.4	0.25	0.7	90	104	117	3.2	0.6	2.000	60 nA	30[3]	I					D/Q			D/Q	2.80/4.43
		OP471G	±4.5	±18			1	6.5	8	1.8	4	95	95	110	6.5	0.4	2.750	60 nA	20[3]	I					Q			Q	4.93
	ADA4075-2		±4.5	±18			1	6.5	12	1	0.3	110	106	114	2.8	1.2	2.250	100 nA	40	H					D	D			0.75
OP193F	OP293F		2.4	36	N[3]		1	0.035	0.015	0.15	0.2	97	97	114	65	0.05	0.030	20 nA[3]	25	H					S/D				1.65/2.49

[1]Planned. [2]Prerelease. [3]Check data sheet for condition.

S = single, D = dual, Q = quad, SD = shutdown. C = commercial (0°C to +70°C), H = extended industrial (–40°C to +125°C), I = industrial (–40°C to +85°C). BP = bipolar, ZD = zero drift, ZCO = zero crossover, *i*CMOS = 16 V or 30 V CMOS, OVP = overvoltage protection, LT = laser trim, ZZ = Zener zap.

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