



Greater scaling is impractical because of 0.5mV (maximum) offsets in the output amplifiers shown. Amplified by 100, these offsets produce worst-case output errors of  $\pm 1\%$  (0.05V). The errors are constant over temperature, but additional error due to drift over a range of 40°C is typically  $\pm 1/2$ LSB. The micropower output amplifiers shown in the figure were chosen for their low supply current—their typical  $I_{DD}$  is only 1 $\mu$ A.

The last requirement for minimizing the overall current drain is to ensure that logic signals applied to the digital inputs of IC1 swing to within 0.2V of each rail. The maximum specified  $I_{DD}$  for that condition is 100 $\mu$ A over temperature, but this specification (like most CMOS  $I_{DD}$  ratings) is extremely conservative.  $I_{DD}$  is negligible for Rail-to-Rail swings but rises dramatically as the swings approach TTL levels.

A similar version of this article appeared in *Electronic Design* magazine.

#### More Information

MAX406: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

MX7528: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)