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AND8412/D

LED Current

The LED current is a function of the total resistance connected to the R_{SET} pin, and is calculated as follows:

$$I_{LED} = \frac{22.5}{R_{SET} + R_{W-L}}$$

R_{SET} defines the minimum resistance and therefore the maximum LED current, for example with R_{SET} = 1.13 kΩ, the LED current is 20 mA. The lowest LED current is

obtained with the largest R_{W-L} of 50 kΩ, which results in an LED current of about 1 mA.

The number of taps define the resolution of the potentiometer or the minimum increment in the resistance. A larger number of taps gives more resolution. Table 1 lists a selection of ON Semiconductor digital POTs with their characteristics.

Table 1. DIGITAL POT SELECTION

Part Number	Number of Taps	Resistor Options (kΩ)	Digital Interface	Resistor Scale	Wiper Memory
CAT5113	100	10, 50, 100	Increment	Linear	1 position
CAT5116	100	32	Increment	Log	1 position
CAT5115	32	10, 50, 100	Increment	Linear	Volatile

In applications where the LEDs backlight an LCD, such as in cellular phones or PDAs, the LEDs are either turned ON or OFF. The potentiometer can be used to generate a soft fading between those two states.

Information on the digital POT products and the LED drivers are available on the ON Semiconductor web site at <http://www.onsemi.com>.

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