

LED Voltage references

For these measurements, the current has been forced into the LED with a programmable power supply HP 6633B, the 5.3mA is an artefact of the power supply's limited D/A converter resolution. The resulting voltage over the diode has been measured using a 3478A multimeter. The LEDs were soldered to a piece of FR4 mounted inside an aluminium box. Temperature was enforced by a storm from a Steinel HL1800E adjustable heat gun. I had to accept the resulting temperatures; they were checked with an electronic thermometer with 0.1K resolution. Yes, it was summer.

Osram red smd Super Top LED LST 676-R1S1-1-Z

(Type as printed on the Digi-Key bag)

Range 28,3 to 46 °C, dT = 17.7K

mA	V @ 28,3°C	V @ 46°C		dv mV 46-28.3	mv/K tk 46-28.3
1.0	1.7039	1.6656		-38.3	-2.164
5.3	1.7904	1.7538		-36.6	-2.068
10.0	1.8415	1.8039		-37.6	-2.124
20.0	1.9148	1.8770		-37.8	-2.135

Range 28,3 to 96.2 °C, dT = 67.9K

mA	V @ 28,3°C	V @ 96,2°C		dv mV 96.2-28.3	mV/K tk 96.2-28.3
1.0	1.7039	1.573		-130.9	-1.928
5.3	1.7904	1.665		-125.4	-1.847
10.0	1.8415	1.713		-128.5	-1.892
20.0	1.9148	1.783		-131.8	-1.941

Osram blue smd LED LBT 676

(Type as printed on the Digi-Key bag)

Range 28,3 to 50.2 °C, dT = 21.9K

mA	V @ 28,3°C	V @ 50.2°C	dv mV 50.2-28.3	mv/K tk 50.2-28.3
1.0	3.253	3.1655	-87.5	-3.995
5.3	3.4746	3.4013	-73.3	-3.347
10.0	3.602	3.5333	-68.7	-3.137
20.0	3.812	3.7477	-64.3	-2.936

Range 28,3 to 104.5 °C, dT = 76.2K

mA	V @ 28,3°C	V @ 96,2°C	dv mV 96.2-28.3	mV/K tk 96.2-28.3
1.0	3.253	2.923	-330	-4.33
5.3	3.4746	3.215	-259.6	-3.41
10.0	3.602	3.357	-245	-3.22
20.0	3.812	3.589	-223	-2.93