

Avalanche SPnvSRAM™ SPI Product



Product Overview

The SPnvSRAM™ is a SPI Non-Volatile SRAM device utilizing advanced pMTJ STT-MRAM technology. The device offers an SPI compatible serial bus running up to 40MHz clock frequency with superior reliability and greater than 20 year data retention.

Product Features

Advanced pMTJ STT-MRAM Technology

- Densities: 4Mb, 8Mb

Ultra-fast Quad SPI interface

- Up to 40 MHz Clock frequency
- Single SPI with no Wait Writes
- Supports SPI Mode 0 and mode 3
- Hardware replacement for SPI Flash, nvSRAM, FRAM

Operating Supply Voltage

- $V_{CC} = 1.7\text{ V to }2.0\text{V}$

Data Protection

- Hardware Protect Mode (HPM):
 - Enable/Disable Protection with WP# Pin
- Software Protect Mode (SPM):
 - Write-Protect All or Portion of the Memory Array using BP2, BP1, BPO Bits

Low-Power Consumption

- Read/Write Current: 3mA
- Active Current: 300µA
- Standby Current: 150µA
- Deep Power Down Current: 30µA

Superior Reliability

- Compared with nvSRAM, SPnvSRAM does not require backup battery or capacitor(s)
- Compared with F-RAM, SPnvSRAM has non-destructive Reads
- Unlimited Endurance
- Superior Data Retention > 20 Years @ 85°C

Package

- 8-Pin WSON
- 16-Pin SOIC

Temperature Range

- Commercial: 0°C to +80°C

Target Applications

Industrial

- Power Grid
- Smart Metering

Networking

- Multifunction Network Printer

Medical

- Patient/Health Monitor
- Infusion Pumps

Wearable

- Hearing Aids
- Smart Watch

Automotive

- Infotainment

Product Offerings

Part Number	Density	Clock Freq.	Voltage Operation (V_{CC})	Operating Temperature	Package
AS004MA12A-C1WP	4Mb	40MHz	1.7V – 2.0V	Commercial	8-WSON
AS004MA12A-C1SP	4Mb	40MHz	1.7V – 2.0V	Commercial	16-SOIC
AS008MA12A-C1WP	8Mb	40MHz	1.7V – 2.0V	Commercial	8-WSON
AS008MA12A-C1SP	8Mb	40MHz	1.7V – 2.0V	Commercial	16-SOIC

Development Starter Kits

Hardware

- A Starter Kit adapter (An Avalanche test board stacked on a USB-based BeagleBone Black kit)

Software

- Avalanche Windows GUI Software Application

Documents

- Avalanche SPnvSRAM datasheet
- User's guide
- SPnvSRAM Operating App. Note

Avalanche Technology Corp.

Corporate Headquarters ● 46600 Landing Pkwy ● Fremont, CA 94538 U.S.A.

Phone +1 510 438 0148 ● Fax +1 510 438 0143

www.Avalanche-Technology.com