

DESCRIPTION

The EV7745DF-01A is the evaluation board for the MP7745, a stereo 20W Class D Audio Amplifier. It is one of MPS' products of fully integrated audio amplifiers which dramatically reduce solution size by integrating the following:

- 250mΩ power MOSFETs
- Startup / Shutdown pop elimination
- Short circuit protection circuits

The MP7745 utilizes a single ended output structure capable of delivering 2x20W into 4Ω speakers. MPS Class D Audio Amplifiers exhibit the high fidelity of a Class A/B amplifier at high efficiency. The circuit is based on the MPS' AAM™ proprietary variable frequency topology that delivers excellent linearity, fast response time and operates on a single power supply.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Supply Voltage	V _{DD}	24	V

FEATURES

- 2 x 20W Output at V_{DD} = 24V into a 4Ω load
- THD+N = 0.05% at 1W, 8Ω, 1kHz
- 93% Efficiency at 19W and V_{DD}=24V with 4Ω load
- Low Noise (103μV Typical)
- 9.5V to 26V Operation from a Single Supply

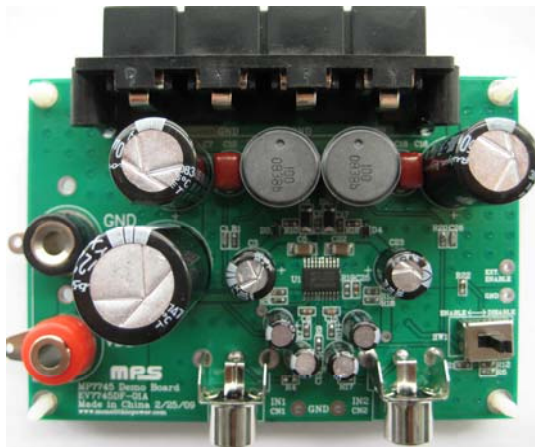
APPLICATIONS

- Flat Panel TV
- Portable Docking Stations
- Surround Sound DVD Systems
- Televisions
- Multimedia Computers
- Home Stereo Systems

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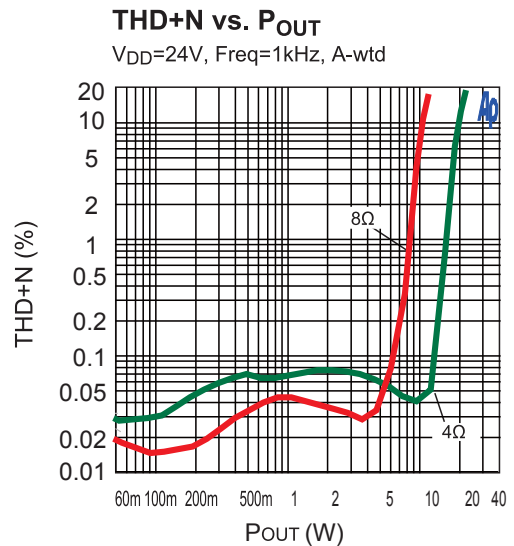
AAM (Analog Adaptive Modulation) is a Trademark of Monolithic Power Systems, Inc.

EV7745DF-01A EVALUATION BOARD

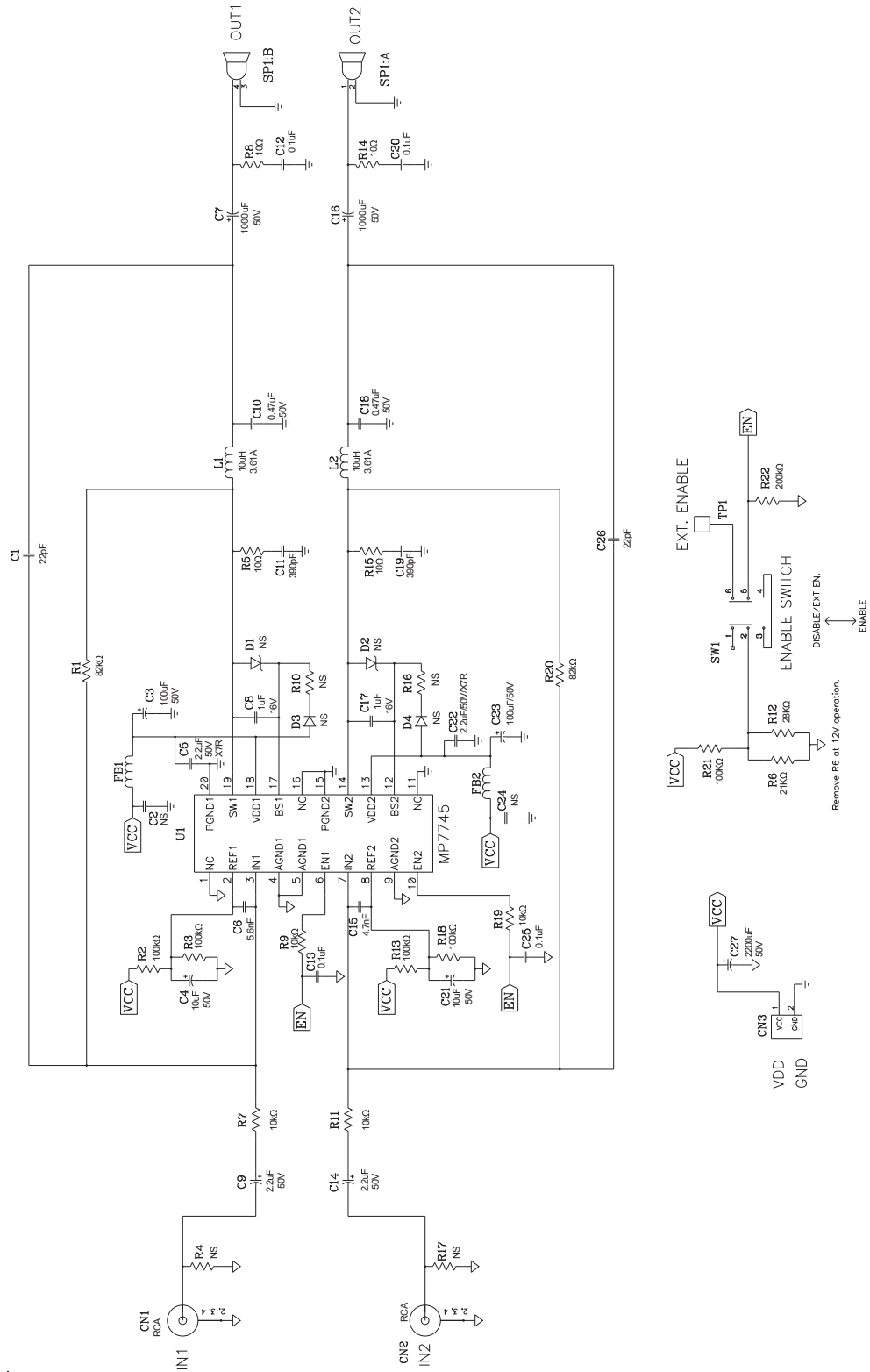


(L x W x H) 3.5" x 2.5" x 1.2"
9.0cm x 6.3cm x 3.0cm

Board Number	MPS IC Number
EV7745DF-01A	MP7745DF



EVALUATION BOARD SCHEMATIC



EV7745DF-01A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1, C26	22pF	Ceramic Capacitor,50V,C0G	0603	muRata	GRM1885C1H220JA01D
2	C2, C24	NS				
2	C3, C23	100uF	Electrolytic Cap., 50V	Radial	Rubycon	
2	C4, C21	10uF	Electrolytic Cap., 50V	Radial	Rubycon	
2	C5, C22	2.2uF	Ceramic Capacitor,50V,X7R	1206	muRata	GRM31CR71H225KA88L
1	C6	5.6nF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H562KA01
2	C7,C16	1000uF	Electrolytic Cap., 50V	Radial	Rubycon	
2	C8,C17	1uF	Ceramic Capacitor,16V,X7R	0603	muRata	GRM188R71C105KA1
2	C9,C14	2.2uF	Electrolytic Cap., 50V	Radial	Rubycon	
2	C10,C18	0.47uF	FILM,50V	Radial	any	
2	C11, C19	390pF	Ceramic Capacitor,50V,C0G	0603	muRata	GRM1885C1H3901JA01D
2	C12,C20	0.1uF	Ceramic Capacitor, 50V,X7R	0805	muRata	GRM21BR71H104KA01L
2	C13,C25	0.1uF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H104KA93D
1	C15	4.7nF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H472KA01D
1	C27	2200uF	Electrolytic Cap, 50V	Radial	Rubycon	
2	R1,R20	82.5KΩ	Film Res., 1%	0603	Yageo	RC0603FR-0782K5L
5	R2,R3, R13, R18, R21	100KΩ	Film Res., 1%	0603	Yageo	RC0603FR-07100KL
4	R4,R17, R10,R16	NS				
2	R5,R15	10Ω	Film Res., 5%	0603		0603SAJ0100T5E
1	R6	21KΩ	Film Res., 1%	0603	Yageo	RC0603FR-0721KL
2	R8,R14	10Ω	Film Res., 5%	0805		CR05T05NJ10R
4	R7,R9, R11,R19	10KΩ	Film Res., 1%	0603	Yageo	RC0603FR-0710KL
1	R12	28KΩ	Film Res., 1%	0603	Yageo	RC0603FR-0728KL
1	R22	200KΩ	Film Res., 5%	0603	Yageo	RC0603JR-07200KL
2	D2,D1, D3,D4	NS				
2	FB1, FB2		Ferrite Bead, 6A	1206	LION	PB321611-320

EV7745DF-01A BILL OF MATERIALS *(continued)*

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	L1, L2	10uH	Inductor, 3.61A	Radial	Toko	10RHBP-#A671HN-100L
1	U1		Class D Audio Amplifier	TSSOP20F	MPS	MP7745DF
1	SW1		Switch slide DPDT 12V .1A L=4			
1	CN3		Banana Jack Connector			
2	CN1, CN2		Phono Jack, Female			
1	TP1		Test point PC MINI .040"D			
1	SP1		Speaker Connector			

PRINTED CIRCUIT BOARD LAYOUT

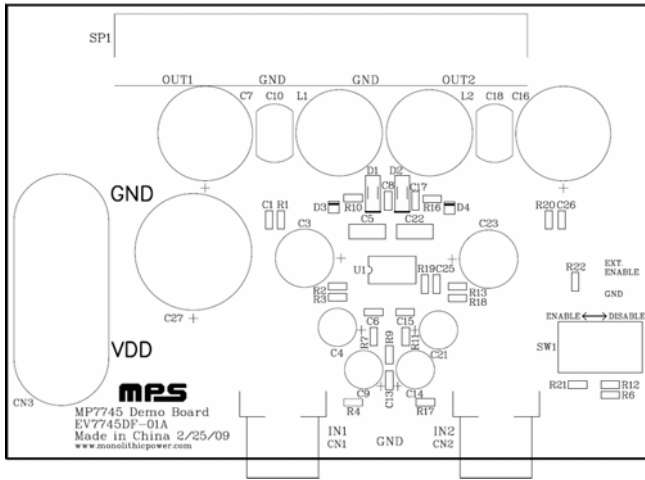


Figure 1—Top Silk Layer

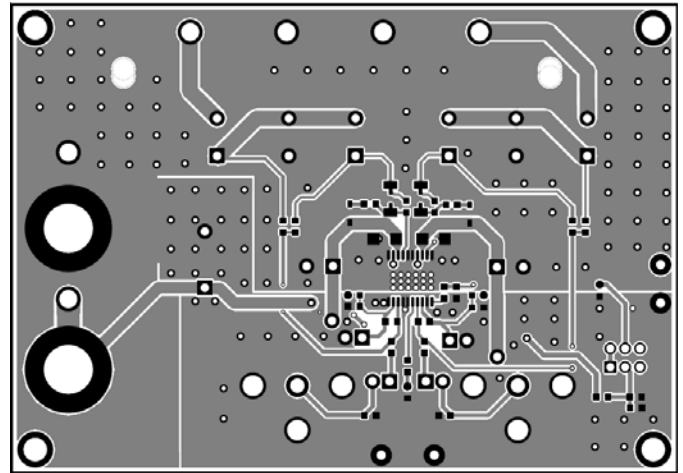


Figure 2—Top Layer

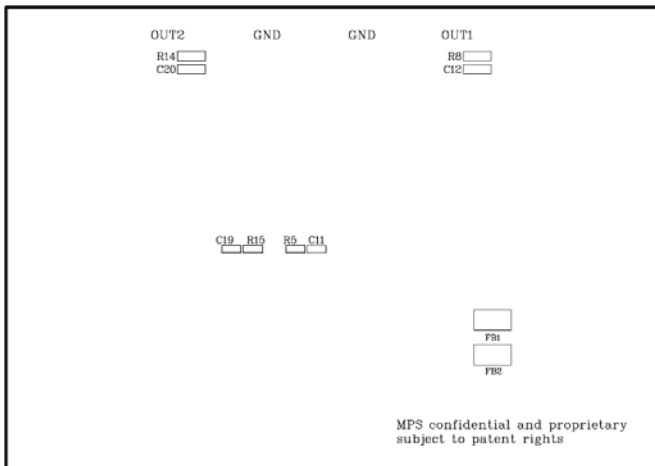


Figure 3—Bottom Silk Layer

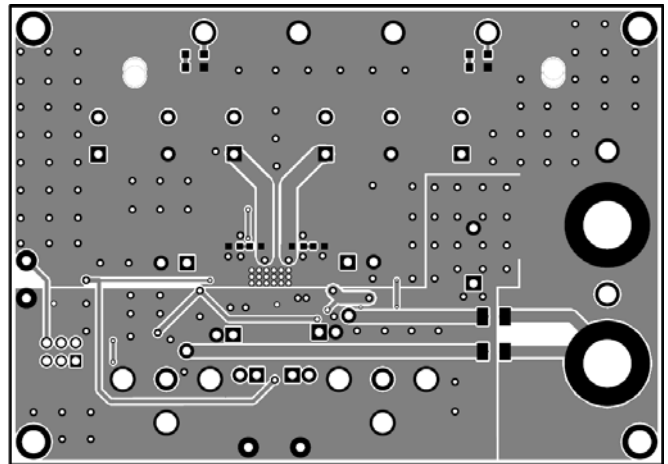


Figure 4—Bottom Layer