
HA17458 Series

Dual Operational Amplifier

HITACHI

ADE-204-040 (Z)

Rev. 0

Dec. 2000

Description

HA17458 is dual operational amplifiers which provides internal phase compensation and high performance. It can be applied widely to measuring control equipment and to general use.

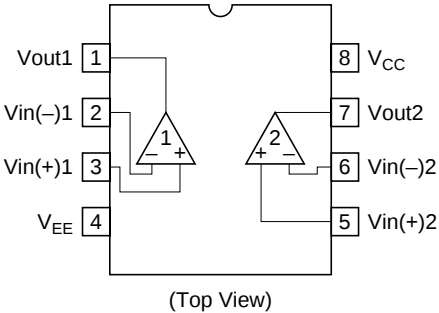
Features

- High voltage gain: 100dB (Typ)
- Wide output amplitude: $\pm 13\text{V}$ (Typ) [at $R_L \geq 2\text{k}\Omega$]
- Protected from output shortcircuit
- Internal phase compensation

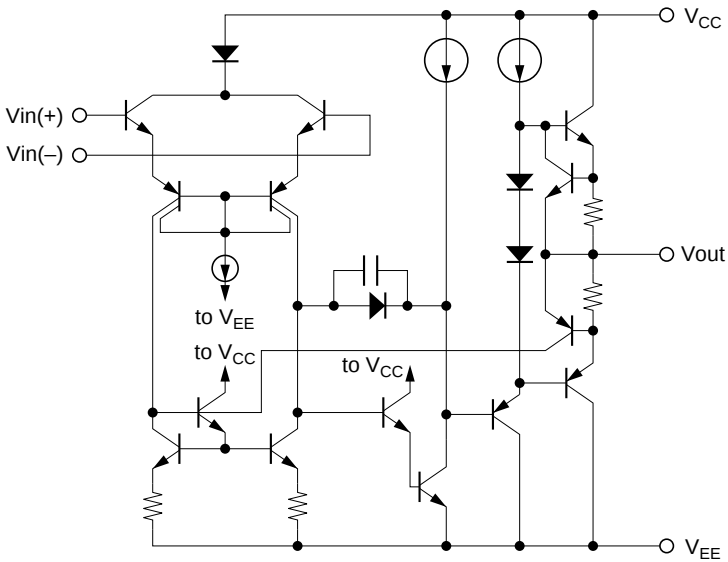
Ordering Information

Type No.	Application	Package
HA17485FP	Industrial use	FP-8D
HA17458F	Commercial use	FP-8D
HA17458	Commercial use	DP-8
HA17458PS	Industrial use	DP-8

Pin Arrangement



Circuit Schematic (1/2)



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings				Unit
		HA17458	HA17458PS	HA17458F	HA17458FP	
Supply voltage	V _{CC}	+18	+18	+18	+18	V
	V _{EE}	−18	−18	−18	−18	V
Input voltage	V _{IN} ^{*3}	±15	±15	±15	±15	V
Differential input voltage	V _{IN(diff)}	±30	±30	±30	±30	V
Power dissipation	P _T	670 ^{*1}	670 ^{*1}	385 ^{*2}	385 ^{*2}	mW
Operating temperature	Topr	−20 to +75	−20 to +75	−20 to +75	−20 to +75	°C
Storage temperature	Tstg	−55 to	−55 to	−55 to	−55 to	°C
		+125	+125	+125	+125	

Notes: 1. These are the allowable values up to Ta = 45 °C. Derate by 8.3mW/°C above that temperature.
2. These are the allowable values up to Ta = 31 °C mounting on 30% wiring density glass epoxy board. Derate by 7.14mW/°C above that temperature.
3. If the supply voltage is less than ±15V, input voltage should be less than supply voltage.

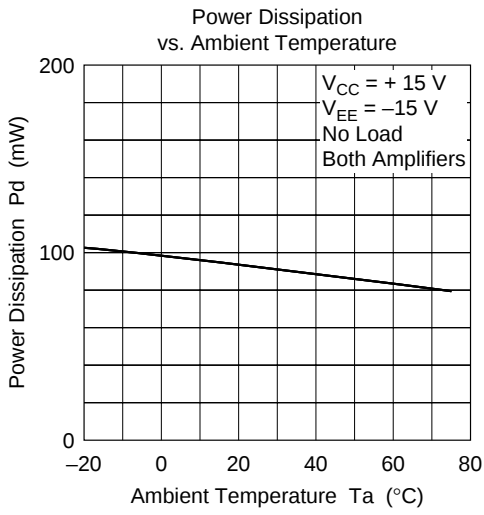
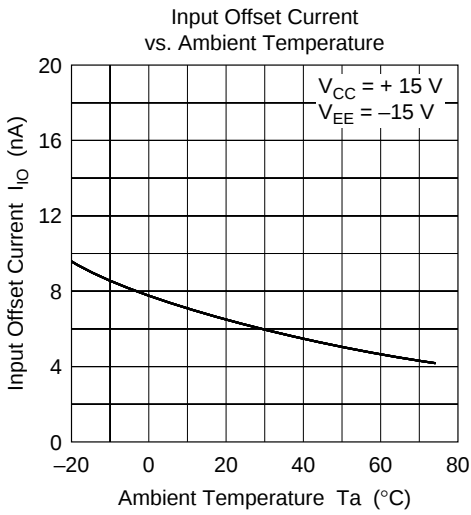
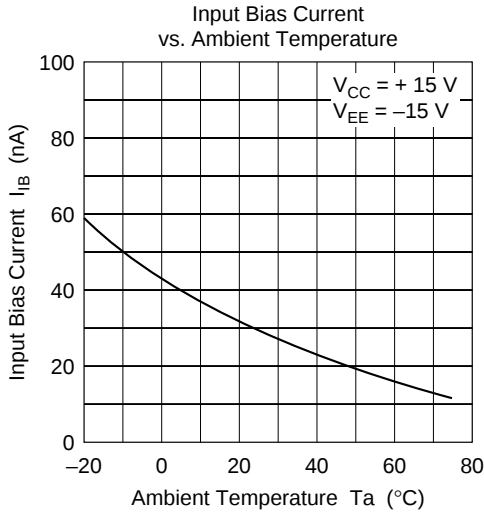
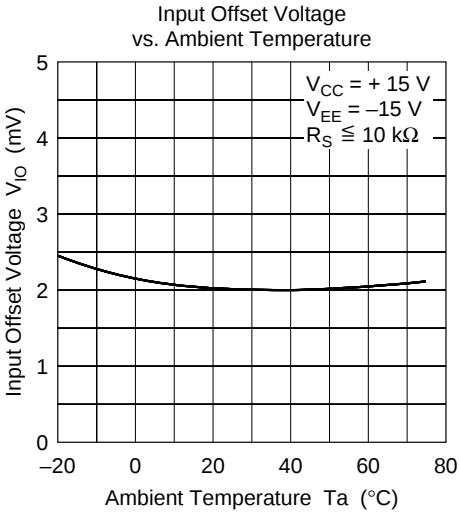
Electrical Characteristics 1 ($V_{CC} = -V_{EE} = 15V$, $T_a = 25^{\circ}C$)

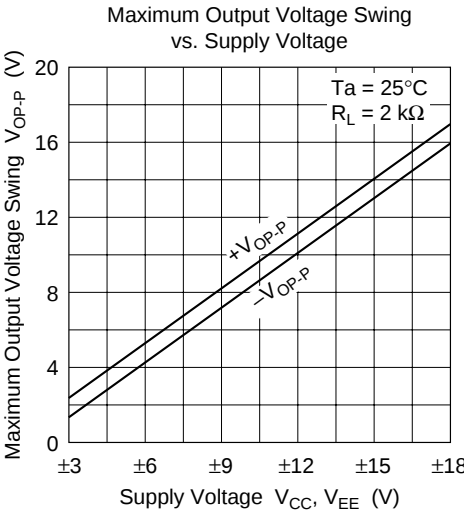
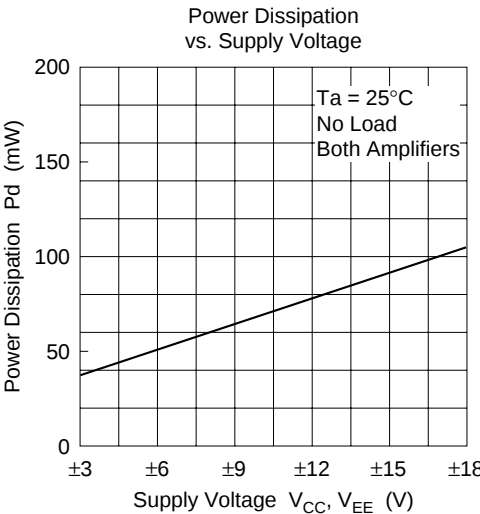
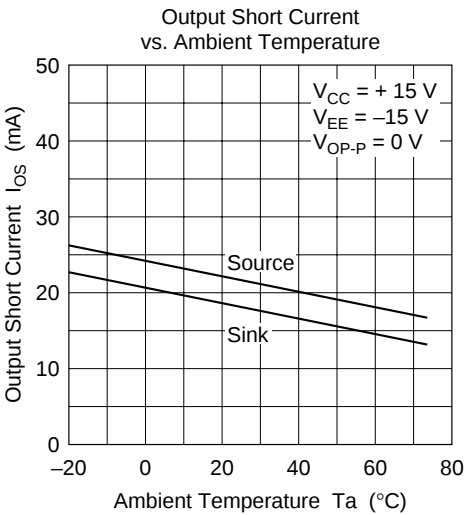
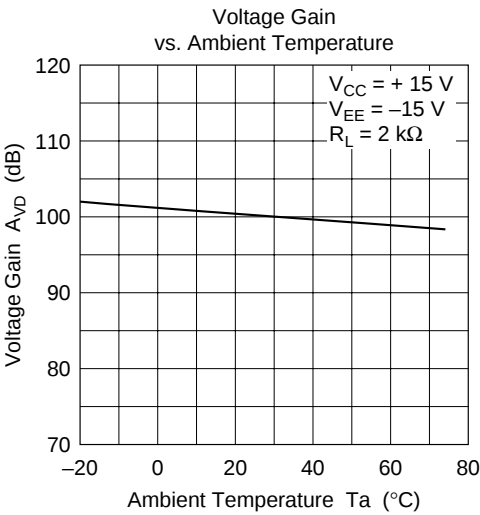
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Input offset voltage	V_{IO}	—	2.0	6.0	mV	$R_s \leq 10k\Omega$
Input offset current	I_{IO}	—	6	200	nA	
Input bias current	I_{IB}	—	30	500	nA	
Line regulation	$\Delta V_{IO}/\Delta V_{CC}$	—	30	150	$\mu V/V$	$R_s \leq 10k\Omega$
	$\Delta V_{IO}/\Delta V_{EE}$	—	30	150	$\mu V/V$	$R_s \leq 10k\Omega$
Voltage gain	A_{VD}	86	100	—	dB	$R_L \geq 2k\Omega$, $V_{out} = \pm 10V$
Common mode rejection ratio	CMR	70	90	—	dB	$R_s \leq 10k\Omega$
Common mode input voltage range	V_{CM}	± 12	± 13	—	V	
Peak-to-peak output voltage	V_{op-p}	± 12	± 14	—	V	$R_L = 10k\Omega$
Power dissipation	P_d	—	90	200	mW	No load, 2 channel
Slew rate	SR	—	0.6	—	$V/\mu s$	$A_{VD} = 1$
Input resistance	R_{in}	0.3	1.0	—	$M\Omega$	
Input capacitance	C_{in}	—	6.0	—	pF	
Output resistance	R_{out}	—	75	—	Ω	

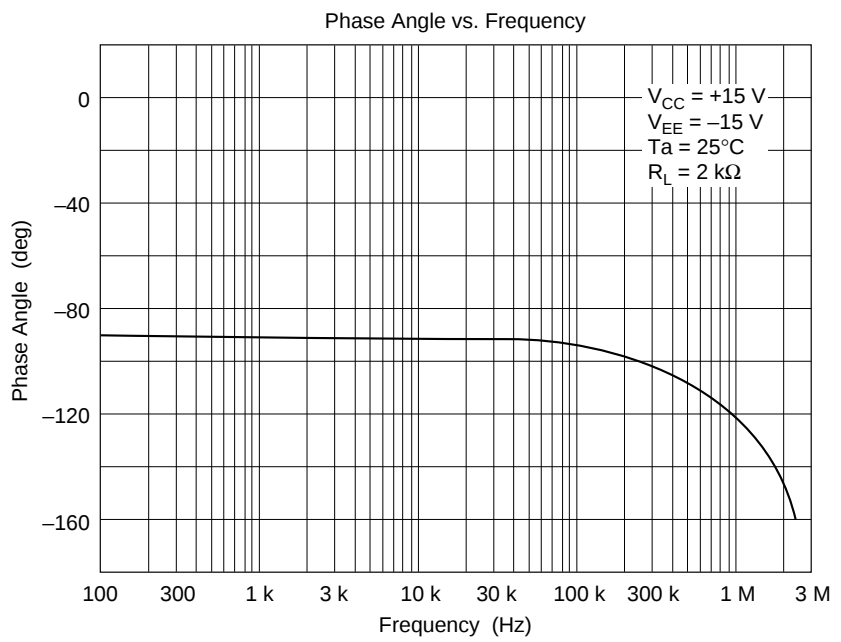
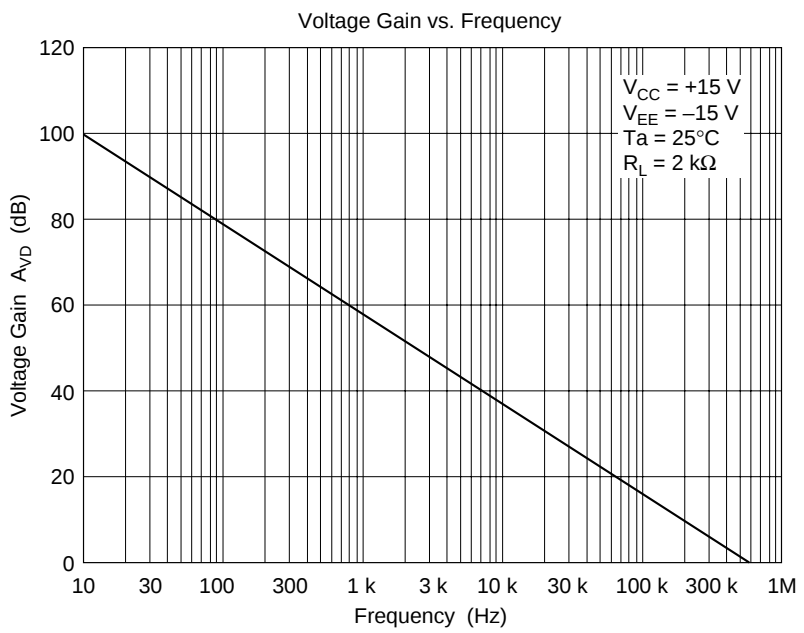
Electrical Characteristics 2 ($V_{CC} = -V_{EE} = 15V$, $T_a = -20$ to $+75^{\circ}C$)

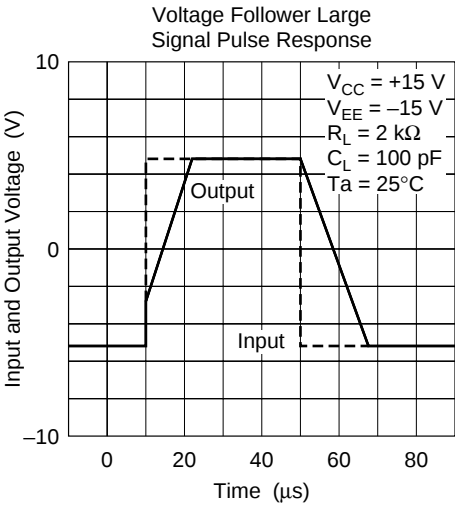
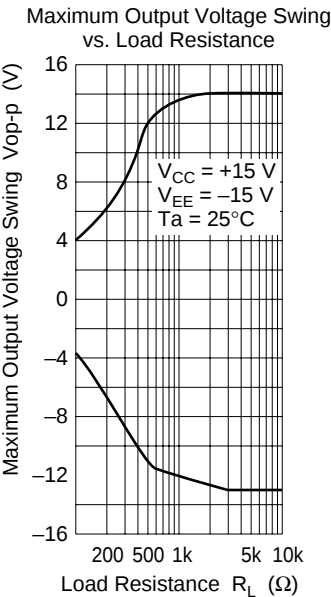
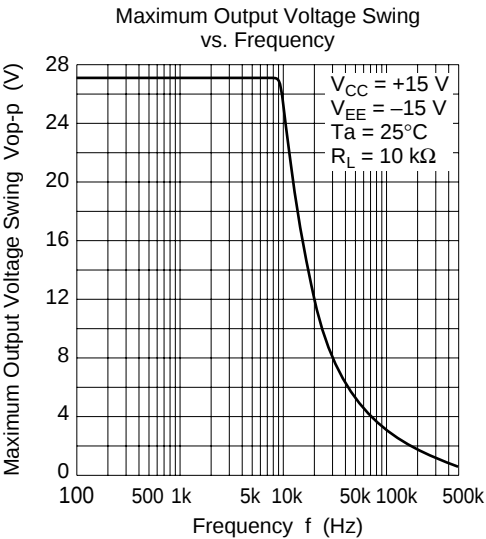
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Input offset voltage	V_{IO}	—	—	9.0	mV	$R_s \leq 10k\Omega$
Input offset current	I_{IO}	—	—	400	nA	
Input bias current	I_{IB}	—	—	1100	nA	
Voltage gain	A_{VD}	80	—	—	dB	$R_L \geq 2k\Omega$, $V_{out} = \pm 10V$
Peak-to-peak output voltage	V_{op-p}	± 10	± 13	—	V	$R_L = 2k\Omega$

Characteristic Curves



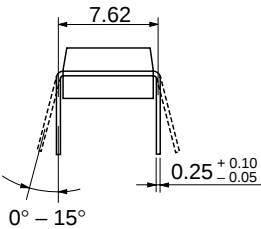
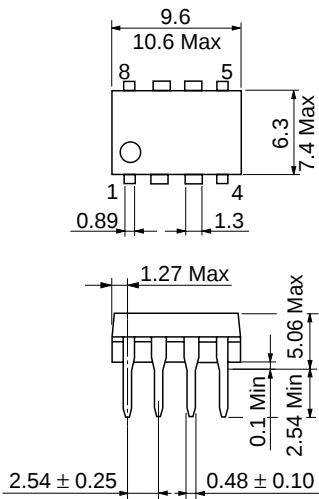






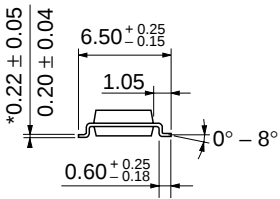
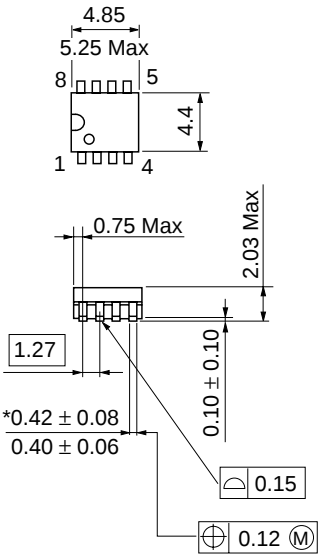
Package Dimensions

Unit: mm



Hitachi Code	DP-8
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.54 g

Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-8D
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.10 g

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