

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# HA17458 Series

## Dual Operational Amplifier

REJ03D0680-0100  
(Previous: ADE-204-040)  
Rev.1.00  
Jun 15, 2005

### 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.

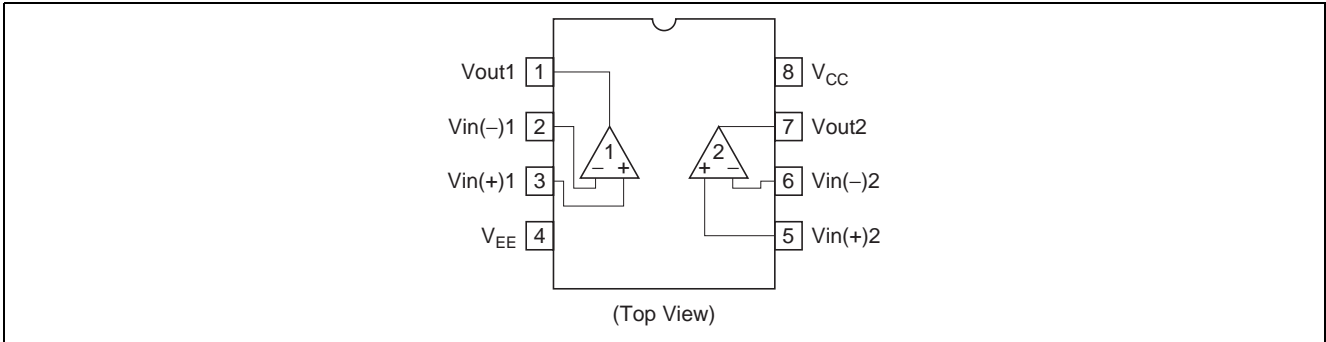
### Features

- 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

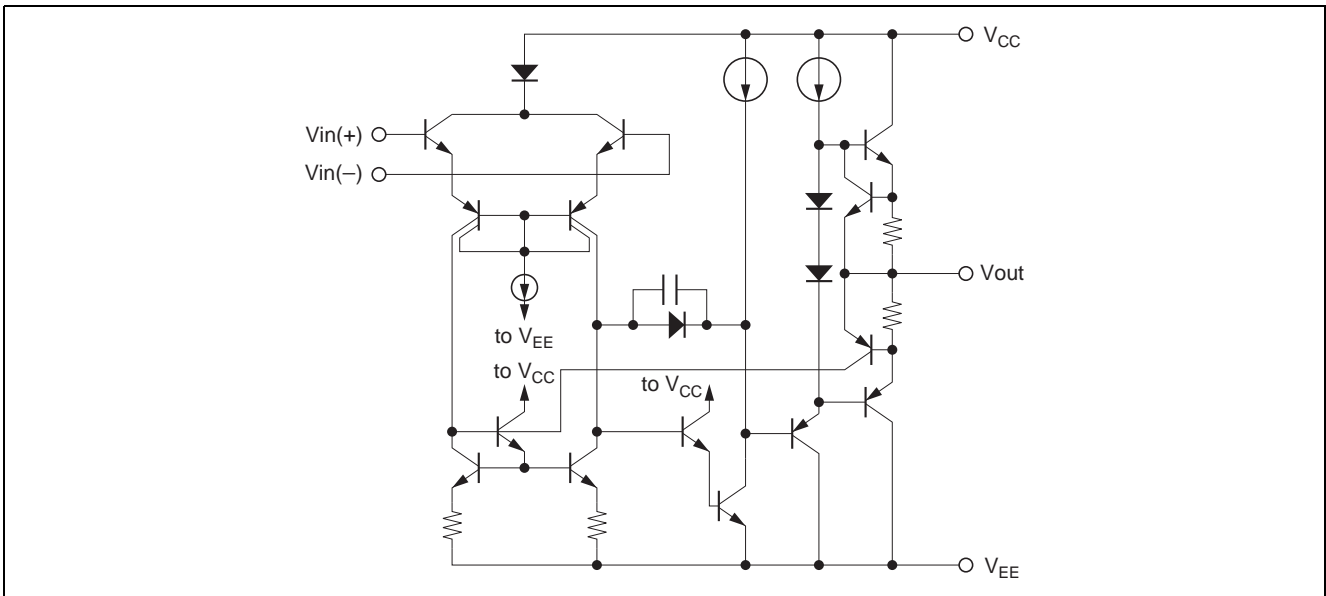
### Ordering Information

Type No.	Application	Package Code (Previous Code)
HA17485FP	Industrial use	PRSP0008DE-B (FP-8DGV)
HA17458F	Commercial use	PRSP0008DE-B (FP-8DGV)
HA17458	Commercial use	PRDP0008AF-A (DP-8B)
HA17458PS	Industrial use	PRDP0008AF-A (DP-8B)

### Pin Arrangement



### Circuit Schematic (1/2)



## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings				Unit
		HA17458	HA17458PS	HA17458F	HA17458FP	
Supply voltage	V <sub>CC</sub>	+18	+18	+18	+18	V
	V <sub>EE</sub>	-18	-18	-18	-18	V
Input voltage	V <sub>IN</sub> *3	±15	±15	±15	±15	V
Differential input voltage	V <sub>IN(diff)</sub>	±30	±30	±30	±30	V
Power dissipation	P <sub>T</sub>	670*1	670*1	385*2	385*2	mW
Operating temperature	T <sub>opr</sub>	-20 to +75	-20 to +75	-20 to +75	-20 to +75	°C
Storage temperature	T <sub>stg</sub>	-55 to +125	-55 to +125	-55 to +125	-55 to +125	°C

- 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<sub>CC</sub> = -V<sub>EE</sub> = 15V, Ta = 25°C)

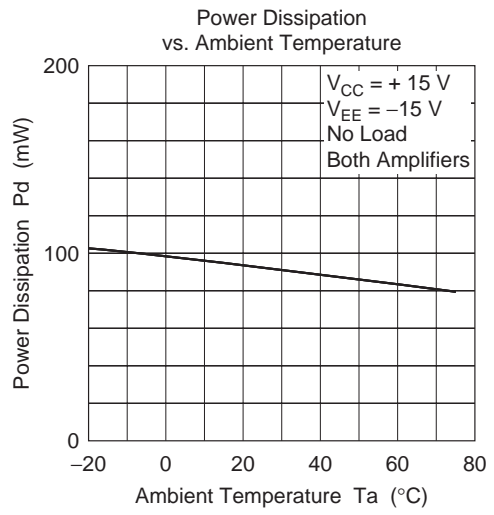
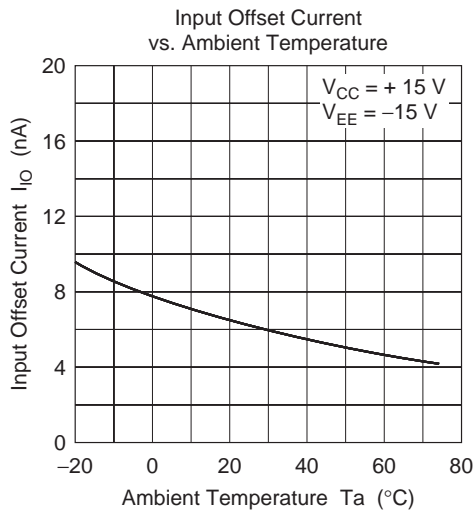
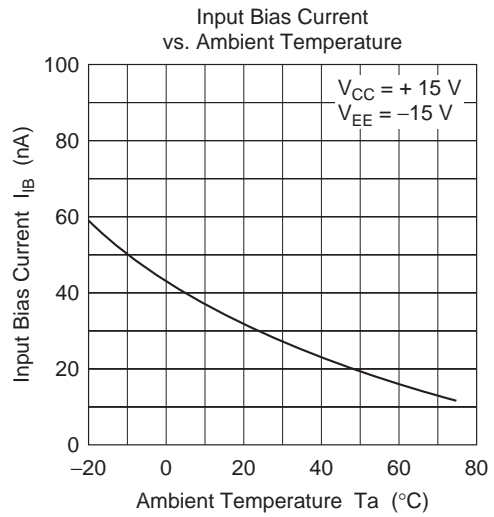
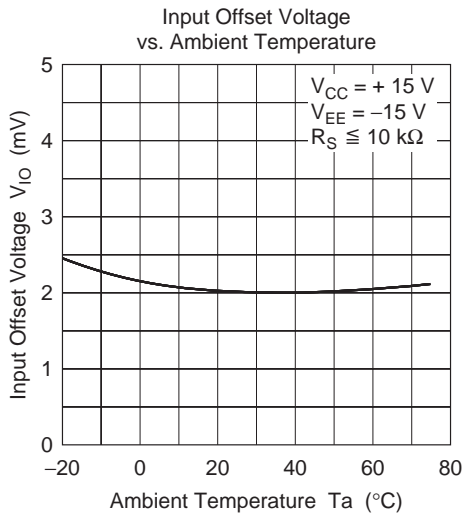
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Input offset voltage	V <sub>IO</sub>	—	2.0	6.0	mV	R <sub>S</sub> ≤ 10kΩ
Input offset current	I <sub>IO</sub>	—	6	200	nA	
Input bias current	I <sub>IB</sub>	—	30	500	nA	
Line regulation	ΔV <sub>IO</sub> /ΔV <sub>CC</sub>	—	30	150	μV/V	R <sub>S</sub> ≤ 10kΩ
	ΔV <sub>IO</sub> /ΔV <sub>EE</sub>	—	30	150	μV/V	R <sub>S</sub> ≤ 10kΩ
Voltage gain	A <sub>VD</sub>	86	100	—	dB	R <sub>L</sub> ≥ 2kΩ, V <sub>out</sub> = ±10V
Common mode rejection ratio	CMR	70	90	—	dB	R <sub>S</sub> ≤ 10kΩ
Common mode input voltage range	V <sub>CM</sub>	±12	±13	—	V	
Peak-to-peak output voltage	V <sub>op-p</sub>	±12	±14	—	V	R <sub>L</sub> = 10kΩ
Power dissipation	P <sub>d</sub>	—	90	200	mW	No load, 2 channel
Slew rate	SR	—	0.6	—	V/μs	A <sub>VD</sub> = 1
Input resistance	R <sub>in</sub>	0.3	1.0	—	MΩ	
Input capacitance	C <sub>in</sub>	—	6.0	—	pF	
Output resistance	R <sub>out</sub>	—	75	—	Ω	

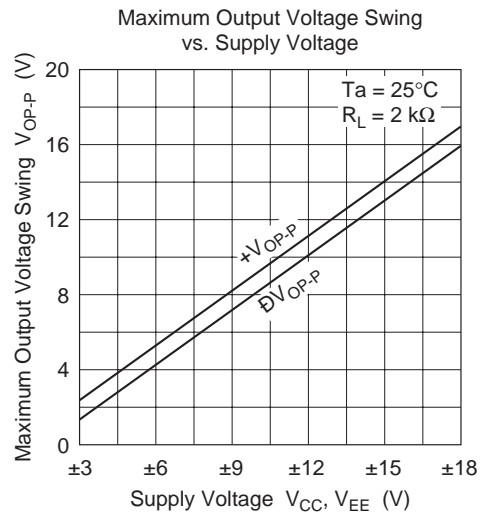
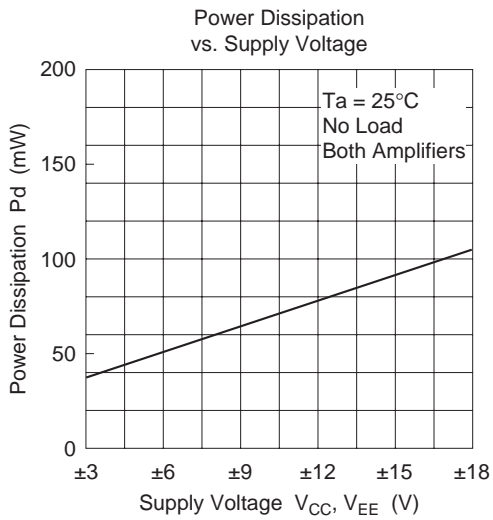
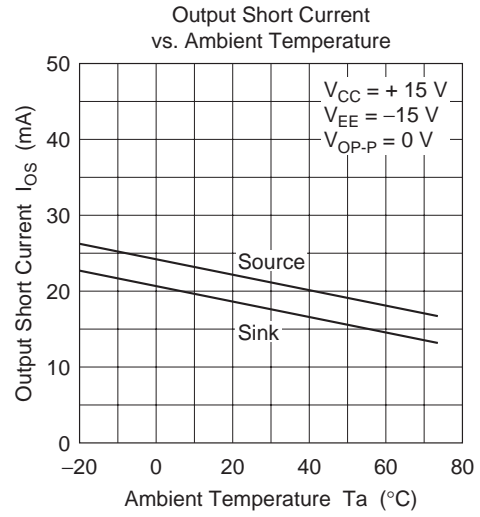
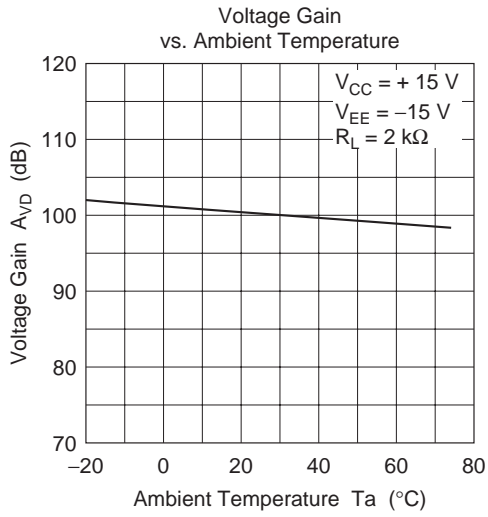
## Electrical Characteristics 2

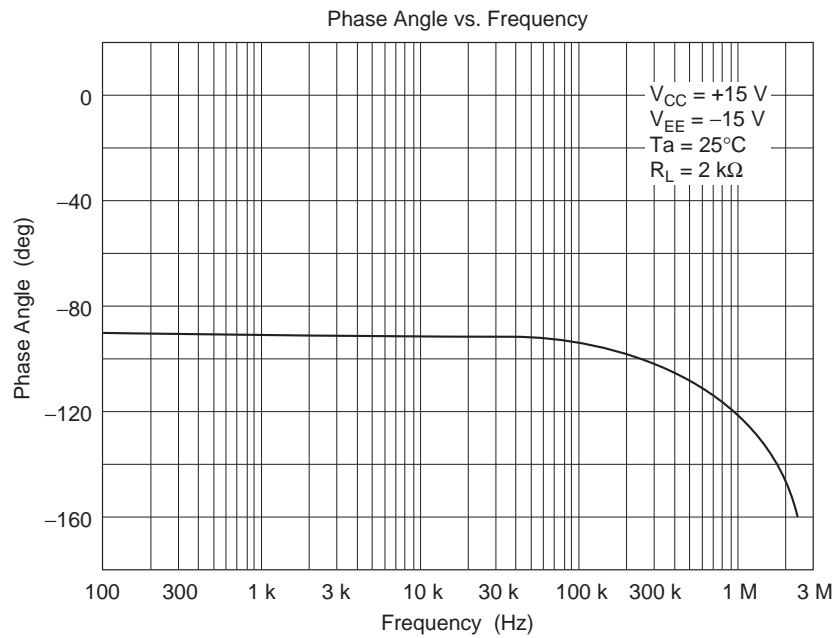
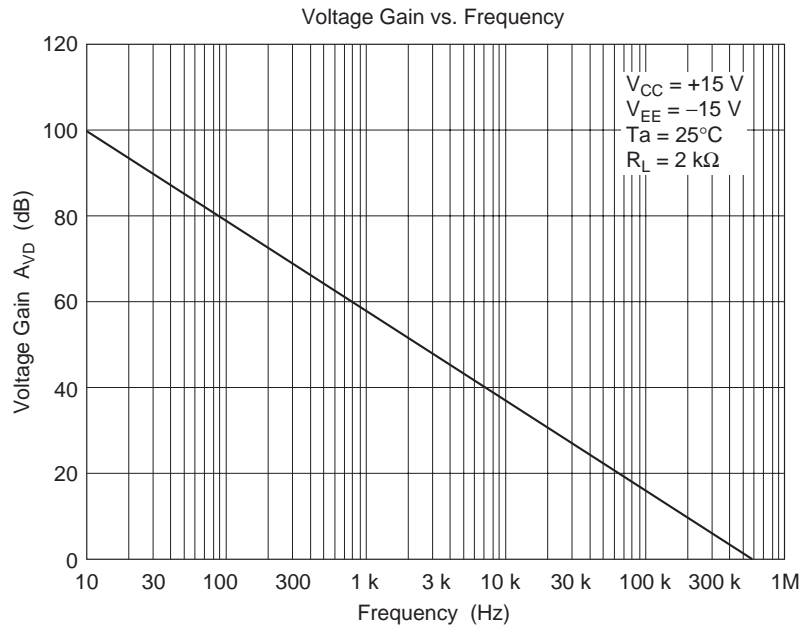
(V<sub>CC</sub> = -V<sub>EE</sub> = 15V, Ta = -20 to +75°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Input offset voltage	V <sub>IO</sub>	—	—	9.0	mV	R <sub>S</sub> ≤ 10kΩ
Input offset current	I <sub>IO</sub>	—	—	400	nA	
Input bias current	I <sub>IB</sub>	—	—	1100	nA	
Voltage gain	A <sub>VD</sub>	80	—	—	dB	R <sub>L</sub> ≥ 2kΩ, V <sub>out</sub> = ±10V
Peak-to-peak output voltage	V <sub>op-p</sub>	±10	±13	—	V	R <sub>L</sub> = 2kΩ

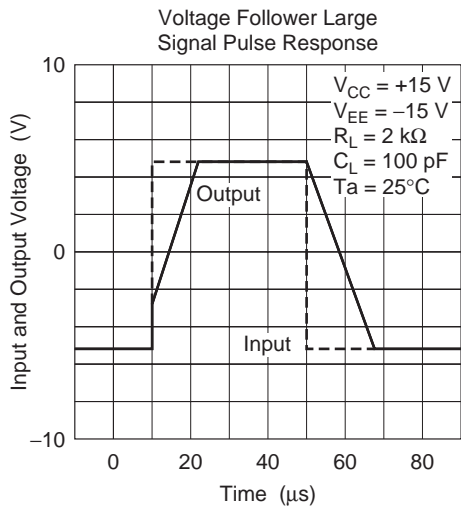
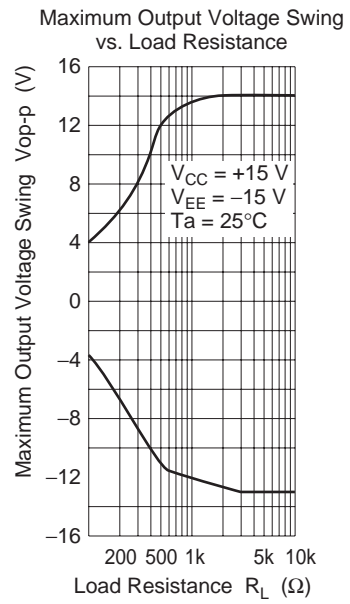
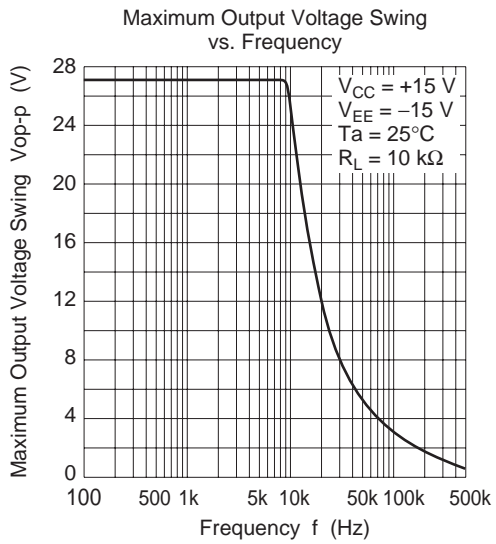
Characteristic Curves



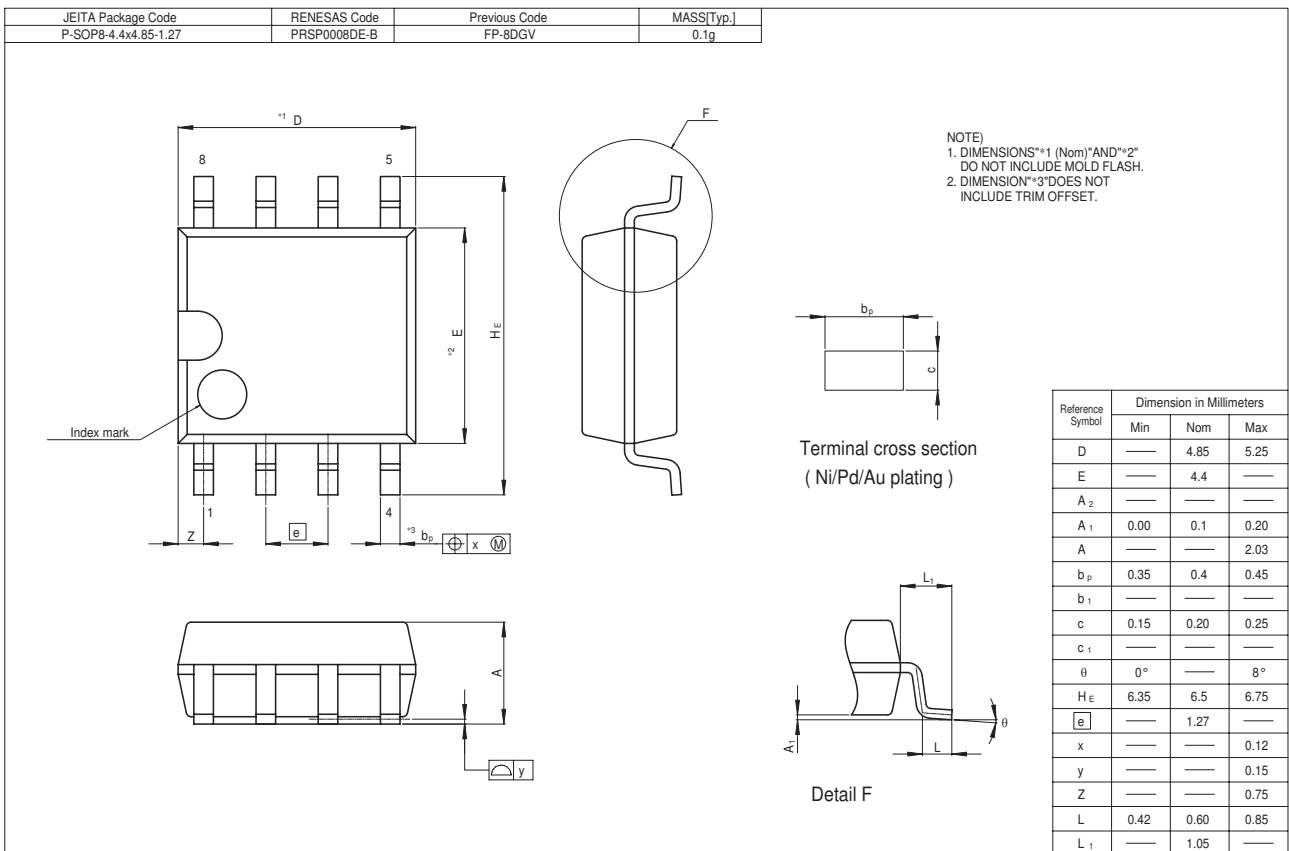
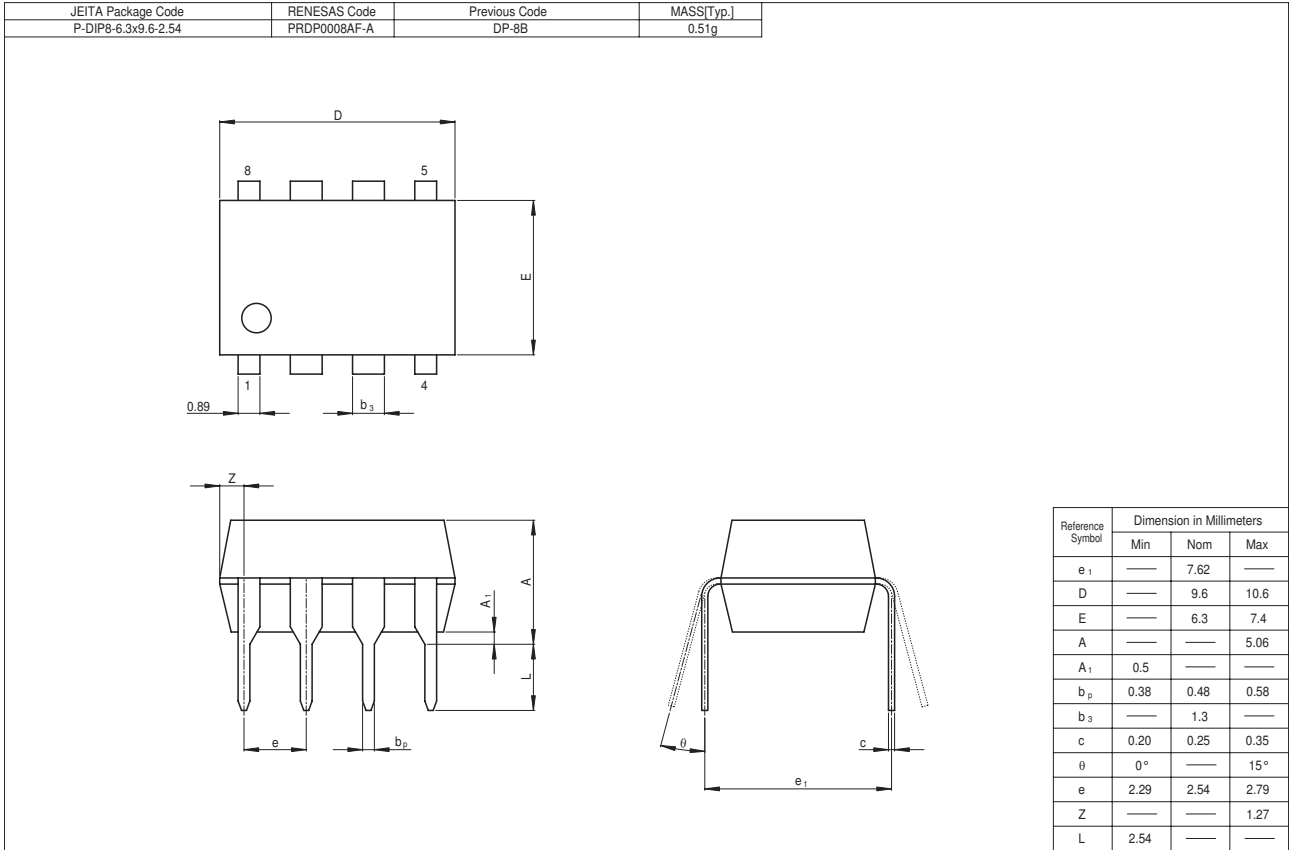








Package Dimensions



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