Middle Power Class-D Speaker Amplifiers

BD5413EFV Evaluation Board Information

BD5413EFV-EVK-001

●General

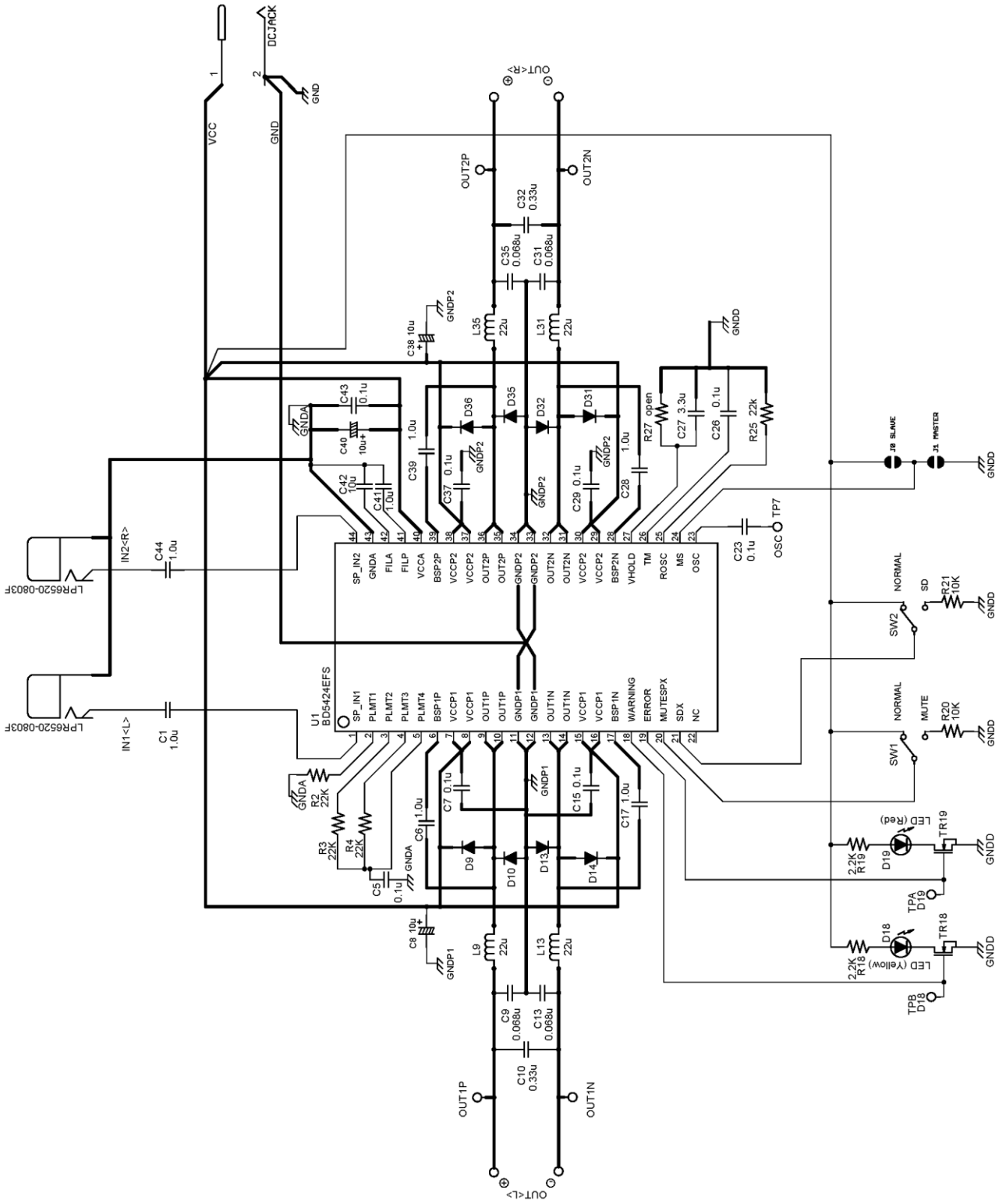
BD5413EFV is a 5W + 5W stereo class-D power amplifier specifically developed for low power consumption and low heat generation applications like powered speakers. BD5413EFV employs the state-of-the-art BCD (Bipolar, CMOS and DMOS) process technology to eliminate a turn-on resistance in the output power stage and an internal loss due to a wiring resistance as much as possible, achieving a high performance of 80% (4W + 4W output with a load resistance of 8Ω). In addition, BD5413EFV employs a compact power package which dissipates heat via the rear to achieve low power consumption and low heat generation so that the need for connecting an external heat radiator can be eliminated up to a total output of 12.8W. This product meets the needs for compact, thin sound generation systems and powerful, high-quality sound reproduction.

●Index

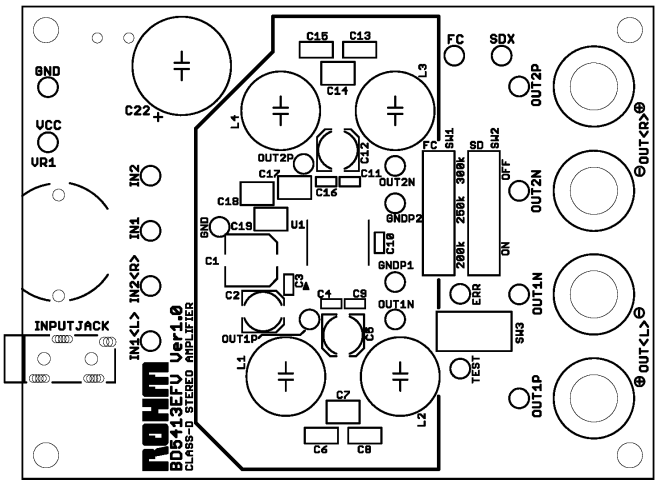
●Conditions

Item	Symbol	Range	Unit
Supply Voltage	V_{CC}	+6 ～ +10.5	V
Input Voltage	V_{IN}	-0.2 ～ V_{CC}+0.2	V
Load Impedance	R_L	6～16	Ω

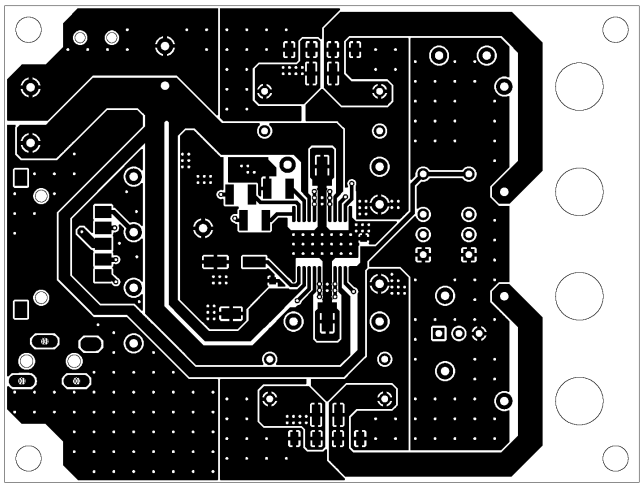
●Circuit Diagram



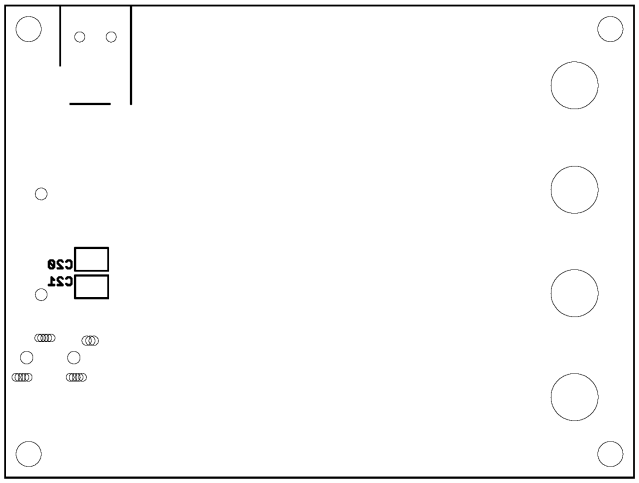
●PCB layout



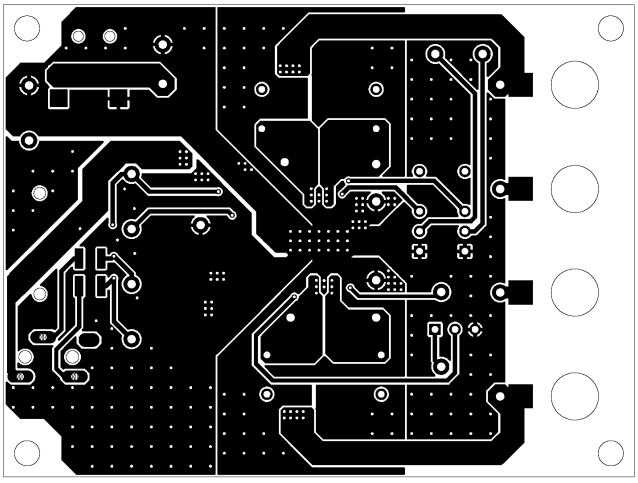
TOP SILKSCREEN – TOP VIEW



TOP LAYER – TOP VIEW

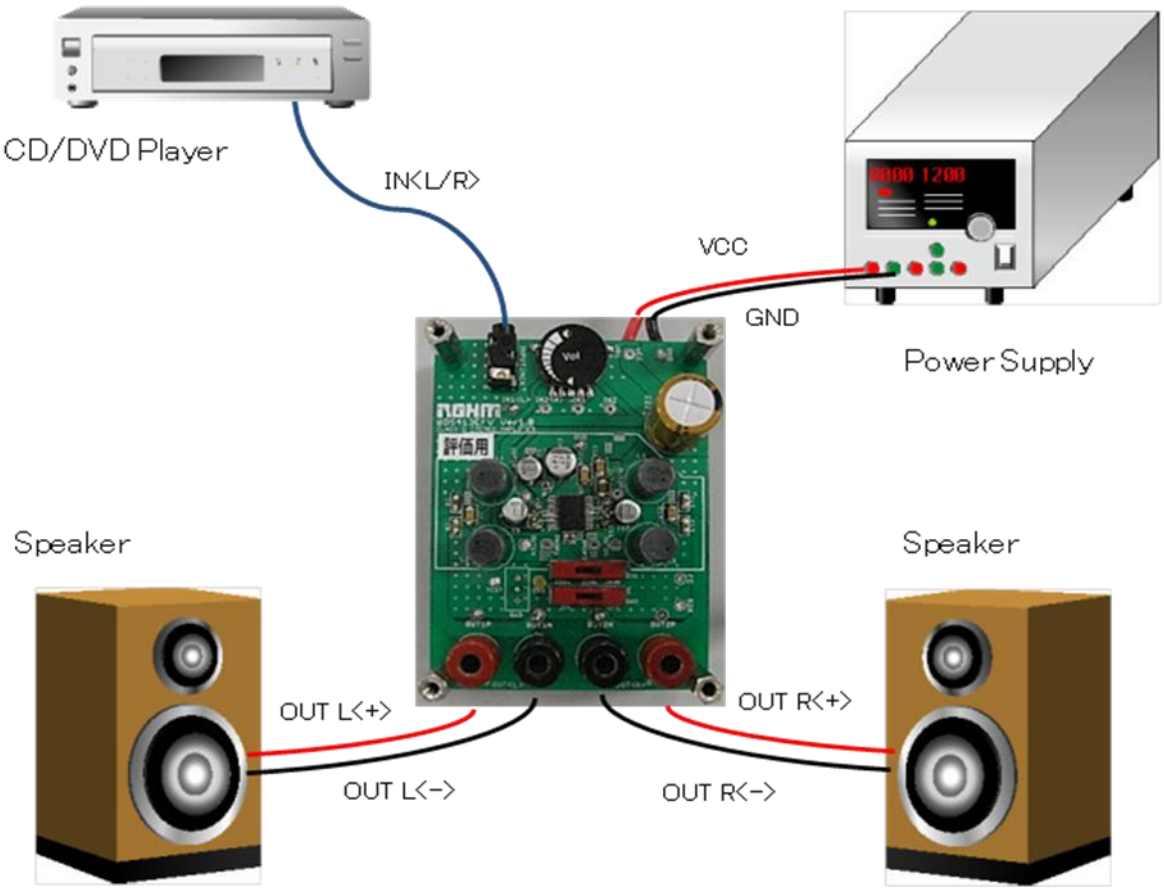


TOP SILKSCREEN – BOTTOM VIEW



BOTTOM LAYER – TOP VIEW

●Usage



① Please set the switches SD (Shutdown mode) and MUTE (Mute mode).
② Connect Power supply, Speaker, and Audio Source.
③ Set Power supply 12V(Typ.).
④ Set the switches in order of SD → NORMAL (Normal mode) and MUTE → NORMAL (Sound output mode)
⑤ Adjust the volume. And confirm the sound.
⑥ In the end of operation, set the switches in order of NORMAL → MUTE（Mute mode）, NORMAL → SD (Shutdown mode), and set supply voltage OFF.

●BOM List

[RL=8Ω]

Parts	Parts No.	Value	Company	Product No.	Rated Voltage	Tolerance
IC	IC1	—	ROHM	BD5413EFV	—	—
Inductor	L1, L2, L3, L4		TDK	TSL0808RA-330K		
Capacitor	C3, C4, C9, C10, C11, C16	0.1μF	-	1608 size	50V	R(±15%)
	C6, C8, C13, C15	0.1uF		2012 size	50V	B(±10%)
	C7, C14, C18, C19	0.47uF		3225 size	50V	K(±20%)
	C17	2.2uF		3225 size	50V	M(±20%)
	C20, C21	2.2μF		3225 size	50V	M(±20%)
Electrolytic Capacitor	C2, C5, C12	10μF		5.3mm×5.3mm	35V	M(±20%)
	C1	47uF		6.6mm×6.6mm	16V	M(±20%)
Miniature Jack	INPUT JACK	—	HOSIDEN	HSJ1456-010330	—	—
Chip Jack	OUT+	—			—	—
	OUT−	—			—	—

Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
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4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

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7) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

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