

### DESCRIPTION

The EV7731-F-00A is the evaluation board for the MP7731, a mono, 30W Class D Audio Amplifier. It is one of MPS' products of fully integrated audio amplifiers which dramatically reduce solution size by integrating the following:

- Start Up / Shut Down Pop Elimination
- Short Circuit Protection Circuits
- 180mΩ Power MOSFETs
- Mute / Standby Mode

The MP7731 utilizes a full bridge output structure capable of delivering 30W into 4Ω speakers. As in all other MPS Class D Audio Amplifiers, this device exhibits the high fidelity of a Class AB amplifier with an efficiency of 90%. The circuit is based on the MPS' proprietary variable frequency topology Analog Adaptive Modulation that delivers excellent linearity, fast response time and operates on a single power supply.

### FEATURES

- 30W into 4Ω with  $V_{DD} = 16.5V$
- 93% Efficiency at 19W with  $V_{DD}=16.5V$ , 8Ω load
- Low THD+N (0.1% at 1W, 8Ω, 1kHz)
- 9.5V to 18V Supply Voltage Operation

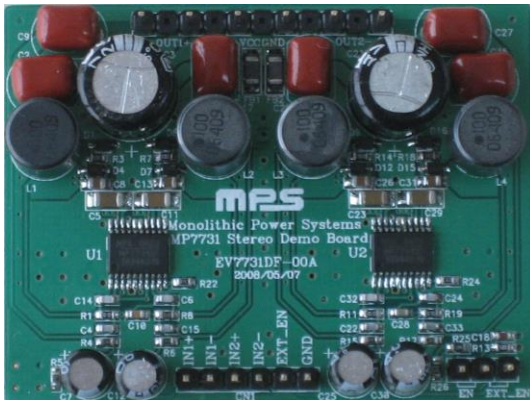
### APPLICATIONS

- Flat Panel LCD and PDP Displays
- Notebook and Multimedia Computers
- Televisions
- Home Stereos
- DVD and VCD Players
- Game Devices and Systems
- Monitors

"MPS" and "The Future of Analog IC Technology" are Trademarks of Monolithic Power Systems, Inc.

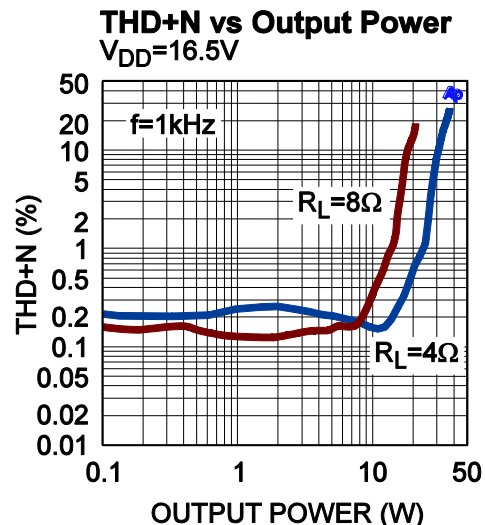
AAM (Analog Adaptive Modulation) is a Trademark of Monolithic Power Systems, Inc.

### EV7731-F-00A EVALUATION BOARD



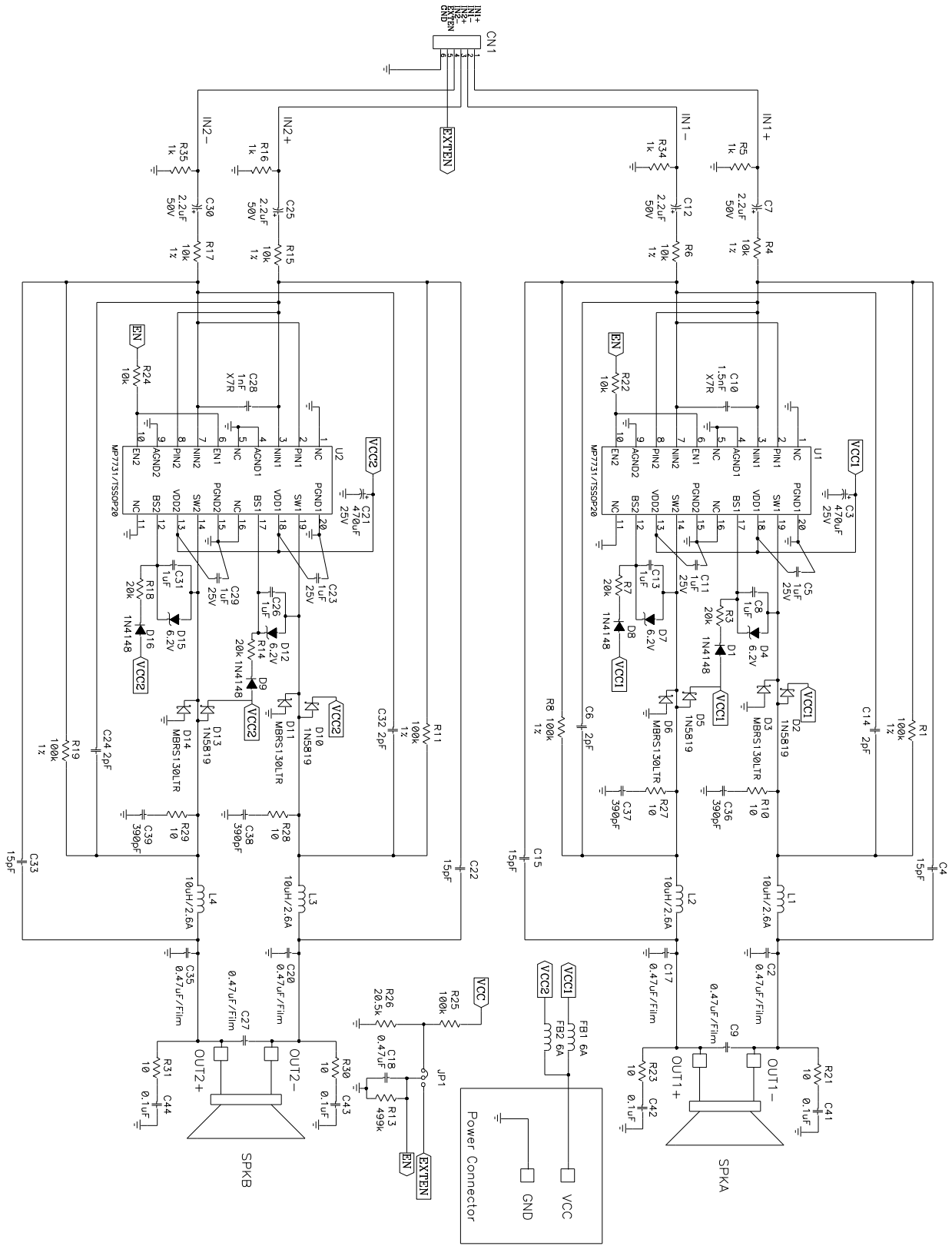
Dimensions (2.2"X x 1.7"Y x 0.8"Z)

Board Number	MPS IC Number
EV7731-F-00A	MP7731



MP7731-TAC-G01

EVALUATION BOARD SCHEMATIC



**EV7731-F-00A BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C3,C21	470uF	Electrolytic Capacitor, 25V	Radial	JH	CD287-25V470
4	C7,C12, C25,C30	2.2uF	Electrolytic Capacitor, 50V	Radial	Rubycon	
1	C10	1.5nF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H152KA01
1	C28	1nF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H102KA01D
4	C5,C11, C23,C29	1uF	Ceramic Capacitor, 25V,X7R	1206	muRata	GRM31MR71E105KA01
4	C8,C13, C26,C31	1uF	Ceramic Capacitor, 50V,X7R	0805	muRata	GRM21BR71H105KA12L
4	C6,C14, C24,C32	2pF	Ceramic Capacitor, 50V,COG	0603	TDK	C1608COG1H020CT
4	C4,C15,C 22,C33	15pF	Ceramic Capacitor, 50V,COG	0603	TDK	C1608COG1H150J
4	C36,C37, C38,C39	390pF	Ceramic Capacitor, 50V,COG	0603	muRata	GRM1885C1H391JA01D
4	C41,C42, C43,C44	0.1uF	Ceramic Capacitor, 50V,X7R	0603	muRata	GRM188R71H104KA93D
1	C18	0.47uF	Ceramic Capacitor, 16V,X7R	0603	muRata	GRM188R71C474KA88D
6	C2,C17, C20,C35, C9,C27	0.47uF	FILM,50V	Radial	Any	
4	D3, D6, D11, D14		Diode Schottky, 30V, 1A	SMB	IR	MBRS130LTR
4	D4, D7, D12, D15		Zener Diode, 6.2V	SOD-323	Diodes Inc	BZT52C6V2S-7
4	D2, D5, D10, D13		Diode, 40V	SOD-123	Diodes Inc	1N5819HW
4	D1, D8, D9, D16		Diode, 75V	SOD-323	Diodes Inc	1N4148WS-7
2	FB1, FB2		Ferrite Bead, 6A	1206	LION	PB321611-320
1	CN1		6-Pins Sip Header, 0.1"		Any	
4	L1, L2, L3,L4	10uH	Inductor, 3.6A	Radial	Toko	8RDY-A7040HN-100M
4	R5,R16, R34,R35	1K	Film Resistor, 1%	0603	Yageo	RC0603FR-071KL
6	R4,R6, R15,R17, R22,R24	10K	Film Resistor, 1%	0603	Yageo	RC0603FR-0710KL
5	R1,R8, R11,R19, R25	100K	Film Resistor, 1%	0603	Yageo	RC0603FR-07100KL
4	R3,R7, R14,R18	20K	Film Resistor, 1%	0603	Yageo	RC0603FR-0720KL

**EV7731-F-00A BILL OF MATERIALS (continued)**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	R13	499K	Film Resistor, 1%	0603	Yageo	RC0603FR-07499KL
1	R26	20.5K	Film Resistor, 1%	0603	Yageo	RC0603FR-0720K5L
4	R10,R27, R28,R29	10	Film Resistor, 5%	1206	Yageo	RC1206JR-0710R
4	R21,R23, R30,R31	10	Film Resistor, 1%	0603	Yageo	RC0603FR-0710RL
2	U1,U2		Class D Audio Amplifier	TSSOP-20	MPS	MP7731DF

### PRINTED CIRCUIT BOARD LAYOUT

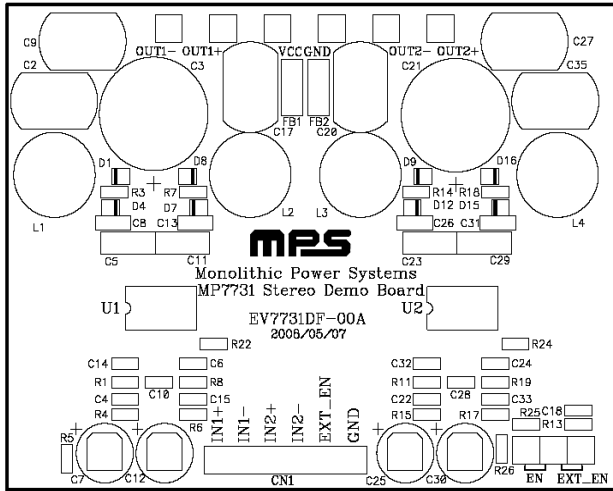


Figure 1—Top Silk Layer

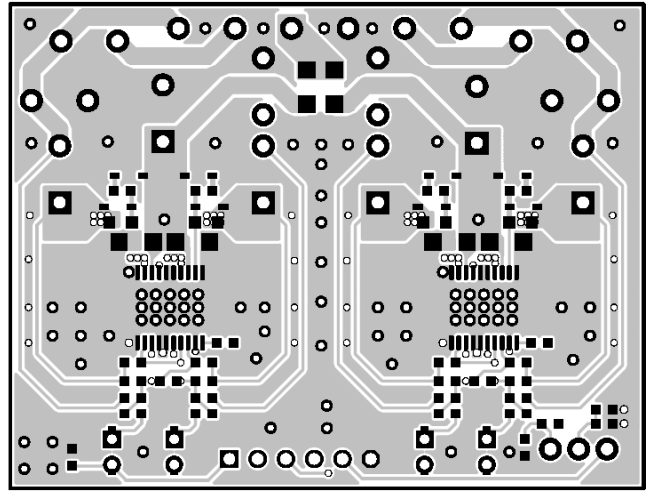


Figure 2—Top Layer

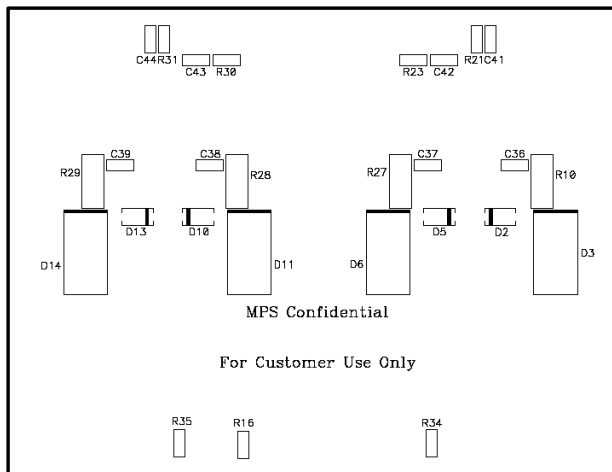


Figure 3—Bottom Silk Layer

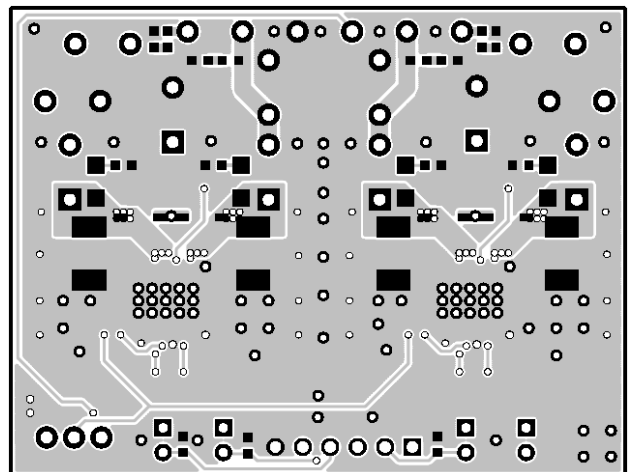


Figure 4—Bottom Layer