
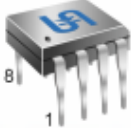
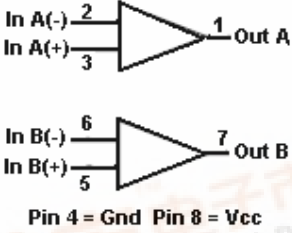
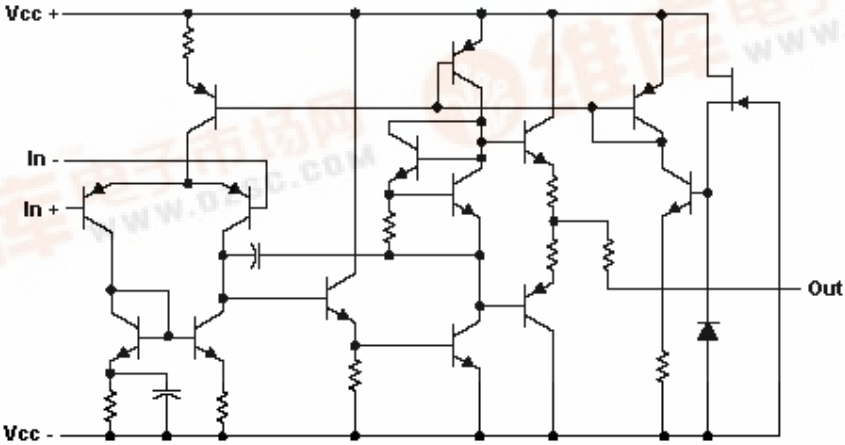
	<h2 style="margin: 0;">TS4558</h2> <h3 style="margin: 0;">Dual General Purpose Operational Amplifier</h3>											
<p>SOP-8</p> 	<p>DIP-8</p> 	<p>Pin Assignment</p> <ol style="list-style-type: none"> 1. Out A 2. Input A (-) 3. Input A (+) 4. Ground 5. Input B (+) 6. Input B (-) 7. Output B 8. Vcc 	<p>Supply Voltage Range -18 V to 18V</p> <p>Unity Gain Bandwidth 3MHz</p> <p>Dual Channel Amplifier</p>									
<p>General Description</p> <p>The TS4558 is dual general purpose operational amplifier, and provide the high common-mode input voltage range and the absence of latch-up make these amplifiers ideal for voltage follower application.</p> <p>The devices are short circuit protected and the internal frequency compensation ensures stability without external components.</p> <p>The TS4558 is offered in 8 pin SOP-8 and DIP-8 package.</p>												
<p>Features</p> <ul style="list-style-type: none"> ◇ Short circuit protection ◇ Wide common-mode and differential ranges ◇ No frequency compensation required ◇ Low power consumption ◇ No latch-up ◇ 3MHz unity gain bandwidth guaranteed ◇ Gain and phase match between amplifiers 	<p>Block Diagram</p>  <p style="text-align: center;">Pin 4 = Gnd Pin 8 = Vcc</p>											
<p>Applications</p> <ul style="list-style-type: none"> ◇ DVD player ◇ Audio application 	<p>Ordering Information</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Part No.</th> <th style="width: 35%;">Operating Temp.</th> <th style="width: 40%;">Package</th> </tr> </thead> <tbody> <tr> <td>TS4558CD</td> <td style="text-align: center;">0 ~ +70 °C</td> <td style="text-align: center;">DIP-8</td> </tr> <tr> <td>TS4558CS</td> <td></td> <td style="text-align: center;">SOP-8</td> </tr> </tbody> </table>			Part No.	Operating Temp.	Package	TS4558CD	0 ~ +70 °C	DIP-8	TS4558CS		SOP-8
Part No.	Operating Temp.	Package										
TS4558CD	0 ~ +70 °C	DIP-8										
TS4558CS		SOP-8										
<p>Schematic (each amplifier)</p> 												





Absolute Maximum Rating			
Supply Voltage	V _{CC +}	18	V
Supply Voltage	V _{CC -}	- 18	V
Differential Input Voltage	V _{IDR}	±30	V
Input Voltage	V _{in}	30	V
Package Thermal Impedance	SOP-8 DIP-8	θ _{ja}	97 85
Operating Junction Temperature Range	T _J	0 ~ +125	°C
Storage Temperature Range	T _{STG}	-65 ~ +150	°C
Lead Temperature 1.6mm(1/16") from case for 10Sec.	T _{LEAD}	260	°C
Note: Maximum ratings are those values beyond which damage to the device may occur, and functional operation should be restricted to the recommended operating condition.			

Recommended Operating Conditions			
Supply Voltage	V _{CC +}	15	V
Supply Voltage	V _{CC -}	- 15	V

Electrical Characteristics						
(V _{CC} = ±15V, T _a =25 °C; unless otherwise specified.)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V _{io}	R _s ≤ 10kΩ		0.5	±6	mV
Input Offset Current	I _{io}			20	±200	nA
Input Bias Current	I _{ib}			150	500	nA
Input Resistance	R _i		0.3	5		MΩ
Unity Gain Bandwidth	B ₁			3		MHz
Large-Signal Voltage Gain	A _v	R _L ≥ 2kΩ, V _c = ±10V	20	300		V/mV
Output Voltage Swing	V _{om}	R _L ≥ 10kΩ	±12	±14		V
		R _L ≥ 2kΩ	±10	±14		
Input Common-Mode Voltage Range	V _{icr}		±12	±13		V
Common-Mode Rejection Ratio	CMRR	R _s ≤ 10kΩ	70	90		dB
Supply Voltage Rejection Ratio	PSRR	R _s ≤ 10kΩ		30	150	uV/V
Slew Rate	SR	R _L = 2kΩ, V _{in} =10V, L=100pF	0.8	1.6		V/uS
Supply Current	I ⁺ , I ⁻			2.5	5.6	mA
Power Consumption	P _c	R _L = ∞		75	170	mV
Input Noise Voltage	V _n	R _s = 1kΩ, f = 30Hz~30KHz			3.5	uVrms
Source Current	I _{source}		- 20			mA
Sink Current	I _{sink}		20			mA

Note 1: All characteristics are measured under open-loop conditions with zero common-mode input voltage, unless otherwise specified.



Electrical Characteristics Curve

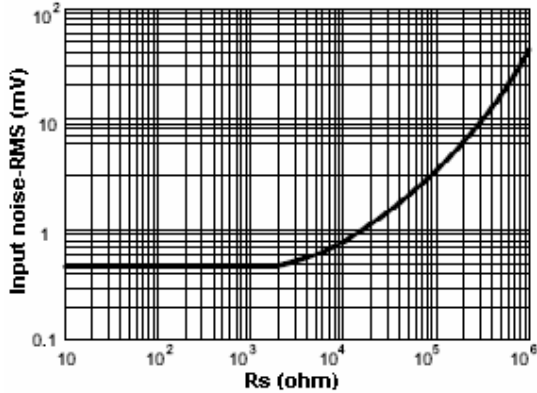


Figure 1. RMS noise vs R_s

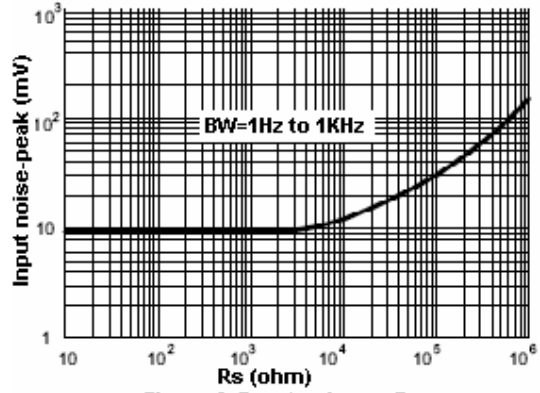


Figure 2. Burst noise vs R_s

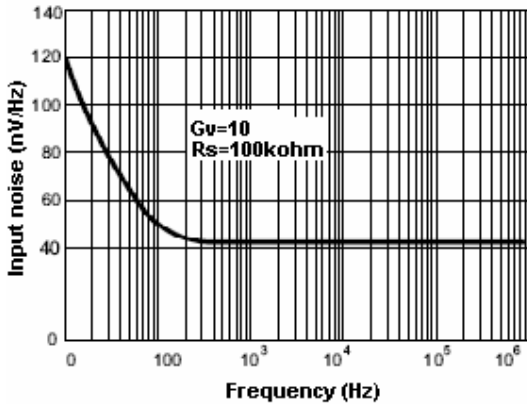


Figure 3. Spectral noise density

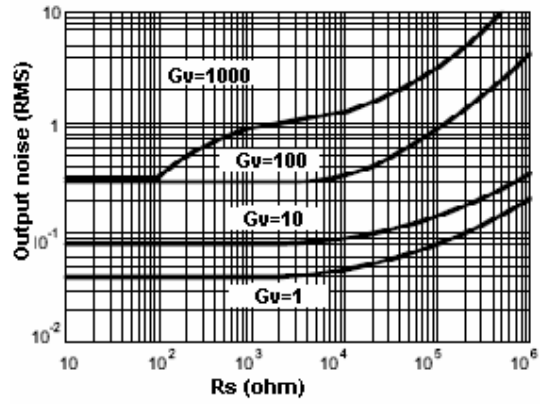


Figure 4. Output noise vs R_s

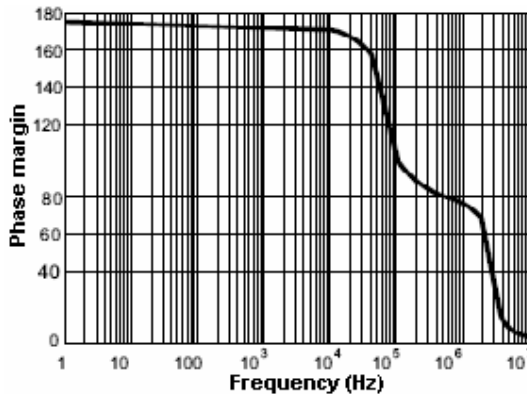


Figure 5. Phase margin vs Frequency

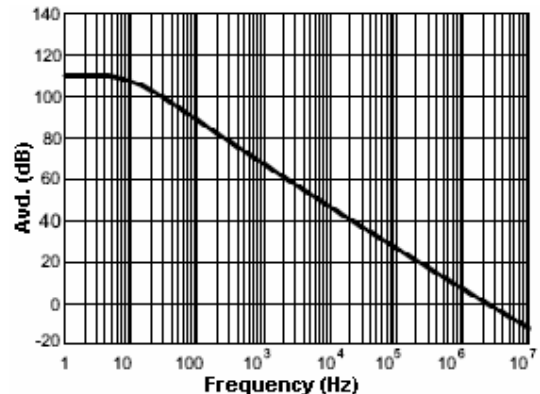


Figure 6. Open loop frequency response



Electrical Characteristics Curve

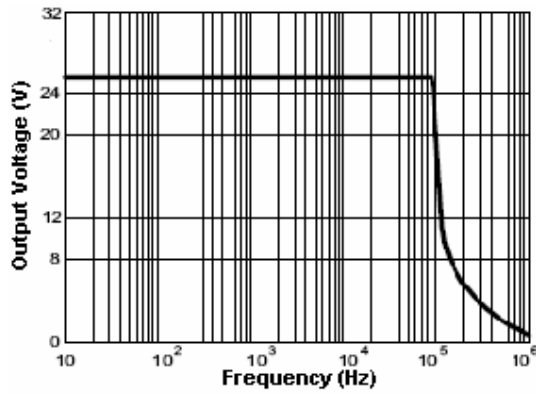


Figure 7. Power bandwidth (large signal)

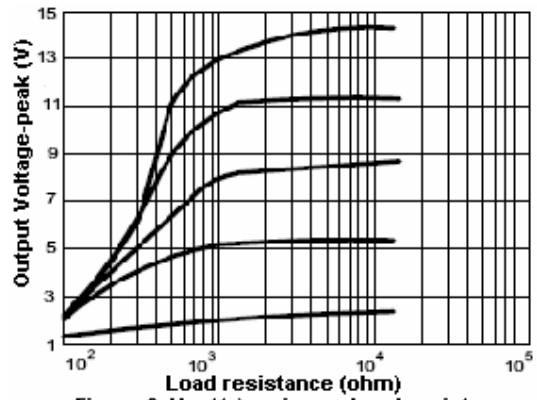
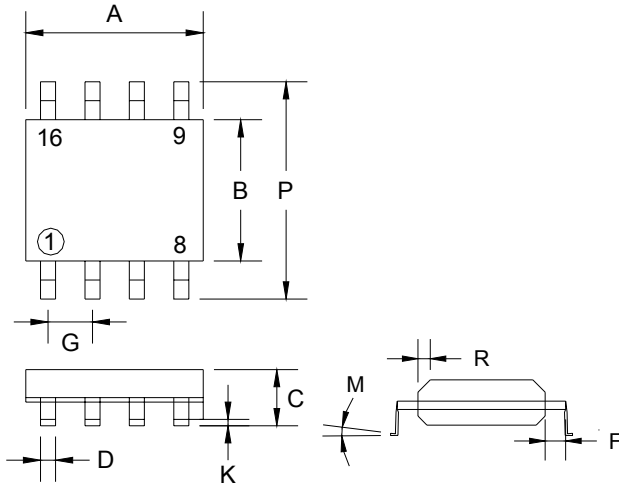


Figure 8. Vout(+) swing vs Load resistance

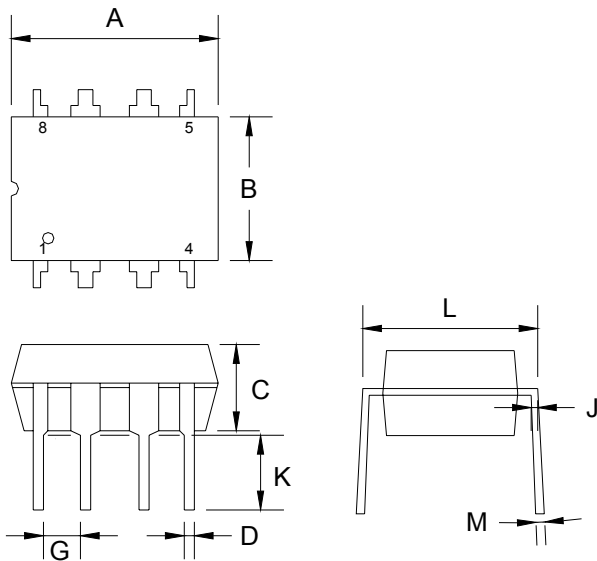


SOP-8 Mechanical Drawing



SOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 (typ)		0.05 (typ)	
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

DIP-8 Mechanical Drawing



SOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.07	9.32	0.357	0.367
B	6.22	6.48	0.245	0.255
C	3.18	4.45	0.125	0.135
D	0.35	0.55	0.019	0.020
G	2.54 (typ)		0.10 (typ)	
J	0.29	0.31	0.011	0.012
K	3.25	3.35	0.128	0.132
L	7.75	8.00	0.305	0.315
M	-	10°	-	10°