

# KA334

## Dual Power Operational Amplifier

### Features

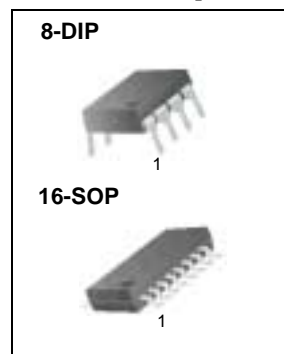
- Output Current upto 0.7A
- Operates at Low Voltage ( $V_{S(MIN)}=4V$ )
- Low Saturation Voltage ( $I_p=0.5A$ ,  $V_O=1.5V$ )
- Thermal Shutdown ( $T_{SD}=160^{\circ}C$ )
- Ground Compatible Inputs
- Large Common mode & Differential mode Range

### Applications

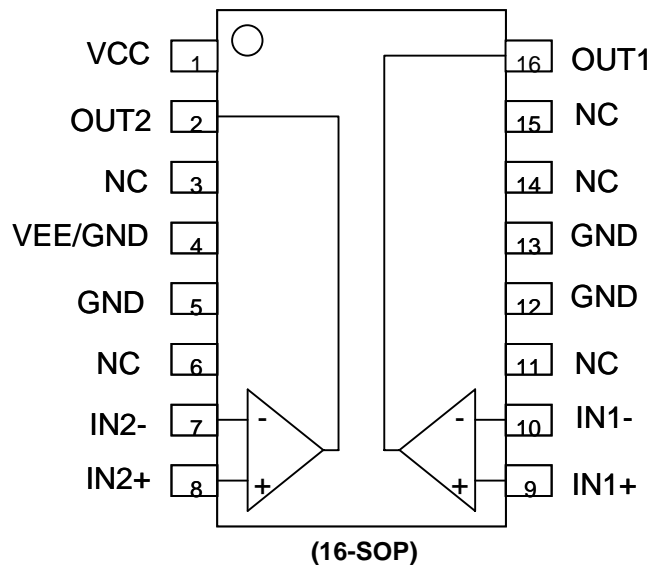
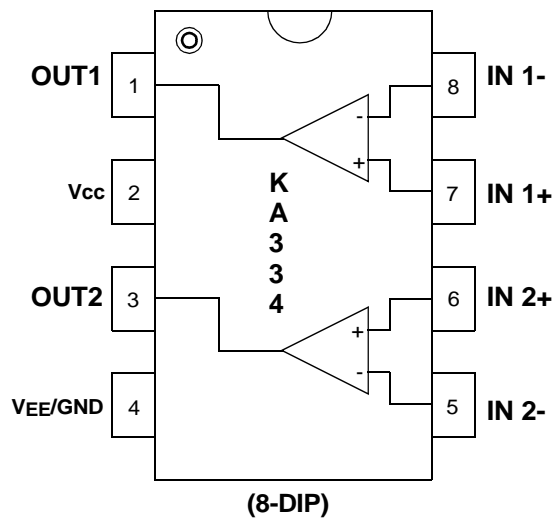
- Servo Amplifier
- Power Supply
- Compact Disc
- VCR
- Monitor

### Description

The KA334 is a 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 upto 0.7A. The KA334 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

Parameter	Symbol	Value	Unit
Supply Voltage	VCC	40	V
Input Voltage	V <sub>I</sub>	V <sub>S</sub>	V
Differential Input Voltage	V <sub>I(DIFF)</sub>	±V <sub>S</sub>	V
DC Output Current	I <sub>O</sub>	0.7	A
Peak Output Current (non repetitive)	I <sub>P</sub>	1	A
Power dissipation at: T <sub>amb</sub> =50°C	P <sub>tot</sub>	1	W
Operating Temperature Range	T <sub>op</sub>	-25 to 85	°C
Storage and Junction Temperature	T <sub>stg</sub> , T <sub>j</sub>	-40 to 150	°C

## Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Ambient Max. 8-DIP 16-SOP	R <sub>θja</sub>	100 190	°C/W

## Electrical Characteristics

(  $V_{CC} = +12V$ ,  $V_{EE} = -12V$ ,  $T_a = 25^{\circ}C$  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	$\mu A$
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	$G_V$	$V_{O(pp)} = \pm 10V$	65	75	-	dB
Input Noise Voltage	$e_N$	$B = 20KHz$	-	10	-	$\mu V$
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 (Note1)	TSD	-	-	160	-	$^{\circ}C$

### Note :

1. Guaranteed by design. Not 100% tested in production.

## Typical Performance Characteristics

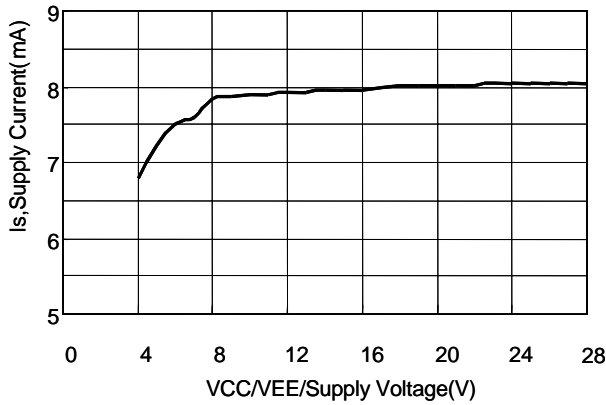


Figure 1. Supply Voltage vs Supply Current with No Load

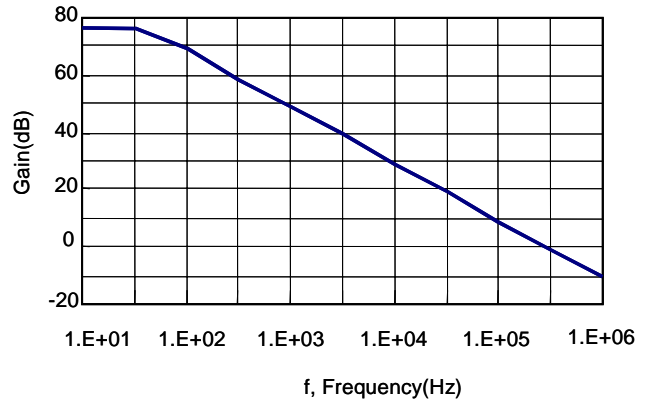


Figure 2. Open Loop Voltage Gain

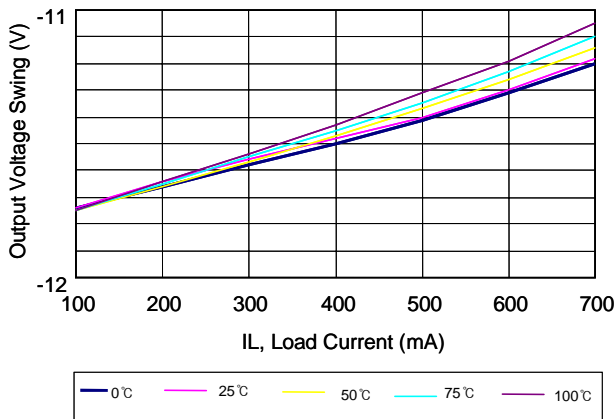


Figure 3-1. Output Voltage Swing vs Load Current

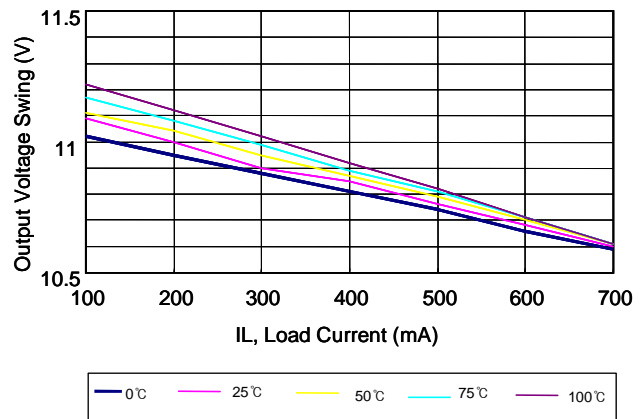


Figure 3-2. Output Voltage Swing vs Load Current

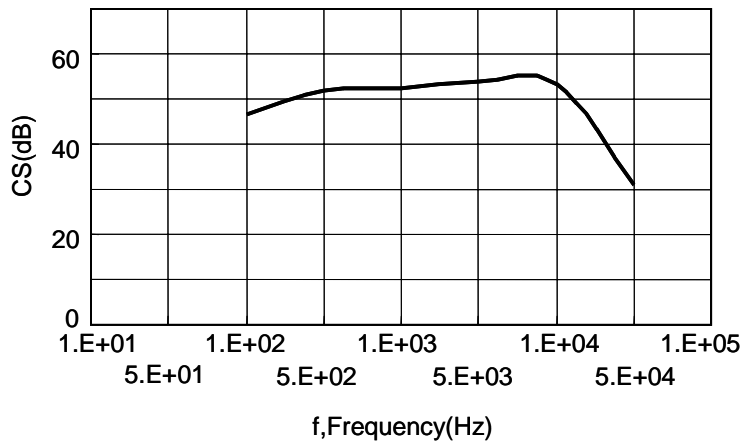
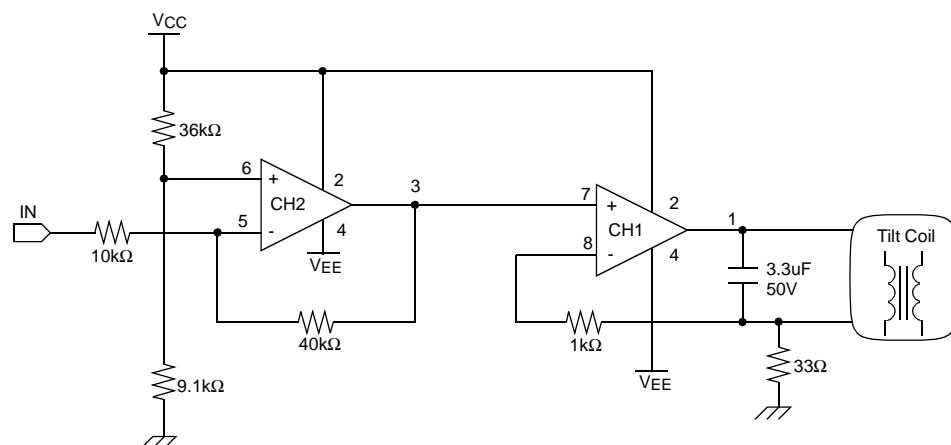


Figure 6. Channel Separation vs Frequency

## Applications



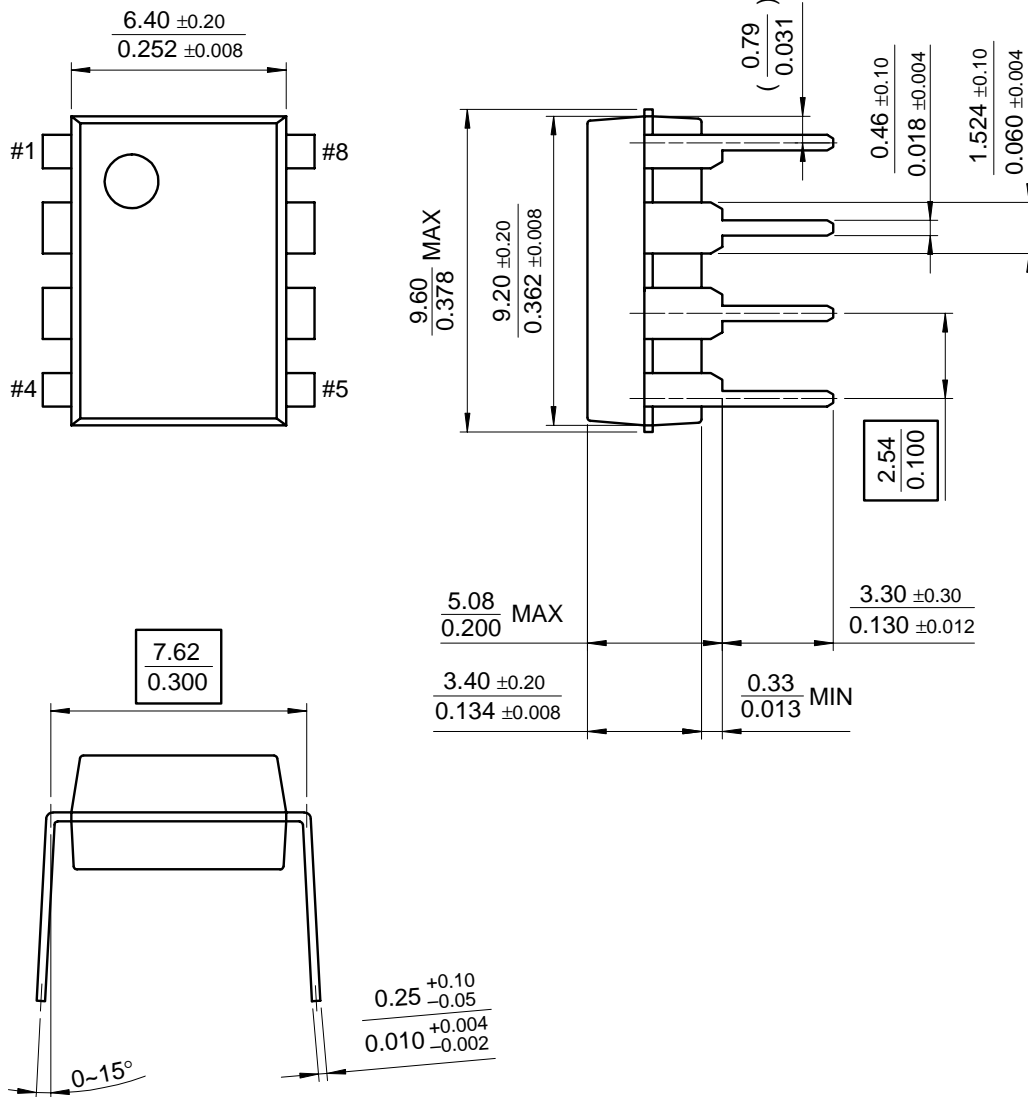
< Tilt Coil Current Control Circuit in Monitor, 8-DIP Package >

# Mechanical Dimensions

## Package

Dimensions in millimeters

### 8-DIP

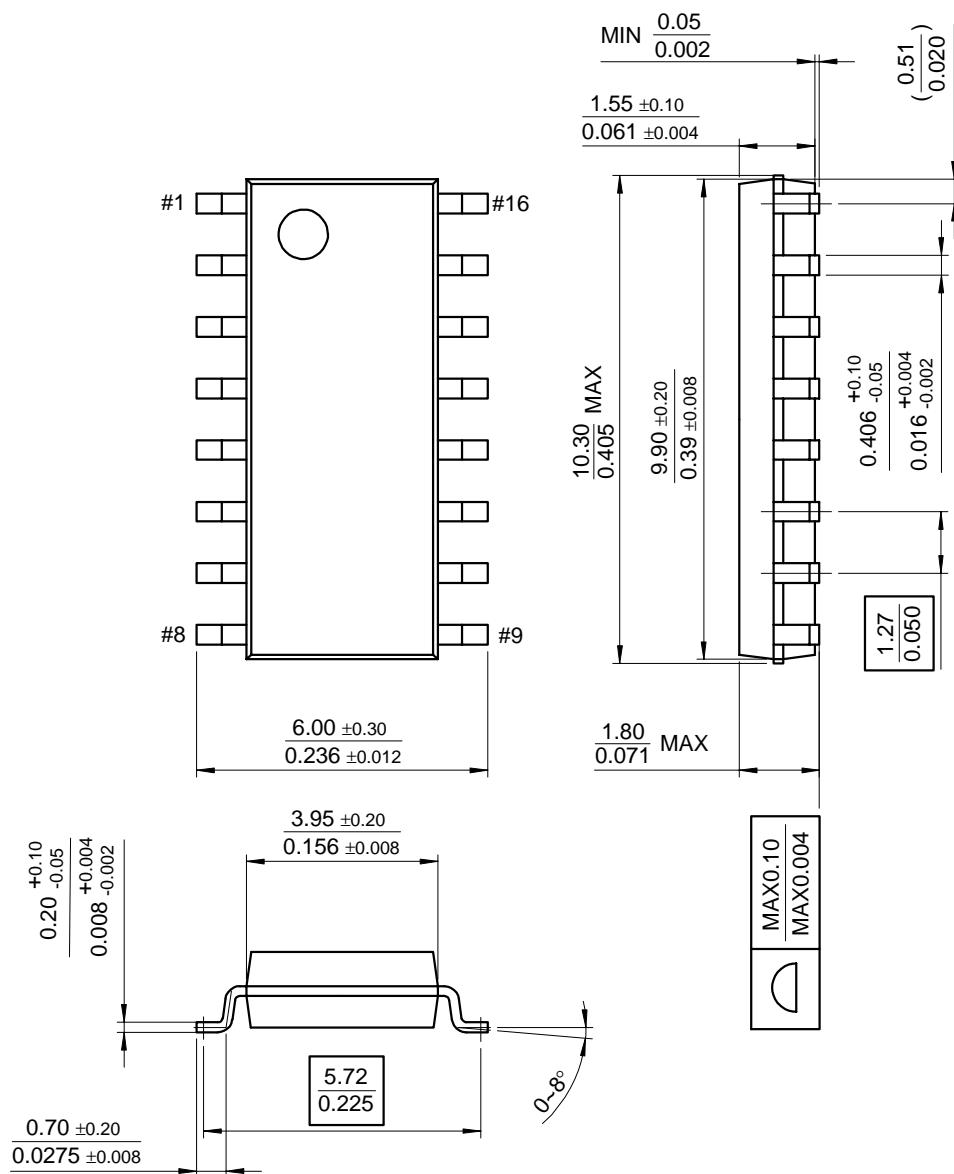


# Mechanical Dimensions

Package

Dimensions in millimeters

## 16-SOP



## Ordering Information

Product Number	Package	Operating Temperature
KA334	8-DIP	-25°C ~ +85°C
KA334D	16-SOP	

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