

L272/L272A

Dual Power Operational Amplifier

Features

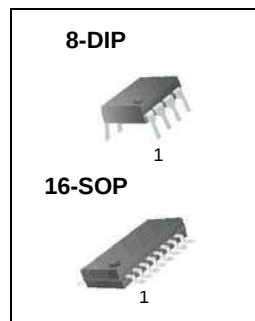
- Output Current up to 0.7A
- Operates at Low Voltage ($V_{S(MIN)} = 4V$)
- Low Saturation Voltage ($I_p = 0.5A$, $V_O = 1.5V$)
- Thermal Shutdown (TSD = 160°C)
- Ground Compatible Inputs
- Large Common Mode & Differential Mode Range

Applications

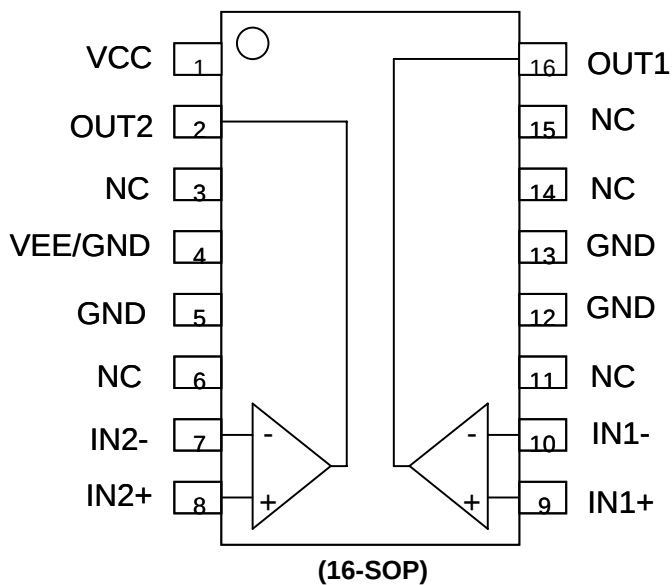
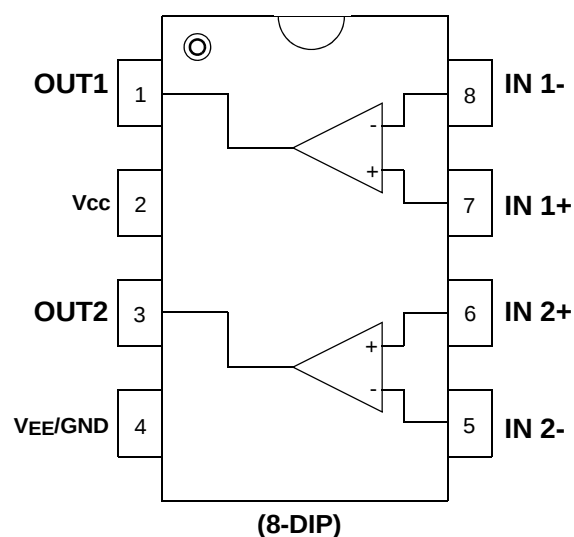
- Servo Amplifier
- Power Supply
- Compact Disc
- VCR
- Monitor

Description

The L272 and L272A are high-power dual operational amplifier provided as a 8-DIP and 16-SOP package. The operational amplifier is designed for low impedance loads and will deliver output current up to 0.7A. The L272A offers tighter specifications for input bias current, input offset voltage and input offset currents. The L272 and L272A can be used in a wide range of applications including power supply, VCR, monitor, servo amplifier, compact disc, etc.



Internal Block Diagram



Pin Definitions

Pin Number		Pin Name	Pin Function Description
8-DIP	16-SOP		
1	16	OUTPUT1	Amp Output 1
2	1	VCC	Positive Supply Voltage
3	2	OUTPUT2	Amp Output 2
4	4/5/12/13	VEE/GND	Negative Supply Voltage (GND)
5	7	INPUT-2	Amp Negative Input 2
6	8	INPUT+2	Amp Positive Input 2
7	9	INPUT+1	Amp Positive Input 1
8	10	INPUT-1	Amp Negative Input 1

Absolute Maximum Ratings (Note1)

Parameter	Symbol	Value	Unit
Supply Voltage	VCC	40	V
Input Voltage	V _I	V _S	V
Differential Input Voltage	V _I (DIFF)	±V _S	V
DC Output Current	I _O	0.7	A
Peak Output Current (Non Repetitive)	I _P	1	A
Power Dissipation At: T _{amb} = 50°C	P _{tot}	1	W
Operating Temperature Range	T _{op}	-25 to 85	°C
Storage and Junction Temperature	T _{stg} , T _j	-40 to 150	°C

Note 1: The “Absolute Maximum Ratings” are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the Electrical Characteristics tables are not guaranteed at the absolute maximum ratings.

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Ambient Max. 8-DIP 16-SOP	R _{θja}	100 190	°C/W

Electrical Characteristics (L272)

($V_{CC} = +12V$, $V_{EE} = -12V$, $T_A = 25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage ($V_{CC} - V_{EE}$)	V_S	-	4	-	28	V
Supply Current	I_S	$V_O = V_{CC}/2$ $V_{CC} = 24V$, $V_{EE} = 0V$ $V_{CC} = 12V$, $V_{EE} = 0V$	-	8 7.5	12 11	mA mA
Input Bias Current	I_{BIAS}	-	-	0.3	2.5	μA
Input Offset Voltage	V_{IO}	-	-	15	60	mV
Input Offset Current	I_{IO}	-	-	50	250	nA
Slew Rate	SR	$V_{in} = 1V_{pp}$, Unit Gain	-	1	-	$V/\mu s$
Gain-Bandwidth Product	GBW	-	-	350	-	kHz
Input Resistance	R_I	-	500	-	-	$k\Omega$
Large-Signal Voltage Gain	G_V	$V_{O(pp)} = \pm 10V$	65	75	-	dB
Input Noise Voltage	e_N	$B = 20kHz$	-	10	-	μV
Input Noise Current	I_N	$B = 20kHz$	-	200	-	pA
Common Mode Rejection Ratio	CMRR	-	60	75	-	dB
Supply Voltage Rejection Ratio	PSRR	$V_{CC} = +15V$, $V_{EE} = -15V$ $V_{CC} = +5V$, $V_{EE} = -5V$	54	62	-	dB
Output Voltage Swing	V_O	$V_{CC} = 24V$, $V_{EE} = 0V$ $I_p = 0.1A$ $I_p = 0.5A$	21 21	23 22.5	- -	V V
Channel Separation	C_S	$f = 1kHz$, $R_L = 10\Omega$, $G_V = 30dB$	-	60	-	dB
Total Harmonic Distortion	THD	$f = 1kHz$, $G_V = 1dB$, $R_L = \infty$	-	0.5	-	%
Thermal shutdown Temperature (Note2)	TSD	-	-	160	-	$^{\circ}C$

Note 2: Guaranteed by design. Not 100% tested in production.

Electrical Characteristics (L272A)

($V_{CC} = +12V$, $V_{EE} = -12V$, $T_A = 25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage ($V_{CC} - V_{EE}$)	V_S	-	4	-	28	V
Supply Current	I_S	$V_O = V_{CC}/2$ $V_{CC} = 24V$, $V_{EE} = 0V$ $V_{CC} = 12V$, $V_{EE} = 0V$	-	8 7.5	12 11	mA mA
Input Bias Current	I_{BIAS}	-	-	0.1	1	μA
Input Offset Voltage	V_{IO}	-	-	7	30	mV
Input Offset Current	I_{IO}	-	-	20	100	nA
Slew Rate	SR	$V_{in} = 1V_{pp}$, Unit Gain	-	1	-	V/ μs
Gain-Bandwidth Product	GBW	-	-	350	-	kHz
Input Resistance	R_I	-	500	-	-	k Ω
Large-Signal Voltage Gain	G_V	$V_{O(pp)} = \pm 10V$	65	75	-	dB
Input Noise Voltage	e_N	$B = 20kHz$	-	10	-	μV
Input Noise Current	I_N	$B = 20kHz$	-	200	-	pA
Common Mode Rejection Ratio	CMRR	-	60	75	-	dB
Supply Voltage Rejection Ratio	PSRR	$V_{CC} = +15V$, $V_{EE} = -15V$ $V_{CC} = +5V$, $V_{EE} = -5V$	54	62	-	dB
Output Voltage Swing	V_O	$V_{CC} = 24V$, $V_{EE} = 0V$ $I_p = 0.1A$ $I_p = 0.5A$	21 21	23 22.5	- -	V V
Channel Separation	C_S	$f = 1kHz$, $R_L = 10\Omega$, $G_V = 30dB$	-	60	-	dB
Total Harmonic Distortion	THD	$f = 1kHz$, $G_V = 1dB$, $R_L = \infty$	-	0.5	-	%
Thermal shutdown Temperature (Note3)	TSD	-	-	160	-	$^{\circ}C$

Note 3 : Guaranteed by design. Not 100% tested in production.

Typical Performance Characteristics

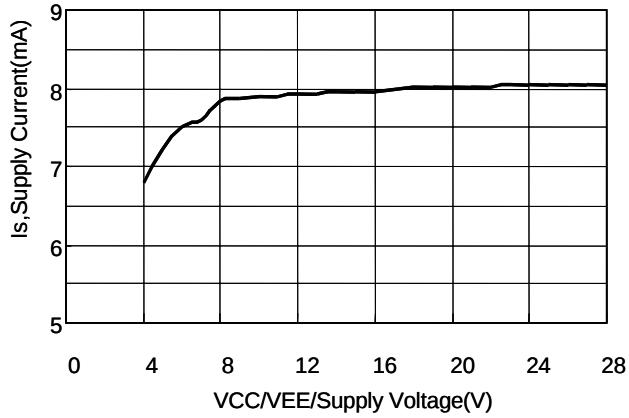


Figure 1. Supply Voltage vs Supply Current with No Load

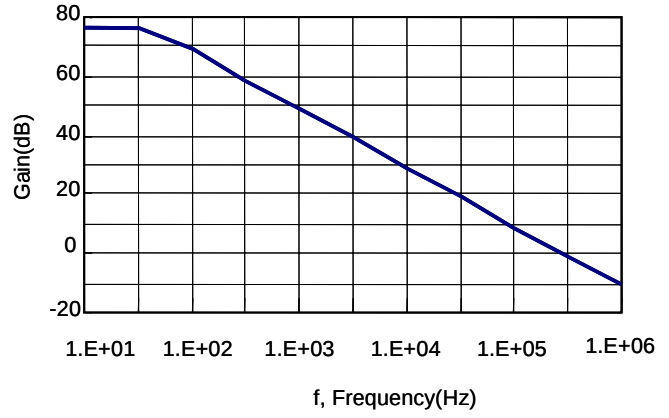


Figure 2. Open Loop Voltage Gain

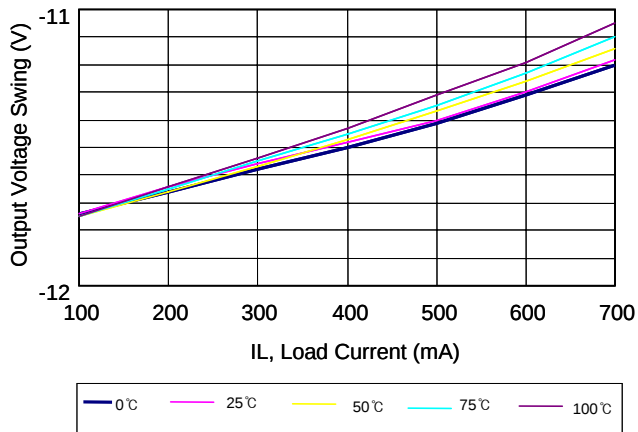


Figure 3-1. Output Voltage Swing vs Load Current

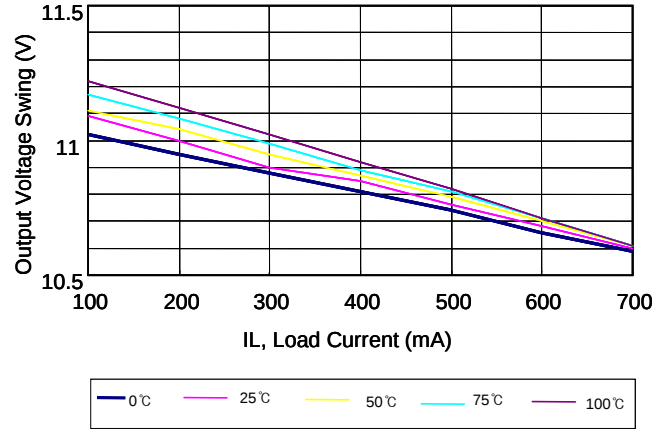


Figure 3-2. Output Voltage Swing vs Load Current

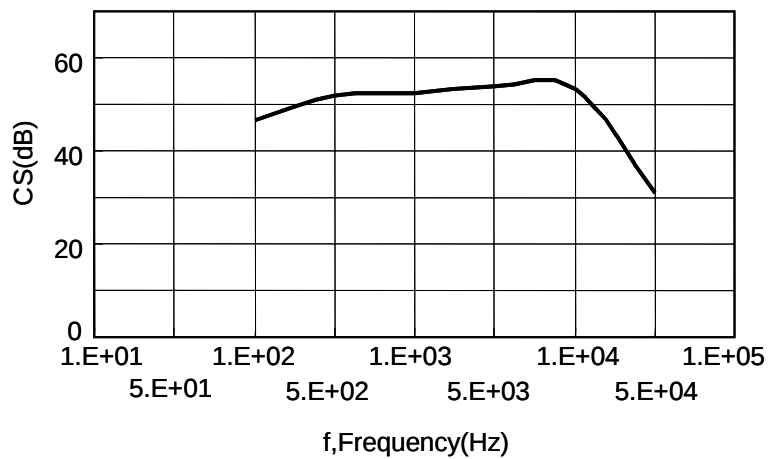
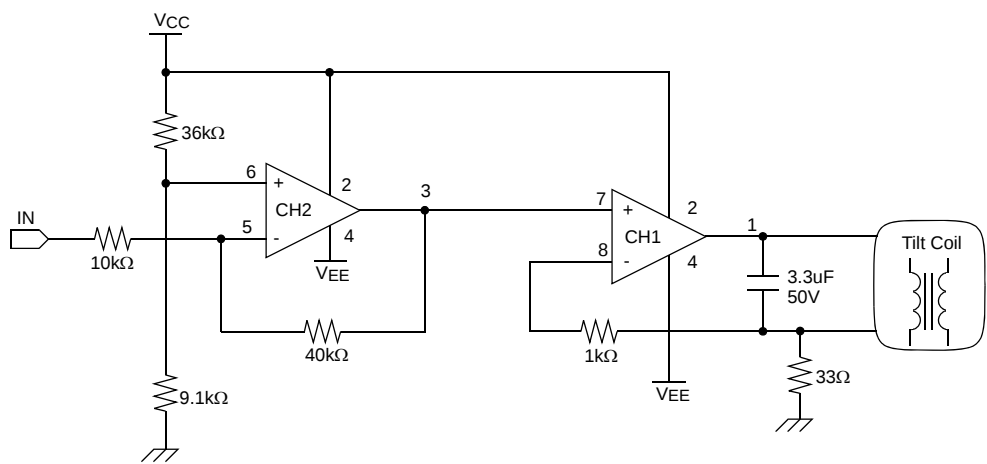


Figure 4. Channel Separation vs Frequency

Applications



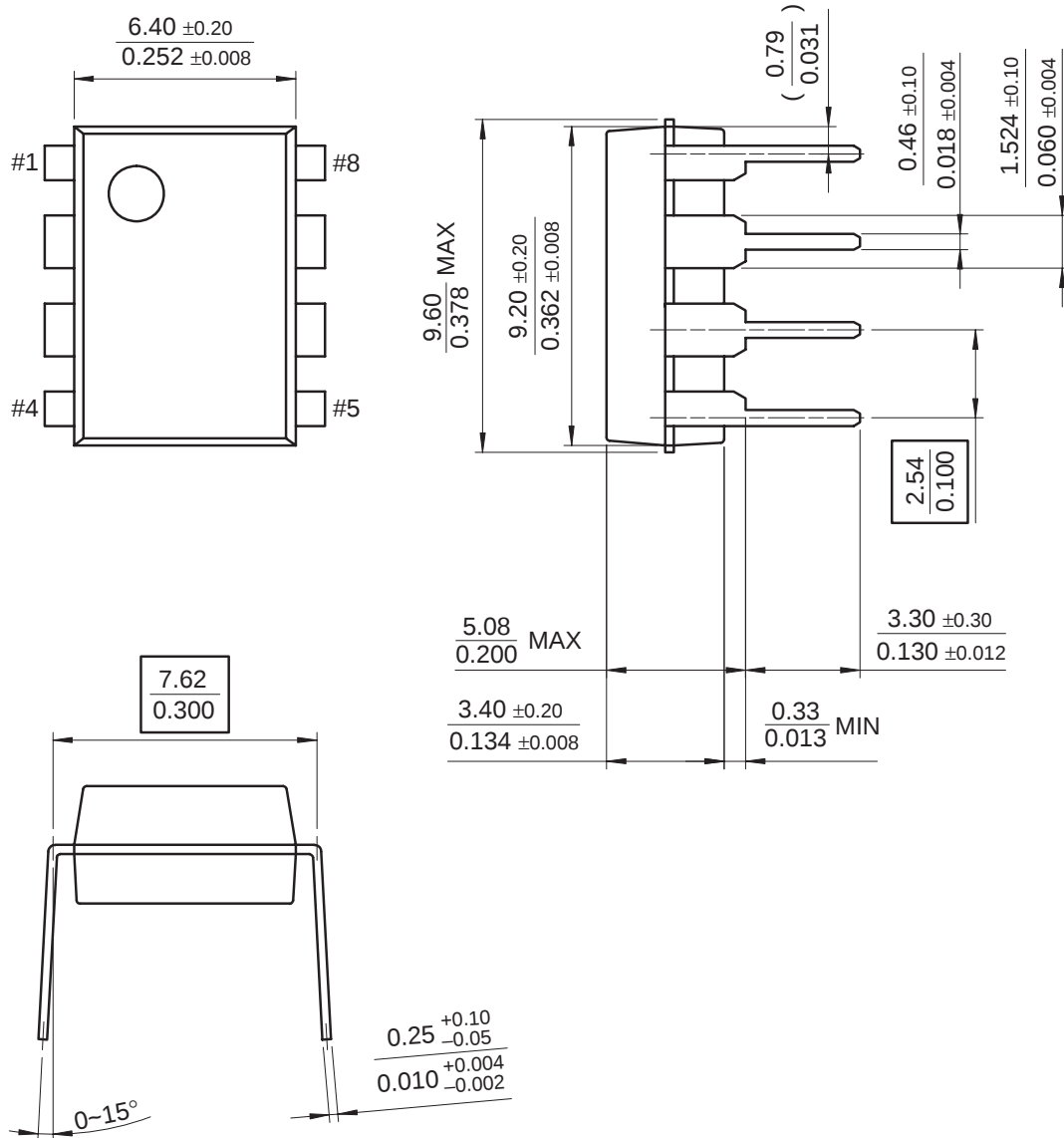
< Tilt Coil Current Control Circuit in Monitor, 8-DIP Package>

Mechanical Dimensions

Package

Dimensions in millimeters

8-DIP

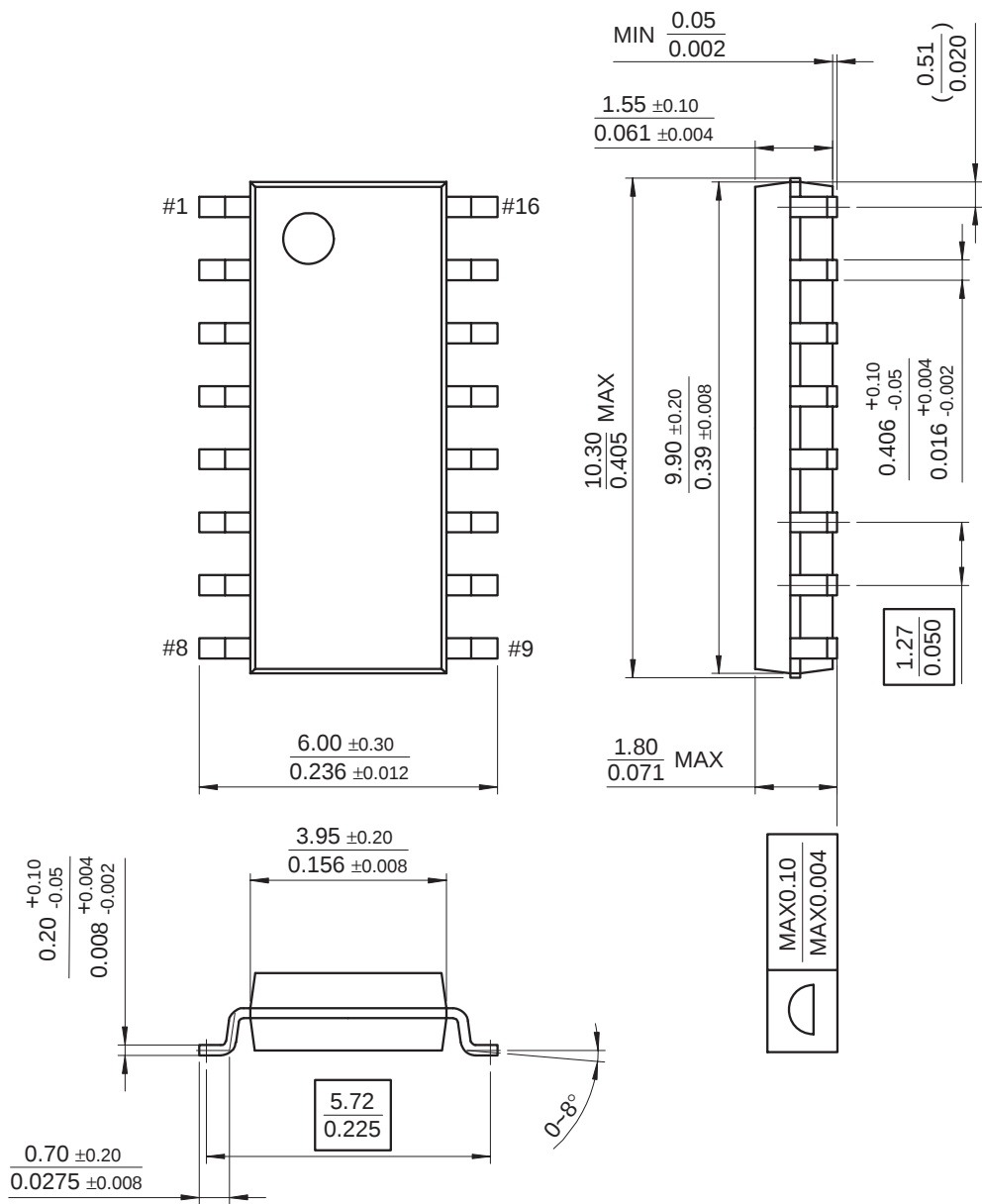


Mechanical Dimensions (Continued)

Package

Dimensions in millimeters

16-SOP



Ordering Information

Product Number	Package	Packing	Operating Temperature
L272M	8-DIP	Tube	-25°C ~ +85°C
L272D2	16-SOP	Tube	
L272D2TF	16-SOP	Tape and Reel	
L272AM	8-DIP	Tube	
L272AD2	16-SOP	Tube	
L272AD2TF	16-SOP	Tape and Reel	

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