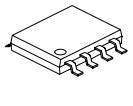
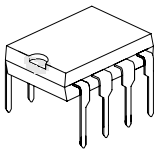
TL062

LINEAR INTEGRATED CIRCUIT

LOW POWER DUAL J-FET OPERATIONAL AMPLIFIER



SOP-8



DIP-8

*Pb-free plating product number: TL062L

■ DESCRIPTION

The UTC **TL062** is a high speed J-FET input dual operational amplifier. It incorporates well matched, high voltage J-FET and bipolar transistors in a monolithic integrated circuit. The device features high slew rates, low input bias and offset currents, and low offset voltage temperature coefficient.

■ FEATURES

* Very low power consumption
* Wide common-mode (up to V_{CC}+) and differential voltage range
* Low input bias and offset current
* Output short-circuit protection
* High input impedance J-FET input stage
* Internal frequency compensation
* Latch up free operation
* Typical supply current: 200μA

■ ORDERING INFORMATION

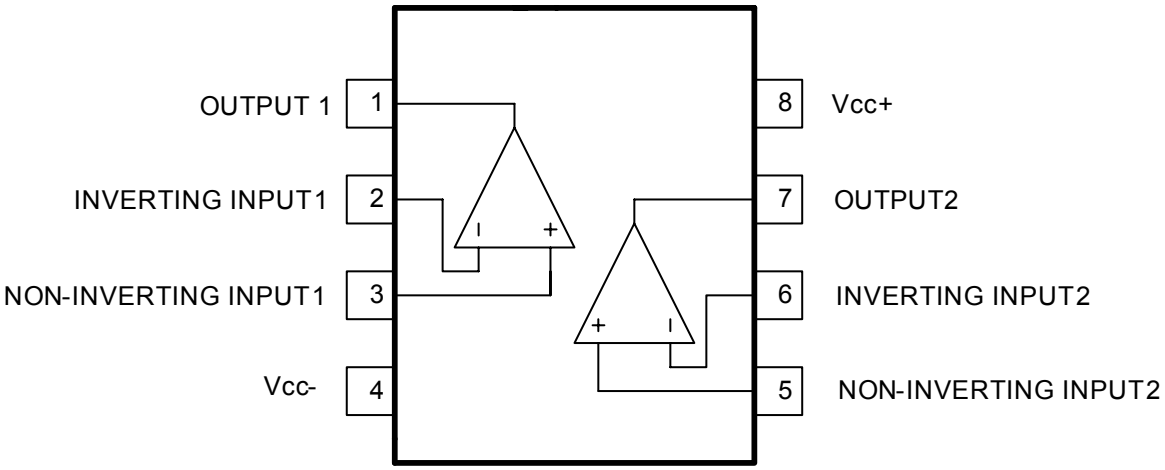
Ordering Number		Package	Packing
Normal	Lead Free Plating		
TL062-D08-T	TL062L-D08-T	DIP-8	Tube
TL062-S08-R	TL062L-S08-R	SOP-8	Tape Reel
TL062-S08-T	TL062L-S08-T	SOP-8	Tube

TL062L-D08-T

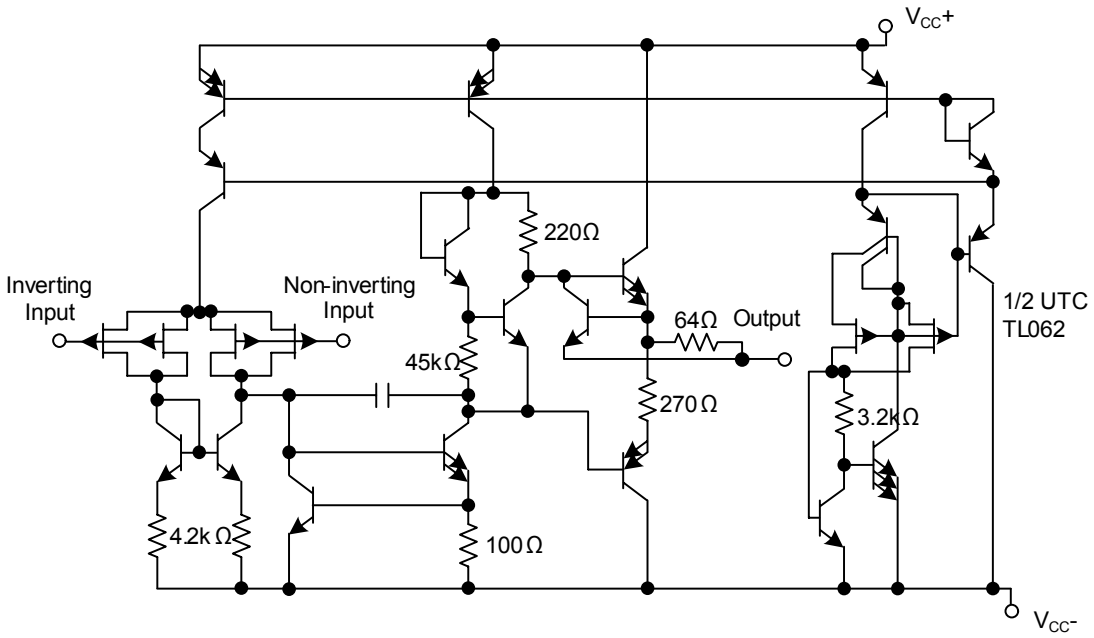
(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) T: Tube, R: Tape Reel
(2) D08: DIP-8, S08: SOP-8
(3) L: Lead Free Plating, Blank: Pb/Sn

■ PIN CONFIGURATIONS



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage (note 1)	V_{CC}	±18	V
Input Voltage (note 2)	V_{IN}	±15	V
Differential Input Voltage (note 3)	$V_{I(DIFF)}$	±30	V
Power Dissipation	P_D	680	mW
Output Short-Circuit Duration (Note 4)		Infinite	
Operating Free Air Temperature	T_{OPR}	0 ~ +70	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Notes: 1. All voltage values, except differential voltage, are with respect to the zero reference level (ground) of the supply voltages where the zero reference level is the midpoint between V_{CC}- and V_{CC}+.
2. The magnitude of the input voltage must never exceed the magnitude of the supply voltage or 15 volts, whichever is less.
3. Differential voltages are at the non-inverting input terminal with respect to the inverting input terminal.
4. The output may be shorted to ground or to either supply. Temperature and/or supply voltages must be limited to ensure that the dissipation rating is not exceeded.

■ ELECTRICAL CHARACTERISTICS

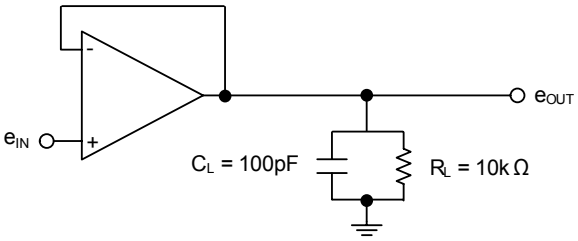
(V_{CC}=±15V, Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{I(OFF)}$	Rs=50Ω	Ta=25°C		3	15	mV
			T_{MIN}≦Ta≦T_{MAX}			20	mV
Input Common Mode Voltage	$V_{I(CM)}$			±11	-12~+15		V
Output Voltage Swing	$V_{O(SW)}$	R_L=10kΩ,C_L=100pF	Ta=25°C	20	27		V
			T_{MIN}≦Ta≦T_{MAX}	20			
Large Signal Voltage Gain	G_V	R_L=10Ω, V_{OUT}=±10V	Ta=25°C	3	6		V/mV
			T_{MIN}≦Ta≦T_{MAX}	3			
Temperature Coefficient of Input Offset Voltage	$\Delta V_{I(OFF)}$	Rs=50Ω			10		μV/°C
Supply Current	I_{CC}	Ta=25°C, no load, no signal			250	350	μA
Input Offset Current*	$I_{I(OFF)}$	Ta=25°C			5	200	pA
		T_{MIN}≦Ta≦T_{MAX}				5	nA
Input Bias Current*	$I_{I(BIAS)}$	Ta=25°C			30	400	pA
		T_{MIN}≦Ta≦T_{MAX}				10	nA
Gain Bandwidth Product	GB_W	Ta=25°C, R_L=10kΩ, C_L=100Pf			1		MHz
Input Resistance	R_{IN}				10^{12}		Ω
Common Mode Rejection Ratio	CMR	R_S=50Ω		70	76		dB
Supply Voltage Rejection Ratio	SVR	R_S=50Ω		70	95		dB
Slew Rate	SR	V_{IN}=10V, R_L=10kΩ, C_L=100pF, Gv=1		0.91	1.1		V/μs
Channel Separation	V_{01}/V_{02}	Gv=100, Ta=25°C			120		dB
Total Power Consumption		Ta=25°C, no load, no signal			6	7.5	mW
Rise Time	t_R	V_{IN}=20mV, R_L=10kΩ, C_L=100pF, Gv=1			0.2		μs
Overshoot Factor	Kov	V_{IN}=20mV, R_L=10kΩ, C_L=100pF, Gv=1			10		%
Equivalent Input Noise Voltage	eN	R_S=100Ω, f=1KHz			42		

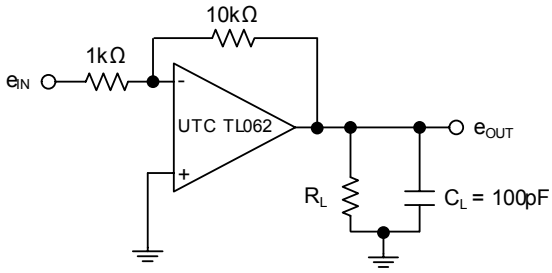
*The Input bias currents of a FET-input operational amplifier are normal junction reverse currents, which are temperature sensitive. Pulse techniques must be used that will maintain the junction temperature as closes to the ambient temperature as possible.

■ PARAMETER MEASUREMENT INFORMATION

Voltage Follower

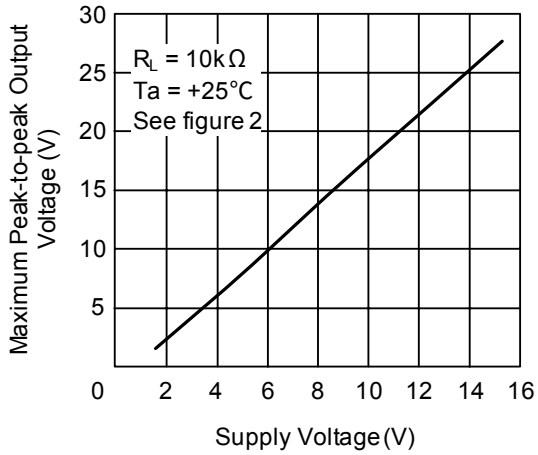


Gain-of-10 Inverting Amplifier

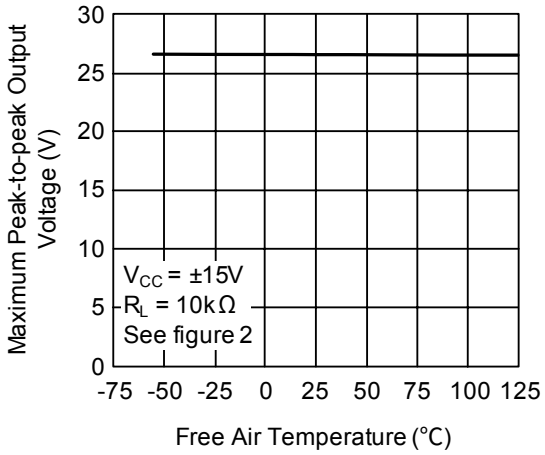


■ TYPICAL CHARACTERISTICS

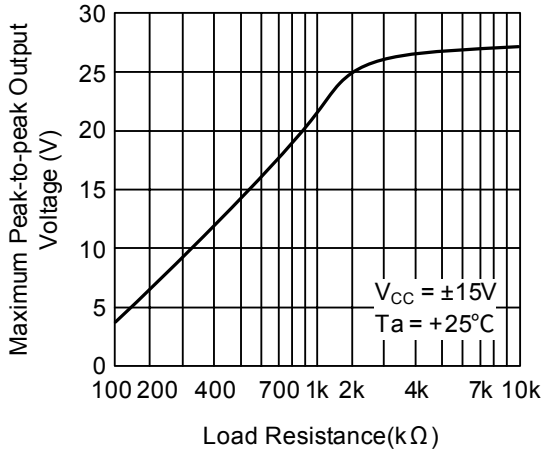
Maximum Peak-to-Peak Output Voltage vs. Supply Voltage



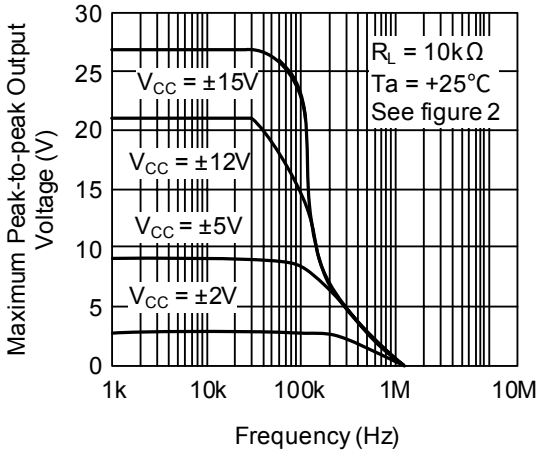
Maximum Peak-to-Peak Output Voltage vs. Free Air Temp.



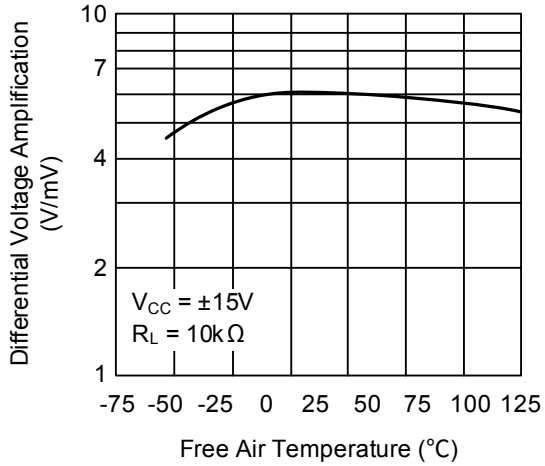
Maximum Peak-to-Peak Output Voltage vs. Load Resistance



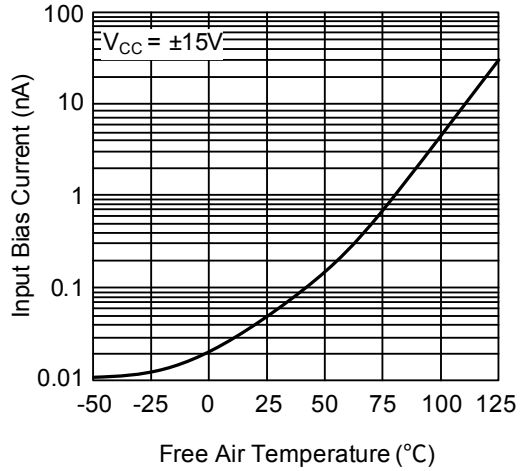
Maximum Peak-to-Peak Output Voltage vs. Frequency



Differential Voltage Amplification vs. Free Air Temperature

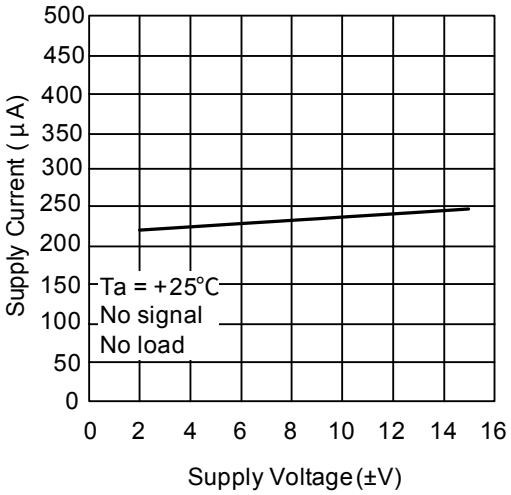


Input Bias Current vs. Free Air Temperature

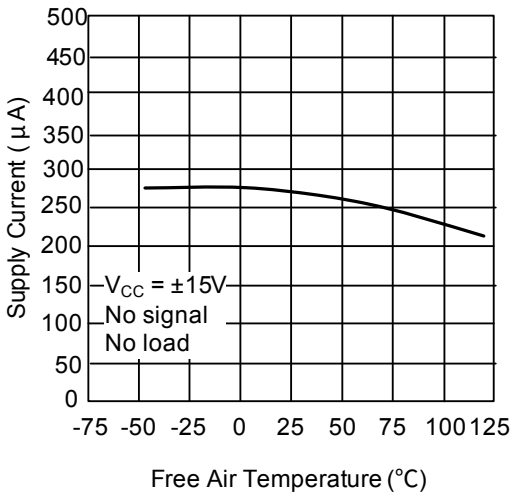


■ TYPICAL CHARACTERISTICS(Cont.)

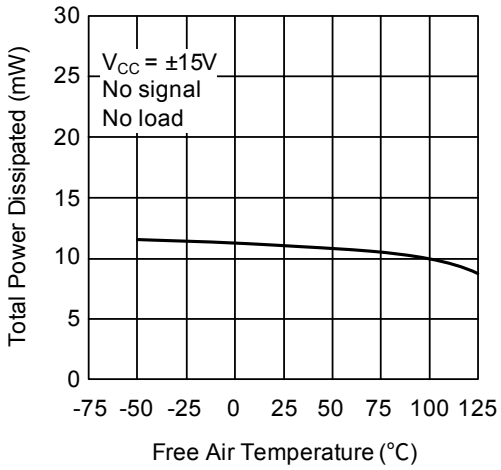
Supply Current Per Amplifiervs. Supply Voltage



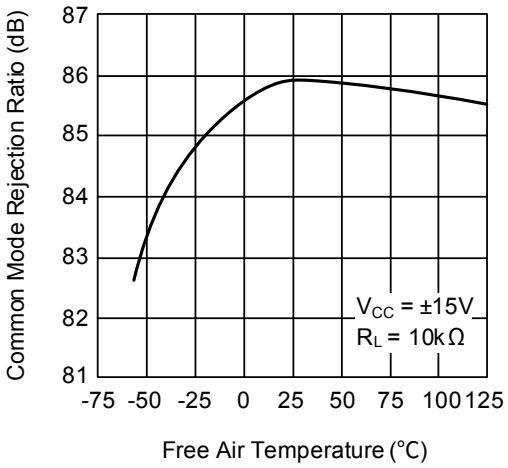
Supply Current Per Amplifiervs. Free Air Temperature



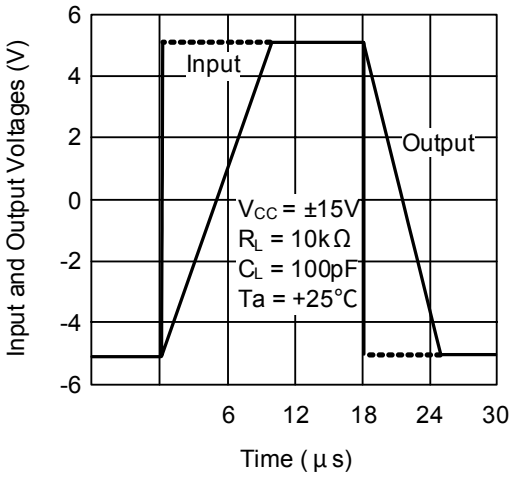
Total Power Dissipated vs. Free Air Temperature



Common Mode Rejection Ratiovs. Free Air Temperature



Voltage Follower Large Signal Pulse Response



Output Voltage vs. Elapsed Time