

$$\text{with}(\text{plots}, \text{implicitplot}) : \text{implicitplot} \left(\frac{1}{R_s (R_s + R_{sh})} \left[-a V_t (R_s + R_{sh})^2 + R_{sh} \right] \right)$$

$$+ R_{sh}) \text{LambertW} \left(\frac{I_o R_s R_{sh} e^{\frac{R_{sh} I_o R_s}{a V_t (R_s + R_{sh})}} e^{\frac{R_{sh} I_{ph} R_s}{a V_t (R_s + R_{sh})}}}{a V_t (R_s + R_{sh})} \right) + R_s R_{sh} (I_o + I_{ph}) \right)$$

$$= Isc,$$

$$\begin{aligned} & \frac{-a V_t (R_s + R_{sh}) \left(\frac{R_{sh} I_o R_s}{a V_t (R_s + R_{sh})} e^{\frac{R_{sh} I_{ph} R_s}{a V_t (R_s + R_{sh})}} \right) + R_s R_{sh} (I_o + I_{ph})}{R_s (R_s + R_{sh})} \\ & \frac{R_{sh} \text{LambertW} \left(\frac{I_o R_s R_{sh} e^{\frac{(I_o + I_{ph}) R_s R_{sh}}{a V_t (R_s + R_{sh})}}}{a V_t (R_s + R_{sh})} \right) + R_s}{1 + \text{LambertW} \left(\frac{I_o R_s R_{sh} e^{\frac{(I_o + I_{ph}) R_s R_{sh}}{a V_t (R_s + R_{sh})}}}{a V_t (R_s + R_{sh})} \right)} = \\ & = Isc, \frac{R_{sh} (I_o + I_{ph})}{(R_s + R_{sh})} = Isc, -\frac{1 + \text{LambertW} \left(\frac{I_o R_s R_{sh} e^{\frac{(I_o + I_{ph}) R_s R_{sh}}{a V_t (R_s + R_{sh})}}}{a V_t (R_s + R_{sh})} \right)}{(R_s + R_{sh}) R_s} = \\ & \left. -\frac{1}{R_{sh}}, \right], R_s = 0 .. 1, a = 1 .. 1.6, \text{gridrefine} = 2, \text{crossingrefine} = 2, \text{resolution} = 1000, \end{aligned}$$

rational, resultant=stable, color = ["Red", "NavyBlue", "Green", "Orange"], legend

$$\left. \right\} = [\text{plotRsh}, \text{plotimpvmp}, \text{plotdiv}]$$

