# SM3255

## USB2.0 Single-Channel Flash Controller

### Overview

The SM3255 is a USB Flash drive controller that combines high compatibility and performance to support single-channel MLC and TLC NAND-type Flash memory in one chip. Based on 0.153µm fabrication technology and low-power consumption considerations, the SM3255 complies with USB2.0 power specifications for bus-powered devices. In conjunction with USB2.0 Flash drive applications, the SM3255 supports high capacity (up to 4 Flash components), “write protection” functionality, PC boot-up from a USB2.0 Flash drive, password protection, and secured partitioning functions.

The SM3255 controller delivers an extremely reliable, high data transfer rate through an 13/24/48-bit ECC engine to reduce TLC Flash read/write disturbance errors. Combining a 5-3.3V regulator and power-on-rest feature, the SM3255 maximize efficiency and reduces overall costs. The SM3255 is available in 40-pin QFN, 44-pin LGA and 48-pin LQFP packages with a manufacturing-ready turnkey solution.

### Key Features

- **Complete USB2.0 compatibility**
- **Complies with USB Mass Storage Class specification version 1.0**
- **Bulk only transport protocol**
- **Complies with USB power specifications for bus-powered devices.**
- **Operating systems supported:**
  - Window®7/Vista/XP/2000/Me/98/98SE
  - Mac OS9.X/X and above
  - Linux Kernel 2.4 and above
- **In System Programming(ISP) firmware update capability**
- **Supports single channels for Flash memory**
- **Compatible with MLC or TLC NAND-type Flash and up to 4 Flash components**
- **Supports 13/24/48-bit ECC hardware engines for highly error collection**
- **Supports Windows® Vista Ready Boost function**
- **Supports VID, PID, serial number, and vendor information updates**
- **An LED indicates when the USB Flash drive is in Ready/Working mode**
- **Supports a “Write Protection” security function to protect data**
- **Integrated 80C51 compatible 8-bit microprocessor with enhanced features**
- **12MHz crystal driver circuit**
- **1.8 volts low power core operation**
- **Operates on a single power supply (Vdd = 5.0V or 3.3V)**

***Note:*** *Specifications may be changed without prior notice.*

### Applications

- USB Flash Drive
- USB Solid State Disk
- Embedded Application
- High-Speed NAND Storage

### Target Performance

- MLC sustained read rate: 22MB/s*
- MLC sustained write rate: 12MB/s*
- TLC sustained read rate: 18MB/s*
- TLC sustained write rate: 9MB/s*

*Figure may vary between test platforms

### Product Schedule

- 40-pin QFN, 44-pin LGA and 48-pin LQFP
- 0.153µm IC(integrated circuit)

### SM3253 Block Diagram