

ZXFV202N8EV

SINGLE CHANNEL VIDEO AMPLIFIER EVALUATION BOARD

Evaluation board description

The wide bandwidth of the ZXFV202 video amplifier necessitates some care in the layout of the printed circuit. For this reason Zetex has made available an Evaluation Board.

The Evaluation Board layout serves as a useful example for many applications, showing a practical implementation of the advice given below.

Figures 1, 2 and 3 show the schematic and copper layout of a double-sided printed circuit board suitable for evaluation of the device in the laboratory.

BNC connector sockets allow connection to test instruments via 50Ω cables. The output circuit includes a resistor matching circuit to present a load of 150Ω to the amplifier (equivalent to a 75Ω back-terminated video line) and simultaneously provide 50Ω output impedance.

The attenuation of this matching circuit is 15.45 dB. As the amplifier is configured for a voltage gain of 2, the overall gain is:

$$6 - 15.45 = -9.45\text{dB.}$$

PCB design

A continuous ground plane is required under the device and its signal connection paths, to provide the shortest possible ground return paths for signals and power supply filtering.

A double-sided or multi-layer PCB construction is required, with plated-through via holes providing closely spaced low-inductance connections from some components to the continuous ground plane (some of these holes are not visible in the figures for the Evaluation Board – artworks and NC drill output can be provided if required).

Power supply filtering

For the power supply filtering, low inductance surface mount capacitors are normally required. It has been found that very good RF decoupling is provided on each supply using a 1000pF NPO size 0805 or smaller ceramic surface mount capacitor, closest to the device pin, with an adjacent 0.1μF X7R capacitor. Other configurations are possible and it may be found that a single 0.01μF X7R capacitor on each supply gives good results. However this should be supported by larger decoupling capacitors elsewhere on the printed circuit board. Values of 1 to 10 μF are recommended, particularly where the voltage regulators are located more than a few inches from the device. These larger capacitors are recommended to be solid tantalum electrolytic or ceramic types.

A parts list is provided on the next page.

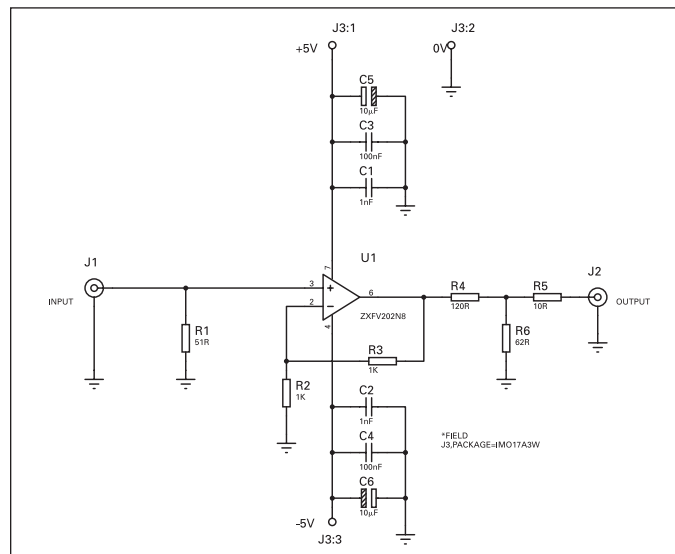


Figure 1 Circuit schematic

ZXFV202N8EV

Evaluation Board Parts List:

QTY	CCT-REF	VALUE	DESCRIPTION
Resistors, surface mount			
1	R1,	51R	0805
2	R2,R3	1k	0805
1	R4	120R	0805
1	R5	10R	0805
1	R6	62R	0805
Capacitors, surface mount			
2	C1,C2	1nF	25V ceramic 0805 X7R
2	C3,C4	100nF	50V ceramic 0805 NPO
2	C5,C6	10 F	16V Tant Elec size C
Integrated circuits			
1	U1	"	Zetex ZXFV202N8
Miscellaneous			
2	J1,J2	"	BNC Socket, PCB straight flange, e.g. Tyco B35N14H999X99
1	J3	"	3-way PCB screw terminal block IMO 20.501/3SB

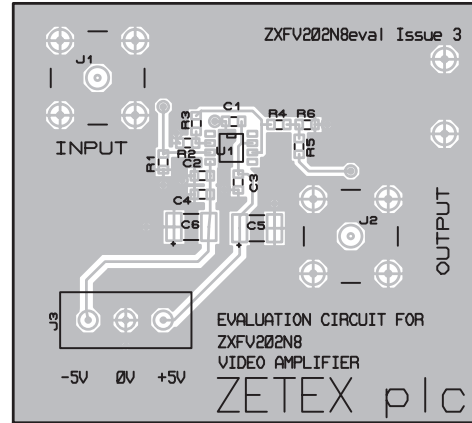


Figure 2 Evaluation circuit top copper layout (overall dimensions 2.5 x 2.25 inches)

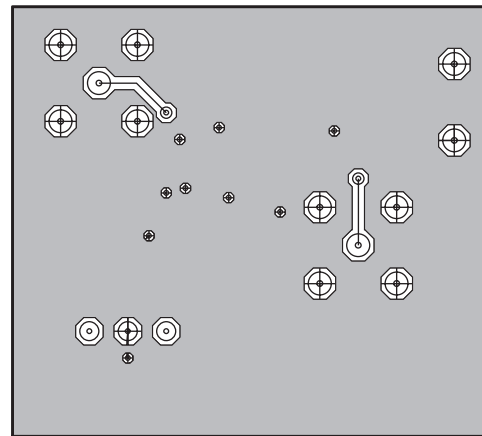


Figure 3 Evaluation board bottom copper layout (viewed through from top) (overall dimensions 2.5 x 2.25 inches)

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ISSUE 1 - MAY 2004