

ML8202 – Filterless 2W Class D Stereo Audio Amplifier

Features

- 2.0W Output with a 4 Load and 5V Power
- Filterless, Low Quiescent Current and Low EMI
- Low THD+N
- Superior Low Noise
- Low pop noise
- Efficiency up to 88%
- Short Circuit Protection
- Thermal Shutdown
- Few External Components to Save the space and Cost
- Pb-Free Package

Applications

- LCD Monitors / TV Projectors
- Notebook Computers
- Portable Speakers
- Portable DVD Players, Game Machines
- VoIP/Speaker Phones

Description

The ML8202 is a 2.0W, class-D audio amplifier. It offers low THD+N, to produce high-quality sound reproduction. The new filterless architecture allows the device to drive the speaker directly, without low-pass output filters which will save 30% system cost and 75% PCB area.

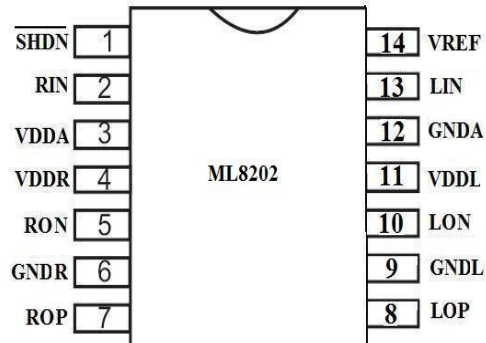
With the same numbers of external components, the efficiency of the MP8202 is much better than class-AB cousins. It can extend the battery life thus be ideal for portable applications.

The ML8202 is available in a TSSOP-14 / SOP14 / TSSOP14PP package.

Pin Configuration & Marking

TSSOP14 / SOP14 / TSSOP14PP

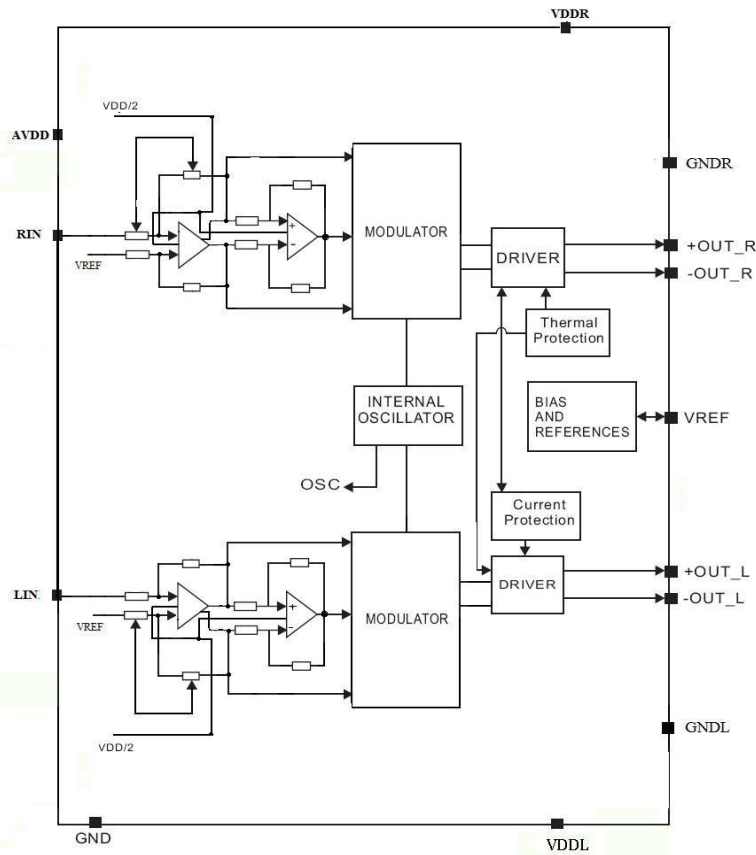
Top View



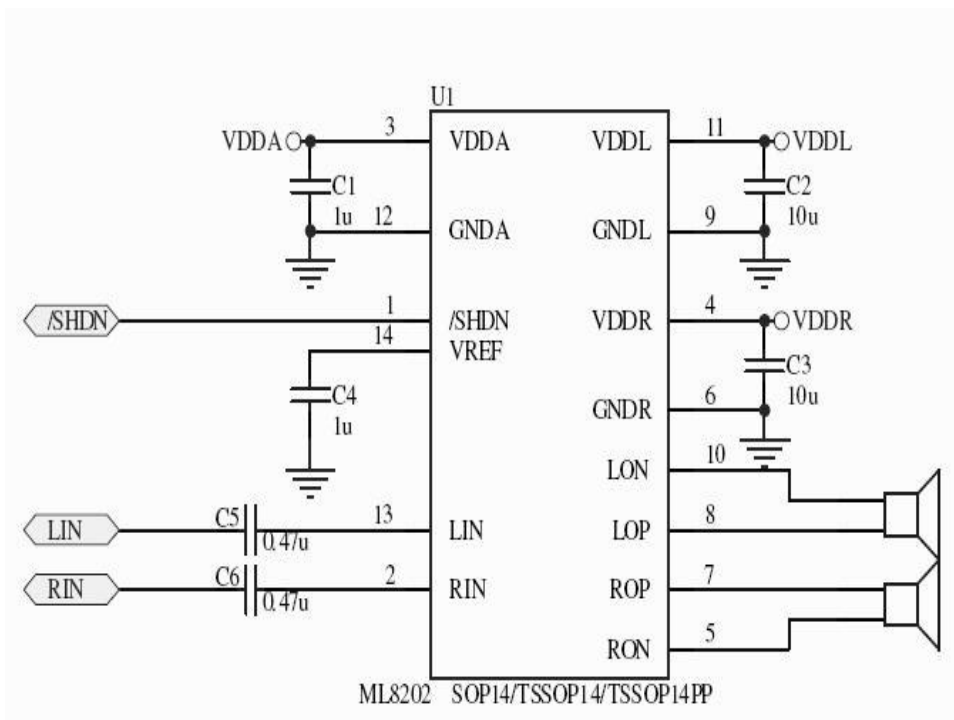
Pin Description

Pin Number	Pin Name	Description
1	SHDN	Shutdown Control Input (active Low)
2	RIN	Right Channel Input
3	VDDA	Analog VDD
4	VDDR	Right Power Supply
5	RON	Right Channel Negative Output
6	GNDR	Right Power Ground
7	ROP	Right Channel Positive Output
8	LOP	Left Channel Positive Output
9	GNDL	Left Power Ground
10	LON	Left Channel Negative Output
11	VDDL	Left Power Supply
12	GNDA	Analog Ground
13	LIN	Left Channel Input
14	VREF	Internal analog reference, connect a bypass capacitor

Block Diagram



Typical Application



Absolute Maximum Ratings

These are stress ratings only and functional operation is not implied Exposure to absolute maximum ratings for prolonged time periods may affect device reliability All voltages are with respect to ground

Supply Voltage6.0 V
 Storage Temperature.....-65°C to 150
 Input Voltage.....-0.3V to V +0.3V

Operation Junction Temperature-40°C to 125°C
 Soldering Temperature..... 300°C/5sec

Recommended Operating Conditions

Supply Voltage Range..... 2.5V to 5.5V Junction Temperature Rang.....-20°C to 125°C
 Ambient Operation Temperature Range.....-20°C to 85°C

Electrical Characteristic

Class D Module:

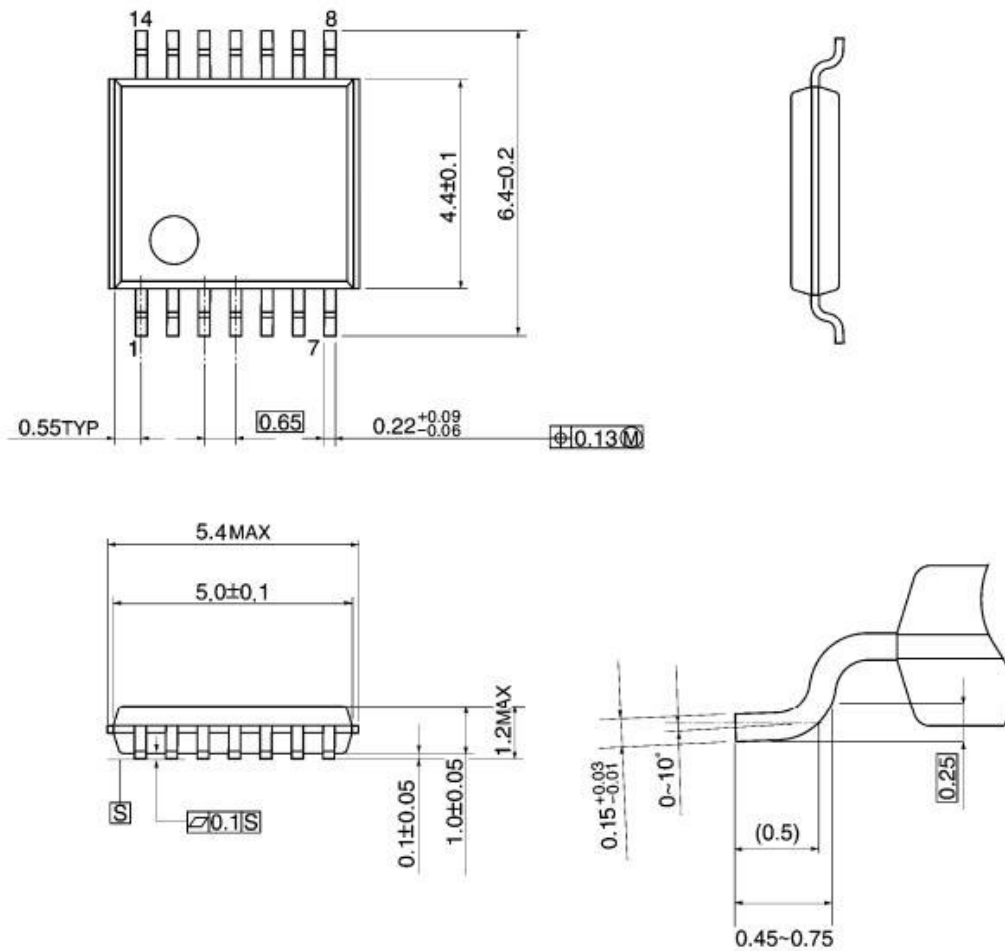
Parameter	Symbol	Conditions	Limit			Unit
			MIN	TYP	MAX	
Supply Voltage	V _{DD}		2.5		5.5	V
Supply Current	I _{DD}	Shutdown mode			1	uA
		Quiescent mode		10		mA
MOSFET ON Resistance	R _{DSP}			0.35		Ω
	R _{DSN}			0.25		Ω
Output Offset Voltage	V _{OSI}	No Load		10	30	mV
Output Power	P _O	THD+N=10% , f=1kHz				
Total Harmonic Distortion + Noise	THD+N	P _O = 0.85W, f=1KHz		0.08		%
Power Supply Rejection	PSRR	Input AC ground, f=1kHz, V _{pp} = 200mV		70		dB
Channel Separation	CS	P _O =1W, f=1kHz		-95		dB
Modulator Frequency	f _{osc}		200	250	300	kHz
Efficiency	η	P _O = 1.7W , f = 1KHz	85		89	%
Signal-to-noise Ratio	SNR	F= 20-20kHz , THD=1%		85		dB

Control Module:

Parameter	Symbol	Conditions	Limit			Unit
			MIN	TYP	MAX	
Undervoltage Lockout	V _{UVLO}		2.1	2.2	2.3	V
Shutdown Current	I _{SHDN}				1	uA
Shutdown Threshold	V _{TH1}		0.4		1.2	V
Thermal Shutdown	TSD			150		° C

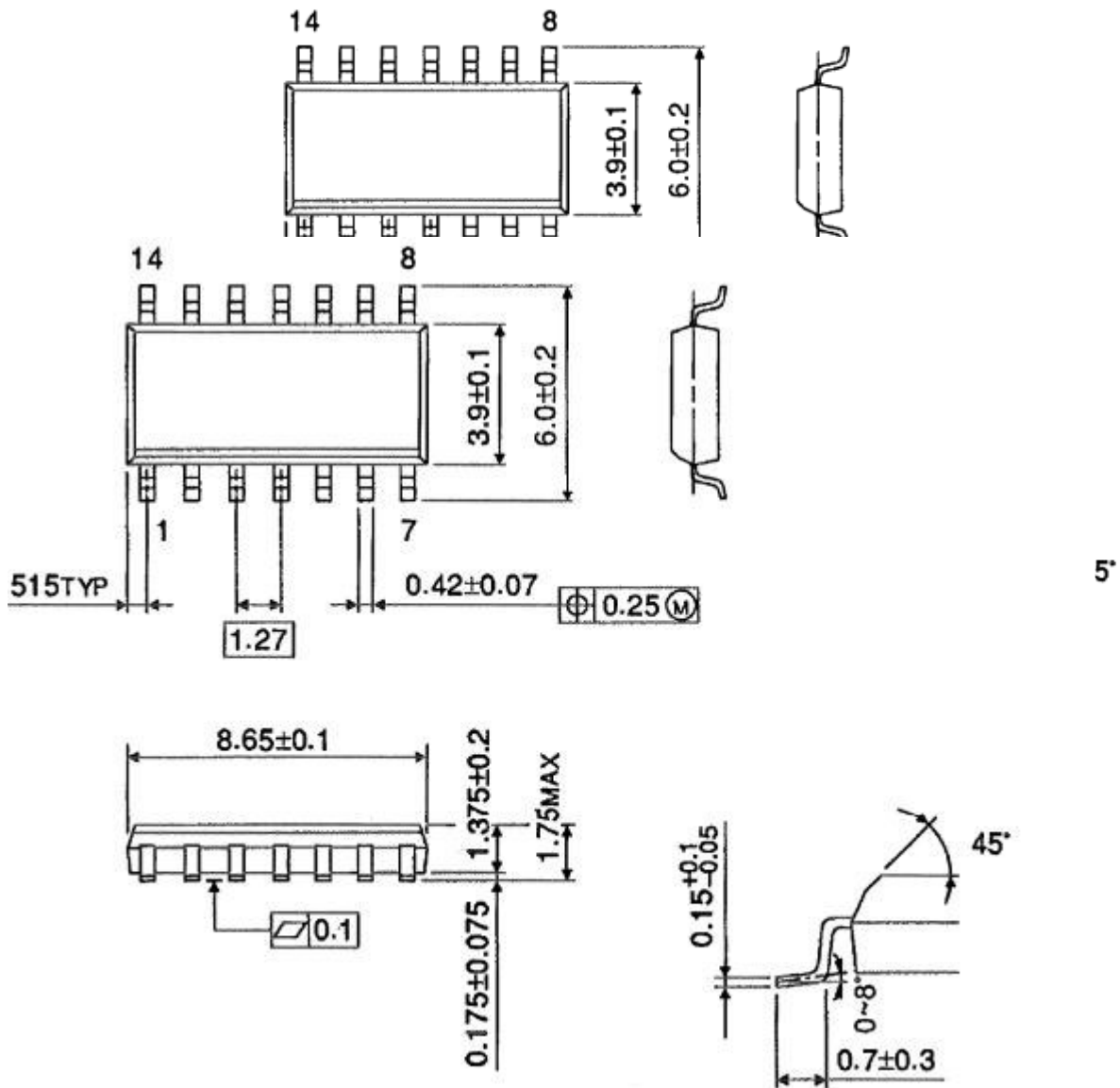
Package information (1)

TSSOP14 / TSSOP14PP



Package information (2)

SOP14



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