
HA17458 Series

Dual Operational Amplifier

HITACHI

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.

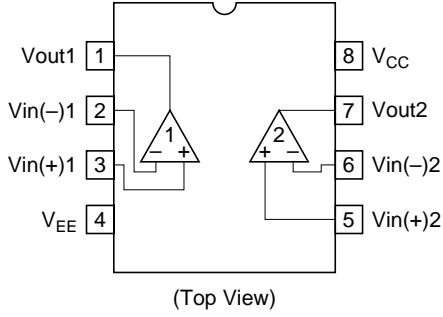
Features

- 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

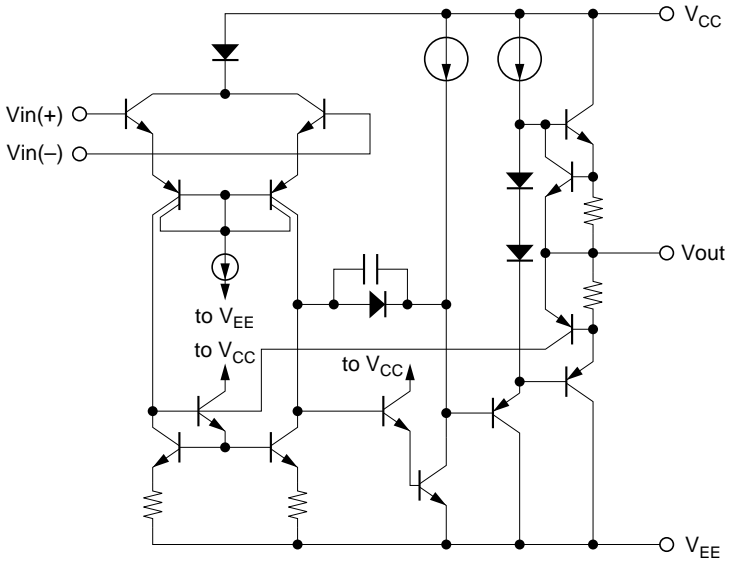
Ordering Information

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

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	T_{opr}	-20 to +75	-20 to +75	-20 to +75	-20 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +125	-55 to +125	-55 to +125	-55 to +125	$^\circ\text{C}$

- Notes:
1. These are the allowable values up to $T_a = 45^\circ\text{C}$. Derate by $8.3\text{mW}/^\circ\text{C}$ above that temperature.
 2. These are the allowable values up to $T_a = 31^\circ\text{C}$ mounting on 30% wiring density glass epoxy board. Derate by $7.14\text{mW}/^\circ\text{C}$ above that temperature.
 3. If the supply voltage is less than $\pm 15\text{V}$, input voltage should be less than supply voltage.

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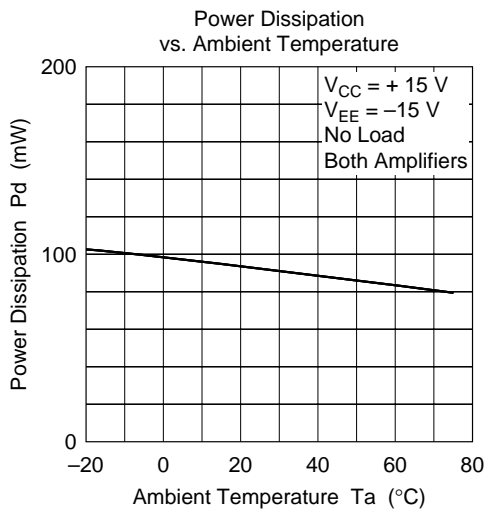
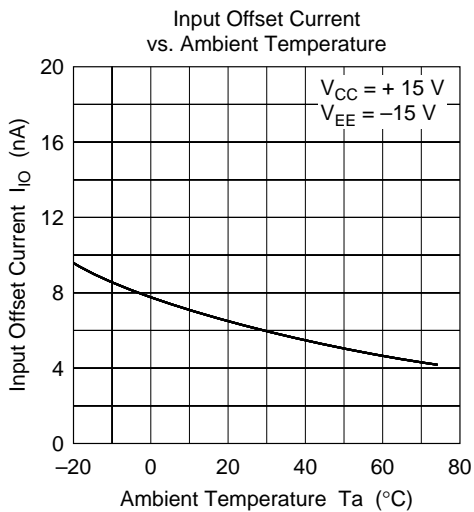
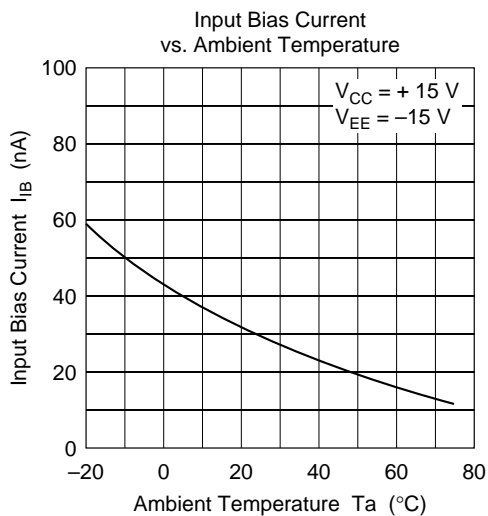
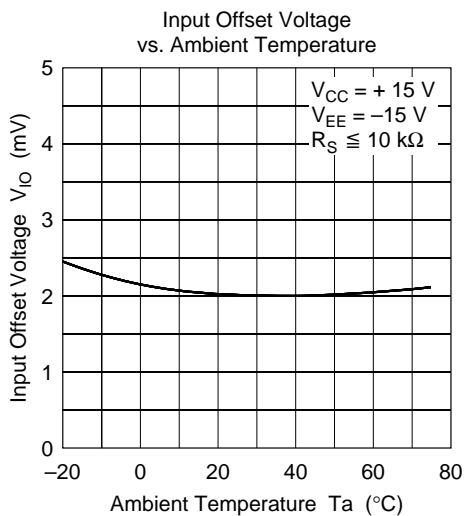
Electrical Characteristics 1 ($V_{CC} = -V_{EE} = 15V$, $T_a = 25^\circ C$)

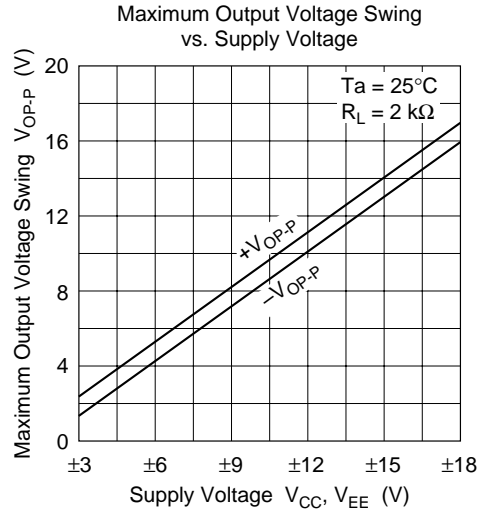
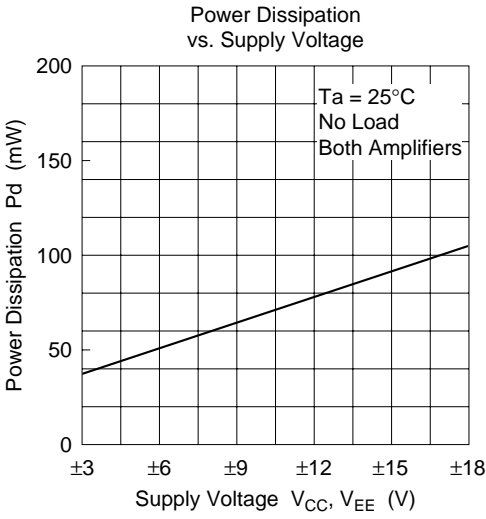
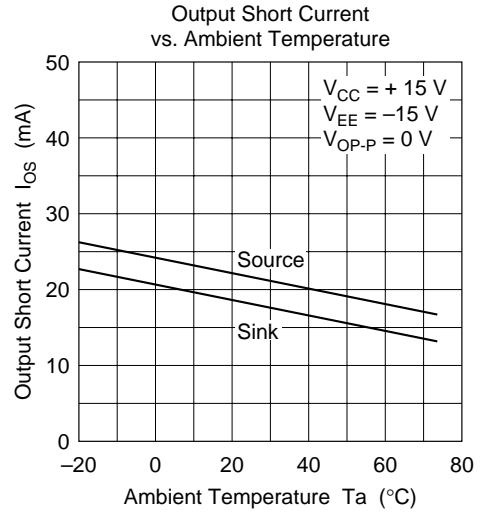
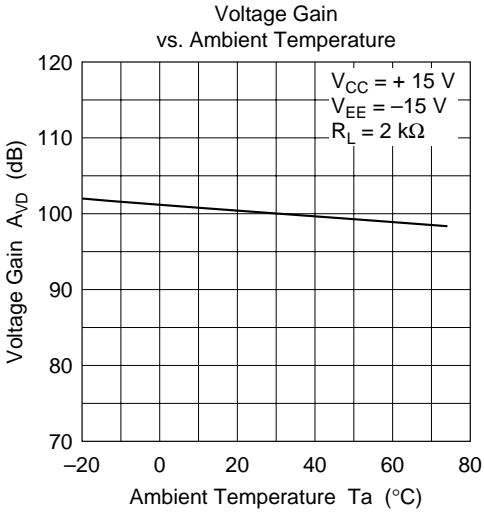
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Input offset voltage	V_{IO}	—	2.0	6.0	mV	$R_s \leq 10k\Omega$
Input offset current	I_{IO}	—	6	200	nA	
Input bias current	I_{IB}	—	30	500	nA	
Line regulation	$\Delta V_{IO}/\Delta V_{CC}$	—	30	150	$\mu V/V$	$R_s \leq 10k\Omega$
	$\Delta V_{IO}/\Delta V_{EE}$	—	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/ μs	$A_{VD} = 1$
Input resistance	R_{in}	0.3	1.0	—	M Ω	
Input capacitance	C_{in}	—	6.0	—	pF	
Output resistance	R_{out}	—	75	—	Ω	

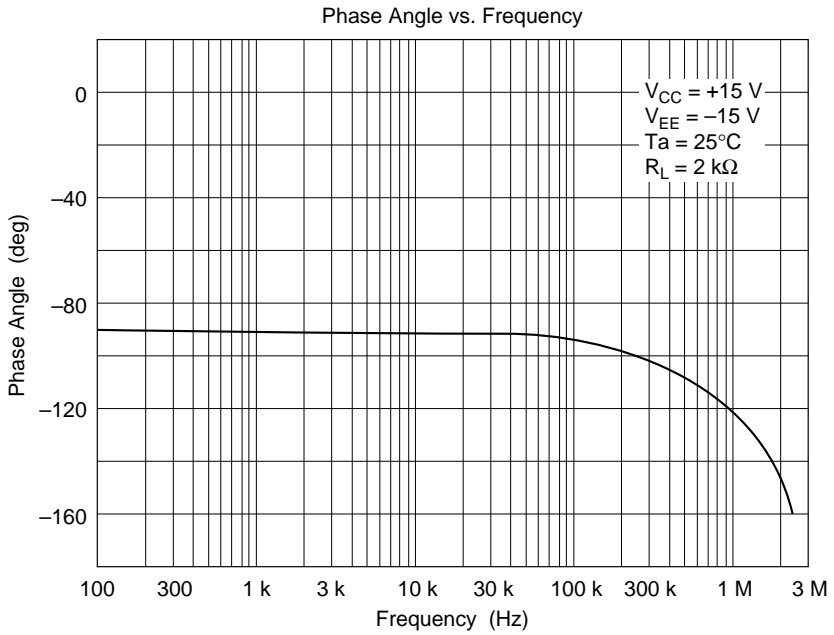
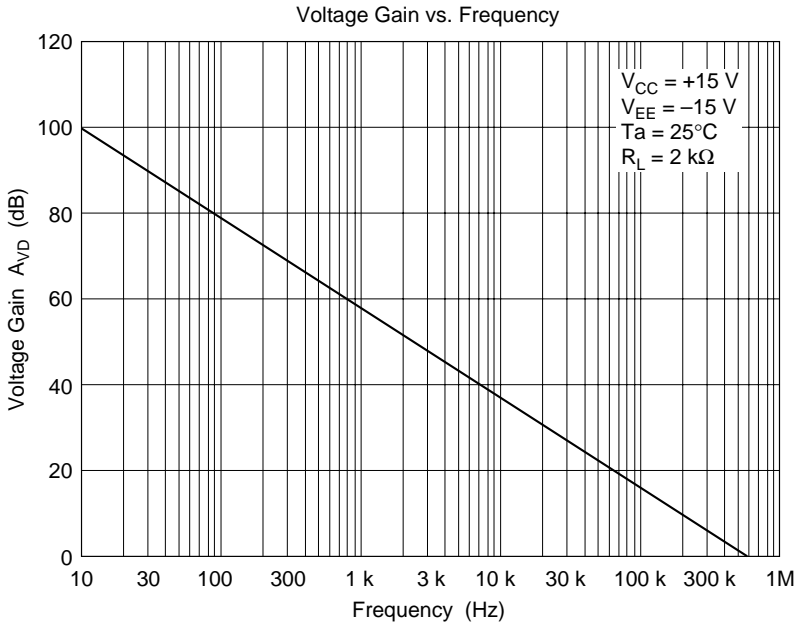
Electrical Characteristics 2 ($V_{CC} = -V_{EE} = 15V$, $T_a = -20$ to $+75^\circ C$)

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	$R_L = 2k\Omega$

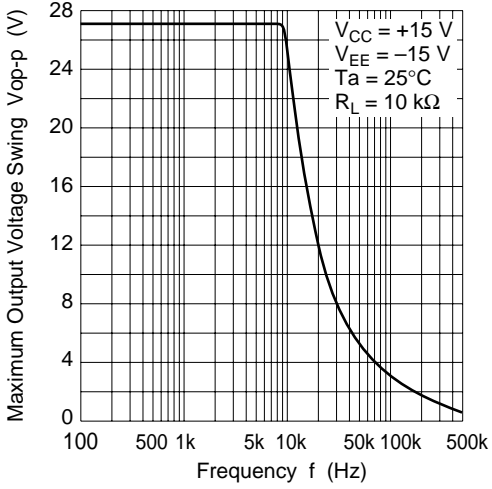
Characteristic Curves



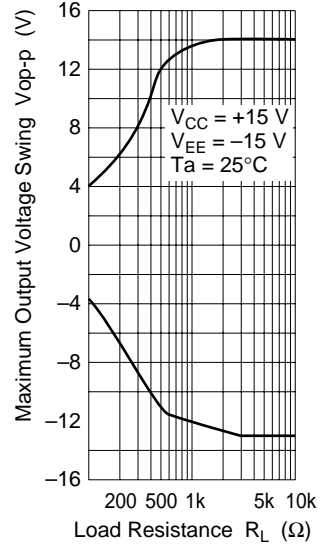




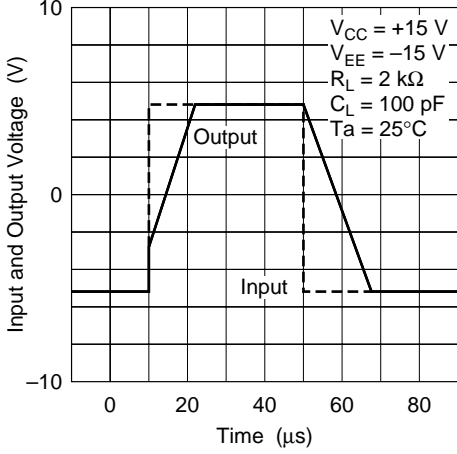
Maximum Output Voltage Swing vs. Frequency



Maximum Output Voltage Swing vs. Load Resistance

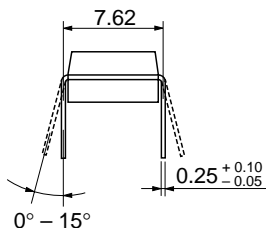
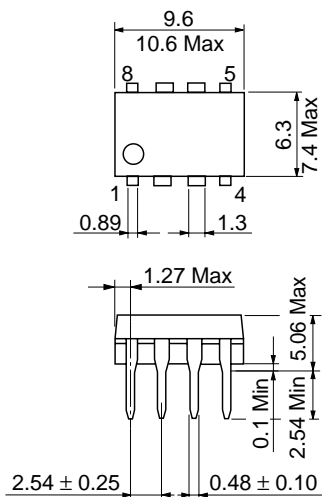


Voltage Follower Large Signal Pulse Response



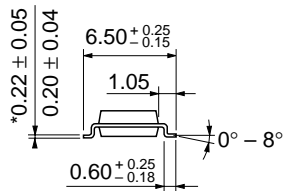
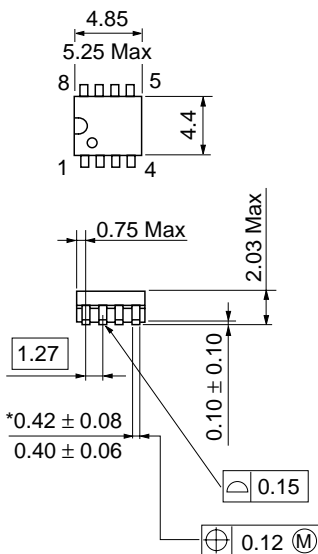
Package Dimensions

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

Cautions

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