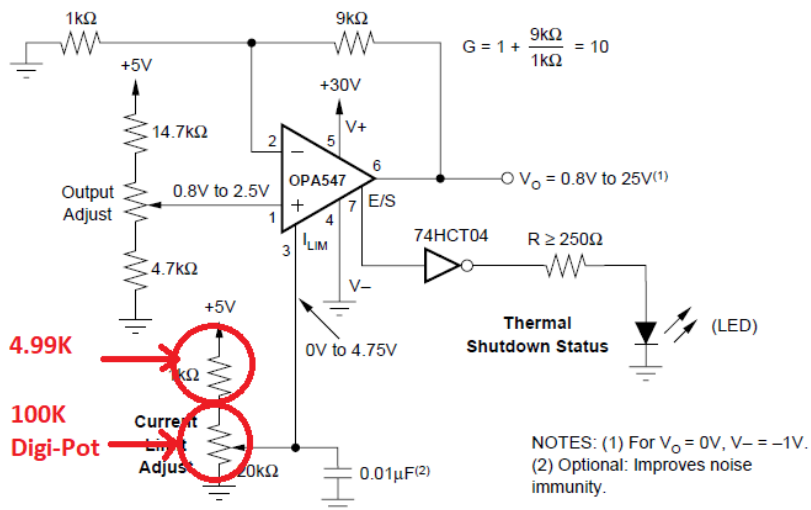


Topic:

OPA547 Current limit (I_{lim}) resistor calculation

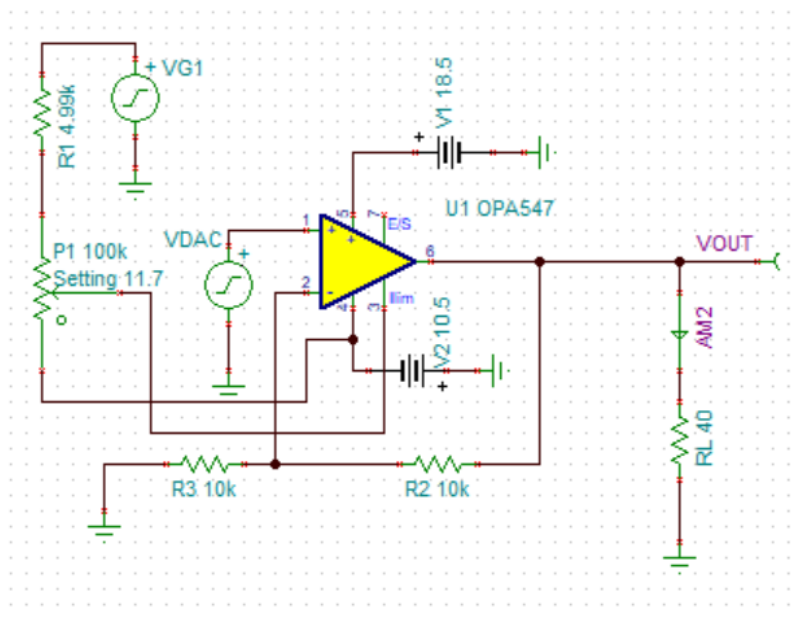
Description:

We are using OPA547 OP-AMP for our new project. Please find below the current limit technique used for our application:



100K digital potentiometer is used for software controlled programmable current limit as shown above.

I have simulated the same with Tina-Ti and LT Spice circuit simulator tool and I could see the current limit function is working when we use different current limit resistor value. Please find below the Tina-Ti circuit used for the simulation:



As per the above simulated circuit, we were able to limit the current by changing the current limit resistor P1 (100K Digi-Pot). For example, I could achieve 250mA current limit by setting the P1 value to 17.3K & 21mA current limit by setting the P1 value to 31.5K. So, it is required us to derive a formula for calculating the current limit resistor value (for programming different current limit values as per user request) which will be used by our software team to program the OP-AMP current limit value.

Could you please help me to derive a formula for calculating the current limit resistor value for different output current limit?