

MONOLITHIC WIDEBAND, JFET INPUT OPERATIONAL AMPLIFIER

FEATURES

- Monolithic Construction
- Offset Voltage3mV Max
- Slew Rate 120V/ μ s
- Gain Bandwidth Product 100MHz
- Bias Current50pA Max

APPLICATIONS

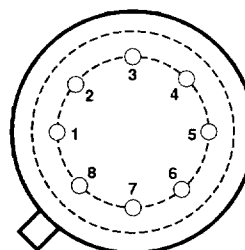
- Pulse Amplifiers
- High Speed, Precision Integrators
- High Speed Track/Hold Amplifiers
- Video Amplifiers

GENERAL DESCRIPTION

The 1344 Precision, High Speed Monolithic Operational Amplifier offers significant improvements in features vs other devices of its type. Stable with closed loop gains ≥ 10 , the 1344 features 1 MHz full power bandwidth, 120V/ μ s slew rate and superior DC characteristics. It is ideal for high-speed data acquisition systems, precision pulse and video amplifiers and high speed buffers. Housed in an 8-pin TO-99 package, this device is specified for 0°C to +75°C temperature range.

PIN CONFIGURATION

Pin No.	Designation
1	NC
2	INVERTING INPUT
3	NON-INVERTING INPUT
4	-V _{CC}
5	NC
6	OUTPUT
7	+V _{CC}
8	COMPENSATION



BOTTOM VIEW

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ABSOLUTE MAXIMUM RATINGS

V_{CC}	Supply Voltage	$\pm 20V$
V_{IDF}	Differential Input Voltage	$\pm V_{CC}$
T_C	Operating Temperature Range (Case)	$0^{\circ}C$ to $+75^{\circ}C$
T_{STG}	Storage Temperature Range	$-65^{\circ}C$ to $+150^{\circ}C$
P_D	Power Dissipation	675mW

ELECTRICAL CHARACTERISTICS: $T_C = +25^{\circ}C$, $V_{CC} = \pm 15V$, unless otherwise noted.

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Input						
I_B	Input Bias Current	T_{MIN} to T_{MAX}	—	± 20 ± 5	± 50 ± 10	pA nA
I_{OS}	Input Offset Current	T_{MIN} to T_{MAX}	—	± 2 ± 2	± 10 ± 5	pA nA
V_{OS}	Input Offset Voltage	Without External Trim T_{MIN} to T_{MAX}	—	± 1 ± 3	± 3 ± 5	mV mV
$V_{OS}TC$	V_{OS} vs Temperature		—	± 20	—	$\mu V/^{\circ}C$
PSRR	Input Offset vs Power Supply	@ DC (Note 1)	74	86	—	dB
V_{ICM}	Common-Mode Input Voltage	DC Linear Operation	± 10	± 11	—	V
CMRR	Common-Mode Rejection Ratio	@ DC, $V_{CM} = \pm 10V$	74	80	—	dB
Z_{IDF}	Differential-Mode Input Impedance	@ DC	—	10^{12}	—	Ω
Output						
V_O	Output Voltage	$R_L = 2 k\Omega$	± 10	± 11	—	V
I_O	Output Current		± 10	± 20	—	mA
Z_O	Output Impedance		—	50	—	Ω
Voltage Gain						
A_{OL}	Open-Loop Voltage Gain	$R_L = 2 k\Omega$	97	104	—	dB
	Over Specified Temperature Range		95	100	—	dB
Frequency Response						
GBWP	Gain Bandwidth Product	$A_V = 10$	—	100	—	MHz
UGBW	Unity-Gain Bandwidth		—	20	—	MHz
FPBW	Full-Power Bandwidth	$R_L = 2 k\Omega$	—	1.9	—	MHz
Time Response						
t_S	Settling Time	10V Step to 0.2%, $A_{CL} = 10$	—	280	—	ns
sr	Slew Rate		± 100	± 120	—	V/ μs
t_R	Small Signal Rise Time		—	20	—	ns
Power Supplies						
V_{CC}	Power Supply Voltage		—	± 15	—	V
I_{CC}	Quiescent Supply Current	$V_{CC} = \pm 15V$	—	± 8	± 10	mA

NOTES: 1. Specified over $\pm 10V$ to $\pm 20V$ supply range.

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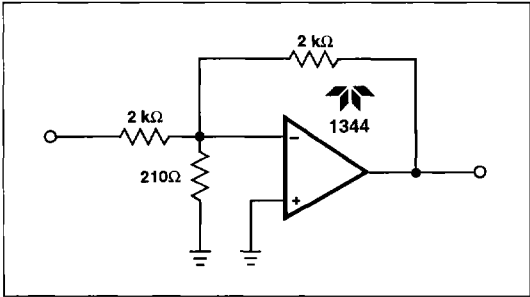


Figure 1. Fast-Settling Buffer

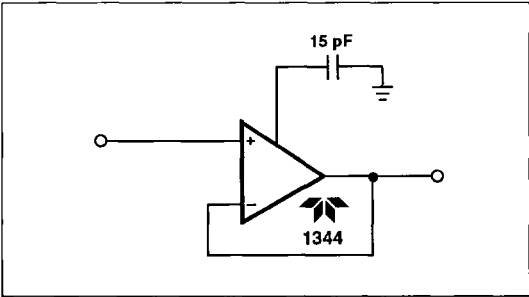


Figure 2. 20 MHz Voltage Follower

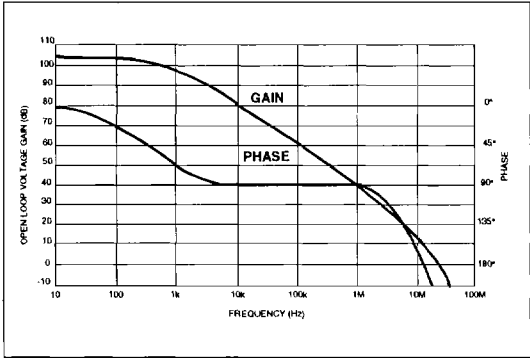


Figure 3. Open Loop Frequency Response

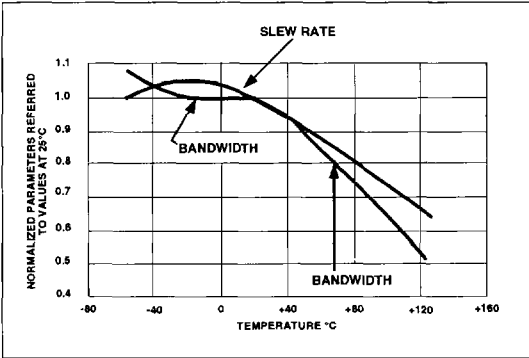


Figure 4. Normalized AC Parameters vs Temperature

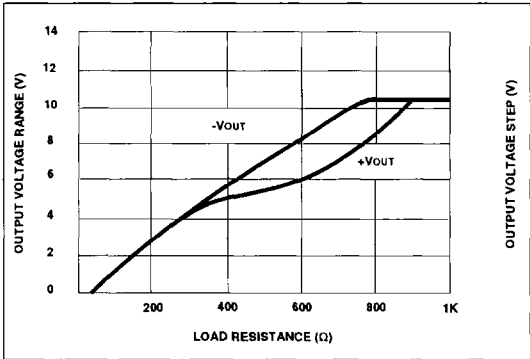


Figure 5. Output Voltage Swing vs Load Resistance

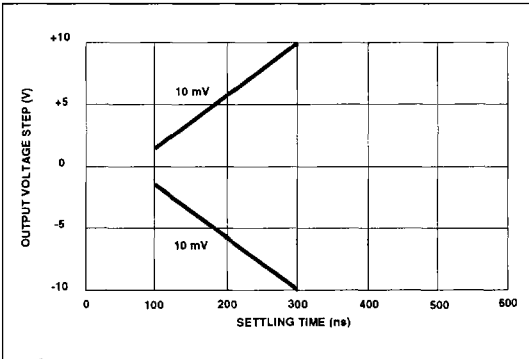


Figure 6. Settling Time for Various Output Step Voltages

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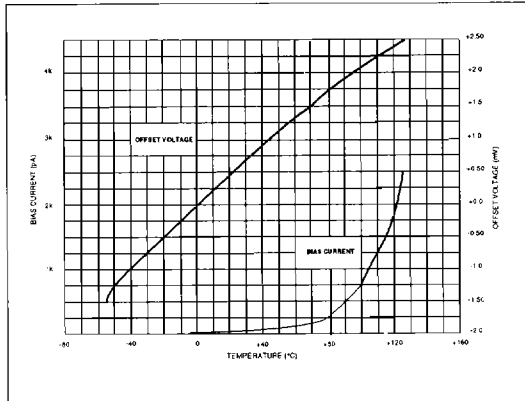


Figure 7. Input Offset Voltage and Bias Current vs Temperature

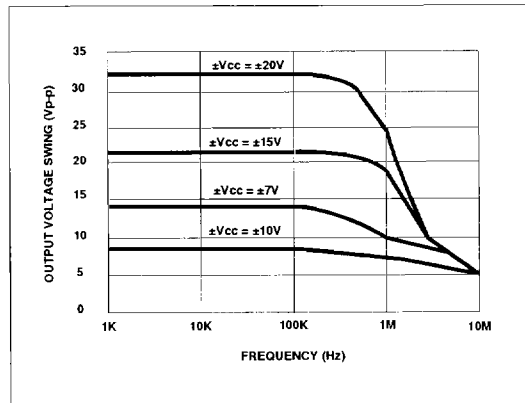


Figure 10. Output Voltage Swing vs Frequency

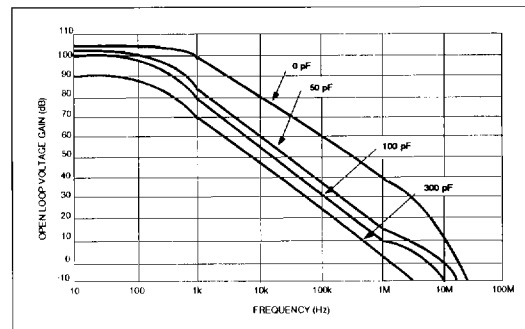


Figure 12. Open Loop Frequency Response For Various Bandwidth Control Capacitances

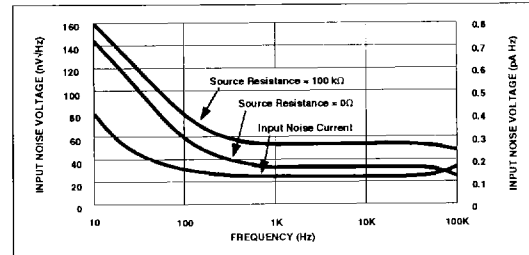


Figure 8. Input Noise Voltage and Noise Current vs Frequency

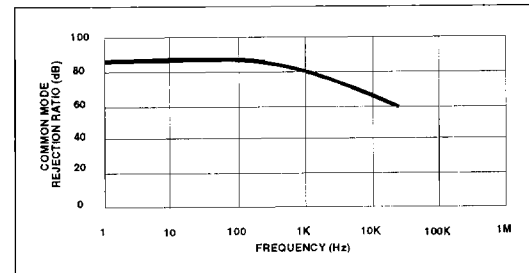


Figure 9. Common Mode Rejection Ratio vs Frequency

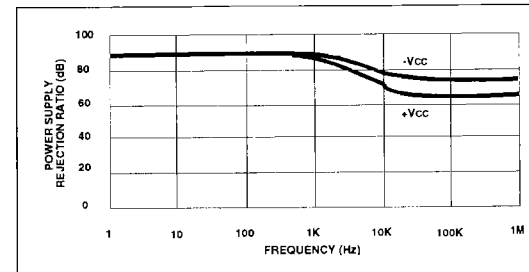


Figure 11. Power Supply Rejection Ratio vs Frequency

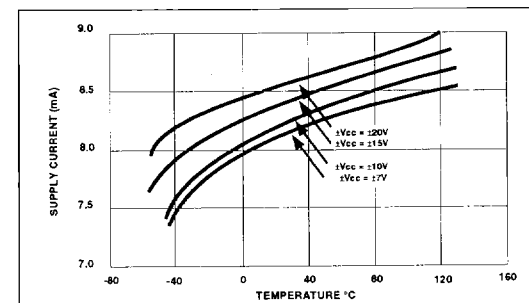


Figure 13. Power Supply Current vs Temperature