

### DESCRIPTION

The EV7740DN-01B is the evaluation board for the MP7740, a stereo 15W 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 MP7740 utilizes a single ended output structure capable of delivering 15W 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

- 15W Output at  $V_{DD} = 24V$  into a 4Ω load
- THD+N = 0.05% at 1W, 8Ω, 1KHz
- 90% Efficiency at 15W and  $V_{DD}=24V$  with 4Ω load
- Low Noise (103μV Typical)
- 9.5V to 36V Operation from a Single Supply

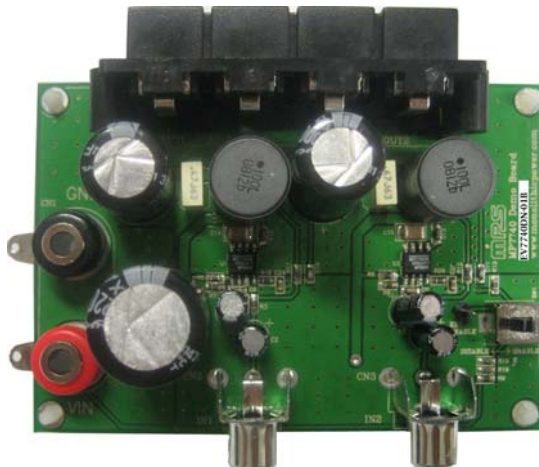
### APPLICATIONS

- 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.

### EV7740 EVALUATION BOARD

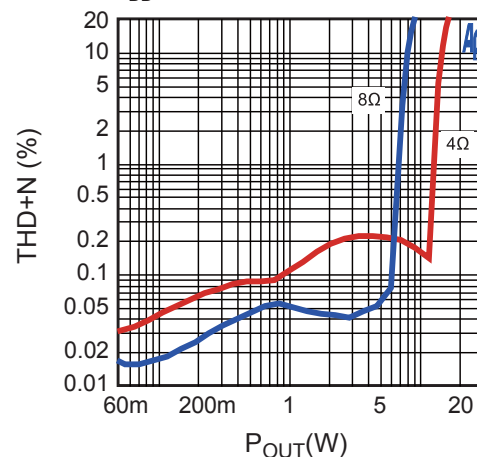


Dimensions (2.4"X x 3.5"Y x 1.2"Z)

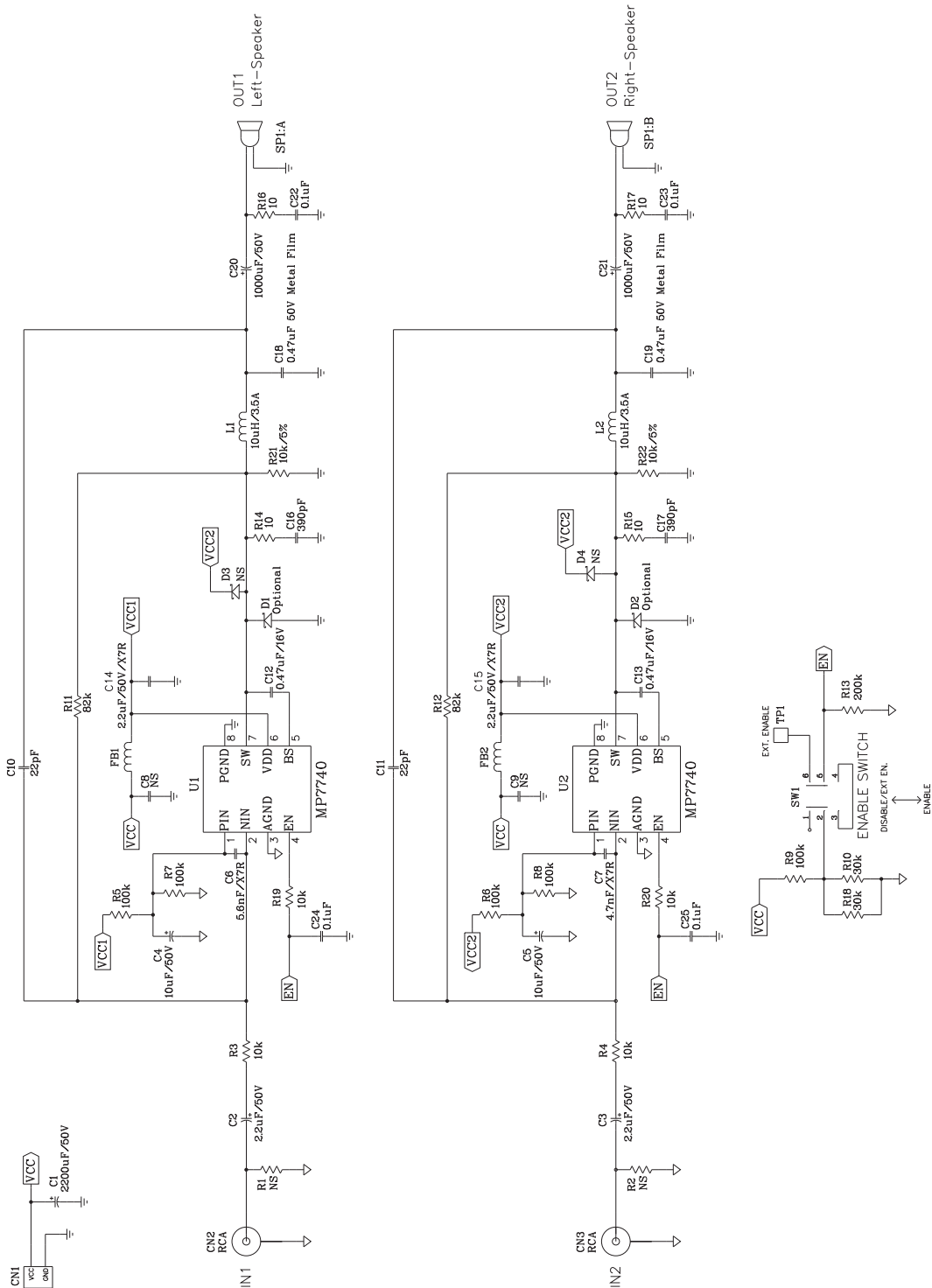
Board Number	MPS IC Number
EV7740DN-01B	MP7740

#### THD+N vs. P<sub>OUT</sub>

$V_{DD}=24V, Freq=1kHz, A-wtd$



# EVALUATION BOARD SCHEMATIC



**EV7740DN-01B BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	2200uF	Electrolytic Capacitor, 50V	Radial	Rubycon	
2	C2,C3	2.2uF	Electrolytic Capacitor, 50V	Radial	Rubycon	
2	C4,C5	10uF	Electrolytic Capacitor, 50V	Radial	Rubycon	
1	C6	5.6nF	Ceramic Capacitor, 50V, X7R	0603	muRata	GRM188R71H562KA01
1	C7	4.7nF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H472KA01
2	C8,C9	NS	Not Stuffed			
2	C10,C11	22pF	Ceramic Capacitor, 50V,C0G	0603	muRata	GRM1885C1H220JA01D
2	C12, C13	0.47uF	Ceramic Capacitor, 16V,X7R	0603	muRata	GRM188R71C474KA88D
2	C14,C15	2.2uF	Ceramic Capacitor, 50V,X7R	1206	muRata	GRM31CR71H225KA88L
2	C16, C17	390pF	Ceramic Capacitor, 50V,C0G	0603	muRata	GRM1885C1H3901JA01
2	C18, C19	0.47uF	FILM,50V	Radial	any	
2	C20,C21	1000uF	Electrolytic Capacitor, 50V	Radial	Rubycon	
4	C22,C23, C24,C25	0.1uF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H104KA93D
2	D1, D2,	Optional	Diode Schottky, 40V, 3A	SMA	Diodes	B340LA
2	D3, D4	NS	Not Stuffed			
2	FB1, FB2		Ferrite Bead, 6A	1206	LION	PB321611-320
1	SW1		DPDT Slide Switch			
2	CN2,CN3		Phono Jack, Female			
1	CN1		Banana Jack Connector			
1	TP1		Test Point/EXT.EN			
1	SP1		Speaker Connector			
2	L1, L2	10uH	Inductor, 3.61A	Radial	Toko	10RHBP-#A671HN-100L
2	R1,R2	NS	Not Stuffed			
4	R3, R4, R19,R20,	10kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0710KL
5	R5,R6, R7,R8, R9	100kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-07100KL
2	R10,R18	30.1kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0730K1L
2	R11, R12	82.5kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0782K5L
1	R13	200kΩ	Film Resistor, 5%	0603	Yageo	RC0603JR-07200KL
4	R14, R15, R16, R17	10Ω	Film Resistor, 1%	0603	Yageo	RC0603FR-0710RL
2	R21,R22	10kΩ	Film Resistor, 5%	0603	Yageo	RC0603FR-0711RL
2	U1,U2		Class D Audio Amplifier	SOIC8E	MPS	MP7740DN

PRINTED CIRCUIT BOARD LAYOUT

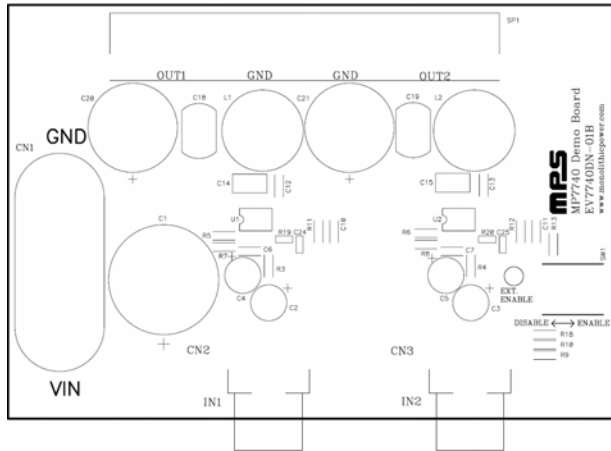


Figure 1—Top Silk Layer

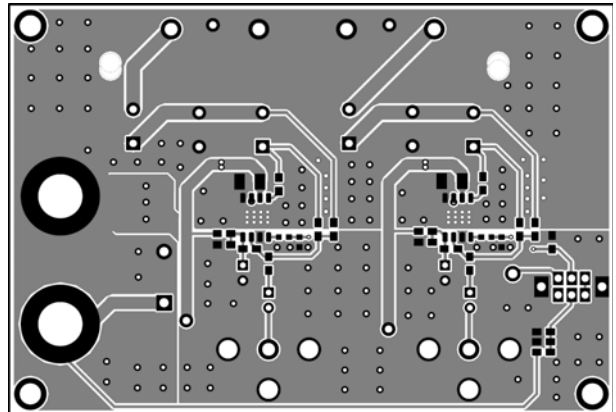


Figure 2—Top Layer

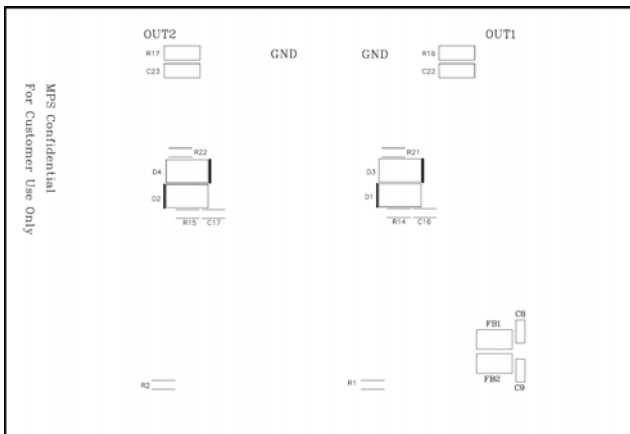


Figure 3—Bottom Silk Layer

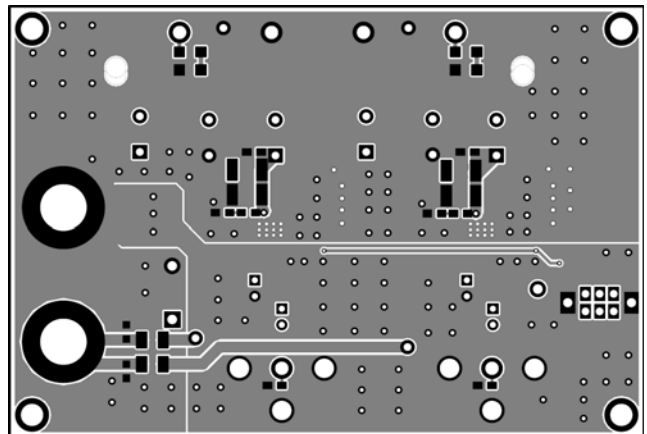


Figure 4—Bottom Layer

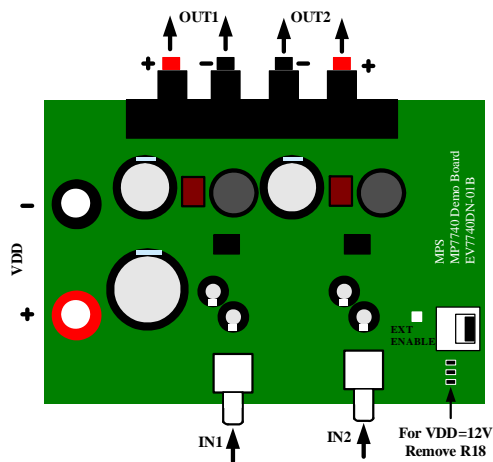


Figure 5—EV7740DN-01B Connection Diagram