$$M := \begin{pmatrix} 513 & 4 & "" & 23.3 \\ 502 & 4 & "" & 36.3 \\ 505 & 4 & "" & 33.5 \\ 490 & 4 & "" & 47.1 \\ 482 & 4 & "" & 54.8 \\ 485 & 4 & "" & 50 \\ 489 & 4 & "" & 46 \\ 494 & 4 & "" & 41.6 \\ 498 & 4 & "" & 37.7 \end{pmatrix}$$

From spread sheet:
oven check may 2013.xlsx
sheet1

$$M := \mathrm{csort}(M, 0)$$

$$V := \left(M^{\langle 0 \rangle} - M^{\langle 1 \rangle} \cdot \frac{5.6}{6.2}\right) \cdot \frac{3300\mathrm{mV}}{1024 \cdot 2} \qquad T := M^{\langle 3 \rangle} \cdot \Delta°\mathrm{C}$$

$$TCL := \begin{pmatrix} 26.2 \\ 35.6 \\ 32.6 \\ 39.3 \\ 42.1 \\ 50 \end{pmatrix} \qquad VS10 := \begin{pmatrix} 820.7897555 \\ 810.1341986 \\ 818.1908392 \\ 802.2334929 \\ 800.0504032 \\ 787.1597782 \end{pmatrix}$$

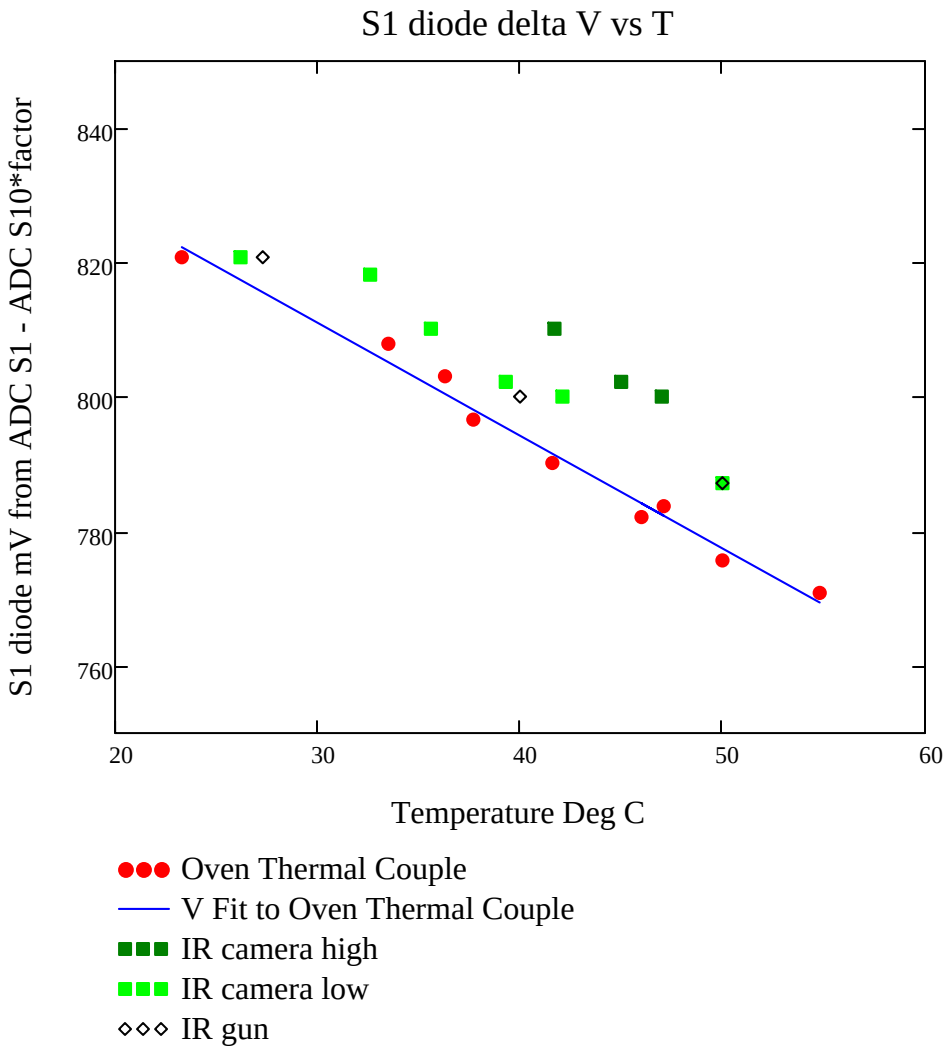
from spread sheet:
oven check may 2013.xlsx
shet 2

$$MTCH := \begin{pmatrix} 41.7 & VS10_1 \\ 45 & VS10_3 \\ 47 & VS10_4 \end{pmatrix} \qquad MTG := \begin{pmatrix} 27.3 & VS10_0 \\ 40 & VS10_4 \\ 50 & VS10_5 \end{pmatrix}$$

$$a := \mathrm{intercept}(T, V) = 861.41 \cdot \mathrm{mV} \qquad b := \mathrm{slope}(T, V) = -1.679 \frac{\mathrm{mV}}{\Delta°\mathrm{C}}$$

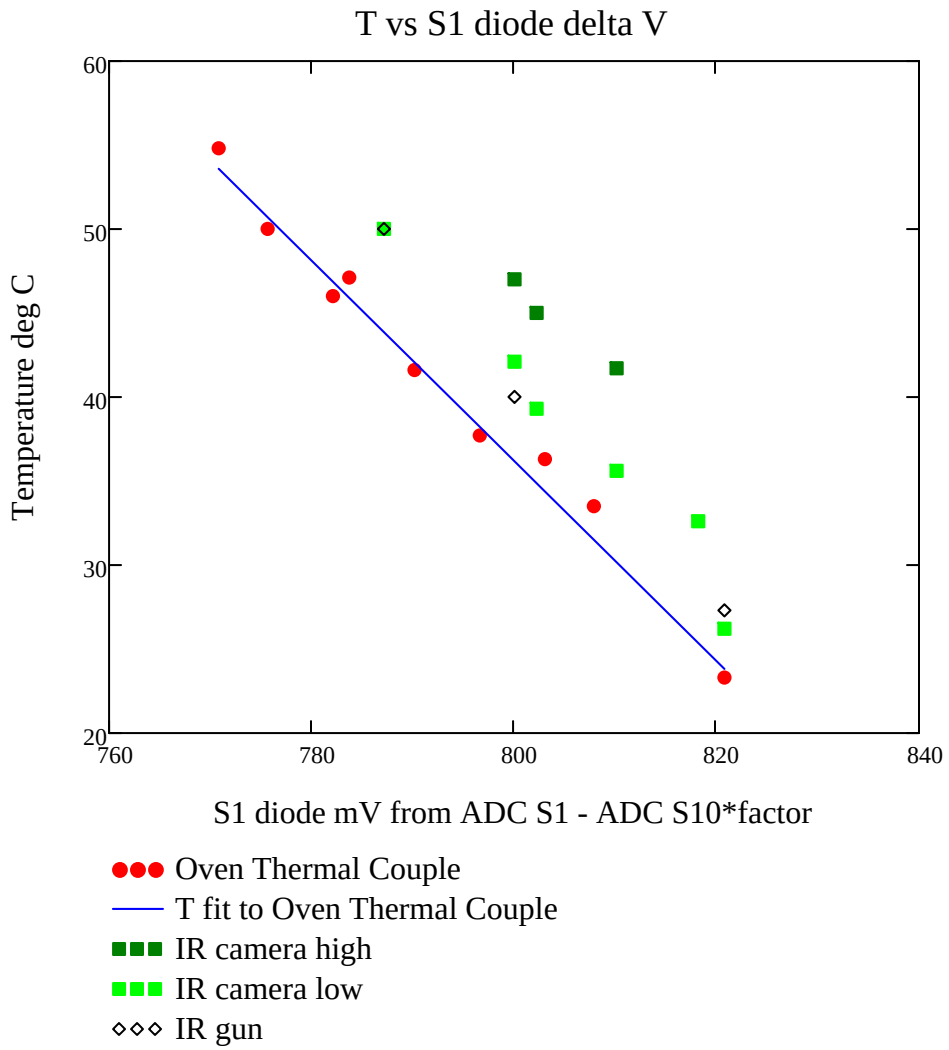
$$Vfit(T) := a + b \cdot T$$

expected slope around -2 mV/ $\Delta°\mathrm{C}$ so looks OK



$$Tf(V) := \frac{-a}{b} + \frac{V}{b}$$

$$\frac{-a}{b} = 513.005 \cdot \Delta°C \qquad \frac{1}{b} = -0.596 \cdot \frac{\Delta°C}{mV}$$

$$Tf(V) := 513 \cdot \Delta°C + -0.596 \frac{\Delta°C}{mV} \cdot V$$

temperature fit to thermocouple vs delta ADC in mV