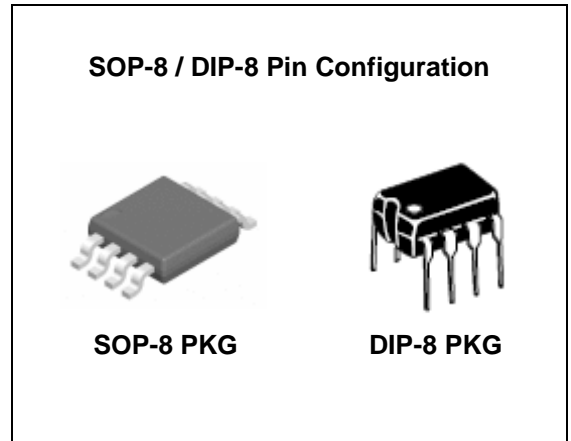


## FEATURES

- Continuous-Short-Circuit Protection
- Wide Common-Mode and Differential Voltage Ranges
- No Frequency Compensation Required
- Low Power Consumption
- No Latch-Up
- Gain and Phase Match Between Amplifiers



## ORDERING INFORMATION

Device	Package
LM4558D	SOP-8
LM4558N	DIP-8

## DESCRIPTION

The LM4558 device is a monolithic integrated circuit designed for dual operational amplifier. The high common-mode input voltage range and the absence of latch-up make these amplifiers ideal for voltage-follower applications. The devices are short-circuit protected and the internal frequency compensation ensures stability without external components.

## ABSOLUTE MAXIMUM RATING <sup>(1)</sup>

CHARACTERISTIC	SYMBOL	Range.	UNIT
Supply Voltage <sup>(2)</sup>	$V_{CC}$	$\pm 22$	V
Differential Input Voltage <sup>(3)</sup>	$V_{I(DIFF)}$	$\pm 30$	V
Input Voltage <sup>(2) (4)</sup>	$V_{IN}$	$\pm 15$	V
Store temperature range	$T_{OPR}$	-65 ~ 150	°C

(1) Stress beyond those listed under absolute Maximum ratings may cause permanent damage to the device. Those indicated under recommended operating conditions is not implied. These are stress ratings only, and functional operating of the device at these or any other conditions beyond Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

(2) All voltage values, unless otherwise noted, are with respect to the midpoint between  $V_{CC+}$  and  $V_{CC-}$ .

(3) Differential voltages are at  $IN+$  with respect to  $IN-$ .

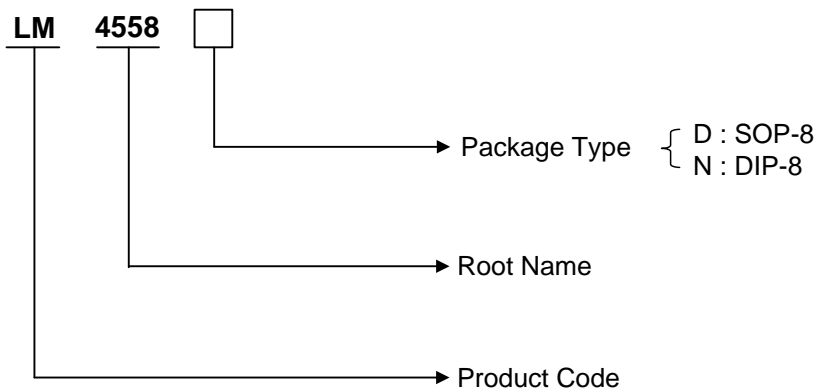
(4) The magnitude of the input voltage must never exceed the magnitude of the supply voltage or 15V, whichever is less.

## RECOMMENDED OPERATING CONDITION

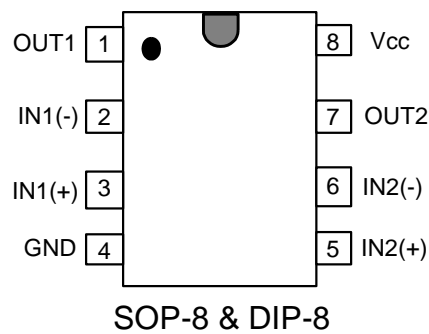
PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply voltage	$V_{CC+}$	5	15	V
	$V_{CC-}$	-5	-15	
Operating free air temperature	$T_A$	-25	85	°C

## Ordering Information

Package	Order No.	Description	Supply As	Status
SOP-8	LM4558D	Dual Operational Amplifier	Reel	Active
DIP-8	LM4558N	Dual Operational Amplifier	Tube	Contact us



## PIN CONFIGURATION



## ELECTRICAL CHARACTERISTICS

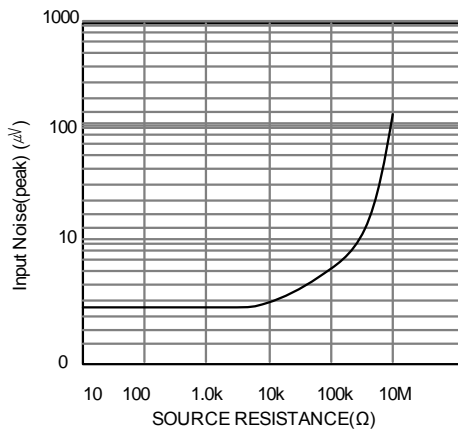
At specified free-air temperature,  $V_{CC}=15V$  (unless otherwise noted)

PARAMETER	TEST CONDITIONS*	MIN	MAX	UNIT
$V_{IO}$ Input offset voltage	$V_O=0V$	25°C	5	mV
		Full range	6	
$I_{IO}$ Input offset current	$V_O=0V$	25°C	160	nA
		Full range	500	
$I_{IB}$ Input bias current	$V_O=0V$	25°C	480	nA
		Full range	1500	
$V_{ICR}$ Common-mode input voltage range		25°C	±12	V
$V_{OM}$ Maximum output voltage swing	$R_L=10k\Omega$	25°C	±12	V
	$R_L=2k\Omega$	25°C	±10	
	$R_L\geq 2k\Omega$	Full range	±10	
$A_{VD}$ Large-signal differential voltage amplification	$V_O=\pm 10V$ $R_L\geq 2k\Omega$	25°C	50	V/mV
		Full range	25	
$r_i$ Input resistance		25°C	0.3	MΩ
CMRR Common-mode rejection ratio		25°C	70	dB
$k_{SVR}$ Supply voltage sensitivity ( $\Delta V_{IO}/\Delta V_{CC}$ )		25°C		150 uV/V
$I_{CC}$ Supply current (two amplifiers)	$V_O=0V$ No load	25°C	5.0	mA
		$T_A(\text{Min})$	5.9	
		$T_A(\text{Max})$	4.5	

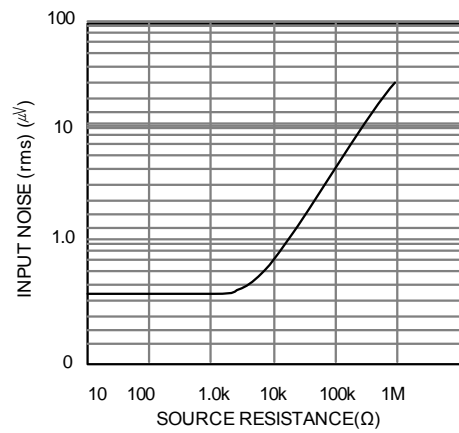
\* All characteristics are measured under open-loop conditions with zero common-mode input voltage unless otherwise specified.

"MAX"  $V_{CC}$  for testing purposes is 15V,  $V_{CCabsmax} = 22V$ , Temperature full range is -25°C to +85°C.

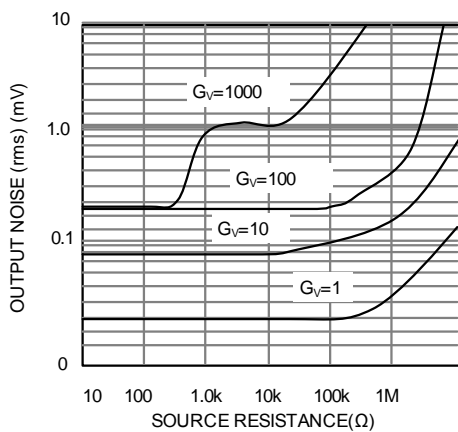
## TYPICAL ELECTRICAL CHARACTERISTICS



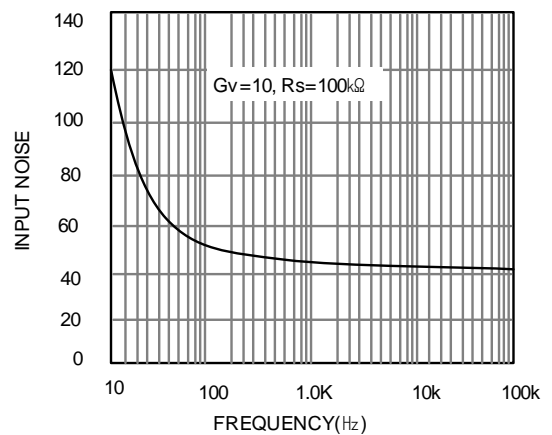
Burst Noise vs Source Resistance



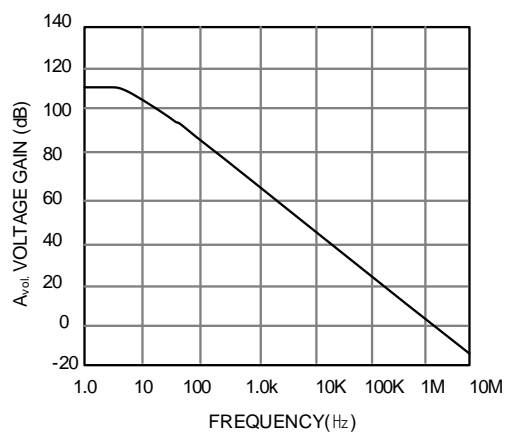
RMS Noise vs Source Resistance



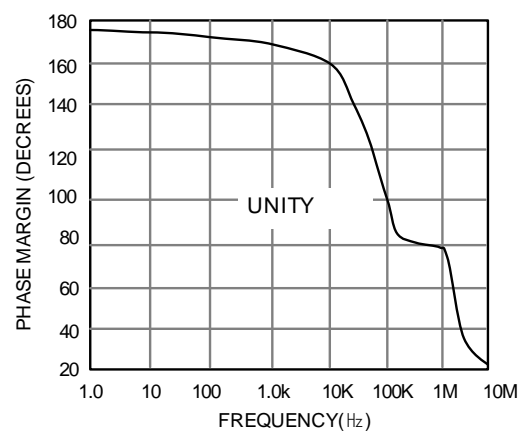
Output Noise vs Source Resistance



Spectral Noise Density

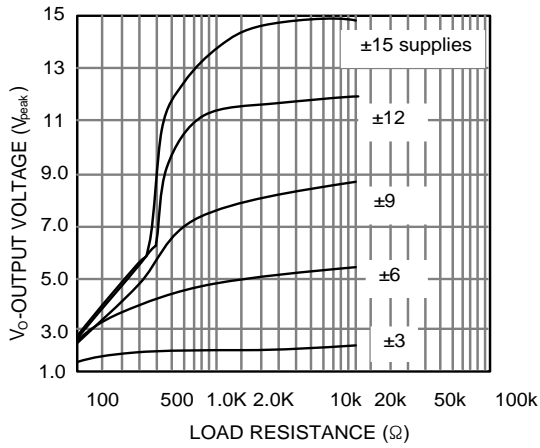


Open Loop Frequency Response

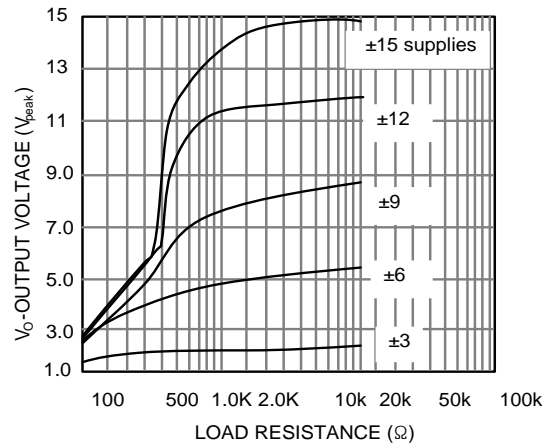


Phase Margin vs Frequency

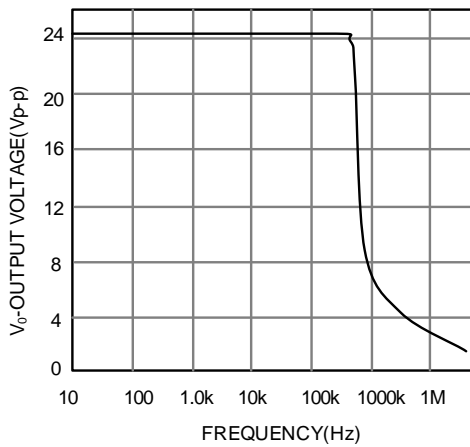
## TYPICAL ELECTRICAL CHARACTERISTICS (Continued)



Positive Output Voltage Swing vs Load Resistance



Negative Output Voltage Swing vs Load Resistance



Power Bandwidth

## REVISION NOTICE

The description in this datasheet can be revised without any notice to describe its electrical characteristics properly.