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The FST3253 dual four-to-one mux/demux IC has long been used as a "Tayloe Detector" or QSD (and QSE) in low-cost SDRs. They provide incredible performance for such a simple circuit, converting RF to baseband IQ with low loss and the ultimate in simplicity.

Unfortunately the original FST3253 part has become obsolete and while substitutes are available, this is where the confusion sets in. After several weeks of head-scratching the uSDX group finally sorted it out and to document the issue for posterity - here is a summary:

This is the part I've ordered from DigiKey for use in QSD/QSE circuits : https://www.digikey.com/product-detail/en/texas-instruments/SN74CBT3253CDR/296-19206-1-ND/864437

Note this is the "C" version in the SOIC-16 package. I just picked the lowest cost "active" part with the highest inventory, and if you click on the datatsheet link, you will get the correct datasheet for the C version, published in 2003 and revised in 2007:

https://www.ti.com/lit/ds/symlink/sn74cbt3253c.pdf?ts=1596989166399&ref_url=https%253A%252F%252Fwww.ti.com%252Fproduct%252FSI

Which describes the function as follows:

"The SN74CBT3253C is organized as two 1-of-4 multiplexer/demultiplexers with separate output enable (1OE,2OE) inputs. The select (S0,S1) inputs control the data path of each multiplexer/demultiplexer. When OE is low, the associated multiplexer/demultiplexer is enabled, and the A port is connected to the B port, allowing bidirectional data flow between ports. When OE is high, the associated multiplexer/demultiplexer is disabled, and a high-impedance state exists between the A and B ports."

This is exactly how the discontinued FST-3253 works and why the part worked as above when I tested it. However if you google search "74CBT3253" you will find (as I did!) this datasheet link at the top of the search:

https://www.ti.com/lit/ds/symlink/sn74cbt3253.pdf?ts=1596989291591&ref_url=https%253A%252F%252Fwww.google.com%252F

This is the non-compatible version that does in fact work as it's datasheet describes, and as builders confirmed in practice. This is a much older part, with an initial publication date of 1995, revised in 2004.

To add to the confusion, TI tacks a "D" onto the part number to indicate it's packed in tubes instead of tape and reel. So you will see a "SN74CBT3253D" which is the old version in a tube, which is not the same as a "SN74CBT3253CD" which is the industry-compatible "C" version, packed in a tube. The D only designates that they come in a tube, and is not part of the part number like the "C" is. Are we confused yet??

The bottom line is: both parts exist, but only the 74CBT3253C is "functionally identical to industry-standard ’3253 function". The TI datasheet is correct for the older non-standard part, just be sure to order the 74CBT3253C and only refer to its datasheet. They're 48 cents each, and are in the easy to solder SOIC-16 package.