

LED's as varicaps (varactors)

Written by Hans Summers

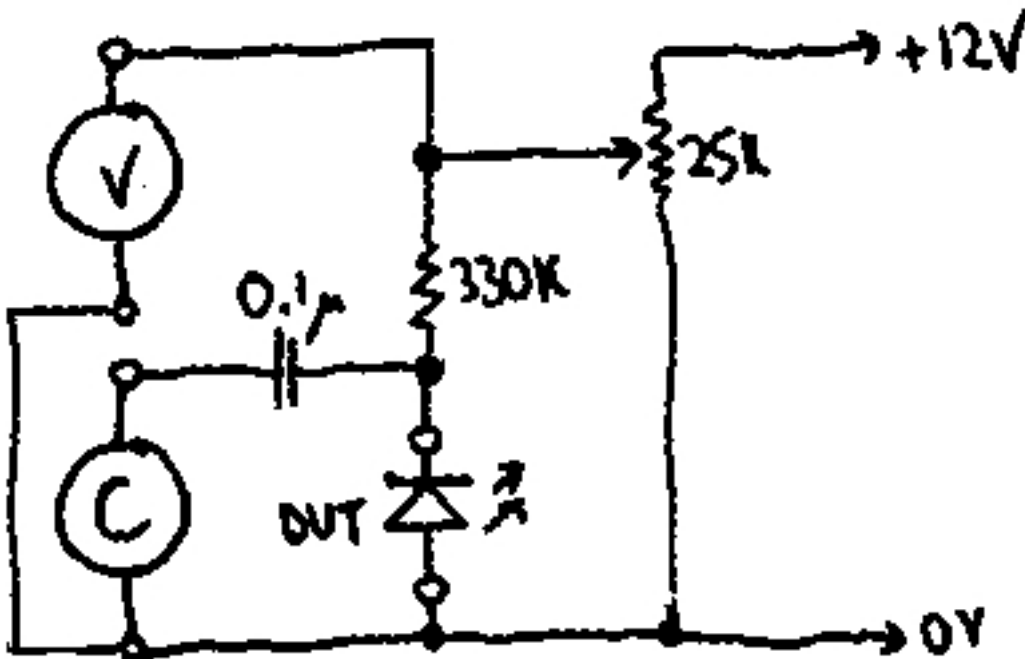
Sunday, 23 August 2009 00:02 - Last Updated Wednesday, 04 January 2012 13:08

These measurements follow on from [Diodes 194 experiments](#) on this case I concentrated on LED's as the

1. provide some comparison between different colours, sizes and shapes;
2. See how consistent the minimum and maximum capacitance parameters are.

{gallery}varicapped/lcmeter{/gallery}

For this experiment I used the [AADE L/C Meter kit](#) pictured above right. The simple test circuit diagram of the set-up is shown below. DUT (Device Under Test) is the LED being evaluated.



28 LED's were tested, which is the entire current content of the LED drawer in my components cabinet. These LED's are pictured below. With the exception of LED's 12, 13, 21, 22 and 23, all of these LED's have at some stage been removed from old equipment of various ages. 28 is a bi-colour LED containing both a red and green LED with common cathode.

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{gallery}varicapped/leds{/gallery}

Results

The following table lists the minimum, maximum, and ratio of max to min capacitance of all 28 LED's tested. The Notes column indicates LED's which are of the same type, which provides an idea of how consistent the capacitance parameters can be expected to be within matching LED's. The graph below shows all of the measurements made. The line colours are the same as the colour of the corresponding LED.

{gallery}varicapped/results{/gallery}

Conclusions

It appears to me that the capacitance of some of the high brightness red LED's is very small. In general for most consistent predictable parameters I believe that it is safest to stick with standard 5mm Red ordinary brightness LED's. They appear to provide a reasonably consistent range of capacitance and a maximum:minimum capacitance ratio generally exceeding 2.5:1.

Spreadsheet

A spreadsheet containing ALL measurements and graphs is [available by CLICKING HERE](#) .