Preliminary – **LD6513**

Dual Operational Amplifiers

Features

- Wide range of supply voltages
- Low supply current drain independent of the supply voltage
- Low input biasing current
- Low input offset voltage and offset current
- Input common-mode voltage range including the ground
- Differential input voltage range equal to the power supply voltage
- DC voltage gain 100V/mV (typical)
- Internal frequency compensation

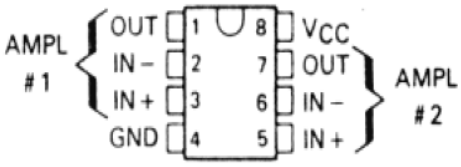
General Description

The LD6513 consists of two independent, high-gain, (internally) frequency-compensated operational amplifiers, which were designed specifically to operate from a single power supply over a wide range of voltages. The device operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage.
Its application areas include transducer amplifiers, dc gain blocks and all the conventional operational amplifier circuits.

Applications

- Transducer amplifiers
- DC gain blocks
- Op amp circuits.

Package Pin Out



Ordering Information

		Packing Options	
Part No.	Package	Tube (TU)	Tape & Reel (TR)
LD6513	SOP-8	LD6513S1-TU	LD6513S1-TR

- Package material default is “Green” package.

Product Marking

LD8888
SSSSS…
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- ✧ Line 1 – “LD” is a fixed character
  8888: product name
- ✧ Line 2 – SSSSS…: lot number

Absolute Maximum Ratings

Parameter	Maximum	Unit
Supply voltage, V_{CC}	+45	V
V_{IN} to GND	-0.3 to +45	V
Input current, I_{IN}	50mA at V_{IN} = - 0.3V	mA
Operating Junction Temperature	-40 to +125	°C
ESD	700	V

The values beyond the boundaries of absolute maximum rating may cause the damage to the device. Functional operation in this context is not implied. Continuous use of the device at the absolute rating level might influence device reliability. All voltages have their reference to device ground.

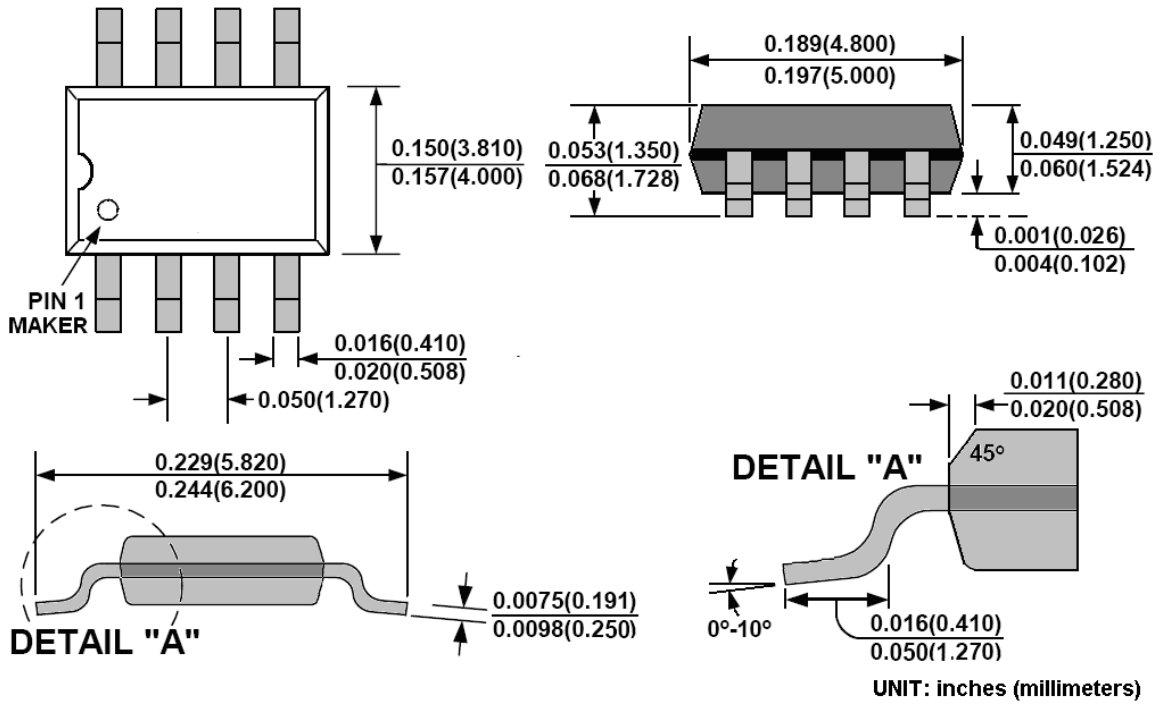
Electrical Characteristics

V_{CC}=5V, T_A=25°C unless specified, otherwise minimum and maximum values are guaranteed by production testing requirements.

Parameter	Symbol	Condition		Min	Typ.	Max	Unit
Input							
Input offset voltage	V_{IO}	V_{cc} =5V to MAX, V_{IC}=V_{ICR}min, V_O=1.4V	25°C	–	3	7	mV
			-40~ +125°C	–	–	9	
Average temperature coefficient of input offset voltage	V_{IOA}	–	-40~ +125°C	–	7	–	μV/°C
Input offset current	I_{IO}	V_O=1.4V	25°C	–	2	50	nA
			-40~ +125°C	–	–	150	
Average temperature coefficient of input offset current	I_{IOA}	–	-40~ +125°C	–	10	–	pA/°C
Input bias current	I_{IB}	V_O=1.4V	25°C	–	-20	-250	nA
			-40~ +125°C	–	–	-500	
Common-mode input voltage range	V_{ICR}	V_{cc} = 5V to MAX	25°C	0 to Vcc-1.5	–	–	V
			-40~ +125°C	0 to Vcc-2	–	–	
Input							
High-level output voltage	V_{OH}	V_{cc} = MAX, R_L = 2KΩ	-40~ +125°C	26	–	–	V
		V_{cc} = MAX, R_L = 10KΩ	-40~ +125°C	27	28	–	
Low-level output voltage	V_{OL}	R_L = 10KΩ	-40~ +125°C	–	5	20	mV
Large-signal differential voltage amplification	A_{VD}	V_{cc}= 15V, V_O=1~ 11V, R_L ≧ 2KΩ	25°C	25	100	–	V/mV
			-40~ +125°C	15	–	–	
Common-mode rejection ratio	CMRR	V_{cc} = 5V to MAX, V_{IC} = $V_{ICR\ min}$	25°C	65	80	–	dB
k_{SVR} Supply voltage rejection ratio ($\triangle V_{cc}/\triangle V_{IO}$)	k_{SVR}	V_{cc} = 5V to MAX	25°C	65	100	–	dB
Vo1/Vo2 Crosstalk attenuation		f =1KHz to 20KHz	25°C	–	120	–	dB
Output current	I_O	V_{cc} = 15V, V_{ID}=1V, V_o= 0	25°C	-20	-30	–	mA
			-40~ +125°C	-10	–	–	
		V_{cc} = 15 V, V_{ID}= -1V, V_o=15V	25°C	10	20	–	
			-40~ +125°C	5	–	–	
		V_{cc} =15V, V_{ID}= -1V, V_o=2V	25°C	15	28	–	
		V_{ID}= -1V, V_O = 200mV	25°C	12	50	–	μA
Short-circuit output current	I_{os}	V_{cc} at 5V, GND at -5V, V_O=0	25°C	–	±50	±70	mA
Supply current (four amplifiers)	I_{cc}	V_O = 2.5 V, No load	-40~ +125°C	–	0.7	1.2	mA
		V_{cc}=MAX, V_O=0.5V_{cc}, No load	-40~ +125°C	–	1	2	
Slew rate		V_{CC}=15V, V_{IN}= 0.5 to 3V, R_L=2KΩ, C_L= 100pF, unity gain	25°C	–	0.35	–	V/μS
Gain bandwidth		V_{CC}=30V, f=100kHz, R_L= 2KΩ, V_{IN}=10mV, C_L= 100pF	25°C	–	700	–	KHz
Total harmonic distortion		f=1KHz, A_V=20dB, R_L=2KΩ, V_O=2Vpp, C_L=100pF,	25°C	–	0.04	–	%

*All characteristics are measured under the open-loop conditions with zero common-mode input voltage, unless otherwise specified. MAX V_{CC} for testing purposes is 36V, $V_{ccabsmax}$ = 45V. Full range is -40°C to +125°C.

Package Outline
SOP-8:



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