

LINEAR INTEGRATED CIRCUITS

DESCRIPTION

The LM101 and LM201 are high performance operational amplifiers featuring high gain, short circuit protection, simplified compensation and excellent temperature stability.

FEATURES

- SHORT CIRCUIT PROTECTION
- OFFSET VOLTAGE NULL CAPABILITY
- LARGE COMMON-MODE AND DIFFERENTIAL VOLTAGE RANGES
- LOW POWER CONSUMPTION
- NO LATCH UP

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	$\pm 22V$
Power Dissipation (Note 1)	500mW
Differential Input Voltage	$\pm 30V$
Input Voltage (Note 2)	$\pm 15V$

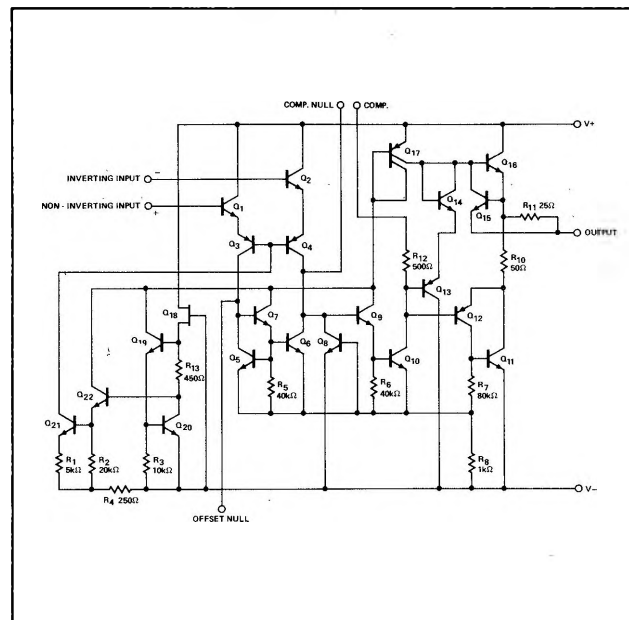
Output Short Circuit Duration	Indefinite
Operating Temperature Range	LM101 $-55^{\circ}C$ to $125^{\circ}C$ LM201 $0^{\circ}C$ to $70^{\circ}C$

Storage Temperature Range	$-65^{\circ}C$ to $150^{\circ}C$
Lead Temperature (Soldering, 60 sec.)	$300^{\circ}C$

NOTES

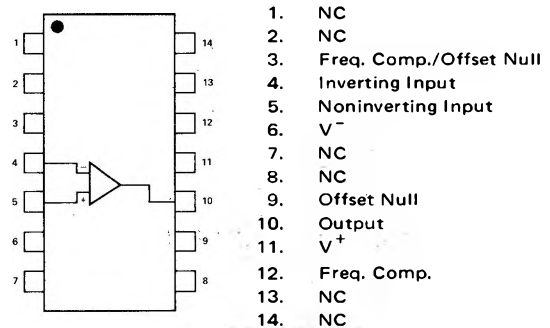
1. Absolute maximum rating holds for all packages. The maximum junction temperature is $150^{\circ}C$ for the LM101 and $100^{\circ}C$ for the LM201. For operation at elevated temperatures, derate according to appropriate thermal resistances given under package information.
2. For supply voltages less than $\pm 15V$, the absolute maximum input voltage is equal to the supply voltage.

EQUIVALENT CIRCUIT



PIN CONFIGURATIONS

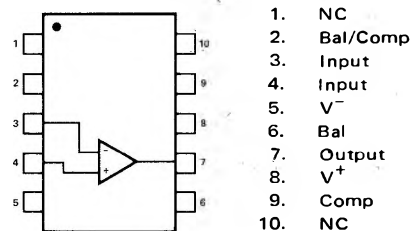
A & F PACKAGE (Top View)



ORDER PART NOS.

LM101N-14	Silicone	LM101D	Ceramic
LM201N-14		LM201D	

G PACKAGE



ORDER PART NOS.

LM101F/LM201F

T PACKAGE

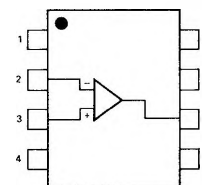


1. Freq. Comp./Offset Null
2. Inverting Input
3. Noninverting Input
4. V^-
5. Offset Null
6. Output
7. V^+
8. Freq. Comp.

ORDER PART NOS.

LM101H/LM201H

V PACKAGE



1. Freq. Comp./Offset Null
2. Inverting Input
3. Noninverting Input
4. V^-
5. Offset Null
6. Output
7. V^+
8. Freq. Comp.

ORDER PART NO. LM201N

SIGNETICS ■ LM101/201 – HIGH PERFORMANCE OPERATIONAL AMPLIFIER

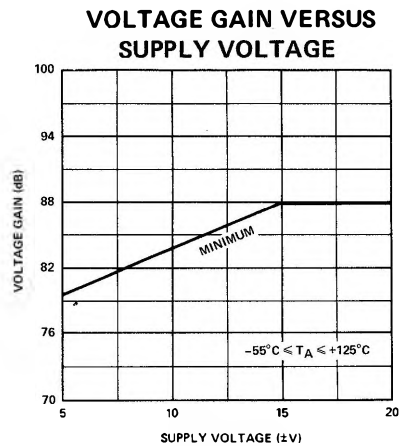
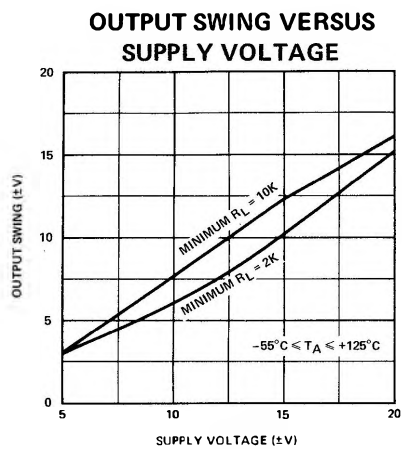
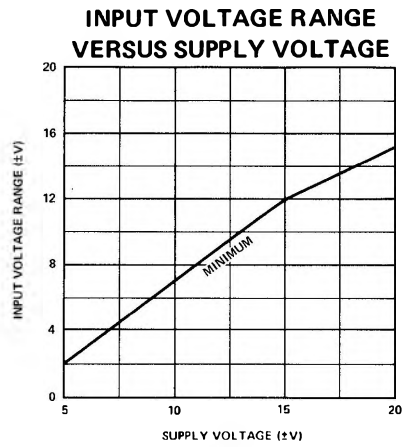
ELECTRICAL CHARACTERISTICS $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $\pm 15\text{V} \leq V_S \leq \pm 20\text{V}$ and $C_1 = 30\text{ pF}$
(unless otherwise specified).

LM101	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNITS
	Input Offset Voltage	$T_A = 25^{\circ}\text{C}$, $R_S \leq 10\text{k}\Omega$		1.0	5.0	mV
	Input Offset Current	$T_A = 25^{\circ}\text{C}$		40	200	nA
	Input Bias Current	$T_A = 25^{\circ}\text{C}$		120	500	nA
	Input Resistance	$T_A = 25^{\circ}\text{C}$	300	800		k Ω
	Supply Current	$T_A = 25^{\circ}\text{C}$, $V_S = \pm 20\text{V}$		1.8	3.0	mA
	Large Signal Voltage Gain	$T_A = 25^{\circ}\text{C}$, $V_S = \pm 15\text{V}$ $V_{OUT} = \pm 10\text{V}$, $R_L \geq 2\text{k}\Omega$	50	160		V/mV
	Input Offset Voltage	$R_S \leq 10\text{k}\Omega$			6.0	mV
	Average Temperature	$R_S \leq 50\Omega$				$\mu\text{V}/^{\circ}\text{C}$
	Coefficient of Input Offset Voltage	$R_S \leq 10\text{k}\Omega$		3.0		$\mu\text{V}/^{\circ}\text{C}$
	Input Offset Current	$T_A = +125^{\circ}\text{C}$		10	200	nA
		$T_A = -55^{\circ}\text{C}$		100	500	nA
	Input Bias Current	$T_A = -55^{\circ}\text{C}$		0.28	1.5	μA
	Supply Current	$T_A = +125^{\circ}\text{C}$, $V_S = \pm 20\text{V}$		1.2	2.5	mA
	Large Signal Voltage Gain	$V_S = \pm 15\text{V}$, $V_{OUT} = \pm 10\text{V}$ $R_L \geq 2\text{k}\Omega$	25			V/mV
	Output Voltage Swing	$V_S = \pm 15\text{V}$, $R_L = 10\text{k}\Omega$ $R_L = 2\text{k}\Omega$	± 12 ± 10	± 14 ± 13		V V
	Input Voltage Range	$V_S = \pm 15\text{V}$	± 12			V
	Common Mode Rejection Ratio	$R_S \leq 10\text{k}\Omega$	70	90		dB
	Supply Voltage Rejection Ratio	$R_S \leq 10\text{k}\Omega$	70	90		dB

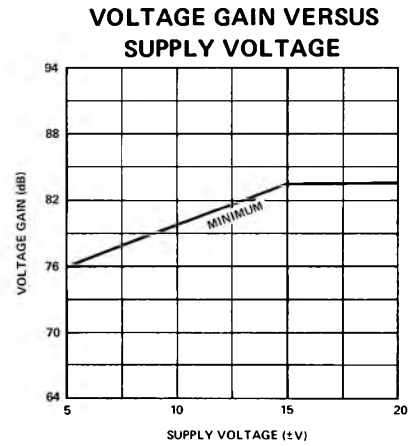
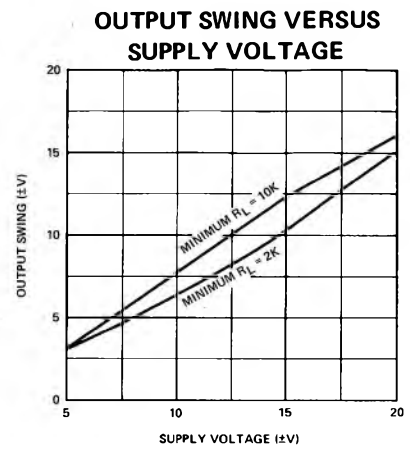
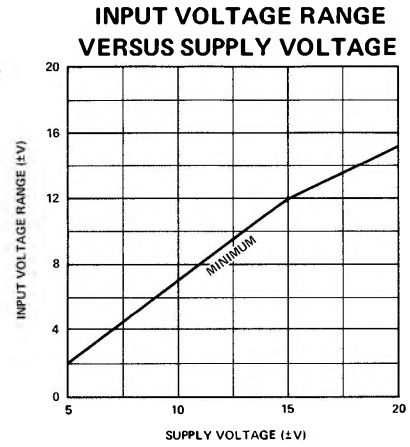
LM201	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNITS
	Input Offset Voltage	$T_A = 25^{\circ}\text{C}$, $R_S \leq 10\text{k}\Omega$		2.0	7.5	mV
	Input Offset Current	$T_A = 25^{\circ}\text{C}$		100	500	nA
	Input Bias Current	$T_A = 25^{\circ}\text{C}$		0.25	1.5	μA
	Input Resistance	$T_A = 25^{\circ}\text{C}$	100	400		k Ω
	Supply Current	$T_A = 25^{\circ}\text{C}$, $V_S = \pm 20\text{V}$		1.8	3.0	mA
	Large Signal Voltage Gain	$T_A = 25^{\circ}\text{C}$, $V_S = \pm 15\text{V}$ $V_{OUT} = \pm 10\text{V}$, $R_L \geq 2\text{k}\Omega$	20	150		V/mV
	Input Offset Voltage	$R_S \leq 10\text{k}\Omega$			10	mV
	Average Temperature	$R_S \leq 50\Omega$		6		$\mu\text{V}/^{\circ}\text{C}$
	Coefficient of Input Offset Voltage	$R_S \leq 10\text{k}\Omega$		10		$\mu\text{V}/^{\circ}\text{C}$
	Input Offset Current	$T_A = +70^{\circ}\text{C}$		50	400	nA
		$T_A = 0^{\circ}\text{C}$		150	750	nA
	Input Bias Current	$T_A = 0^{\circ}\text{C}$		0.32	2.0	μA
	Large Signal Voltage Gain	$V_S = \pm 15\text{V}$, $V_{OUT} = \pm 10\text{V}$ $R_L \geq 2\text{k}\Omega$	15			V/mV
	Output Voltage Swing	$V_S = \pm 15\text{V}$, $R_L = 10\text{k}\Omega$ $R_L = 2\text{k}\Omega$	± 12 ± 10	± 14 ± 13		V V
	Input Voltage Range	$V_S = \pm 15\text{V}$	± 12			V
	Common Mode Rejection Ratio	$R_S \leq 10\text{k}\Omega$	65	90		dB
	Supply Voltage Rejection Ratio	$R_S \leq 10\text{k}\Omega$	70	90		dB

TYPICAL CHARACTERISTIC CURVES

LM101

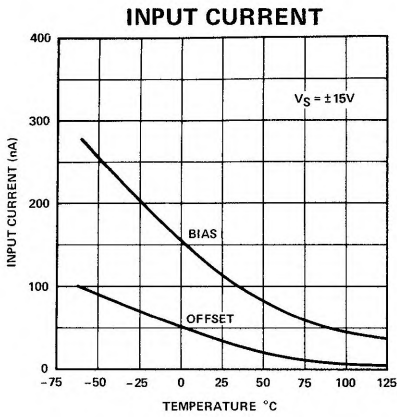
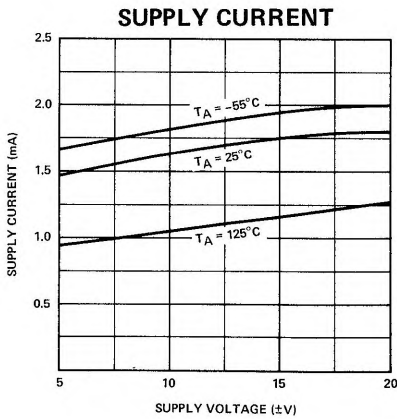
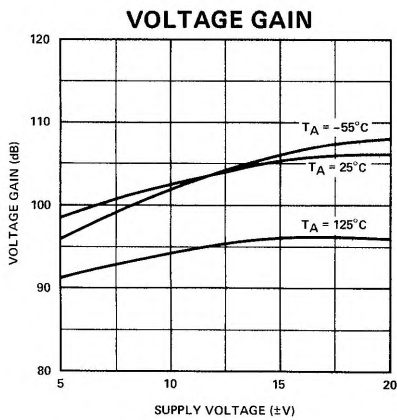


LM201

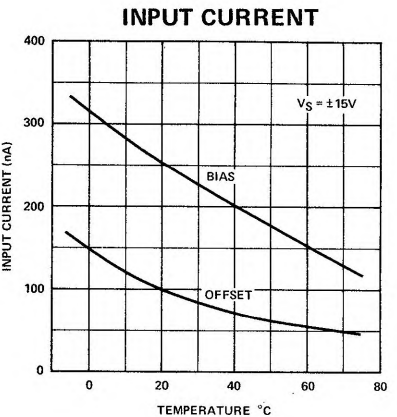
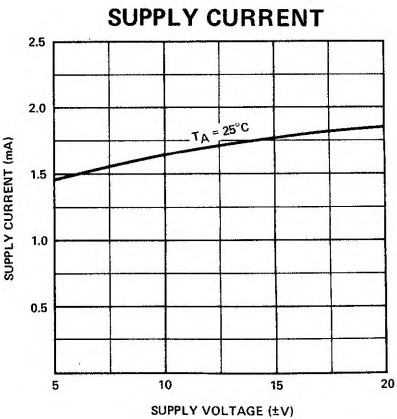
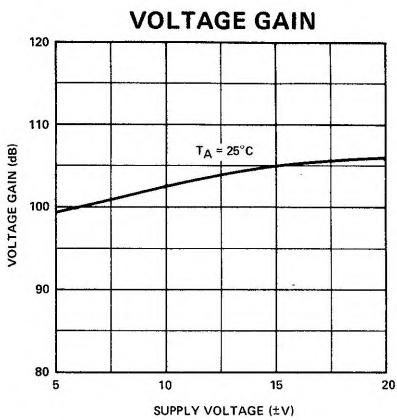


TYPICAL CHARACTERISTIC CURVES (Cont'd.)

LM101

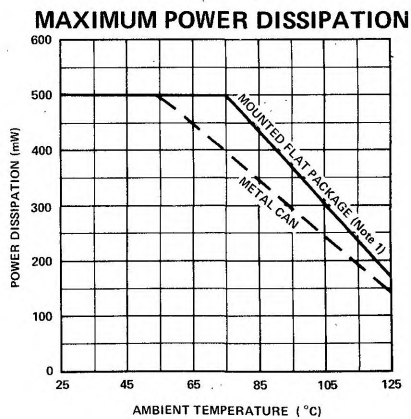
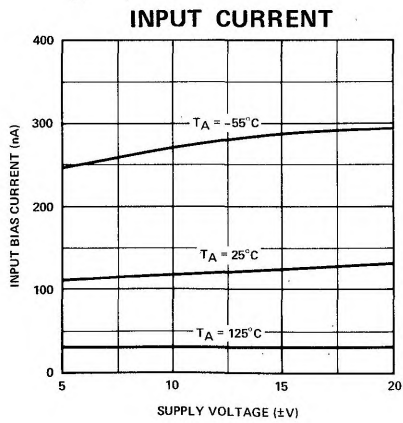
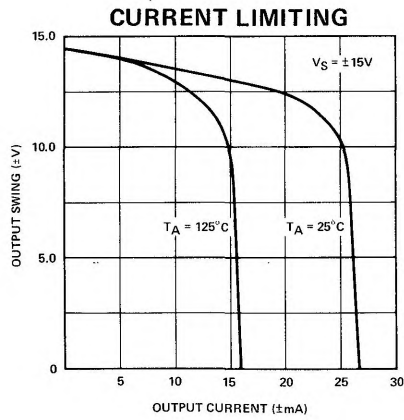


LM201

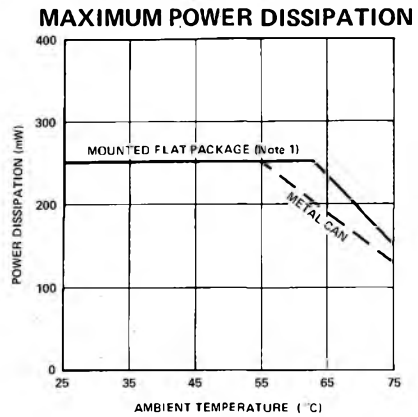
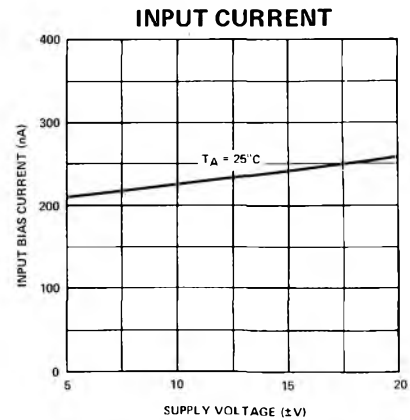
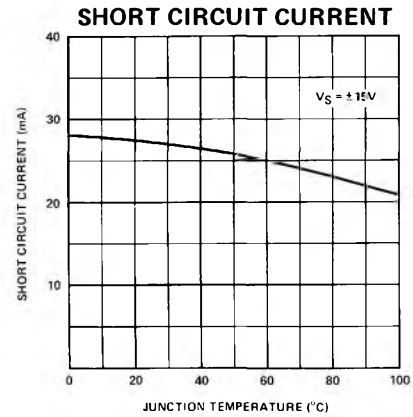


TYPICAL CHARACTERISTIC CURVES (Cont'd.)

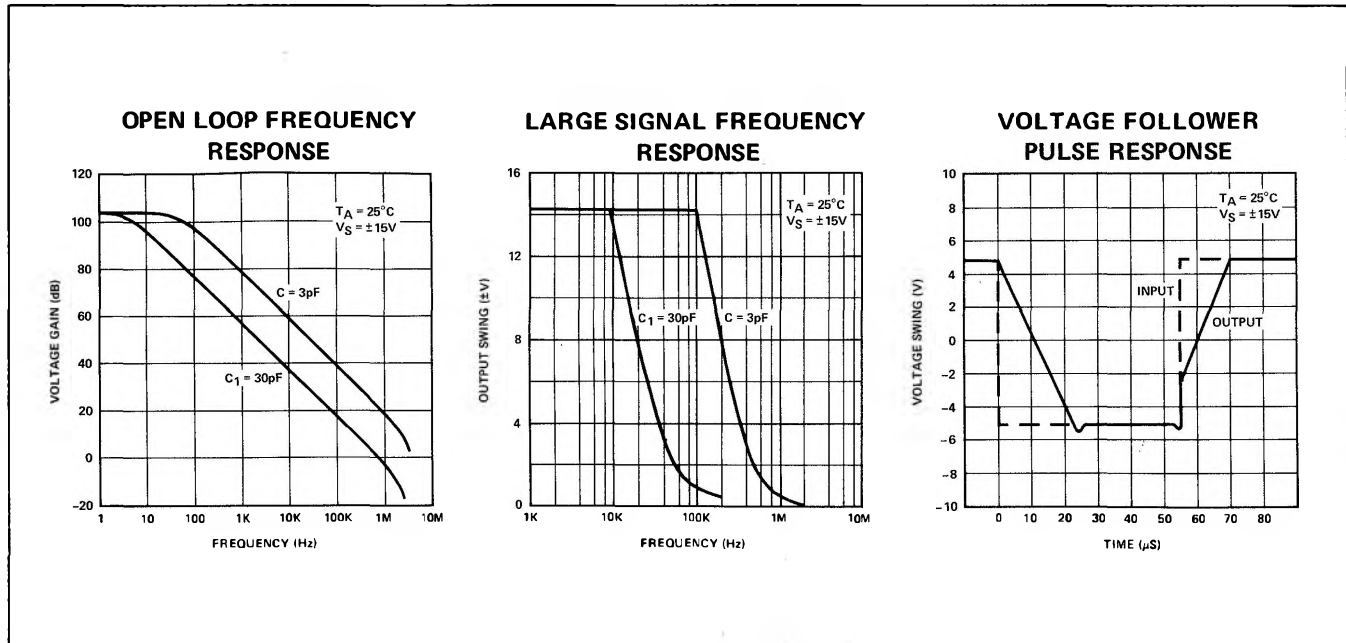
LM101



LM201



TYPICAL CHARACTERISTIC CURVES (Cont'd.)



TYPICAL APPLICATIONS (Pin numbers shown refer to T or V package only)

