A low power bandgap voltage reference for low-dropout regulator

ABSTRACT

A low power Bandgap Voltage Reference (BGR) is designed to supply a voltage reference for a low voltage Low-Dropout Regulator (LDO). This bandgap design consists of a bandgap core circuit, an output stage and a start-up circuit. The output of the bandgap adopted sub-1V voltage reference through the output stage circuit. The bandgap is simulated using 0.13 μm CMOS process. This BGR circuit provides voltage reference of 64mV± 1mV over-25°C to 120°C temperature range. The power supply of this BGR circuit is 1.20 V and the total current is 20 μA, thus resulting a low total power consumption of 24μW. The total layout area for this bandgap design is 66μm × 100μm.

**Keyword:** Bandgap voltage reference; BGR; Low voltage; Output stage; Start-up circuit