

http://www.national.com
Visit National Semiconductors' web site to learn about their latest products. View data sheets and perform parametric searching online.

Customer Response Group: 1-800-272-9959
For literature and technical support for North America, call the customer response group.

High Speed Operational Amplifiers and Buffers

Specs at $T_A = 25^\circ\text{C}$ and $V_S = +5\text{V}$

Metal Can	Mfr.'s Type		Stew Rate (V/ μs) Typ.	GBW (MHz) Typ.	V_{OS} (mV) Max.	I_S (mA) Max.	No. of Leads	Temperature Range ($^\circ\text{C}$)
	SOIC	PDIP						
—	LF353M	LF353N	13	4	10.0	6.5	H08, M08, N08	0 to +70
—	—	LF411ACN	15	4	0.5	2.8	N08	0 to +70
—	—	LF412ACN	15	4	1.0	5.6	N08	0 to +70
LM318H	—	LM318N	70	15	4.0	7.0	H08, N08	0 to +70
—	—	LM6361N	300	50	7.0	6.8	N08	0 to +70
—	—	LM6364N	300	175	4.0	6.8	N08	0 to +70
—	—	LM6181N	2000	100	7.0	10.0	N08	-20 to +85
—	—	LM6218N	140	17	3.0	3.5	N08	-20 to +85
—	—	LM6321N	800	50	100.0	20.0	N08	0 to +70

Package Code Key (Letter = Pkg Type, Number = # of pins).

Low Power Operational Amplifiers

Dual
Specs at $T_A = 25^\circ\text{C}$ and $V_S = +5\text{V}$

Mfr.'s Type	I_S (μA) Typ.	V_{OS} (mV) Max.	I_B (fA) Typ.	CMVR (V) Typ.	Output Swing (V) Typ. With $R_L = 2\text{k}\Omega$	GBW (MHz) Typ.	Supply Voltage		No. of Leads	Temperature Range ($^\circ\text{C}$)
							Min. (V)	Max. (V)		
LMC662CN	750	6	2	-0.4 to 3.1	0.10 to 4.87	1.4	5	15	N08	-20 to +85

Quads

LMC660CM	1500	6	2	-0.4 to 3.1	0.10 to 4.87	1.4	5	15	M14	-20 to +85
LMC660CN	1500	6	2	-0.4 to 3.1	0.10 to 4.87	1.4	5	15	N14	-20 to +85
LMC660AIM	1500	3	2	-0.4 to 3.1	0.10 to 4.87	1.4	5	15	M14	-20 to +85

General Purpose Operational Amplifiers

Specs at $T_A = 25^\circ\text{C}$ and $V_S = +5\text{V}$

Metal Can	Mfr.'s Type		V_{OS} (mV) Max.	I_B (nA) Max.	GBW (MHz) Typ.	Stew Rate (V/ μs) Typ.	Supply Current (mA) Max.	Supply Voltage		No. of Leads	Temperature Range ($^\circ\text{C}$)
	SOIC	PDIP						Min. (V)	Max. (V)		
LF156H	—	—	5.0	0.100	5.000	12.00	7.00	± 5.0	± 22.0	H08	-55 to +125
LF356H	—	—	5.0	0.100	5.000	12.00	7.00	± 5.0	± 22.0	H08, M08, N08	0 to +70
—	LF356M	LF356N	10.0	0.200	4.000	13.00	11.00	± 6.0	± 18.0	M14, N14	0 to +70
—	—	LF347N	5.0	0.100	20.000	50.000	7.00	± 5.0	± 22.0	N08	0 to +70
—	—	LF357N	5.0	0.100	20.000	50.000	7.00	± 5.0	± 22.0	N08	0 to +70
—	—	LF411CN	2.0	0.200	4.000	15.00	3.40	± 6.0	± 18.0	N08	0 to +70
—	—	LF411ACN	0.5	0.200	4.000	15.00	2.80	± 6.0	± 22.0	N08	0 to +70
—	—	LF412CN	3.0	0.200	4.000	15.00	6.50	± 6.0	± 18.0	N08	0 to +70
—	—	LF412ACN	1.0	0.200	4.000	15.00	5.60	± 6.0	± 22.0	N08	0 to +70
—	—	LF442ACN	0.5	0.050	1.000	1.00	0.20	± 6.0	± 22.0	N08	0 to +70
—	—	LF444ACN	5.0	50.000	1.000	1.00	0.80	± 6.0	± 22.0	N14	0 to +70
LM10CH	—	LM10CN	2.0	20.000	0.090	0.10	0.40	± 0.6	± 22.5	H08, N08	0 to +70
—	—	LM10CLN	2.0	20.000	0.090	0.10	0.40	± 0.6	± 3.5	N08	0 to +70
LM201AH	—	—	2.0	75.000	1.000	0.50	3.00	± 3.0	± 22.0	H08	-20 to +85
LM301AH	—	LM301AN	2.0	75.000	1.000	0.50	3.00	± 3.0	± 22.0	H08, N08	0 to +70
LM108AH	—	—	0.5	2.000	1.000	0.30	0.60	± 2.0	± 20.0	H08	-55 to +125
LM308AH	—	—	0.5	7.000	1.000	0.30	0.60	± 2.0	± 18.0	H08, M08, N08	0 to +70
—	—	LM124J*	5.0	150.000	1.000	0.50	3.00	3.0	32.0	J14	-55 to +125
—	—	LM224J*	5.0	150.000	1.000	0.50	3.00	3.0	32.0	J14	-20 to +85
—	LM324M	LM324N	5.0	150.000	1.000	0.50	3.00	3.0	32.0	M14, N14	0 to +70
—	—	LM124AJ	2.0	50.000	1.000	0.50	3.00	3.0	32.0	J14	-55 to +125
—	LM324AM	LM324AN	2.0	50.000	1.000	0.50	3.00	3.0	32.0	M14, N14	0 to +70
—	—	LM346N	5.0	100.000	1.200	0.40	2.20	± 1.5	± 22.0	N16	0 to +70
—	—	LM148J*	5.0	100.000	1.000	0.50	3.60	± 5.0	± 22.0	J14	-55 to +125
—	—	LM348N	5.0	100.000	1.000	0.50	3.60	± 5.0	± 22.0	N14	0 to +70
LM158H	—	—	5.0	150.000	1.000	0.50	2.00	3.0	32.0	H08	-55 to +125
—	LM358M	LM358N	5.0	150.000	1.000	0.50	2.00	3.0	32.0	N08	0 to +70
—	—	LM358AN	2.0	50.000	1.000	0.50	2.00	3.0	32.0	N08	0 to +70
LM741CH	—	LM741CN	5.0	500.000	1.000	0.50	2.80	± 3.0	± 22.0	H08, M08, N08	0 to +70
—	LM1458M	LM1458N	5.0	500.000	—	—	5.00	± 3.0	± 22.0	M08, N08	-55 to +125
—	—	LM4250CN	5.0	50.000	0.200	0.20	0.10	± 1.0	± 18.0	M08	0 to +70

*CERDIP Package.

13

Voltage Comparators

Metal Can	Mfr.'s Type		Response Time (ns) Typ.	V_{OS} (mV) Max.	I_S (mA) Max.	I_B (nA) Max.	No. of Leads	Temperature Range ($^\circ\text{C}$)
	SOIC	PDIP						
LM111H	—	LM111J-8	200	7.5	7.500	250.00	H08, N08	-55 to +125
LM311H	—	—	200	7.5	7.500	250.00	H08, M08, N08	0 to +70
—	LM311M	LM311N	80	8.0	12.500	1000.00	J14, N14	0 to +70
—	—	LM139J	1300	5.0	2.500	250.00	J14	-55 to +125
—	LM339M	LM339N	1300	5.0	2.500	250.00	M14, N14	0 to +70
—	—	LM360N	14	5.0	32.000	20,000.00	N08	0 to +70
—	—	LM361N	14	5.0	20,000.00	30,000.00	N14	0 to +70
LM193H	—	—	1300	5.0	2.500	250.00	H08	-55 to +125
—	LM393M	LM393N	1300	5.0	2.500	250.00	M08, N08	0 to +70
—	LM2901M	LM2901N	1300	7.0	2.500	250.00	M14, N14	-20 to +85
—	LM2903M	LM2903N	1500	7.0	2.500	250.00	M08, N08	-20 to +85
—	LM392M	LM392N	1300	10.0	1.000	400.00	M08, N08	0 to +70
—	LP339M	LP339N	8000	5.0	0.100	25.00	M14, N14	0 to +70

Turn To Section 1 For Allied Office Addresses and Local Phone Numbers

ALLIED ▶ 831

Datasheet.Support