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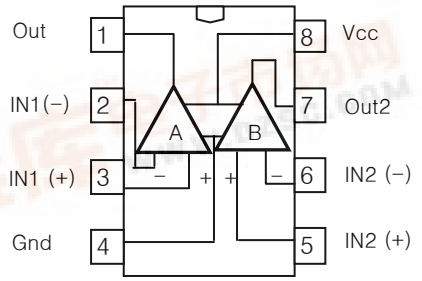
DUAL OPERATIONAL AMPLIFIERS LM4558

FEATURES

- No frequency Compensation Required
- No latch-up
- Large common mode and differential voltage range
- Parameter tracking over temperature range
- Gain and phase match between amplifiers
- Internally frequency compensated
- Low noise input transistors

SOP8/ DIP8 PKG



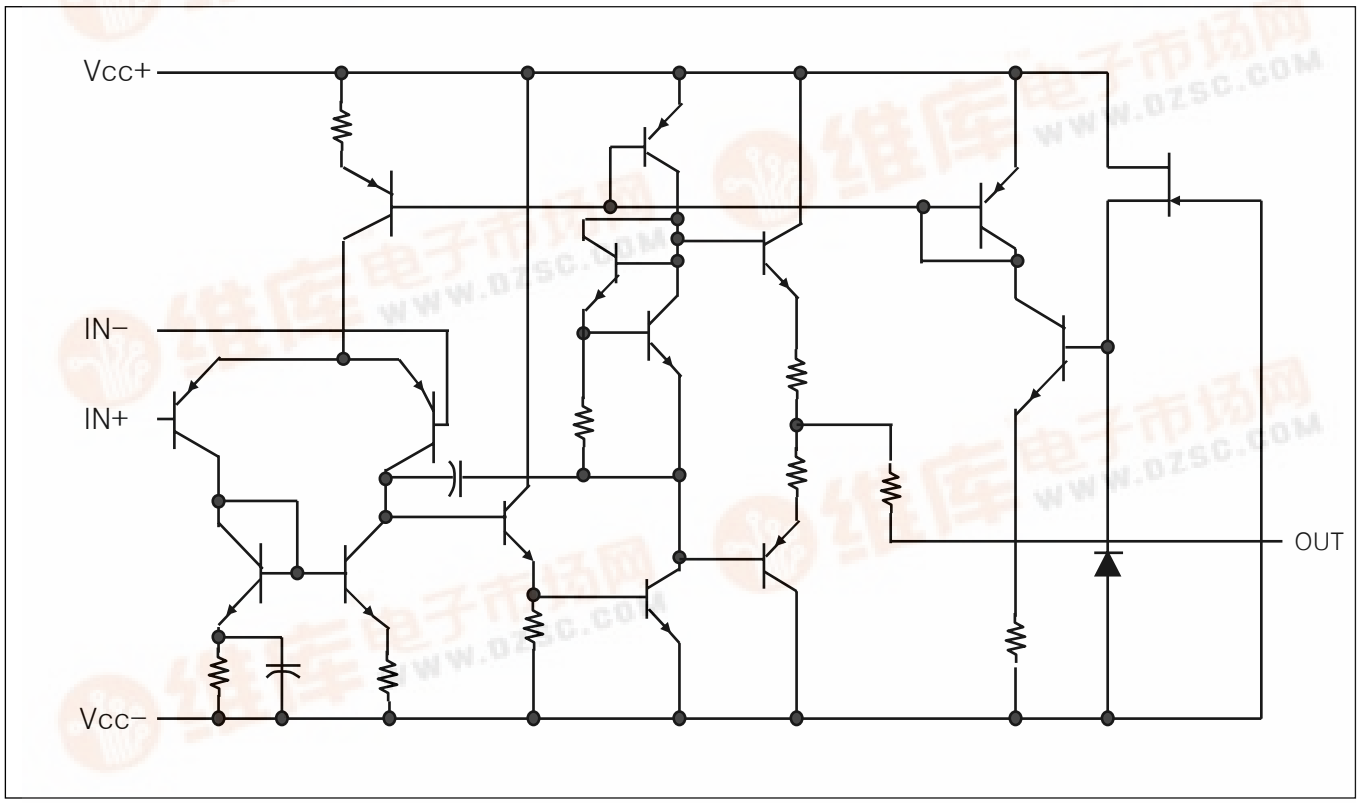
ORDERING INFORMATION

Device	Package
LM4558D	8 SOP
LM4558N	8 DIP

DESCRIPTIONS

The LM4558 devices 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 compen -sation ensures stability without external components.
The LM4558 is characterized for operation from 0°C TO 70°C.

SCHEMATIC (EACH AMPLIFIER)



Absolute maximum ratings over operating free-air temperature range.

		LM4558	UNIT
Supply Voltage	V_{CC}	± 22	V
Differential Input Voltage	$V_{I(DIFF)}$	±30	V
Input Voltage	V_I	±15	V
Duration of output short circuit to ground, one amplifier at a time		Unlimited	
Short temperature range	T_{stg}	−65 to 150	°C

Recommended operating conditions

		MIN	MAX	UNIT
Supply voltage	Vcc+	5	15	V
	Vcc−	−5	−15	
Operating free-air temperature, T_A	LM4558	0	70	°C

Electrical characterisitics at specified free-air temperature, V_{CC}= 15V(unless otherwise noted)

PARAMETER		TEST CONDITIONS*		LM4558 MIN	LM4558 TYP	LM4558 MAX	UNIT
V_{IO} Input Offset Voltage		VO=0	25℃		0.5	5	mV
			Full Range			6	
V_{01}/V_{02} Crosstalk attenuation	Open	R_S=100 Ω f=1kHz	25℃		85		
	A_{VD}=100				100		
I_{IO} Input Offset Current		VO=0	25℃		5	200	nA
			Full Range			500	
r_J		Input resistance	25℃	0	5		MΩ
I_{IB} Input Bias Current		VO=0	25℃		140	500	nA
			Full Range			1500	
V_{ICR} Common-Mode Input Voltage range			25℃	±12	±14		V
VOM Maximum output voltage swing		R_L = 10 kΩ	25℃	±12	±14		V
		R_L = 2 kΩ	25℃	±10	±13		
		R_L≥2kΩ	Full Range	±10			
A_{VD} Large-Signal Differential Voltage Amplification		V_O=±10V R_L≥2kΩ	25℃	50	350		V/mV
			Full Range	25			
CMRR Common-Mode Rejection Ratio		V_{CC}=5V to MAX, V_{IC}=V_{ICR} MIN	25℃	65	80		dB
K_{SVS} Supply Voltage Sensitivity Ratio($\Delta V_{IO}/\Delta V_{CC}$)			25℃		30	150	μV/V
V_{01}/V_{02} Crosstalk Attenuation		f=1 kHz to 20kHz	25℃		120		dB
I_{CC} Supply Current (Both Amplifiers)		V_O=o, No Load	25℃		2.5	5.6	mA
			T_A(min)		3.0	6.6	
			T_A(max)		2.0	5.0	

* All characteristics are measured under open-loop conditions with zero common-mode input voltage unless otherwise specified. Full range is 0°C to 70 °c. T_A(min) = 0°C. T_A(max)= 70°C.

TYPICAL PERFORMANCE CHARACTERISTICS

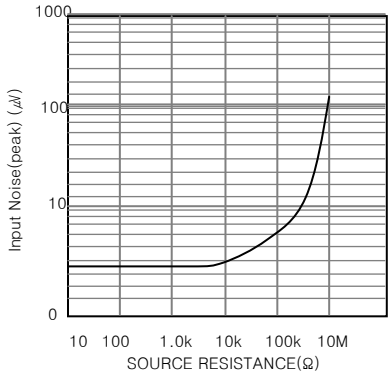


Figure 1. Burst Noise vs Source Resistance

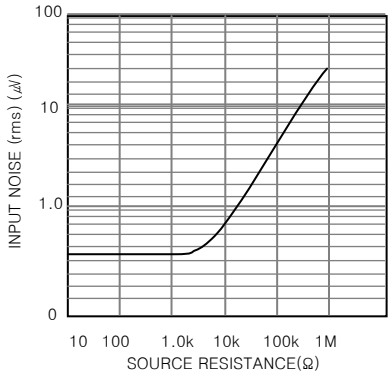


Figure 2. RMS Noise vs Source Resistance

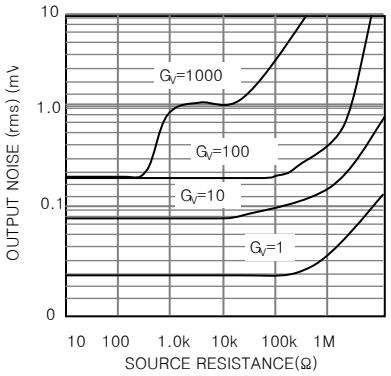


Figure 3. Output Noise vs Source Resistance

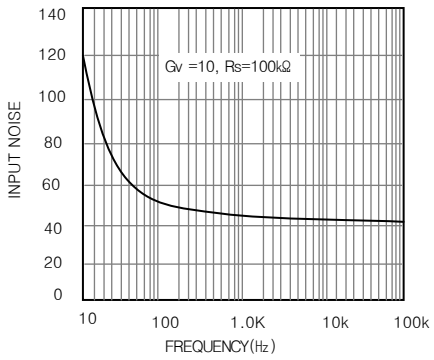


Figure 4. Spectral Noise Density

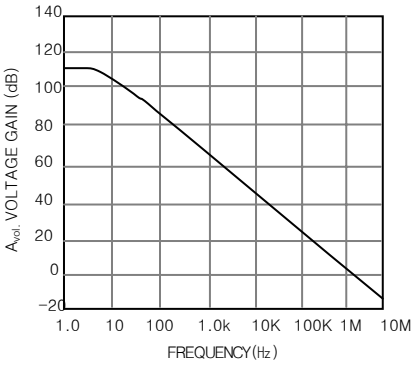


Figure 5. Open Loop Frequency Response

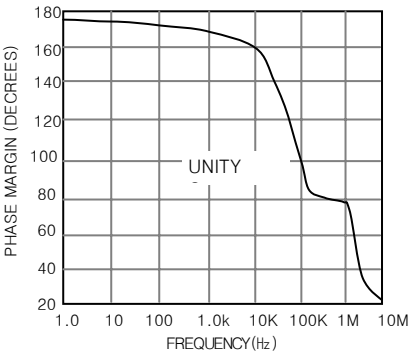


Figure 6. Phase Margin vs Frequency

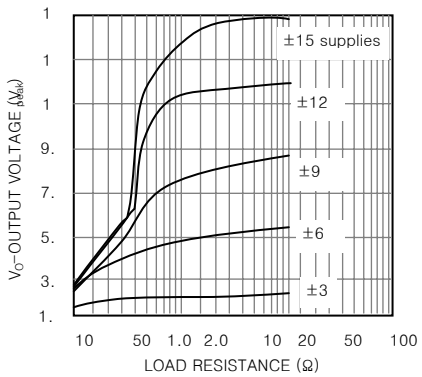


Figure 7. Positive Output Voltage Swing vs Load Resistance

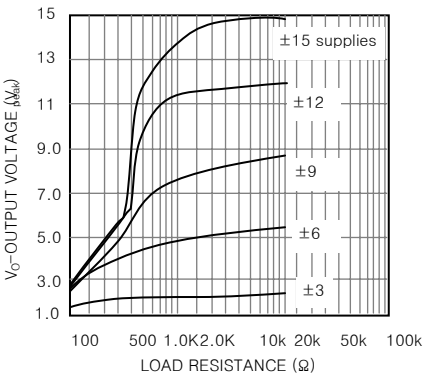


Figure 7. Negative Output Voltage Swing vs Load Resistance

OUTPUT CHARACTERISITICS
CURRENT SINKING

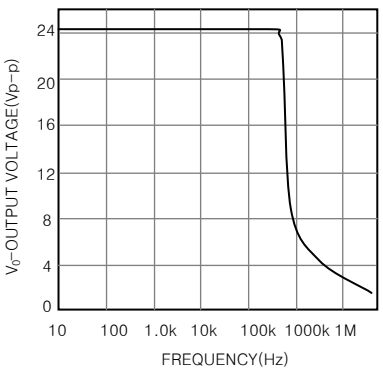


Figure 9. Power Bandwidth