A46. 3 x 8 CHANNEL REMOTE CONTROL ENCODER/DECODER IC's

In Hong Kong, where DIY Electronics is based, there are many IC's available for Chna manfacturers to use in their toys & consumer items which are made by small, relatively unknown IC manufacturers. They are poorly documented, if at all, in english, and they are not available for individual sale to the hobbyist. We are trying to make some of these IC's available.

We have just developed a 3 x 8 channel IR Transmitter & Decoder using a pair of these chips. The code numbers of the chips are: encoder SM5021B, and decoder SM5032C. They come from Taiwan and I have no idea of the factory name.

The IC's have been readily available for several years and we understand they are very popular in remote control devices. Certainly after trial & error to correct documentation problems we had we found the chip set to be robust & reliable with a high noise immunity. We use them in our Kit 72.

The circuits we have developed using these IC's in an infrared transmitter & receiver are given in the Schematic for Kit 72 which you can download from

http://www.kitsrus.com/pdf/k72.pdf

The features of the chips are given here together with some of our own findings. Some of the documentation is photocopied. We cannot guarantee it is correct. Prototypes must be thoroughly tested.

Features:

- wide range of operating voltage 2.5V to 6V
- auto power off
- LED output to indicate transmission
- direct IR LED 38KHz modulated output
- 4 ranges of 8 channel output
- in each range, keys 1 through 6 operate on/off outputs in the decoder. Multi-key operation of these keys is supported. That is, more than one key can be pressed at a time and it will be decoded.
- Keys 7 & 8 are decoded as toggles outputs. The first keypress will toggle the output on. It needs another keypress to toggle the output off. Multi key operation between the toggle keys 7 & 8 and with keys 1 to 6 does not work. However, there is an interraction. But the interraction depends on which key was actually pressed first, and whether it is key 7 or key 8 which is pressed. Rather than being a design feature the multi-key operation between keys 1 to 6, and keys 7 & 8 should not be used as being unpredictable.

Note that the SM5032 has changed some of its pins twice over the last 7 years. What we have here are the chips as at 9/2002. You can download the data sheets from

http://www.crowcroft.net/kitsrus/sm5021b.pdf and

http://www.crowcroft.net/kitsrus/sm5032c.pdf