Precision Optocoupler

Function

An optocoupler is used to isolate a voltage source from the process (or experiment) by creating a optical link between the two using an LED-photodiode combination. A digital optocoupler can output only digital signals (high or low), while an analog optocoupler faithfully reproduces the input voltage into the same output voltage but now produced by an independent power source. This device provides good electrical isolation of the power source (typically, an analog output card of a computer) from potentially harmful processes that might occur on the experiment side (eg: voltage spikes during fast switching of magnetic fields).

The circuit and the board is a replica of a project by Todd Meyrath which can be found here. The central optocoupler circuit was inspired by fig. 17 of the datasheet of the HCNR200.

The original board was designed using the layout software “pcb123”. Since the version is now obsolete, it has been remade by me using “Eagle” version 5.11.0. The schematic is identical to the original one and only the part labels are different. The board layout is similar except for minor adjustments. The complete documentation for the original circuit can be found on the above website and I am not including all the options here. All options mentioned in the documentation can be implemented by identifying the labels of respective components in the schematic.

Date

Project date: August 2011

Responsible

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Circuit diagram

- The schematic in PDF-Format
- The Eagle source files can be obtained from the Download-page of wiki. (Direkt-Link: Schematic, Board)

Test

Eingangssignale sollten sich eins-zu eins am Ausgang wieder finden. Bandbreite ist etwa 10 kHz.

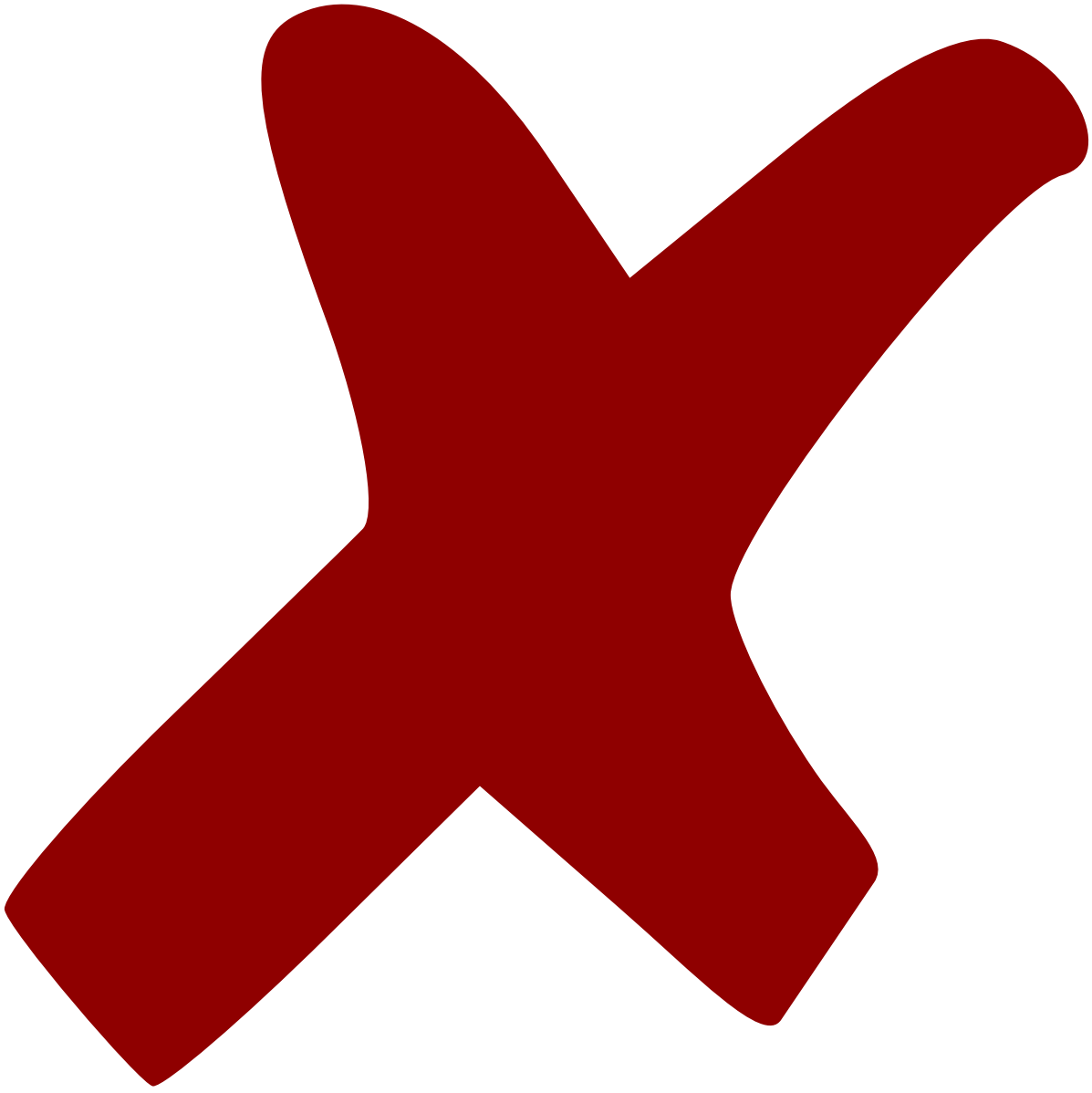
Kalkulation

Fix Me!

was	wieviel	E-Preis	Preis	Anmerkung
Leiterplatte	1x	??.?? €	??.?? €	1/n von XXX EUR
Gehäuse	1x	??.?? €	??.?? €	
*	?x	??.?? €	??.?? €	...
R,C	??x	0.02 €	0.22 €	Bauform 0805
Bestückung			??.00 €	bei SRM
Verschnitt			?.?? €	
		Summe	??.?? €	

Meckerliste

Was für die nächste Version zu tun ist: (



: verworfen,

: in Arbeit,

: im Schaltplan, aber noch nicht im Layout,

: erledigt)

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