

CM8501ASEVAL

1.5A Bus Terminator

Demo Board Layout Guide

PSOP 8 Rev: B

1.5A DDR BUS TERMINATOR DEMO BOARD CIRCUIT



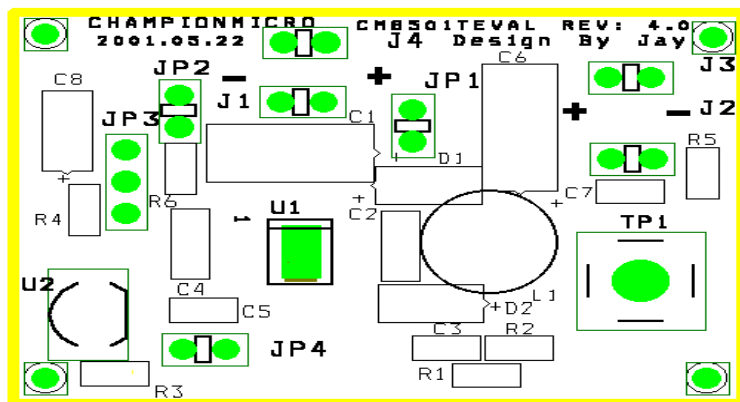
CM8501ASEVAL PART LIST

Item	Q'ty	Description	Package	Size	Designator	Material	Manufacturer
Resistors							
1	1	0Ω, 1/8W ±5%	0805	2*1.2	R5	Carbon film Resistor	
2	1	5.1Ω, 1/8W ±5%	0805	2*1.2	R6	Carbon film Resistor	
3	2	1KΩ, 1/8W ±5%	0805	2*1.2	R4 (option) , R2	Carbon film Resistor	
4	2	100KΩ, 1/8W ±5%	0805	2*1.2	R1, R3	Carbon film Resistor	
Capacitors							
5	2	104pF/ 16V +80 ~ -20%	0805	2*1.2	C5, C7	Y5V Dielectric Capacitor	
6	2	105pF/ 16V +80 ~ -20%	1206	3.2*1.6	C2, C4	Y5V Dielectric Capacitor	
7	1	10uF/ 6.3V ±10%	SMT-B	137*110	C8 (option)	Tantalum Capacitor	
8	1	220uF/ 6.3V ±10%	SMT-D	287*169	C6	Tantalum Capacitor	
9	1	100uF/ 6.3V ±10%	SMT-D	287*169	C1	Tantalum Capacitor	
10.	1	470pF/16V ±10%	0805	2*1.2	C3	X7R Dielectric Capacitor	
Magnetics							
11	1	3.3uH 2A Inductor	SMD	5*4	L1	Nickel-zinc	Konnnect Electronic Corp.
IC's							
12	1	CM8501 SOP8	SOP 8		U1		Champion Microelectronic Corp.
13	1	CM431	TO-92		U2 (option)		Champion Microelectronic Corp.
Connectors							
14	1	2-pin	Molex	2.54	J1		
15	3	2-pin Jumper	Pin Header	2.54	JP1, JP2,JP4,J2,J3		
16	1	3-pin Jumper	Pin Header	2.54	JP3		
17	1	BNC			TP1		
Diode							
18	2	SK12	SMA		D1, D2		

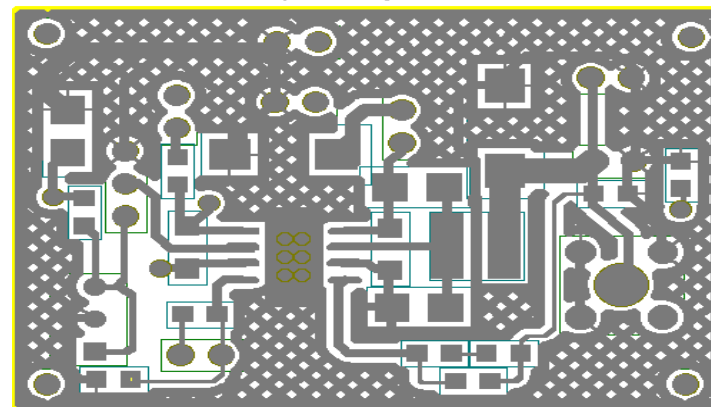
Konnnect Electronic Corp.
 TEL : (02)2698-8277
 FAX : (02)2698-8278

CM8501ASEVAL PCB LAYOUT

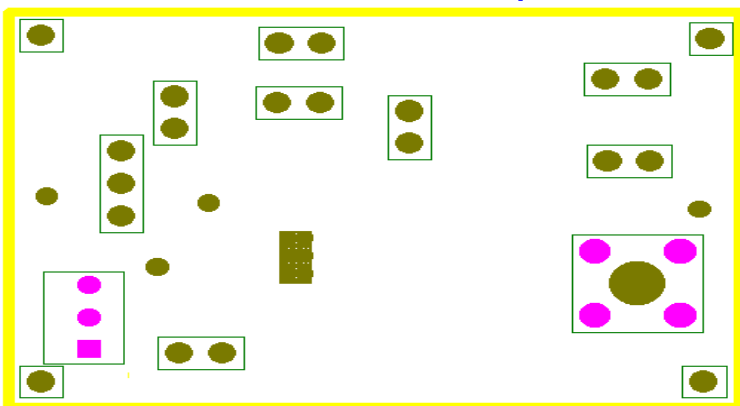
Top Overlay



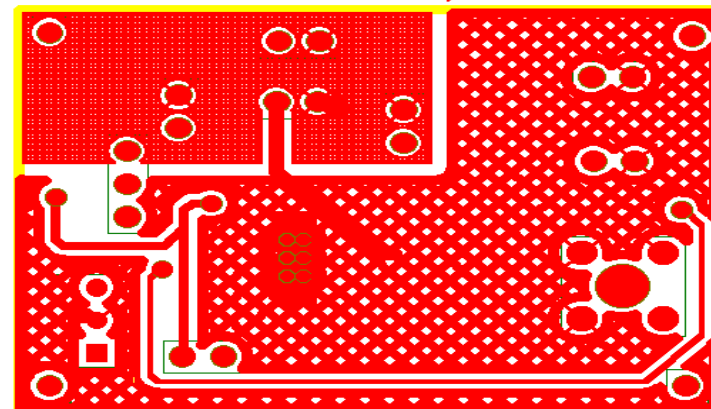
Top Layer



Bottom Overlay



Bottom Layer



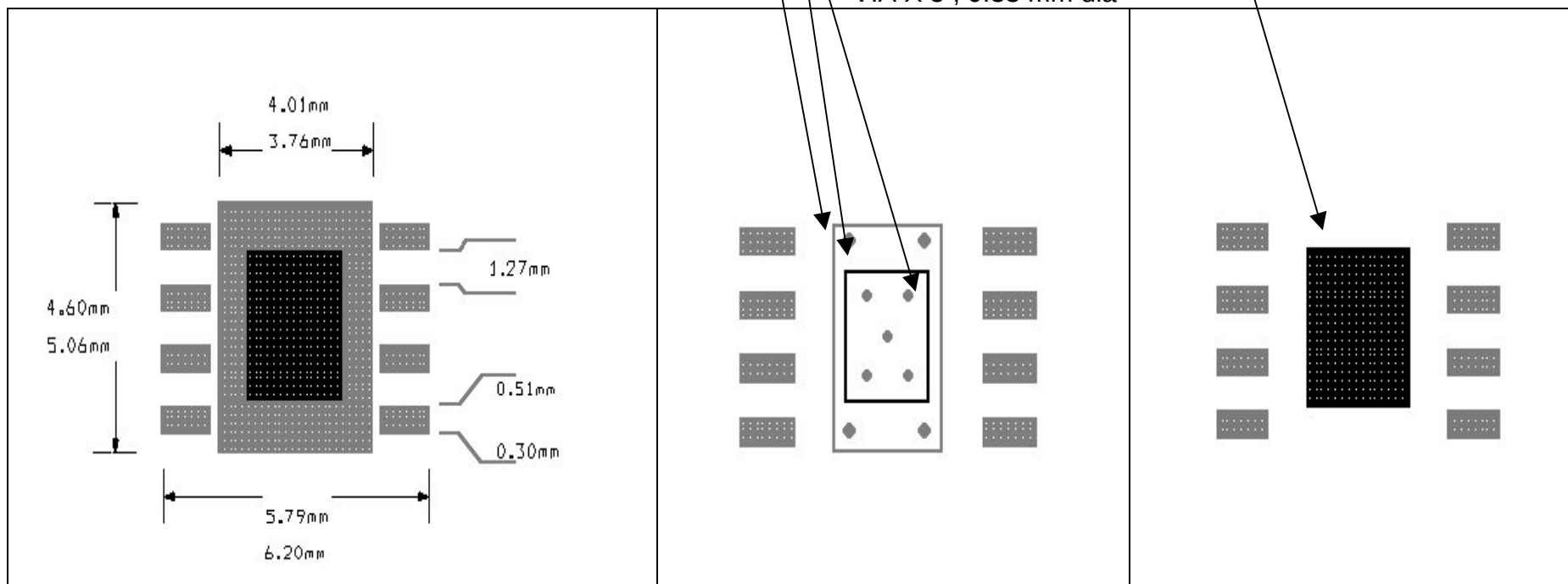
CM8501ASEVAL PCB Layout

PSOP-08 Thermal GND Pad Layout Multi-Layer

PSOP-08 Bottom GND Pad Package
2.34 X 2.92 mm

Layout GND Pad Package
3.01 X 4.06 mm
VIA X 4 , 0.51 mm dia
VIA X 5 , 0.33 mm dia

Solder Mask GND Pad Package
2.4 X 3.0 mm



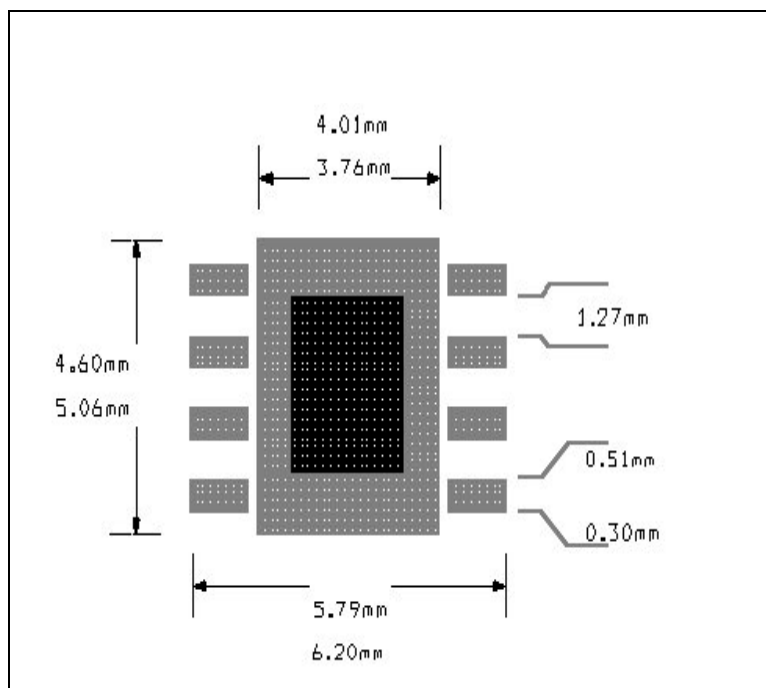
PSOP-08 Package Bottom View

Land Pattern Comp Side

Solder Mask Comp Side

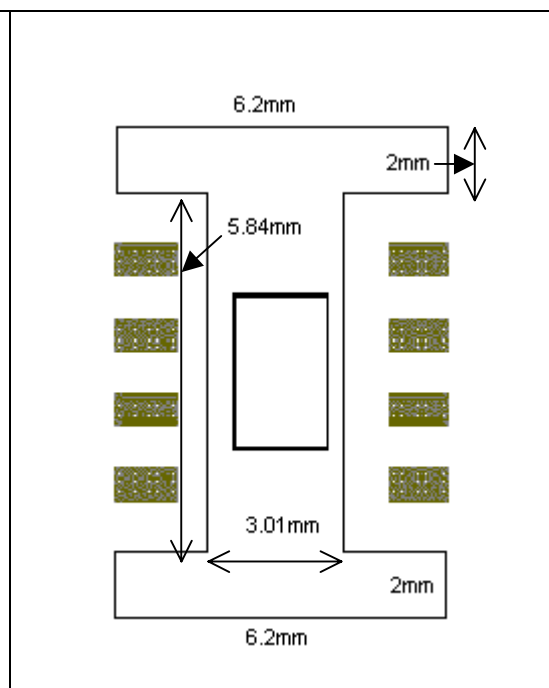
Suggested PSOP-08 Thermal GND Pad Layout Multi-Layer to Guarantee 2A Sink or Source Current

PSOP-08 Bottom GND Pad Package
2.34 X 2.92 mm



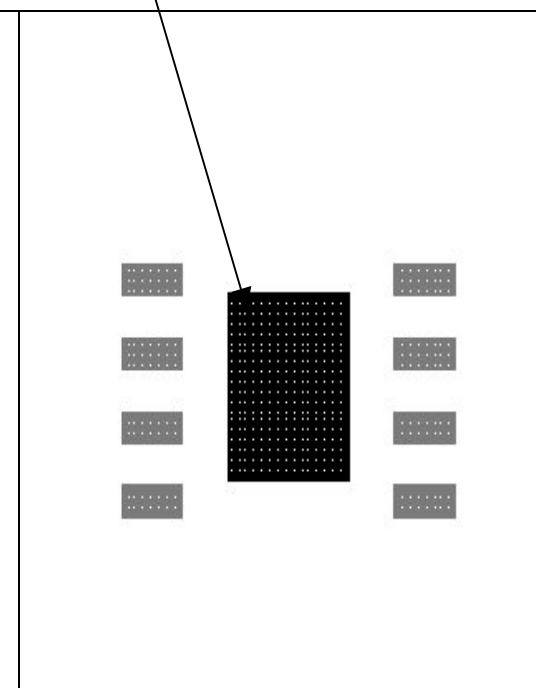
PSOP-08 Package Bottom View

Layout GND Pad Package



Land Pattern Comp Side

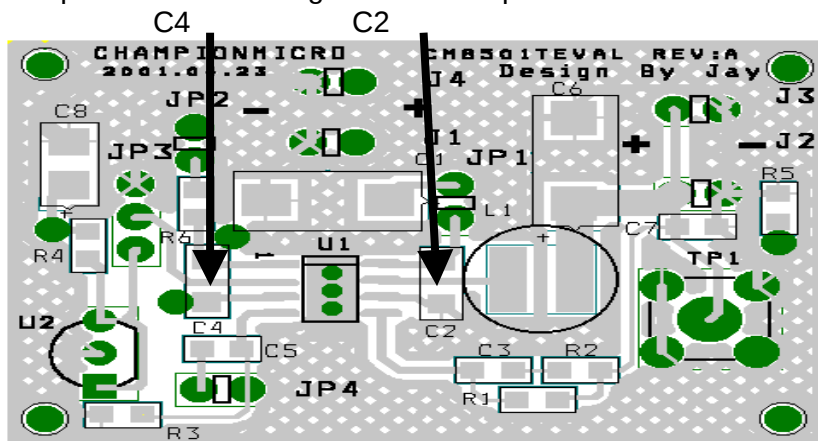
Solder Mask GND Pad Package
2.4 X 3.0 mm



Solder Mask Comp Side

IMPORTANT NOTICE

1. Did you run the WebSim(www.champion-micro.com) to find out AC, Transient, and Efficiency performance of CM8501.
2. Did you separate the noise ground from the quiet ground. For example, the Microprocessor's power supply ground should be separated from the chip set ground because the Microprocessor require 10 to 20 times of the chip set current.
3. Separate VCC and VDD with 5~100 ohm.
4. Add one or more high frequency capacitor for VCCA and PVDD and Each termination node which is far from VTT.
5. The bypass capacitor should be right next to the pin of the CM8501.

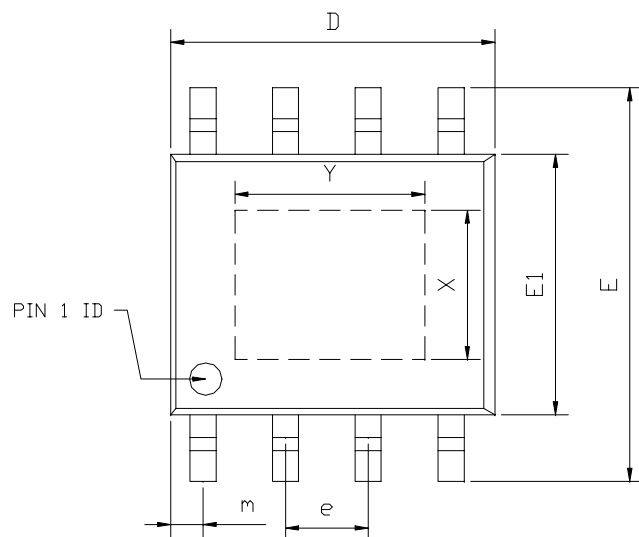


6. Do not put any capacitor between ground and VFB.
7. For CM8501 feedback compensation, it could be 50% less than CM8500 because the switching frequency of CM8501 is 1.2Mhz and CM8500 is 600Khz,

8. Put the compensation network close to CM8501 because the VFB is a high impedance node which will be sensitive to the noise if VFB is crossing some high frequency node and it would pick up the high frequency noise.
9. Reduce the length of the main current loop which is from VL to Inductor to VTT capacitor.
10. Remember SD is the CMOS input.
11. Remember VCCQ behaves like a positive sense of a power supply.
12. Remember AGNDSense is like a negative sense of a power supply.
13. Therefore, VCCQ – AGNDSense will represent the power supply for the memory chip set.
14. Choose CM8501 for smaller size application.
15. VCCQ should be always greater than 2V.
16. VCC and VDD should always have the same power supply but they are separated with 100 ohm. The power supply should be greater than 2.0 V and less than 4.0V.
17. Always let Application Engineers of Champion Microelectronic Corp. check your layout and review your design

PACKAGE DIMENSION

8-PIN PSOP (PS08)



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHS		
	MIN	NOM	MAX	MIN	NOM	MAX
A1	0.10	---	0.25	0.004	---	0.010
A2	1.40	---	1.55	0.055	---	0.061
b	0.30	---	0.51	0.012	---	0.020
C	0.15	---	0.26	0.006	---	0.010
D	4.60	---	5.06	0.169	---	0.199
E	5.79	---	6.20	0.228	---	0.244
E1	3.76	---	4.01	0.148	---	0.158
e	---	1.27	---	---	0.050	---
L	0.38	---	0.69	0.015	---	0.035
m	0.43	---	0.69	0.017	---	0.027
θ	0°	---	8°	0°	---	8°

EXPOSED PAD DIMENSION : (mm)
PAD SIZE: X=2.34 ; Y=2.92

