AMPLIFIERS (continued)
Single Operational Amplifiers (continued)
Internally Compensated

Device	I_{IB} μA Max	V_{IO} mV Max	TC_{VIO} μV/°C Typ	I_{IO} nA Max	A_{vol} V/mV Min	BW (A_V=1) MHz Typ	SR (A_V=1) V/μs Typ	Supply Voltage V Min	Supply Voltage V Max	Description	Packages
Commercial Temperature Range (0°C to +70°C)											
LF351	200 pA	10	10	100 pA	25	4.0	13	±5.0	±18	JFET Input	626
LF355	200 pA	10	5.0	50 pA	50	1.0	5.0	±5.0	±18	JFET Input	601,626,693
LF355B	100 pA	5.0	5.0	20 pA	50	2.5	5.0	±5.0	±22	JFET Input	601,626,693
LF356	200 pA	10	5.0	50 pA	50	2.0	15	±5.0	±18	JFET Input	601,626,693
LF356B	100 pA	5.0	5.0	20 pA	50	5.0	12	±5.0	±22	JFET Input	601,626,693
LF357	200 pA	10	5.0	50 pA	50	3.0	75	±5.0	±18	Wideband FET Input	601,626,693
LF357B	100 pA	5.0	5.0	20 pA	50	20	50	±5.0	±22	JFET Input	601,626,693
LF411	200 pA	5.0	10	100 pA	25	4.0	15	±3.0	±18	High speed	626,751
LF411A	200 pA	2.0	10	100 pA	50	4.0	15	±3.0	±22	JFET Input	626,751
LF441	100 pA	5.0	20	50 pA	25	1.0	1.0	±3.0	±18	Single Bifet Low power	626,693,751
LF441A	50 pA	0.5	10	25 pA	50	1.0	1.0	±3.0	±22	Single Bifet Low power	626,693,751
LM11CL	200 pA	5.0	3.0	25 pA	50	1.0	0.3	±3.0	±20	Precision	626
MC1436	0.04	10	12	10	70	1.0	2.0	±15	±34	High Voltage	693,751
MC1456	0.03	10	12	10	70	1.0	2.5	±3.0	±18	High Performance	626
MC1733C	30	—	—	5.0 μA	80	90	—	±4.0	±8.0	Differential Wideband Video Amp	601,632,646
MC1741C	0.5	6.0	15	200	20	1.0	0.5	±3.0	±18	General Purpose	601,626,293,751
MC1741NC	0.5	6.0	15	200	20	1.0	0.5	±3.0	±18	Low Noise	626
MC1741SC	0.5	6.0	15	200	20	1.0	10	±3.0	±18	High Slew Rate	626
MC1776C	0.003	6.0	15	3.0	100	1.0	0.2	±1.5	±18	μPower, Programmable	693,626,601,751
MC34001	200 pA	10	10	100 pA	25	4.0	13	±5.0	±18	JFET Input	601,626,693,751
MC34001A	100 pA	2.0	10	50 pA	50	4.0	13	±5.0	±18	JFET Input	601,626,693,751
MC34001B	200 pA	5.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	601,262,693,751
MC34071	0.5	3.5	10	75	25	4.5	13	+3.0	+44	High Performance	626,693,751
MC34071A	0.5	1.5	10	50	50	4.5	13	+3.0	+44	Single Supply	626,693
MC33171	100 nA	4.5	10	20 nA	50	1.8	2.1	+3.0	+44	Micropower Single Supply	626,751
MC34081	200 pA	3.0	10	100 pA	25	10	40	±3.0	±22	High speed	601,626,693
MC34081A	200 pA	2.5	10	100 pA	50	10	40	±3.0	±22	JFET Input	601,626,693
MC34080	200 pA	3.0	10	100 pA	25	16	50	±3.0	±22	Decompensated	601,626,693
MC34080A	200 pA	2.5	10	100 pA	50	16	50	±3.0	±22	MC34081 $A_{vcl} \geq 2$	601,626,693
MC34181	200 pA	1.0	10	100 pA	25	4.0	15	—	±22	Single Micropower High speed	626,693
OP-27EP	0.040	0.025	0.2	35	1000	8.0	2.8	±4.0	±22	Low Noise, Precision	626
OP-27FP	0.055	0.060	0.3	50	1000	8.0	2.8	±4.0	±22	Low Noise, Precision	626
OP-27GP	0.080	0.100	0.4	75	700	8.0	2.8	±4.0	±22	Low Noise, Precision	626
OP-37EP	0.040	0.025	0.2	35	1000	40	17	±4.0	±22	Low Noise, Precision	626
OP-27FP	0.055	0.060	0.3	50	1000	40	17	±4.0	±22	Decompensated for	626
OP-27GP	0.080	0.100	0.4	75	700	40	17	±4.0	±22	$A_V \geq 5$	626
TL061	200 pA	15	10	200 pA	4.0	1.0	3.5	±3.0	±18	Single Bifet Low power	626,693
TL061A	200 pA	6.0	10	200 pA	4.0	1.0	3.5	±3.0	±18	Single Bifet Low power	626,693
TL061B	200 pA	3.0	10	100 pA	3.0	1.0	3.5	±3.0	±18	Single Bifet Low power	626,693
TL071AC	200 pA	6.0	10	50 pA	50	4.0	13	±5.0	±18	Low Noise, JFET Input	626
TL071BC	200 pA	3.0	10	50 pA	50	4.0	13	±5.0	±18	Low Noise, JFET Input	626
TL071C	200 pA	10	10	50 pA	25	4.0	13	±5.0	±18	Low Noise, JFET Input	626,693,751
TL081AC	200 pA	6.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	626,693
TL081BC	200 pA	3.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	626,693
TL081C	400 pA	15	10	200 pA	25	4.0	13	±5.0	±18	JFET Input	626,693,751
Industrial Temperature Range (−25°C to +85°C)											
MC33071	0.5	3.5	10	75	25	4.5	13	+3.0	+44	High Performance	626,693
MC33071A	0.5	1.5	10	50	50	4.5	13	+3.0	+44	Single Supply	626,693
OP-27E	0.040	0.025	0.2	35	1000	8.0	2.8	±4.0	±22	Low Noise, Precision	601,693
OP-27F	0.055	0.060	0.3	50	1000	8.0	2.8	±4.0	±22	Low Noise, Precision	601,693
OP-27G	0.080	0.100	0.4	75	700	8.0	2.8	±4.0	±22	Low Noise, Precision	601,693
OP-37E	0.040	0.025	0.2	35	1000	40	17	±4.0	±22	Low Noise, Precision	601,693
OP-37F	0.055	0.060	0.3	50	1000	40	17	±4.0	±22	Decompensated for	601,693
OP-37G	0.080	0.100	0.4	75	700	40	17	±4.0	±22	$A_V \geq 5$	601,693

AMPLIFIERS (continued)

Quad Operational Amplifiers (continued)

Internally Compensated

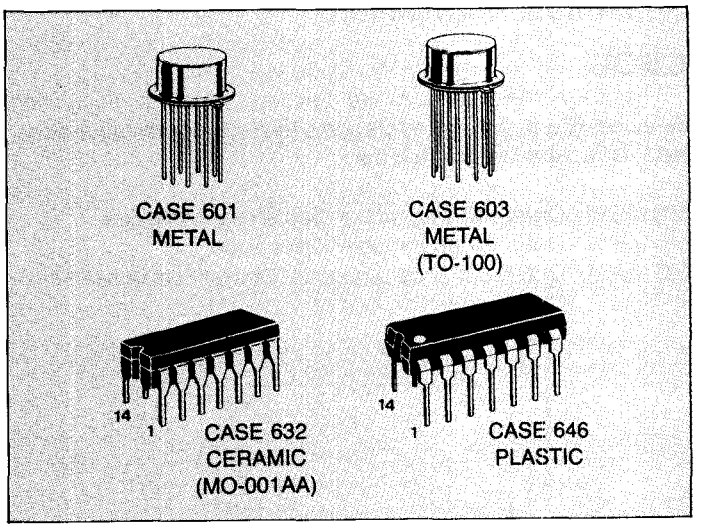
Device	I_{IB} μA Max	V_{IO} mV Max	TC_{VIO} μV/°C Typ	I_{IO} nA Max	A_{vol} V/mV Min	BW (A_V=1) MHz Typ	SR (A_V=1) V/μs Typ	Supply Voltage V Min	Supply Voltage V Max	Description	Packages
Commercial Temperature Range (0°C to +70°C)											
LF347	200 pA	10	10	100 pA	25	4.0	13	±5.0	±18	JFET Input	646,751A
LF347B	200 pA	5.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	646
LF444	100 pA	10	20	50	25	1.0	1.0	±3.0	±18	Quad Bifet Low Power	626,693,751
LF444A	50 pA	5.0	10	25	50	1.0	1.0	±3.0	±22	Quad Bifet Low Power	626,693,751
LM324	0.25	6.0	7.0	50	25	1.0	0.6	±1.5 +3.0	±16 +32	Low Power Consumption	632,646,751A
LM324A	0.10	3.0	7.0	30	25	1.0	0.6	±1.5 +3.0	±16 +32	Low Power Consumption	632,646,751A
LM348	0.20	6.0	—	50	25	1.0	0.5	±3.0	±18	Quad MC1741	632,646,751A
MC3401	0.3	—	—	—	1.0	5.0	0.6	±1.5	±18	Norton Input	646,751A
MC3403	0.5	10	7.0	50	20	1.0	0.6	±1.5 +3.0	±18 +36	No Crossover Distortion	632,646,751A
MC4741C	0.5	6.0	15	200	20	1.0	0.5	±3.0	±18	Quad MC1741	632,646,751A
MC34004	200 pA	10	10	100 pA	25	4.0	13	±5.0	±18	JFET Input	632,646,751
MC3400B	200 pA	5.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	632,646
MC34074	0.50	4.5	10	75	25	4.5	13	+3.0	+44	High Performance	632,646
MC34074A	0.50	2.0	10	50	50	4.5	13	+3.0	+44	Single Supply	632,646,751
MC33174	100 nA	4.5	10	20 nA	50	1.8	2.1	+3.0	+44	Micropower Single Supply	626,751
MC34084	200 pA	14	10	50 pA	25	10	40	±3.0	±22	Hi-Speed, JFET Input	632,646
MC34084A	200 pA	8.0	10	50 pA	50	10	40	±3.0	±22	Hi-Speed, JFET Input	632,646
MC34085	200 pA	14	10	50 pA	25	20	80	±3.0	±22	Decompensated	632,646
MC34085A	200 pA	8.0	10	50 pA	50	20	80	±3.0	±22	MC34084 for $A_V \geq 2$	632,646
MC34184	100 pA	10	10	100 pA	25	4.0	15	—	±22	Quad Micropower High Speed	632,646
TL064	200 pA	15	10	200 pA	4.0	1.0	3.5	±3.0	±18	Quad Bifet Low Power	626,693
TL064A	200 pA	6.0	10	200 pA	4.0	1.0	3.5	±3.0	±18	Quad Bifet Low Power	626, 693
TL064B	200 pA	3.0	10	100 pA	3.0	1.0	3.5	±3.0	±18	Quad Bifet Low Power	626,693
TL074AC	200 pA	6.0	10	50 pA	50	4.0	13	±5.0	±18	Low Noise, JFET Input	632,646
TL074BC	200 pA	3.0	10	50 pA	50	4.0	13	±5.0	±18	Low Noise, JFET Input	632,646
TL074C	200 pA	10	10	50 pA	25	4.0	13	±5.0	±18	Low Noise, JFET Input	632,646,751
TL084AC	200 pA	6.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	632,646
TL084BC	200 pA	3.0	10	100 pA	50	4.0	13	±5.0	±18	JFET Input	632,646
TL084C	400 pA	15	10	200 pA	25	4.0	13	±5.0	±18	JFET Input	632,646,751
Automotive Temperature Range (−40°C to 85°C)											
LM2902	0.5	10	—	50	—	1.0	0.6	±1.5 +3.0	±13 +26	Differential Low Power	646,751A
MC3301	0.3	—	—	—	1.0	4.0	0.6	±2.0	±15	Norton Input	646,751A
MC3303	0.5	8.0	10	75	20	1.0	0.6	±1.5 +3.0	±18 +36	Differential General Purpose	646
MC33074	0.50	4.5	10	75	25	4.5	10	+3.0	+44	High Performance	632,646
MC33074A	0.50	2.0	10	50	50	4.5	10	+3.0	+44	Single Supply	632,646
MC143403	1 nA	30	20	200 pA	1.0	0.8	1.0	4.75	12.6	CMOS Low Power	632,646
MC143404	1 nA	30	20	200 pA	1.0	0.8	1.0	4.75	12.6	CMOS Low Power	632,646
Industrial Temperature Range (−25°C to +85°C)											
LM224	0.15	5.0	7.0	30	50	1.0	0.6	±1.5 ±3.0	±16 ±32	Split or Single Supply OP Amp	632,646,751A
LM248	0.2	6.0	—	50	25	1.0	0.5	±3.0	±18	Quad MC1741	632,646

Non AGC Amplifiers

MC1733	MC1733C	52 @ 40 40 90 20 120	+6/−6	603,632,646
	NE592	55 @ 40 45 @ 90	+6/−6	

High Frequency Amplifiers

A variety of high-frequency circuits with features ranging from low-cost simplicity to multi-function versatility marks Motorola's line of integrated amplifiers. Devices described here are intended for industrial and communications applications. For devices especially dedicated to consumer products, i.e., TV and entertainment radio, see "Circuits for Consumer Applications."



Non-AGC Amplifiers

SE/NE592 — Differential Two Stage Video Amplifier

A monolithic, two state differential output, wideband video amplifier. It offers fixed gains of 100 and 400 without external components and adjustable gains from 400 to 0 with one external resistor. The input stage has been designed so that with the addition of a few external reactive elements between the gain select terminals, the circuit can function as a high pass, low pass, or band pass filter. This feature makes the circuit ideal for use as a video or pulse amplifier in communications, magnetic memories, display and video recorder systems.

MC1733/MC1733C — Video Amplifier

Differential input and output amplifier provides three fixed gain options with bandwidth to 120 MHz. External resistor permits any gain setting from 10 to 400 v/v. Extremely fast rise time (2.5 ns typ) and propagation delay time (3.6 ns typ) makes this unit particularly useful as pulse amplifier in tape, drum, or disc memory read applications.

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Operating Temperature Range		A_V dB	@	Bandwidth MHz	V_{CC}/V_{EE} Vdc	Case
−55 to +125°C	0 to +75°C					
SE592	NE592	55 45		40 90	+6/−6	603, 632 646
MC1733	MC1733C	52 40 20		40 90 120	+6/−6	603, 632, 646