

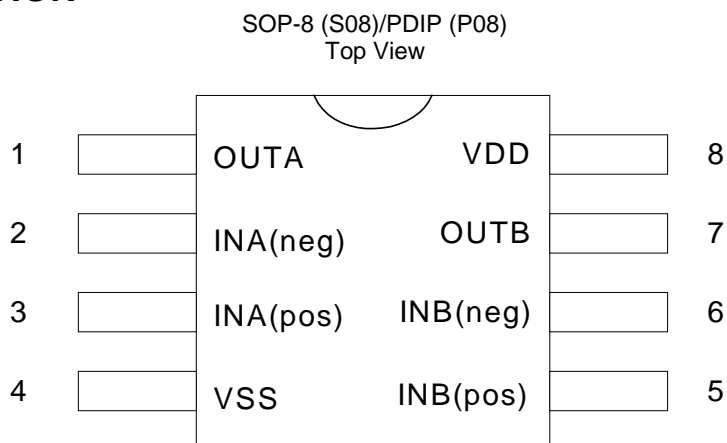
GENERAL DESCRIPTION

The CM8608 is an integrated class AB stereo headphone driver contained in an SO8 or a DIP8 plastic package. The device is fabricated in a 1 mm CMOS process and has been primarily developed for portable digital audio applications.

FEATURES

- ◆ Wide temperature range
- ◆ No switch ON/OFF clicks
- ◆ Excellent power supply ripple rejection.
- ◆ Low power consumption
- ◆ Short-circuit resistant
- ◆ High performance
 - ◇ high signal-to-noise ratio
 - ◇ high slew rate
 - ◇ low distortion
- ◆ Large output voltage swing

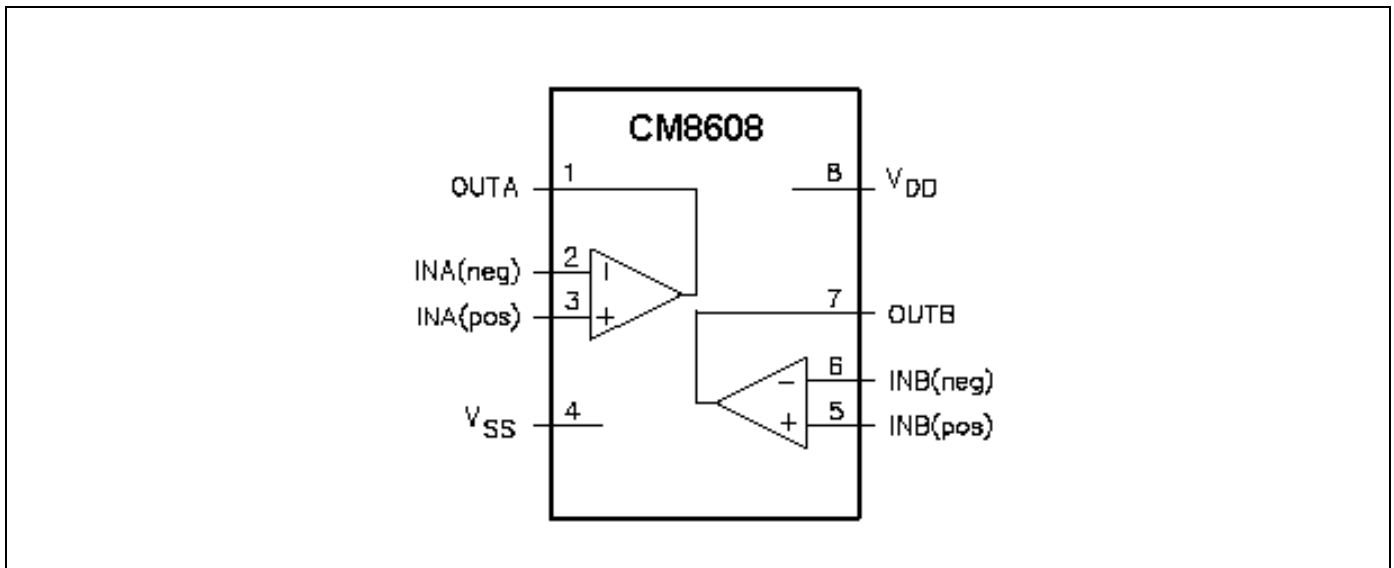
PIN CONFIGURATION



PIN DESCRIPTION

Pin No.	Symbol	Description
1	OUTA	Output A
2	INA(neg)	Inverting input A
3	INA(pos)	Non-inverting input A
4	VSS	Negative supply
5	INB(pos)	Non-inverting input B
6	INB(neg)	Inverting input B
7	OUTB	Output B
8	VDD	Positive supply

BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Temperature Range	Package
CM8608IP	-40°C to 85°C	8-Pin PDIP (P08)
CM8608IS	-40°C to 85°C	8-Pin SOP (S08)

ABSOLUTE MAXIMUM RATINGS

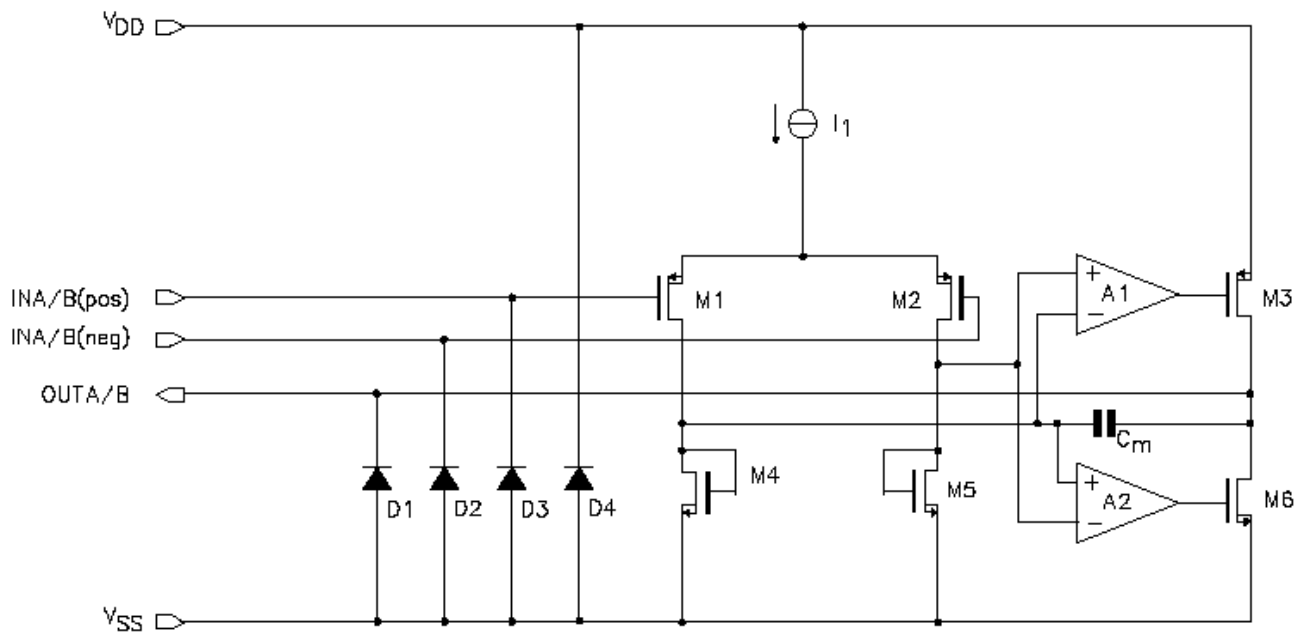
Absolute Maximum ratings are those values beyond which the device could be permanently damaged.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DD}	supply voltage		0	8.0	V
$t_{SC(O)}$	output short-circuit duration	$T_{amb} = 25^{\circ}\text{C}; P_{tot} = 1\text{ W}$	20	–	s
T_{stg}	storage temperature		-65	+150	°C
T_{amb}	operating ambient temperature		-40	+85	°C
V_{esd}	electrostatic discharge	note 1	-2000	+2000	V
		note 2	-200	+200	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient in free air		
	DIP8	109	K/W
	SO8	210	K/W

TYPICAL APPLICATION



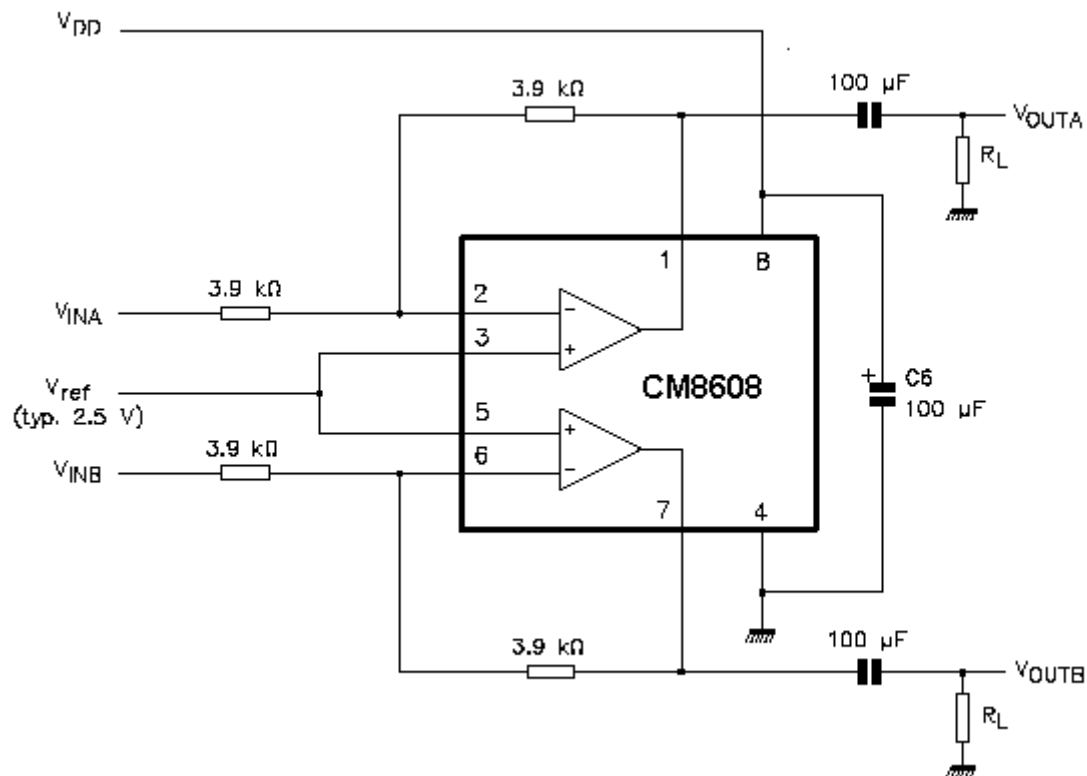
ELECTRICAL CHARACTERISTICS (Unless otherwise stated, these specifications apply $T_A=25^{\circ}\text{C}$; $V_{SS}=0\text{V}$, $V_{DD}=+5\text{V}$, $f_i = 1\text{kHz}$, $R_L = 32\Omega$) maximum ratings are stress ratings only and functional device operation is not implied.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Supplies						
V_{DD}	supply voltage					
	single		3.0	5.0	7.0	V
	dual		1.5	2.5	3.5	V
V_{SS}	negative supply voltage		-1.5	-2.5	-3.5	V
I_{DD}	supply current	no load	–	3	5	mA
P_{tot}	total power dissipation	no load	–	15	25	mW
DC characteristics						
$V_{I(0s)}$	input offset voltage		–	10	–	mV
I_{bias}	input bias current		–	10	–	pA
V_{CM}	common mode voltage		0	–	3.5	V
G_v	open-loop voltage gain	$R_L = 5\text{ k}\Omega$	–	70	–	dB
I_O	maximum output current	$(THD + N)/S < 0.1\%$	–	60	–	mA
R_O	output resistance		–	0.25	–	Ω
V_O	output voltage swing	note 1	0.75	–	4.25	V
		$R_L = 16\Omega$; note 1	1.5	–	3.5	V
		$R_L = 5\text{ k}\Omega$; note 1	0.1	–	4.9	V
PSRR	power supply rejection ratio	$f_i = 100\text{ Hz}$; $V_{ripple(p-p)} = 100\text{ mV}$	–	90	–	dB
α_{cs}	channel separation		–	70	–	dB
		$R_L = 5\text{ k}\Omega$	–	105	–	dB
C_L	load capacitance		–	–	200	pF
AC characteristics						
(THD + N)/S	total harmonic distortion plus noise-to-signal ratio	note 2	–	-70	-65	dB
			–	0.03	0.06	%
		note 2; $R_L = 5\text{ k}\Omega$	–	-101	–	dB
			–	0.0009	–	%
S/N	signal-to-noise ratio		100	110	–	dB
f_G	unity gain frequency	open-loop; $R_L = 5\text{ k}\Omega$	–	5.5	–	MHz
P_o	maximum output power	$(THD + N)/S < 0.1\%$	–	60	–	mW
C_i	input capacitance		–	3	–	pF
SR	slew rate	unity gain inverting	–	5	–	V/ μs
B	power bandwidth	unity gain inverting	–	20	–	kHz

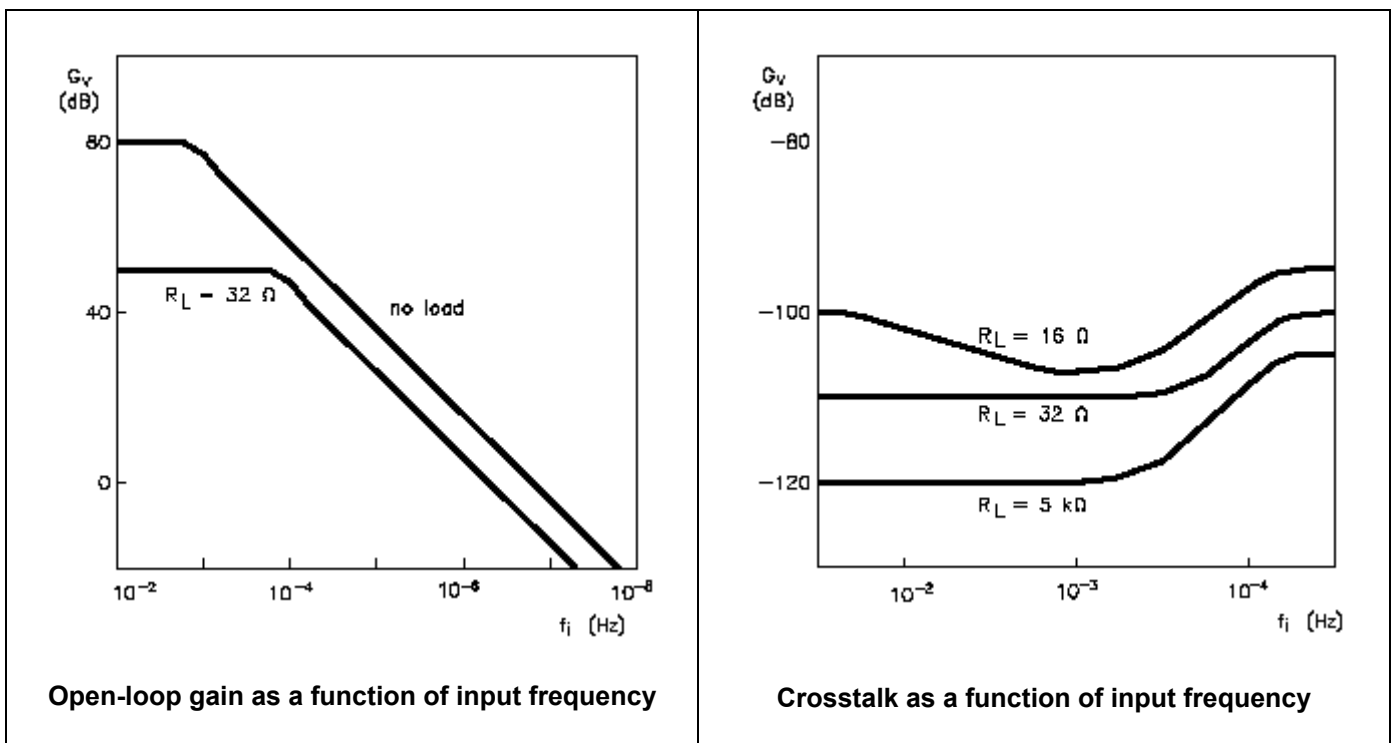
Notes

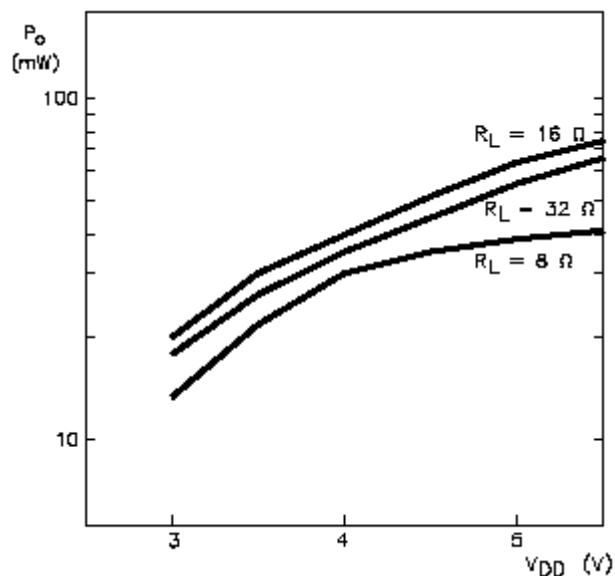
- Values are proportional to V_{DD} ; $(THD + N)/S < 0.1\%$.
- $V_{DD} = 5.0\text{ V}$; $V_{O(p-p)} = 3.5\text{ V}$ (at 0 dB).

TEST INFORMATION

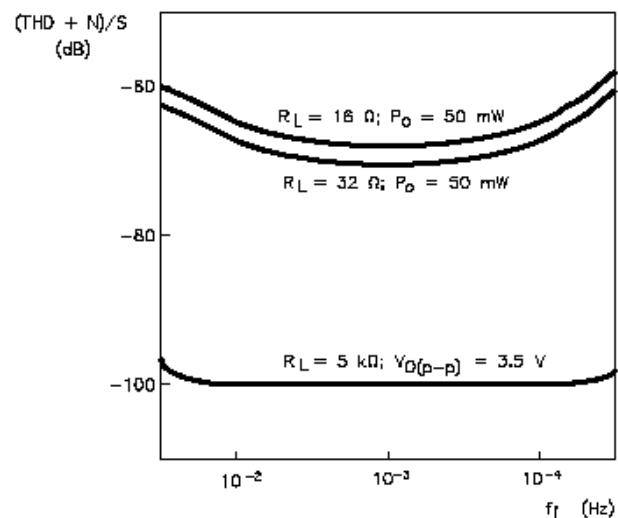


TYPICAL CHARACTERISTICS

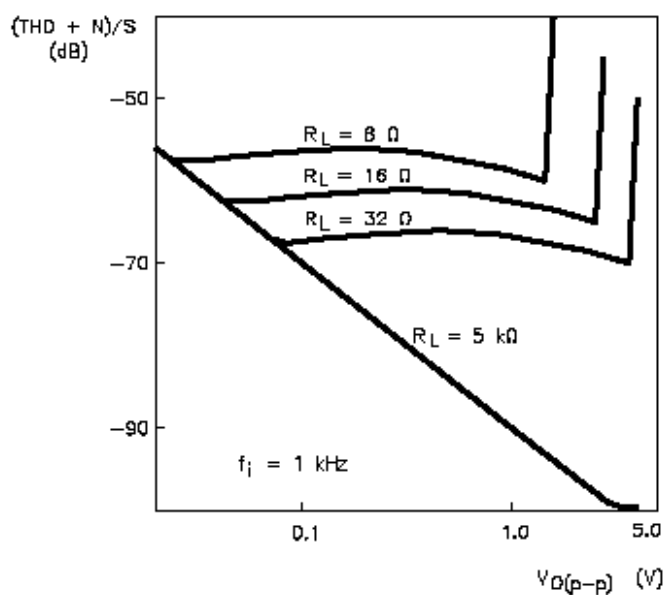




Output power as a function of supply voltage



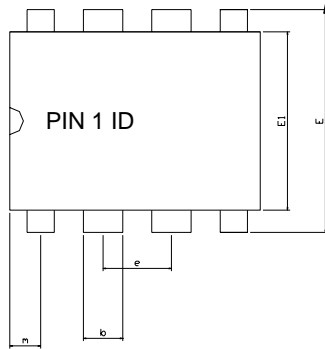
THD plus noise-to-signal ratio as a function of input frequency



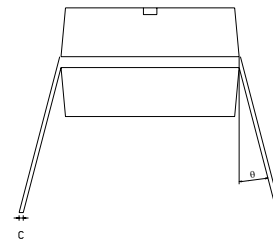
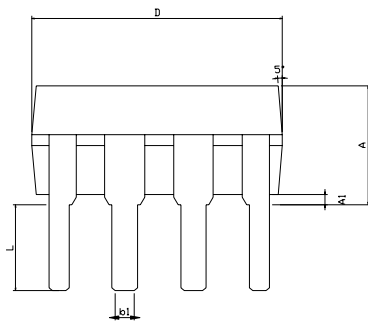
THD plus noise-to-signal ratio as a function of output voltage level

PACKAGE DIMENSION

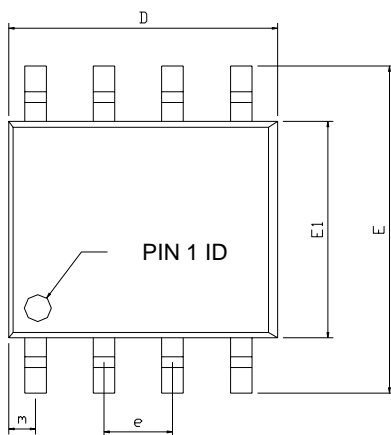
8-PIN PDIP (P08)



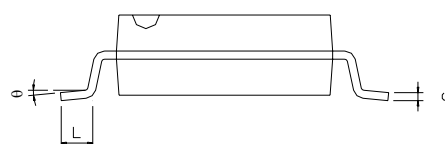
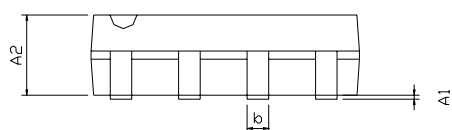
SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	---	---	4.32	---	---	0.170
A1	0.38	---	---	0.015	---	---
b	1.40	---	1.65	0.055	---	0.065
b1	0.40	---	0.56	0.016	---	0.022
C	0.20	---	0.31	0.008	---	0.012
D	9.27	---	9.77	0.365	---	0.385
E	7.49	---	8.26	0.295	---	0.325
E1	6.09	---	6.61	0.240	---	0.260
e	---	2.54	---	---	0.100	---
L	3.18	---	---	0.125	---	---
m	0.50	---	---	0.02	---	---
θ	0	---	15	0	---	15



8-PIN SOP (S08)



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHS		
	MIN	NOM	MAX	MIN	NOM	MAX
A1	0.10	---	0.25	0.004	---	0.010
A2	1.40	---	1.55	0.055	---	0.061
b	0.30	---	0.51	0.012	---	0.020
C	0.15	---	0.26	0.006	---	0.010
D	4.60	---	5.06	0.169	---	0.199
E	5.79	---	6.20	0.228	---	0.244
E1	3.76	---	4.01	0.148	---	0.158
e	---	1.27	---	---	0.050	---
L	0.38	---	0.69	0.015	---	0.035
m	0.43	---	0.69	0.017	---	0.027
θ	0°	---	8°	0°	---	8°



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