






**BIPOLAR OPERATIONAL AMPLIFIERS**

Characteristics	Symbol	Unit	Single						Dual						Quad			
Power supply voltage	V <sub>CC</sub> max.	V	± 18	± 18	± 20	± 18	± 18	± 16 or 32	± 18	± 18	± 13 or 26	± 18	± 16 or 32	± 18	± 13 or 26	± 18	± 18	
Input offset voltage	V <sub>IO</sub> max.	mV	7.5	7.5	10	6	6	7	3.5	6	± 7	6	7	6	7	10	6	
Input offset current	I <sub>IO</sub> max.	nA	50	1	200	200	25	± 50	50	200	± 50	200	50	50	50	50	100	
Input impedance	Z <sub>i</sub> min.	MΩ	0.5	10	0.5	0.3	5 typ	-	0.5 typ	0.2	-	0.3	-	0.8	-	0.3	1 typ	
Bias current	I <sub>B</sub> max.	nA	250	7	500	500	50	250	300	500	250	500	250	200	250	500	250	
Output slew rate	S <sub>VO</sub>	V/μs	-	-	50 min	0.5 typ	0.8 typ	-	1 typ	0.8 typ	-	1 min	-	-	-	-	0.4 typ	
Supply voltage rejection ratio	S <sub>VR</sub> min.	dB	70	80	65	76	74	65	86	76	50	76	65	77	-	76	74	
Bandwidth	B	MHz	-	-	15 typ	-	-	-	1.5 min	-	-	2 min	-	1 typ	-	1 typ	0.5 min	
Short-circuit current	I <sub>SC</sub>	mA	-	-	-	25 typ	12 typ	60 max	23 typ	-	-	40 max	60 max	25 typ	60 max	45 max	30 max	
Voltage gain	A <sub>V</sub> min.	V/mV	25	25	25	20	50	25	20	20	-	20	25	25	-	20	50	
Continuous input voltage	(V <sub>i</sub> max.) min.	V	± 12	± 14	± 11.5	± 12	± 10	0 to V <sup>+</sup> -1.5	± 10	± 12	0 to V <sup>+</sup> -2	± 12	0 to V <sup>+</sup> -1.5	± 12	0 to V <sup>+</sup> -2	± 13 to V	± 13.5	
			LM 301AFP	LM 308FP	LM 318FP	UA 741CFP	UA 776CFP	LM 358FP	TEB 1033FP	LM 1458FP	LM 2904FP	MC 4558 CFP	LM 324FP	LM 348FP	LM 2902FP	MC 3403FP	LM 346FP	
SO 8			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
SO 14													●	●	●	●		
SO 16																	●	

**J - FET OPERATIONAL AMPLIFIERS**

Characteristics	Symbol	Unit	Single -		Dual		Quad	
Power supply voltage	V <sub>CC</sub> max.	V	± 18	± 18	± 18	± 18	± 18	± 18
Input offset voltage	V <sub>IO</sub> max.	mV	15	10	15	10	15	15
Input offset current	I <sub>IO</sub> max.	nA	0.2	0.1	0.2	0.1	0.2	0.2
Input impedance	Z <sub>i</sub> min.	10 <sup>6</sup> MΩ	1 typ	1 typ	1 typ	1 typ	1 typ	1 typ
Bias current	I <sub>B</sub> max.	nA	0.4	0.2	0.4	0.2	0.4	0.4
Output slew rate	S <sub>VO</sub>	V/μs	13 typ	13 typ	13 typ	13 typ	13 typ	13 typ
Supply voltage rejection ratio	S <sub>VR</sub> min.	dB	70	70	70	70	70	70
Bandwidth	B	MHz	3 typ	4 typ	3 typ	4 typ	1 typ	3 typ
Voltage gain	A <sub>V</sub> min.	V/mV	25	25	25	25	3	25
Continuous input voltage	(V <sub>i</sub> max.) min.	V	± 10	± 11	± 10	± 11	± 10	± 10
			TL 081CFP	LF 351FP	TL 082CFP	LF 353FP	TL 064CFP	TL 084CFP
SO 8			●	●	●	●	●	●
SO 14						●	●	