

DESCRIPTION

The EV7747DQ-00A is the evaluation board for the MP7747, a 20W mono 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 MP7747 utilizes a single ended output structure capable of delivering 20W 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}	9.5~36	V

FEATURES

- 2 x 20W Output at V_{DD} = 24V into a 4Ω load
- THD+N = 0.02% at 1W, 8Ω, 1kHz
- 91% Efficiency at 20W and V_{DD}=24V with 4Ω load
- Low Noise (103μV Typical)
- 9.5V to 36V Operation from a Single Supply

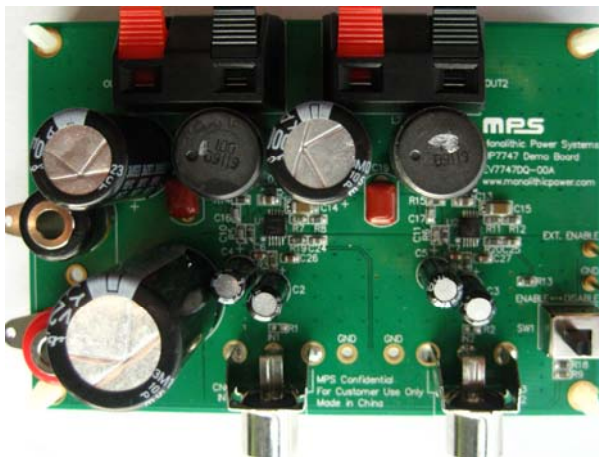
APPLICATIONS

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

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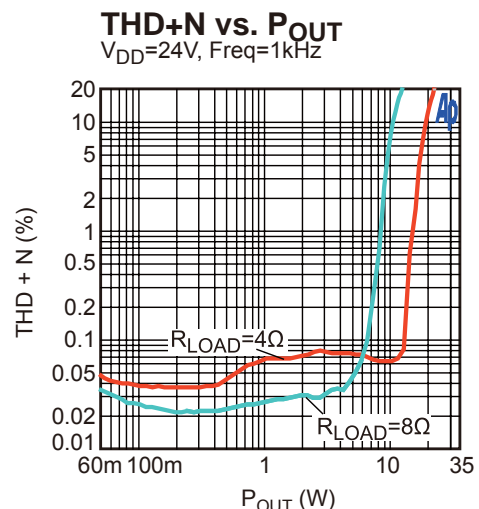
AAM (Analog Adaptive Modulation) is a Trademark of Monolithic Power Systems, Inc.

EV7747DQ-00A EVALUATION BOARD

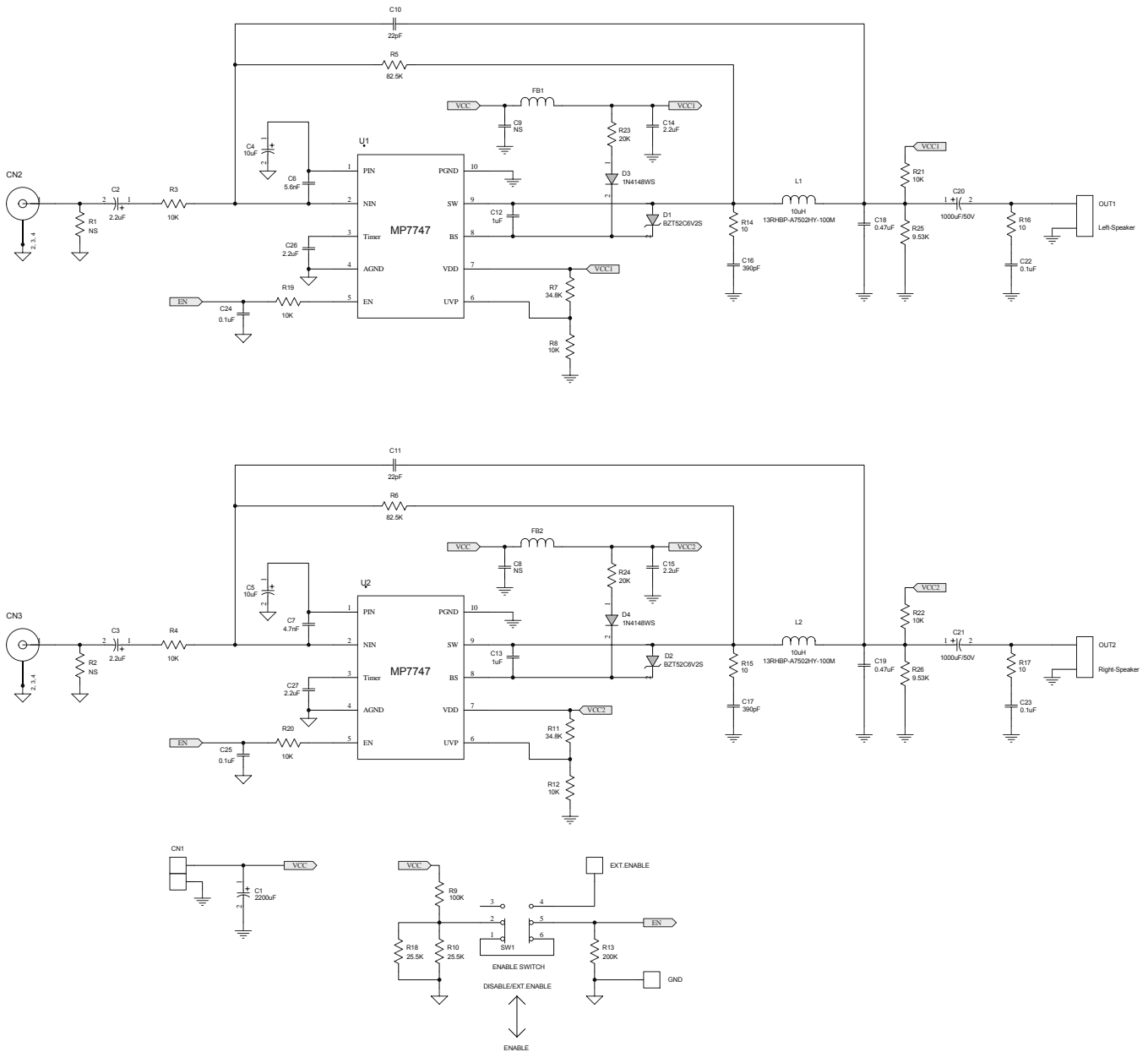


(L x W x H) 3.5" x 2.5" x 1.2"
9.0cm x 6.3cm x 3.0cm

Board Number	MPS IC Number
EV7747DQ-00A	MP7747DQ



EVALUATION BOARD SCHEMATIC



EV7747DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	2200µF	Electrolytic Capacitor; 50V	DIP	Rubycon	
2	C2, C3	2.2µF	Electrolytic Capacitor; 50V	DIP	Rubycon	
2	C4, C5	10µF	Electrolytic Capacitor; 50V	DIP	Rubycon	
1	C6	5.6nF	Ceramic Capacitor; 50V; X7R; 0603	0603	muRata	GRM188R71H562KA01
1	C7	4.7nF	Ceramic Capacitor; 50V; X7R; 0603	0603	muRata	GRM188R71H472KA01D
2	C8, C9	NS		0603		
2	C10, C11	22pF	Ceramic Capacitor; 50V; C0G; 0603	0603	TDK	C1608C0G1H220J
2	C12, C13	1µF	Ceramic Capacitor; 16V; X7R; 0805	0805	muRata	GRM21BR71C105KA01
2	C14, C15	2.2µF	Ceramic Capacitor; 50V; X7R; 1206	1206	muRata	GRM31CR71H225KA88L
2	C16, C17	390pF	Ceramic Capacitor; 50V; C0G; 0603	0603	muRata	GRM1885C1H391JA01D
2	C18, C19	0.47µF	CBB Capacitor; 50V	DIP	Panasonic	
2	C20, C21	1000µF	Electrolytic Capacitor; 50V	DIP	Rubycon	
2	C22, C23	0.1µF	Ceramic Capacitor; 50V; X7R; 0603	0603	muRata	GRM188R71H104KA93D
2	C24, C25	0.1µF	Ceramic Capacitor; 16V; X7R; 0603	0603	muRata	GRM188R71C104KA01D
2	C26, C27	2.2µF	Ceramic Capacitor; 10V; X7R; 0603	0603	muRata	GRM188R71A225KE15
2	D1, D2	BZT52C6V2S	Zener Diode; 6.2V; 5mA/200mW	SOD-323	Diodes	BZT52C6V2S-7-F
2	D3, D4	1N4148WS	Diode; 75V; 0.15A	SOD-323	Diodes	1N4148WS-7-F
2	FB1, FB2		Magnetic Bead	1206	LION	PB321611-320
2	L1, L2	10µH	Inductor; 10µH; 18mΩ; 3.61A	DIP	TOKO	13RHBP-A7502HY-100M
2	R1, R2	NS		0603		
8	R3, R4, R8, R12, R19, R20, R21, R22	10kΩ	Film Resistor; 1%	0603	Royalohm	0603F1002T5E
2	R5, R6	82.5kΩ	Film Resistor; 1%	0603	Yageo	RC0603FR-0782K5L
2	R7, R11	34.8kΩ	Film Resistor; 1%	0603	Yageo	RC0603FR-0734K8L
1	R9	100kΩ	Film Resistor; 1%	0603	Royalohm	0603F1003T5E
2	R10, R18	25.5kΩ	Film Resistor; 1%	0603	Yageo	RC0603FR-0725K5L
1	R13	200kΩ	Film Resistor; 5%	0603	Yageo	RC0603JR-07200KL
2	R14, R15	10Ω	Film Resistor; 1%	0603	Yageo	RC0603FR-0710RL
2	R16, R17	10Ω	Film Resistor; 1%	1206	Yageo	RC1206FR-0710RL

EV7747DQ-00A BILL OF MATERIALS (Continued)

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	R23, R24	20kΩ	Film Resistor; 1%	0603	Yageo	RC0603FR-0720KL
2	R25, R26	9.53kΩ	Film Resistor; 1%	0603	Yageo	RC0603FR-079K53L
1	SW1		DPDT Slide Switch	DIP	Any	
1	CN1		Connector; Red and Black		Any	
2	CN2, CN3		RCA Connector	DIP	Any	
2	OUT1, OUT2		Connector	DIP	Any	
2	U1, U2		Class D Audio Amplifier	QFN10	MPS	MP7747DQ

PRINTED CIRCUIT BOARD LAYOUT

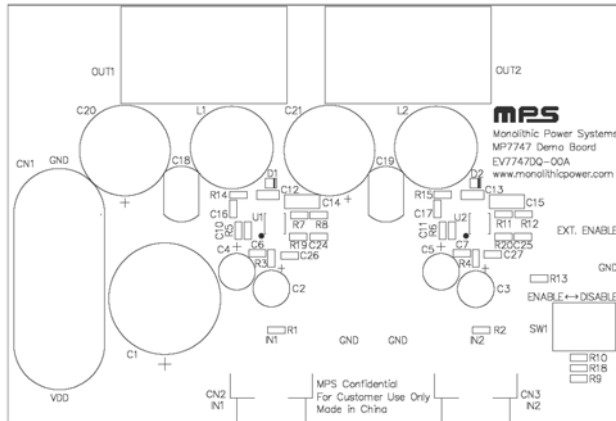


Figure 1—Top Silk Layer

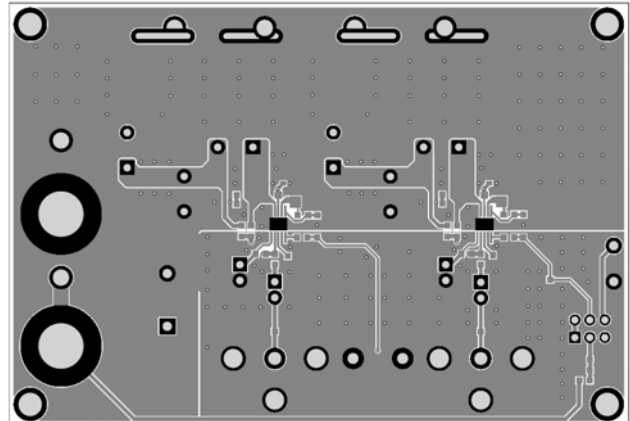


Figure 2—Top Layer

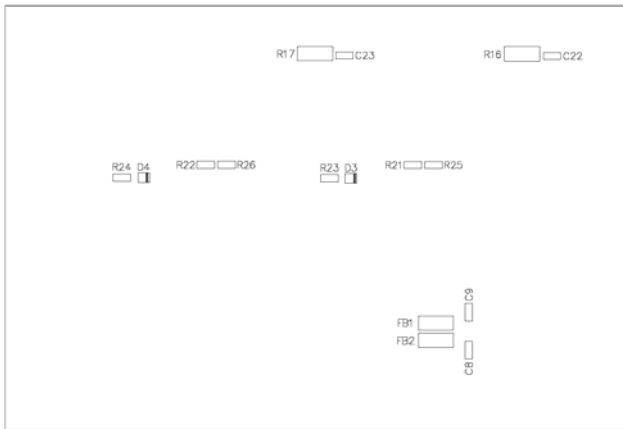


Figure 3—Bottom Silk Layer (Mirror)

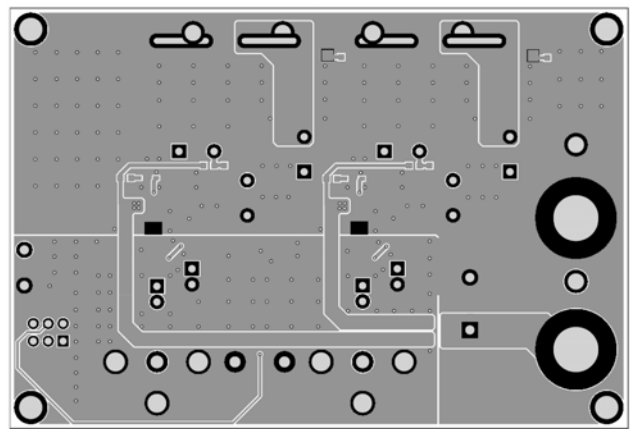


Figure 4—Bottom Layer (Mirror)