

Avalanche SPSRAM™ Product

Product Overview

The SPSRAM™ is a Quad SPI Non Volatile SRAM device utilizing advanced pMTJ STT-MRAM technology. The device offers an SPI compatible serial bus running up to 100MHz clock frequency with superior reliability and greater than 10 year data retention.

SPSRAM™ is an ideal memory solution for the MCU applications that require an external SRAM extension. The product offers extremely fast throughput (Quad SPI), very low power consumption, minimum pin count and small form factor, making it a suitable solution for embedded, network switches, automotive, Smart Meter, and Internet of Things (IoT) applications.

Product Features

32-Mbit pMTJ STT-MRAM Technology

- Logically organized as 4K pages
- Densities: 4Mb, 8Mb, 16Mb, 32Mb and 64Mb

Ultra-fast Quad SPI interface

- Up to 50MB/s Read & Write (Quad SPI)
- Up to 100 MHz Clock frequency
- Single SPI, Dual SPI and Quad SPI
- No wait writes
- Supports SPI mode 0 and mode 3
- Hardware replacement for SPI Flash, EEPROM, FRAM

Low-voltage operation

- VDD = 1.65 V to 1.95 V

Low-Power Consumption

- Read/Write Current: 25mA (max.)
- Standby Current: 300µA (max.)

Superior Reliability

- Endurance: > 1 Trillion Read/Write Cycles
- Data Retention: > 10 Years @ 85°C

Package

- 8-Pin WSON
- 8-Pin SOIC

Temperature Range

- Commercial: 0°C to +70°C
- Industrial: -40°C to +85°C

Compliance

- RoHS



Product Comparison

Key Features	Avalanche Quad SPSRAM	Microchip SPI nvSRAM	Cypress SPI FRAM
Persistent Memory	Yes	Yes*	Yes
Operating Voltage	1.65V – 1.95V	1.7V – 2.2V	2.0V – 3.6V
Density	Up to 64Mb	Up to 1Mb	Up to 1Mb
Clock Frequency	100MHz	Up to 20MHz	Up to 40MHz
Quad I/O Support	Yes	No	No

Note: * Requires Backup Battery

Product Offerings

Part Number	Density	Clock Freq.	Operation Voltage	Operating Temperature	Endurance (R/W Cycles)	Data Retention	Package	Availability
A5SR004MA-BC1WS(SN)	4Mb	100MHz	1.65V-1.95V	Commercial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR004MA-BI1WS(SN)	4Mb	100MHz	1.65V-1.95V	Industrial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR008MA-BC1WS(SN)	8Mb	100MHz	1.65V-1.95V	Commercial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR008MA-BI1WS(SN)	8Mb	100MHz	1.65V-1.95V	Industrial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR016MA-BC1WS(SN)	16Mb	100MHz	1.65V-1.95V	Commercial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR016MA-BI1WS(SN)	16Mb	100MHz	1.65V-1.95V	Industrial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR032MA-BC1WS(SN)	32Mb	100MHz	1.65V-1.95V	Commercial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR032MA-BI1WS(SN)	32Mb	100MHz	1.65V-1.95V	Industrial	1 Trillion	10Yrs@85°C	WSON(SOIC)	NOW
A5SR064MA-BC1WS(SN)	64Mb	100MHz	1.65V-1.95V	Commercial	1 Trillion	10Yrs@85°C	WSON(SOIC)	Q4-2016
A5SR064MA-BI1WS(SN)	64Mb	100MHz	1.65V-1.95V	Industrial	1 Trillion	10Yrs@85°C	WSON(SOIC)	Q4-2016