

Re: IR LED to repair remote control

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Andrew wrote:

Unfortunately my Logitech harmony 880 remote stopped working. When pointing it into a digital camera, I can no longer see the IR LEDs lighting up (there are two).

If you could ever see them light up, they were almost certainly 880 nm LEDs, not 940 nm types. A few IR receivers are also narrow band filtered for 880 nm sources.

(snip)

I used just the emitters (tinted package) and replaced both of the emitters that were on the remote. The old emitters were clear package, FWIW.

The filter serves no function in emitters, except for visual identification. Some manufacturers tint 940 nm units but put 880 nm units in clear packages (or vice versa), to distinguish them. I don't know how standardized this practice is.

The remote worked great again after this for two days, but now, has apparently died again.

(snip)

The wavelength of the emitter that worked from radioshack was 940nm. On digikey I see that there are LEDs ranging from 860nm to 950nm. This is one area where I'm not clear. Just because the 940nm LED worked (and worked really well on all my devices I might add, it was not flaky at all), does that mean that I should stick with that wavelength? Or is it likely that the other wavelengths are close enough that they will also work well?

Most receivers work with either wavelength. Only a few based on narrow band gallium arsenide aluminide detectors work only with the 880 nm types.

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<http://www.optodiode.com/pdf/SEN5249e.pdf>

The great majority of receivers use silicon detectors with long pass optical filters that block most visible wavelengths that the silicon is also sensitive to.

And what ratings should I pay particularly close attention to when trying to spec an LED for this purpose? I'm thinking a combination of the highest pulse forward current and highest continuous current? For that purpose I saw the LITE-ON LTE-5228A, digikey part no 160-1062-ND. 250mW power dissipation, 3A peak forward current, 150mA cont current, 7.2V reverse voltage, and 940nm wavelength. It seems to be the highest ratings in all categories for the 940nm wavelength LEDs digikey stocks, and is my top choice right now. It also uses a clear package like the original emitters, if that even matters.

I don't think the package color matters, but high peak current rating and high milliwatts per steradian output intensity are good. Though, the highest intensity units are also the narrowest beam width units, meaning you have to aim them pretty accurately.

A good choice might be the TSAL6100 (950 nm) or its high output cousins (assuming you can use the 5mm diameter package).

<http://www.vishay.com/docs/81009/tsal6100.pdf>

<http://www.vishay.com/docs/81090/tsff5210.pdf>

But if I was going to order something, I would get both 940 and 880 nm variations. If the control has more than one emitter, I might use some of both.

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