AL5809 (with RSET) PSPICE Model

The AL5809_wRset_ltspice_enc.lib macro-model provides a basic simulatable model of the device. An LTspice symbol file (AL5809_wRset_TOP_ltspice.asy) is also provided since the user cannot create a symbol from the encrypted LTSpice model file. The symbol needs to be linked to the .lib model file in order to simulate the model in LTspice. To create this link, open the .asy file with a text editor, then find the following line and update with the correct path to the ModelFile:

SYMATTR ModelFile C:\Users\username\Documents\LTspiceXVII\lib\al5809\AL5809_wRset_ltspice_enc.lib

Place the symbol in your design and set the required input parameters. If the parameter values are not changed, the default values will be used. To use the model, there are three required input parameters: Tja (default value = 83.33), Ta (default value=25C), and Rset (default value=8.33k ohms). Tja is Theta-JA, Ta is the ambient temperature Celsius, and Rset is the resistor value to set the ILED current value.

The LED current is determined by this equation:
I_{LED} = 1500*(0.5/Rset)
For example, with Rset = 15K:
I_{LED} = 1500*(0.5/15k) = 50mA

Here are the Rset values for each of the AL5809 fixed output current variations:

DEVICE	R_{SET}	I_{LED}
AL5809-15	50k	15 mA
AL5809-20	37.5k	20 mA
AL5809-25	30k	25 mA
AL5809-30	25k	30 mA
AL5809-40	18.75k	40 mA
AL5809-50	15k	50 mA
AL5809-60	12.5k	60 mA
AL5809-90	8.33k	90 mA
AL5809-100	7.5k	100 mA
AL5809-120	6.25k	120 mA
AL5809-150	5k	150 mA