

# Operational Amplifiers

## MODULES

Product Number	Guaranteed Output Range (1)		Open Loop Gain (1) (MIN)	Frequency Response		Time Response		Offset Voltage		Input Bias Current		Temp. Range	Pkg.
	V (MIN)	mA (MIN)		GBW (MIN) MHz	Unity Gain (MIN) MHz	Settling Time (MAX) $\mu$ S - 0.1%	Slew Rate (MIN) V/ $\mu$ s	Initial (MAX) mV	Drift (MAX) $\mu$ V/ $^{\circ}$ C	Initial (MAX) nA	Drift (MAX) nA/ $^{\circ}$ C		
1005	$\pm 20$	$\pm 5$	94dB	—	1.5 <sup>(2)</sup>	20 <sup>(2)</sup>	$\pm 1.2$	—	$\pm 20$	$\pm 25$	$\pm 1.0$	D	H
1006	$\pm 1.5$	$\pm 1$	80dB	—	0.6 <sup>(2)</sup>	6 <sup>(2)</sup>	$\pm 0.5$	$\pm 1$	$\pm 50$	$\pm 0.05$	(3)	D	O
1009	$\pm 10$	$\pm 5$	94dB	—	1	—	$\pm 5$	—	$\pm 75$	$\pm 0.03$	(3)	D	H
1011	$\pm 10$	$\pm 20$	100dB	—	12	3	$\pm 70$	—	$\pm 50$	-0.03	(3)	D	I
1018	$\pm 10$	$\pm 2.5$	120dB	—	0.5	80 <sup>(2)</sup>	$\pm 0.3$ <sup>(2)</sup>	$\pm 1$	$\pm 1.5$	2	$\pm 0.1$	D	H
1020	$\pm 10$	$\pm 5$	106dB	—	0.5	40 <sup>(2)</sup>	$\pm 0.3$	$\pm 3$	$\pm 5$	$\pm 25$	$\pm 0.5$ <sup>(2)</sup>	D	J
1021	$\pm 10$	$\pm 20$	100dB	—	2	10 <sup>(2)</sup>	$\pm 6$	$\pm 5$ <sup>(2)</sup>	$\pm 50$	$\pm 0.005$	$\pm 0.001$	D	J
1022	$\pm 110$	$\pm 20$	120dB	—	1	—	$\pm 20$	$\pm 2$	$\pm 50$	-0.03	(3)	D	N
1023	$\pm 10$	$\pm 20$	100dB	—	2	10 <sup>(2)</sup>	$\pm 6$	$\pm 0.7$	$\pm 5$	$\pm 0.003$	$\pm 0.001$	E	J
1024	$\pm 10$	$\pm 20$	94dB	—	2 <sup>(2)</sup>	5 <sup>(2)</sup>	$\pm 6$	$\pm 10$ <sup>(2)</sup>	$\pm 20$	$\pm 50$	$\pm 1$	D	J
1025	$\pm 10$	$\pm 50$	100dB	50	—	0.09 <sup>(2)</sup>	$\pm 500$	$\pm 10$	$\pm 50$	-0.02	(3)	D	K
1026	$\pm 10$	$\pm 5$	100dB	—	1	10 <sup>(2)</sup>	$\pm 10$	$\pm 5$ <sup>(2)</sup>	$\pm 50$	$\pm 0.05$	(3)	D	J
1027	$\pm 10$	$\pm 20$	100dB	—	10	0.5 <sup>(2)</sup>	$\pm 60$	$\pm 15$	$\pm 50$	-0.05	(3)	D	L
1028	$\pm 10$	$\pm 5$	108dB	—	1	—	$\pm 6$	$\pm 3$ <sup>(2)</sup>	$\pm 20$	+35	$\pm 0.5$	D	M
1032	$\pm 110$	$\pm 10$	100dB	—	1	25	$\pm 6$	$\pm 5$	$\pm 50$	-0.01	(3)	D	N
1035	$\pm 10$	$\pm 5$	100dB	—	0.3	30 <sup>(2)</sup>	$\pm 0.3$ <sup>(2)</sup>	$\pm 2$	$\pm 50$	$\pm 150$ IA	(3)	A	L
1701	$\pm 12$	$\pm 5$	112dB	—	1 <sup>(2)</sup>	—	$\pm 1.2$	$\pm 0.015$	$\pm 0.25$	$\pm 0.05$	$\pm 0.001$	D	K
1702	$\pm 10$	$\pm 5$	100dB	—	500Hz <sup>(2)</sup>	—	$\pm 0.5$ V/ms <sup>(2)</sup>	$\pm 5$	$\pm 30$	$\pm 5$ IA	$\pm 2$ IA	A	K

## Buffers

### HYBRIDS

Product Number	Guaranteed Output Range (1)		Open Loop Gain (1) (MIN)	Frequency Response	Time Response		Offset Voltage		Input Bias Current		Temp. Range	Pkg.
	V (MIN)	mA (MIN)		$\pm 3$ dB Bandwidth (MIN) ( $V_{IN} = 1$ VRMS) MHz	Settling Time (MAX) $\mu$ S - 0.1%	Slew Rate (MIN) V/ $\mu$ s	Initial (MAX) mV	Drift (MAX) $\mu$ V/ $^{\circ}$ C	Initial (MAX) nA	Drift (MAX) nA/ $^{\circ}$ C		
0033 (5)	$\pm 9$	$\pm 100$ <sup>(2)</sup>	0.98V/V <sup>(2)</sup>	100 <sup>(2)</sup>	0.025 <sup>(2)</sup>	$\pm 1000$	$\pm 10$	$\pm 50$ <sup>(2)</sup>	$\pm 2.5$	(3)	B, D	A
1490 (5)	$\pm 3$	$\pm 100$	0.98V/V	100 <sup>(2)</sup>	—	$\pm 500$	$\pm 20$	$\pm 500$	$\pm 100$	—	A	E

### NOTES

- (1) Rated load.
- (2) Operational transconductance amplifier with user defined output stage.
- (3) Doubles approximately every 10 $^{\circ}$ C.
- (4)  $R_L = 10$ k $\Omega$ .
- (5) Screened to the high reliability requirements of MIL-STD-883C, Class "B", may be ordered screened to Class "S"