HA17558GS, HA17558PS, HA17558 ● Dual Operational Amplifier

HA17558 is a dual operational amplifier which provides internal Frequency compensation and high performance. It can be applied widely to measuring control equipment and to general use. The two amplifiers share a common bias network and power supply leads.

Industrial Use HA17558GS, HA17558PS
Commercial Use HA17558

HA17558GS

(DG-8)

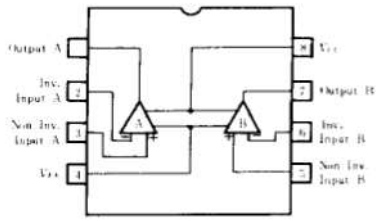
HA17558PS
HA17558

(DP-8)

■FEATURES

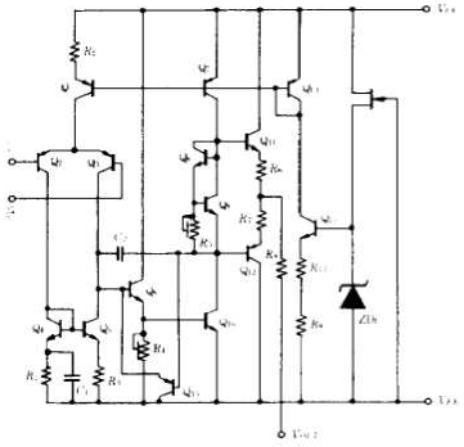
- High Voltage Gain . . . . . 104dB (typ)
- High Speed 1V/μs
- Continuous Short-circuit Protection
- Low-noise operational amplifiers
- Internal Frequency Compensation

■PIN ARRANGEMENT



(Top View)

■CIRCUIT SCHEMATIC (1/2)



■ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Item	Symbol	HA17558	HA17558PS	HA17558GS	Unit	Note
Power Supply	V_{CC}	+18	+18	+18	V	
	V_{EE}	−18	−18	−18	V	
Common-mode Differential Voltage	V_{ID}	±30	±30	±30	V	
Common-mode Input Voltage	V_{IN}	±15	±15	±15	V	1
Power Dissipation	P_T	670 3)	670 3)	670 2)	mW	2, 3
Operating Temperature Range	T_{opr}	0 ~ +70	−20 ~ +75	−20 ~ +75	°C	
Storage Temperature Range	T_{stg}	−55 ~ +125	−55 ~ +125	−65 ~ +150	°C	

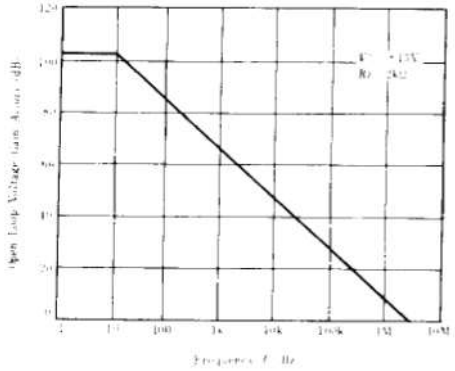
Note 1. For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.
Note 2. Value under Ta=65°C. In case of more than it, 7.6mW/°C derating shall be done.
Note 3. Value under Ta=45°C. In case of more than it, 8.3mW/°C derating shall be done.

■ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = +15V, V_{EE} = −15V)

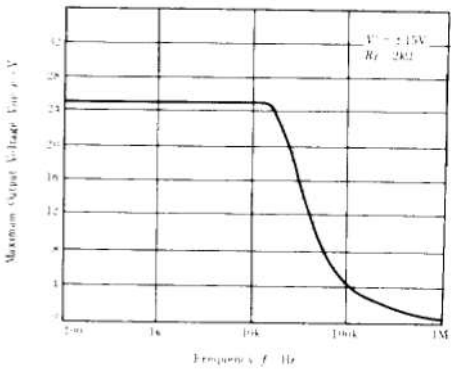
Test Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	R_S ≤ 10kΩ		0.5	6	mV
Input Offset Current	I_{IO}			5	200	nA
Input Bias Current	I_{IB}			50	500	nA
Voltage Gain	A_V	R_L ≥ 2kΩ, V_O = ±10V	86	104		dB
Maximum Output Voltage	V_{OP-P}	R_L = 10kΩ	±12	±14		V
Maximum Output Voltage	V_{OP-P}	R_L = 2kΩ	±10	±12.4		V
Common-mode Input Voltage Range	V_{IN}		±12	±14		V
Common-mode Rejection Ratio	CMR	R_S ≤ 10kΩ	70	100		dB
Supply Voltage Rejection Ratio	SVR	R_S ≤ 10kΩ		110	150	μV/V
Power Dissipation	P_D	2-channel, No Load		90	170	mW
Slew Rate	SR	A_V = 1		1.0		V/μs
Equivalent Input Noise Voltage	V_{NI}	R_S = 1kΩ		6		μVp-p
Channel Separation	CS	f = 1kHz		105		dB

■TYPICAL PERFORMANCE CHARACTERISTICS (Ta = 25°C)

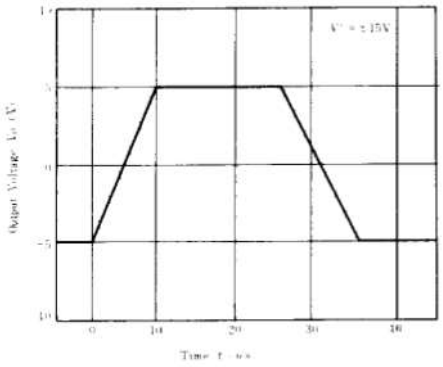
OPEN LOOP VOLTAGE GAIN VS. FREQUENCY



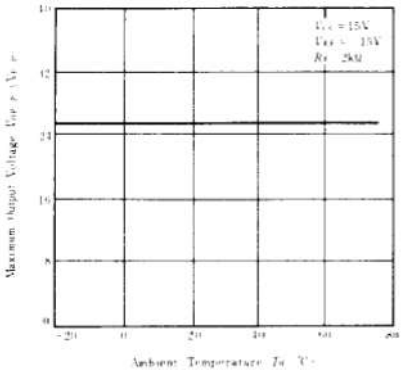
MAXIMUM OUTPUT VOLTAGE VS. FREQUENCY



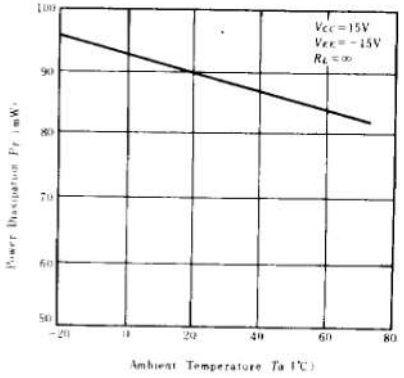
TRANSIENT RESPONSE



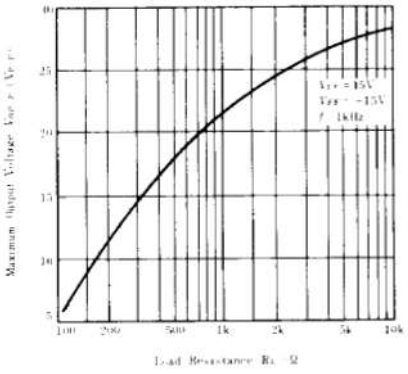
MAXIMUM OUTPUT VOLTAGE VS. AMBIENT TEMPERATURE



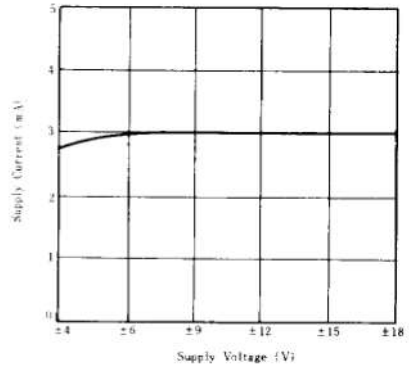
POWER DISSIPATION VS. AMBIENT TEMPERATURE



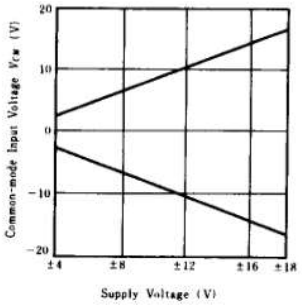
MAXIMUM OUTPUT VOLTAGE VS. LOAD RESISTANCE



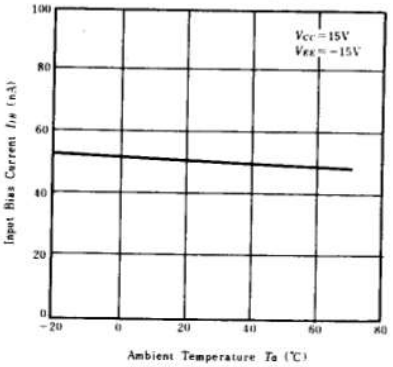
SUPPLY CURRENT VS. SUPPLY VOLTAGE



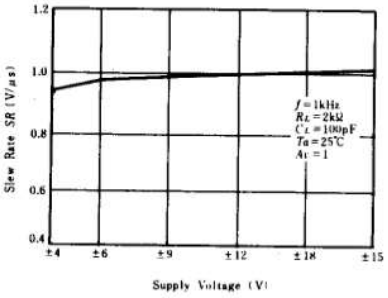
COMMON-MODE INPUT VOLTAGE VS. SUPPLY VOLTAGE



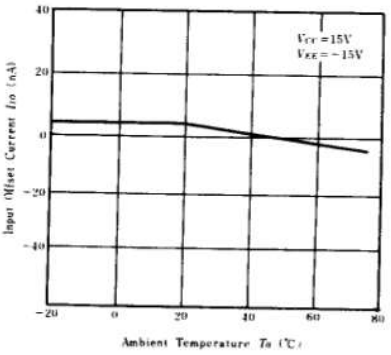
INPUT BIAS CURRENT VS. AMBIENT TEMPERATURE



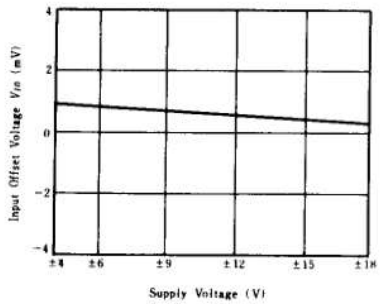
SLEW RATE VS. SUPPLY VOLTAGE



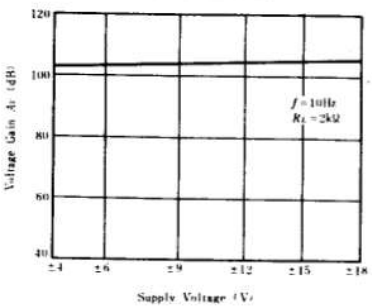
INPUT OFFSET CURRENT VS. AMBIENT TEMPERATURE



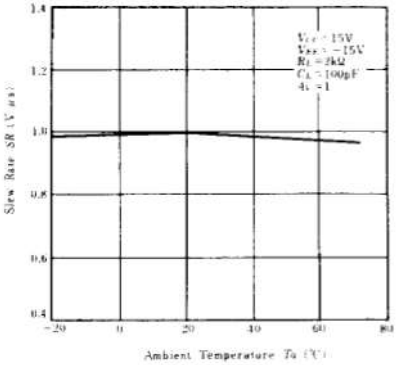
INPUT OFFSET VOLTAGE VS. SUPPLY VOLTAGE



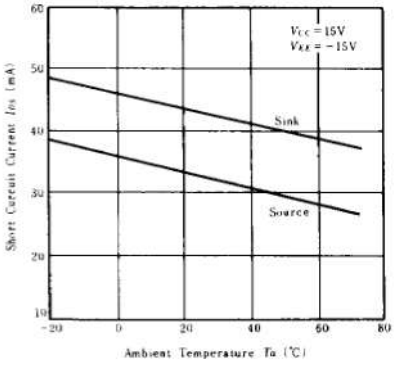
VOLTAGE GAIN VS. SUPPLY VOLTAGE



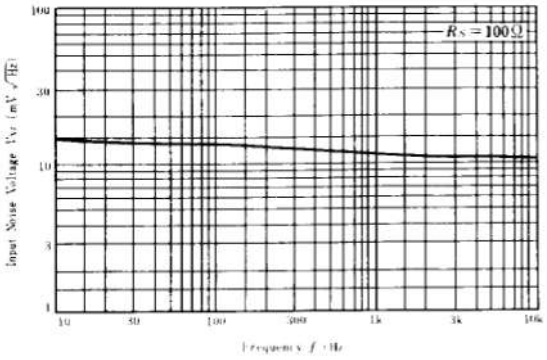
SLEW RATE VS. AMBIENT TEMPERATURE



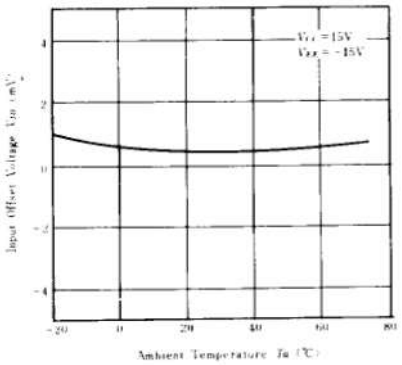
SHORT CIRCUIT CURRENT VS. AMBIENT TEMPERATURE



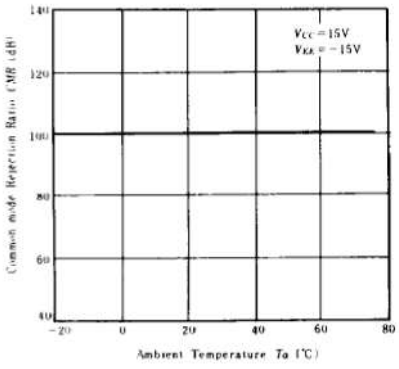
INPUT NOISE VOLTAGE VS. FREQUENCY



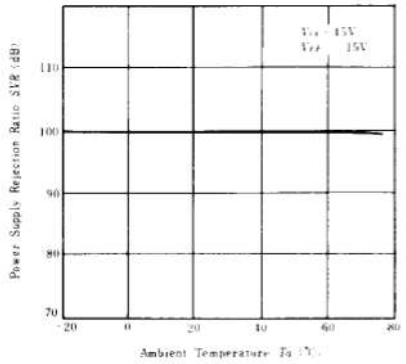
INPUT OFFSET VOLTAGE VS. AMBIENT TEMPERATURE



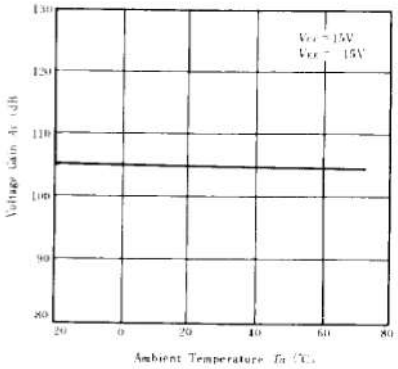
COMMON-MODE REJECTION RATIO VS. AMBIENT TEMPERATURE



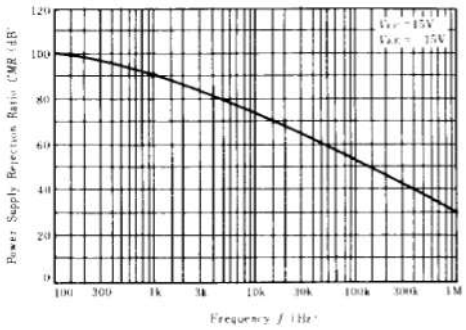
POWER SUPPLY REJECTION RATIO VS. AMBIENT TEMPERATURE



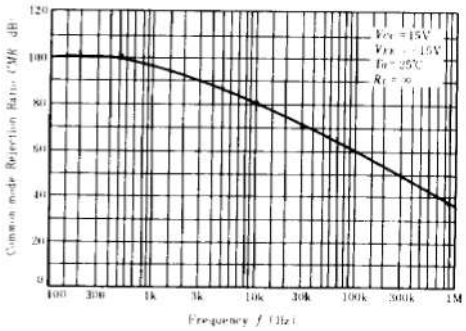
VOLTAGE GAIN VS. AMBIENT TEMPERATURE



POWER SUPPLY REJECTION RATIO VS. FREQUENCY

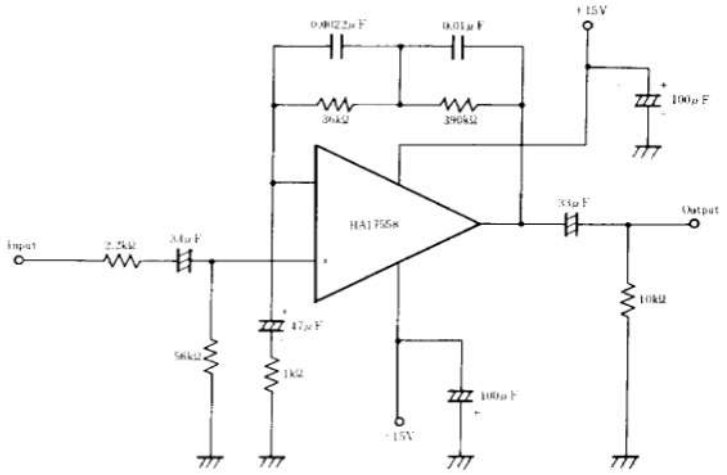


COMMON-MODE REJECTION RATIO VS. FREQUENCY

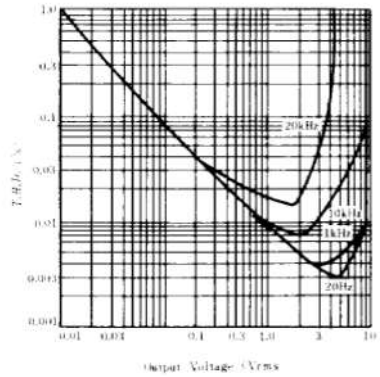


■ CIRCUIT EXAMPLE

RIAA PRE-AMPLIFIER



T.H.D. VS. OUTPUT VOLTAGE (RIAA PRE-AMP.)



VOLTAGE GAIN VS. FREQUENCY (RIAA PRE-AMP.)