

Substituting For a 40673

Alan Troy G4KRN emails: alantroy49@gmail.com

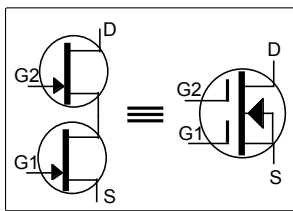
A favourite radio book of mine, for many years, has been *50 (FET) Field Effect Transistor Projects* by F.G.Rayer. Although it dates from the 1980s, it contains plenty of useful circuits and thankfully most of the components, including junction FETs (JFETs) such as the 2N3819 and MPF102, which are still available. However, the 40673-numbered dual gate MOSFET which features in many of the circuits, especially as a mixer, is no longer readily available.

Even back in the 1980s it was relatively expensive and needed careful handling. This device quickly became unobtainable. So a series of alternatives were quickly suggested, which included the 3SK51, 3SK85, 3SK88, 3N204 etc. But even these too became more difficult to find.

I had wondered whether one could simply parallel two JFETs by connecting the source to source and drain to drain, leaving the two gates separate to create a dual gate MOSFET. I did try this in a circuit but got confusing results. In **George G3RJV's** "Carrying on the Practical Way" article in the June 2006 issue of *Practical Wireless*, he describes combining two N-channel JFETs in cascode configuration with the source of the upper device fed from the drain of the lower one to substitute in circuits using the 40673.

This arrangement, using 2N3819 FETs, works well in a number of circuits that I have tried, directly replacing the original 40673. The circuit shown here is a receive preselector taken from *50 (FET) Field Effect Transistor Projects*. But in the circuit here, I have replaced the 40673 with two 2N3819s in cascode and it works fine.

The reason there is apparently no antenna connection, is because in this circuit of a Top-band active antenna, I've used a ferrite rod for L1. I have also used the same circuit with an antenna coupling coil for general HF receive. The same cascode arrangement has also been used, in a 4m band converter that appeared in *Spratt* issue 167 to great success.



The equivalent and the actuality

