
HA17474/P

Quad Operational Amplifier

HITACHI

ADE-204-041 (Z)

Rev. 0

Dec. 2000

Description

HA17474/P is a quad operational amplifier with provided internal frequency compensation and high performance. It can be applied widely to measuring control equipment and to general use.

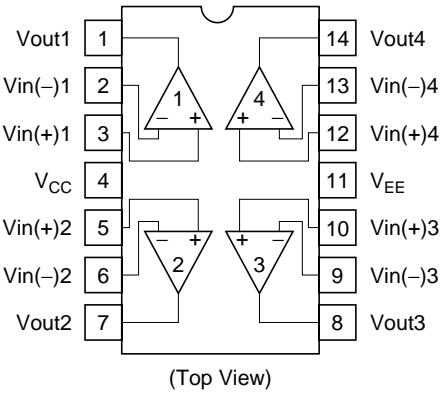
Features

- High speed: 1.6 V/ μ s
- Continuous short-circuit protection
- Low-noise operational amplifiers
- Internal frequency compensation
- Wide operating power supply voltage range: $V = \pm 2\text{ V}$ to $\pm 20\text{ V}$
- Pin compatible with HA17324, HA17902

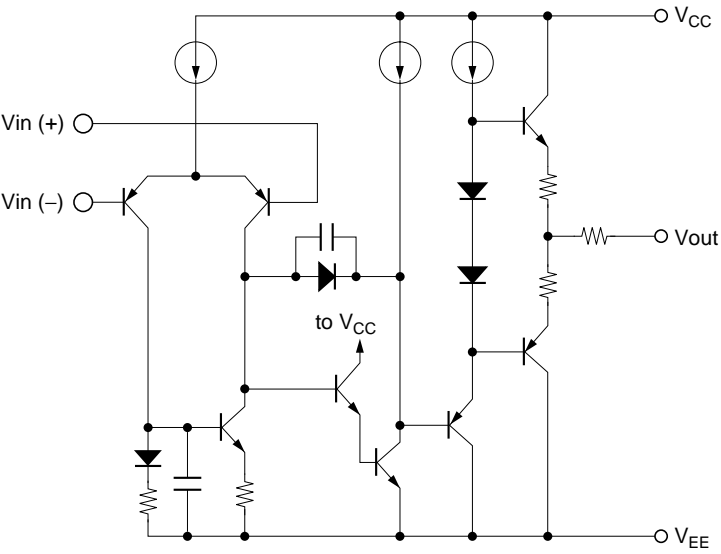
Ordering Information

Type No.	Application	Package
HA17474P	Industrial use	DP-14
HA17474	Commercial use	

Pin Arrangement



Circuit Schematic



Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

Item	Symbol	Ratings			Unit
		HA17474	HA17474P	HA17474RP	
Power supply	V_{CC}	+20	+20	+20	V
	V_{EE}	-20	-20	-20	V
Common-mode differential voltage	$V_{in}(\text{diff})$	± 30	± 30	± 30	V
Common-mode input voltage	V_{CM}	$\pm 15^{*1}$	$\pm 15^{*1}$	$\pm 15^{*1}$	V
Power dissipation	P_T	670 ^{*2}	670 ^{*2}	670 ^{*2}	mW
Operating temperature range	T_{opr}	-20 to +75	-20 to +75	-20 to +75	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-55 to +125	-55 to +125	-55 to +125	$^{\circ}\text{C}$

Notes: 1. For supply voltage less than $\pm 15\text{ V}$, the absolute maximum input voltage is equal to the supply voltage.

2. Value under $T_a \leq 35^{\circ}\text{C}$. In case of more than it, $8.3\text{ mW}/^{\circ}\text{C}$ derating shall be done.

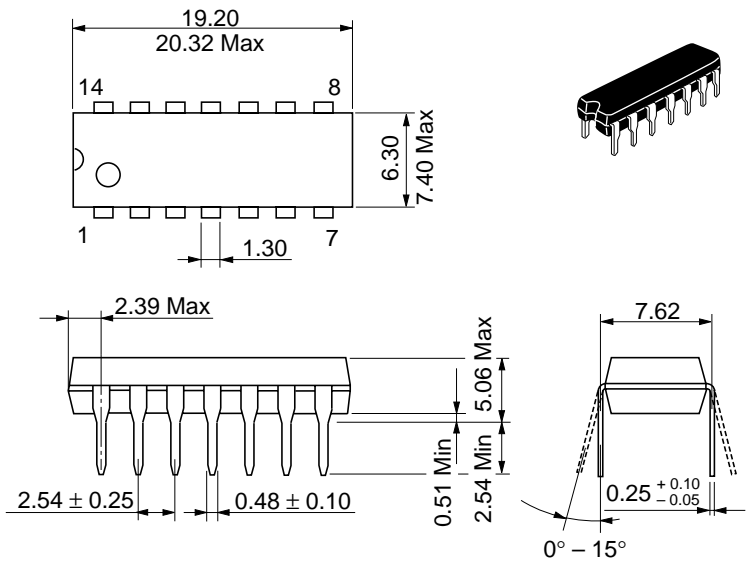
Electrical Characteristics ($T_a = 25^{\circ}\text{C}$, $V_{CC} = +15\text{ V}$, $V_{EE} = -15\text{ V}$)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Input offset voltage	V_{IO}	—	1.0	5.0	mV	$R_S \leq 10\text{ k}\Omega$
Input offset current	I_{IO}	—	30	50	nA	
Input bias current	I_{IB}	—	100	300	nA	
Voltage gain	A_{VD}	88	94	—	dB	$R_L \geq 2\text{ k}\Omega$, $V_O = \pm 10\text{ V}$
Maximum output voltage	V_{op-p}	± 12	± 13.7	—	V	$R_L \geq 10\text{ k}\Omega$
		± 10	± 12.5	—	V	$R_L \geq 2\text{ k}\Omega$
Common-mode input voltage range	V_{CM}	± 12	± 14	—	V	
Common-mode rejection ratio	CMR	80	90	—	dB	$R_S \leq 10\text{ k}\Omega$
Supply voltage rejection ratio	PSRR	—	50	100	$\mu\text{V}/\text{V}$	$R_S \leq 10\text{ k}\Omega$
Power dissipation	P_d	—	150	210	mW	4-channel, No load
Slew rate	SR	—	1.6	—	$\text{V}/\mu\text{s}$	$A_{VD} = 1$
Equivalent input noise voltage	V_{NI}	—	9	—	$\text{nV}/\sqrt{\text{Hz}}$	$R_S = 1\text{ k}\Omega$, $f = 1\text{ Hz to } 1\text{ kHz}$
Channel separation	CS	—	108	—	dB	$f = 1\text{ kHz}$

Note: Since these products provide a high slew rate, oscillation may occur due to load capacitance. An allowable capacitor value is minimum at voltage follower.

Package Dimensions

Unit: mm



Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.97 g

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