

# S75PL-N MirrorBit™ ORNAND™ MCPs

Stacked Multi-Chip Product (MCP)

S29PL-N: CMOS 3.0 Volt-only Simultaneous Read/Write,  
Page-mode Flash Memory (NOR Interface)

S30ML-P: ORNAND Flash (NAND Interface)  
3V pSRAM



*Data Sheet (Advance Information)*

---

**Notice to Readers:** This document states the current technical specifications regarding the Spansion product(s) described herein. Each product described herein may be designated as Advance Information, Preliminary, or Full Production. See [Notice On Data Sheet Designations](#) for definitions.

## Notice On Data Sheet Designations

SpanSion LLC issues data sheets with Advance Information or Preliminary designations to advise readers of product information or intended specifications throughout the product life cycle, including development, qualification, initial production, and full production. In all cases, however, readers are encouraged to verify that they have the latest information before finalizing their design. The following descriptions of SpanSion data sheet designations are presented here to highlight their presence and definitions.

### Advance Information

The Advance Information designation indicates that SpanSion LLC is developing one or more specific products, but has not committed any design to production. Information presented in a document with this designation is likely to change, and in some cases, development on the product may discontinue. SpanSion LLC therefore places the following conditions upon Advance Information content:

“This document contains information on one or more products under development at SpanSion LLC. The information is intended to help you evaluate this product. Do not design in this product without contacting the factory. SpanSion LLC reserves the right to change or discontinue work on this proposed product without notice.”

### Preliminary

The Preliminary designation indicates that the product development has progressed such that a commitment to production has taken place. This designation covers several aspects of the product life cycle, including product qualification, initial production, and the subsequent phases in the manufacturing process that occur before full production is achieved. Changes to the technical specifications presented in a Preliminary document should be expected while keeping these aspects of production under consideration. SpanSion places the following conditions upon Preliminary content:

“This document states the current technical specifications regarding the SpanSion product(s) described herein. The Preliminary status of this document indicates that product qualification has been completed, and that initial production has begun. Due to the phases of the manufacturing process that require maintaining efficiency and quality, this document may be revised by subsequent versions or modifications due to changes in technical specifications.”

### Combination

Some data sheets contain a combination of products with different designations (Advance Information, Preliminary, or Full Production). This type of document distinguishes these products and their designations wherever necessary, typically on the first page, the ordering information page, and pages with the DC Characteristics table and the AC Erase and Program table (in the table notes). The disclaimer on the first page refers the reader to the notice on this page.

### Full Production (No Designation on Document)

When a product has been in production for a period of time such that no changes or only nominal changes are expected, the Preliminary designation is removed from the data sheet. Nominal changes may include those affecting the number of ordering part numbers available, such as the addition or deletion of a speed option, temperature range, package type, or  $V_{IO}$  range. Changes may also include those needed to clarify a description or to correct a typographical error or incorrect specification. SpanSion LLC applies the following conditions to documents in this category:

“This document states the current technical specifications regarding the SpanSion product(s) described herein. SpanSion LLC deems the products to have been in sufficient production volume such that subsequent versions of this document are not expected to change. However, typographical or specification corrections, or modifications to the valid combinations offered may occur.”

Questions regarding these document designations may be directed to your local AMD or Fujitsu sales office.

# S75PL-N MirrorBit™ ORNAND™ MCPs

## Stacked Multi-Chip Product (MCP)

S29PL-N: CMOS 3.0 Volt-only Simultaneous Read/Write,  
Page-mode Flash Memory (NOR Interface)

S30ML-P: ORNAND Flash (NAND interface)

3V pSRAM



*Data Sheet (Advance Information)*

## Features

- **Speed**
  - PL-N: 70 ns (initial access, 30 ns page access)
  - ML-P: 30 ns (page access)
  - pSRAM: 70 ns
- **107-Ball Fine-Pitch Ball Grid Array (FBGA)**
  - 9 x 12 x 1.4mm for ML512P based MCP's
  - 11 x 13 x 1.4mm for ML01GP based MCPs
- **Operating Temperature Range**
  - Temperature Range of -25°C to +85°C

## General Description

This document contains information for the S75PL-N MirrorBit MCP product. The S75PL-N product consists of the following devices:

- S29PL-N
- S30ML-P
- 3 V pSRAM

## Flash/RAM Combinations Table

S29PL127N +	pSRAM Density	
	32 Mb	64 Mb
S30ML512P	S75PL127NBF	
S30ML01GP		

## Product Selector Guide

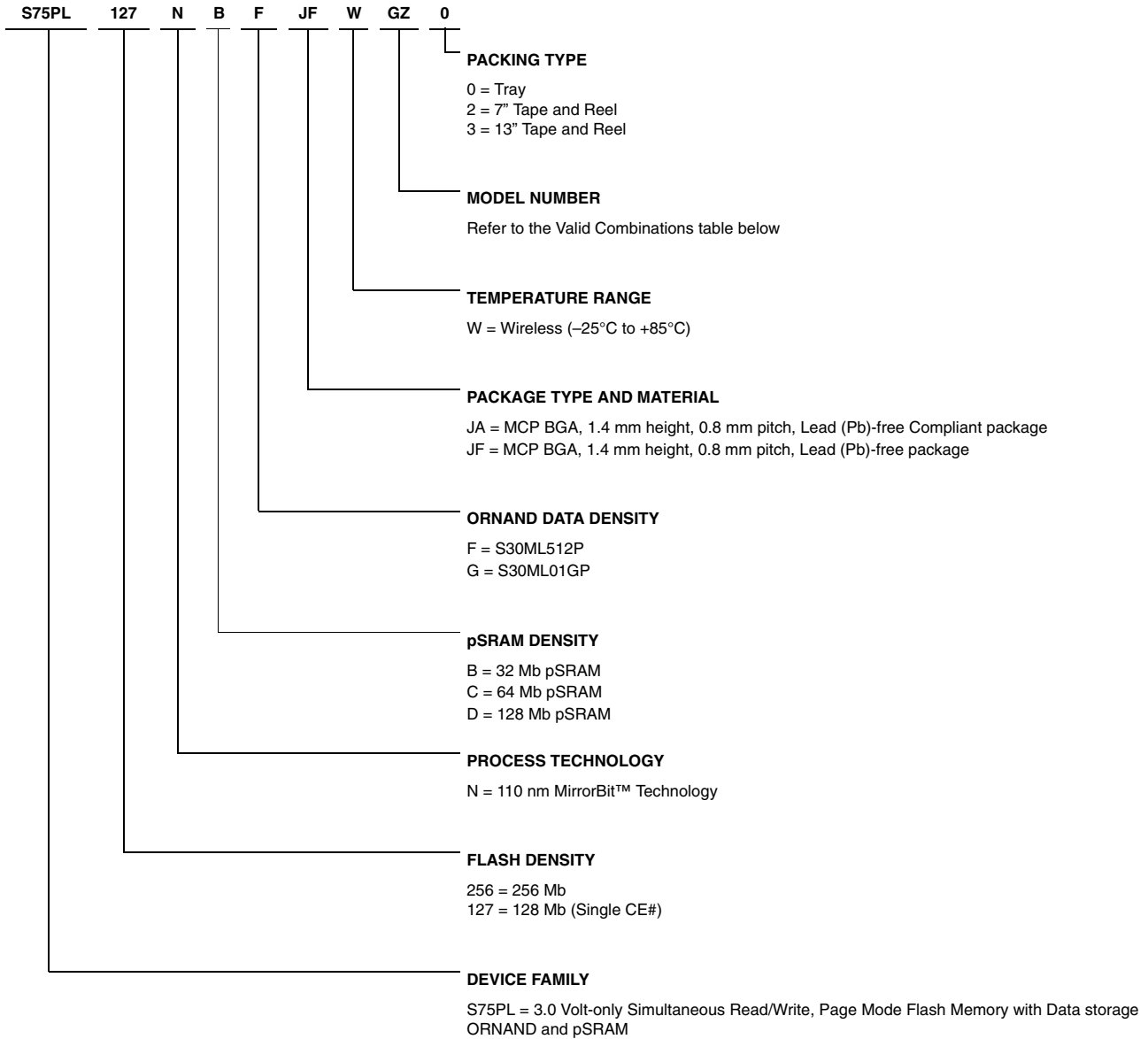
Device	pSRAM Density	pSRAM Type
S75PL127NBF	32 Mb	pSRAM Type 7

For detailed specifications, please refer to the individual data sheets:

Document	Publication Identification Number (PID)
S29PL-N	S29PL-N_M0
S30ML-P	S30ML-GP_00
32M pSRAM Type 7	pSRAM_29

# 1. Ordering Information

The ordering part number is formed by a valid combination of the following:



### 1.1 Valid Combinations

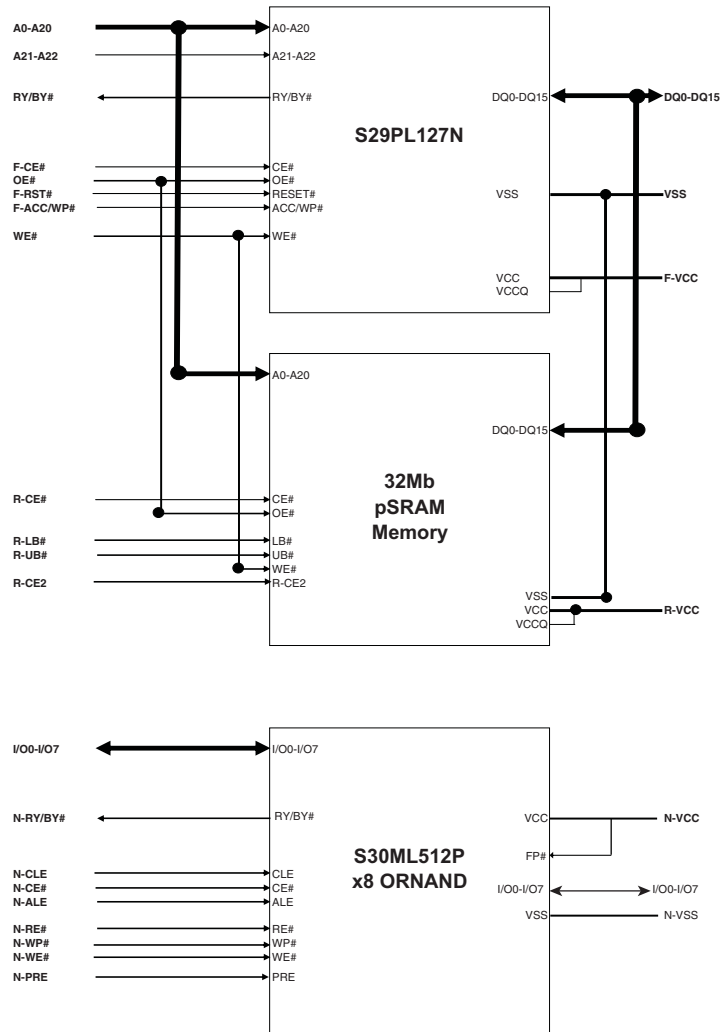
Valid Combinations list configurations planned to be supported in volume for this device. Consult your local sales office to confirm availability of specific valid combinations and to check on newly released combinations.

Valid Combinations								
Base Ordering Part Number (2)	Package & Temperature	Model Number	Packing Type	pSRAM Type	PL-N Linear Mode Access Time	ML-P Page Mode Access Time	pSRAM Linear Mode Access Time	Package Name
S75PL127NBF	JAW, JFW	GZ	0, 2, 3 (1), (2)	Type 7	70 ns	30 ns	70 ns	FMH107 9x12x1.4mm, 107 ball

**Notes:**

1. Type 0 is standard. Specify other options as required.
2. BGA package marking omits leading "S" and packing type designator from ordering part number.
3. Contact factory for availability for any of the OPNs listed since RAM type availability may vary over time.

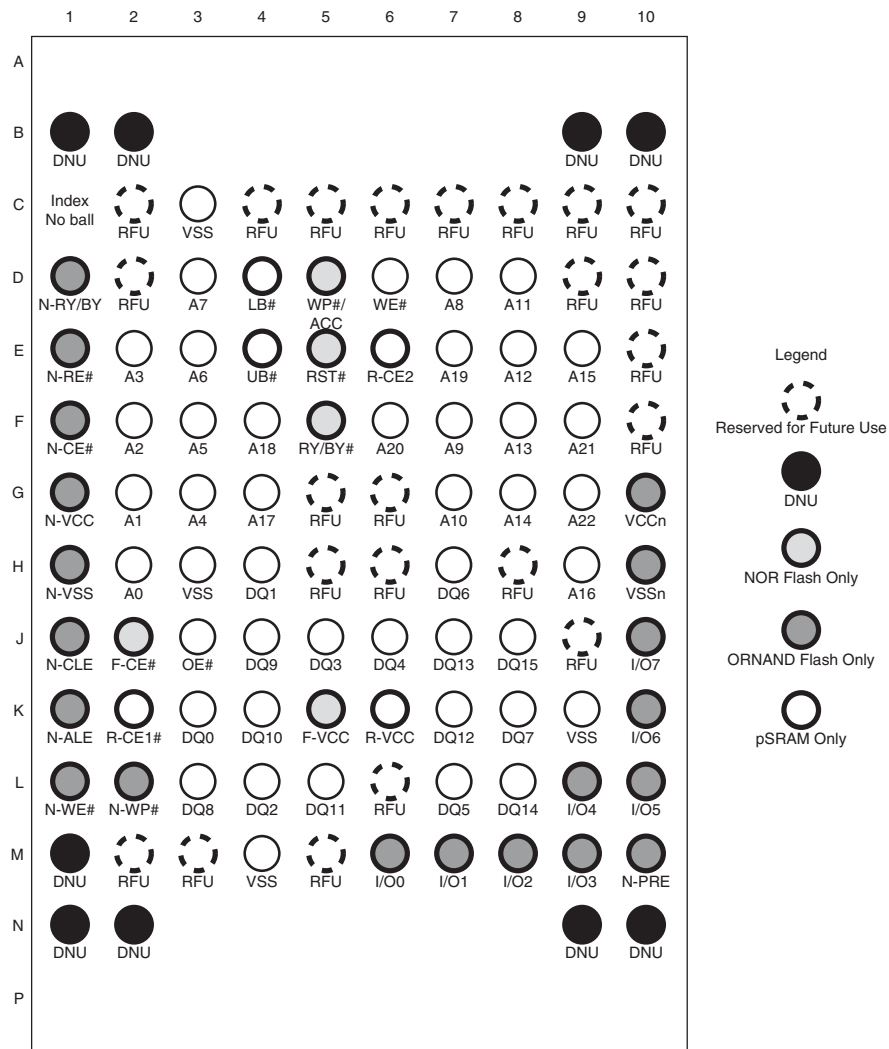
### 2. Block Diagram (S29PL-N and pSRAM on Bus 1, S30ML-P on Bus 2)



### 3. Connection Diagrams

#### 3.1 S75PL-N Pinout

Figure 3.1 107-ball Fine-Pitch Ball Grid Array (S75PL127NBF)



**Note:**

Top view—balls facing down. The addresses that are shared vary by MCP combination as shown in the table below:

	PL-N Addresses	PL-N/pSRAM Addresses
S75PL127NBF	A22-A21	A20:A0

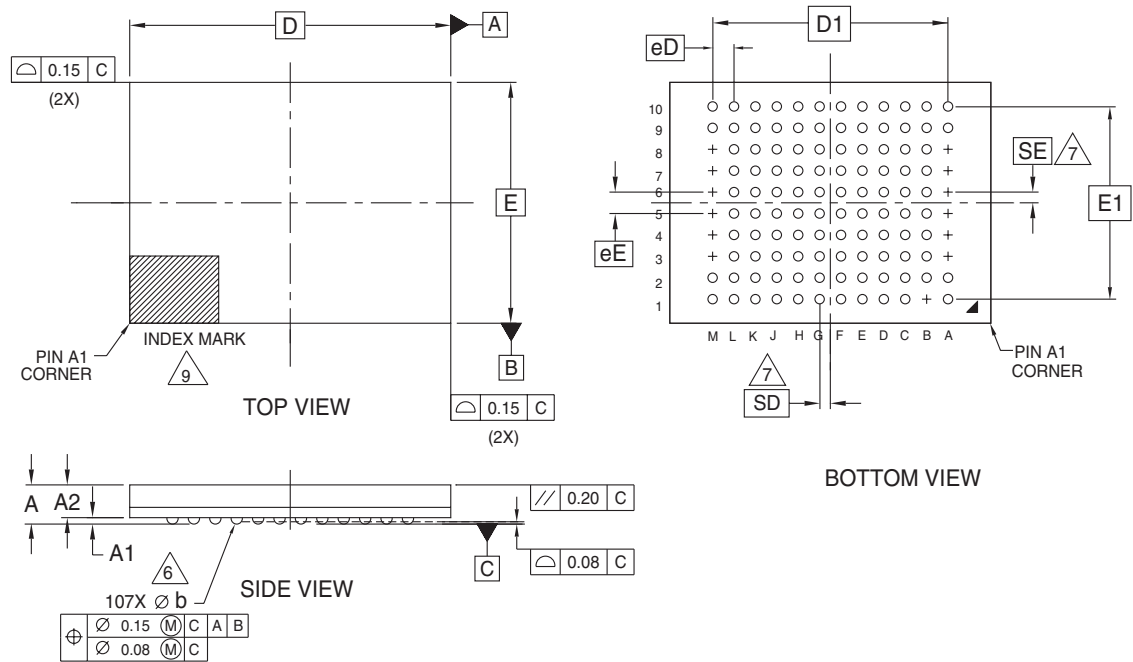
**Special Handling Instructions for FBGA Package**

Special handling is required for Flash Memory products in FBGA packages.

Flash memory devices in FBGA packages may be damaged if exposed to ultrasonic cleaning methods. The package and/or data integrity may be compromised if the package body is exposed to temperatures above 150°C for prolonged periods of time.

### 3.2 FMH107—107-Ball Fine Pitch Ball Grid Array (FBGA) 9 x 12 mm package

Figure 3.2 FMH107



PACKAGE	FMH 107			
JEDEC	N/A			
D x E	12.00 mm x 9.00 mm PACKAGE			
SYMBOL	MIN	NOM	MAX	NOTE
A	---	---	1.40	PROFILE
A1	0.17	---	---	BALL HEIGHT
A2	0.94	---	1.11	BODY THICKNESS
D	12.00 BSC.			BODY SIZE
E	9.00 BSC.			BODY SIZE
D1	8.80 BSC.			MATRIX FOOTPRINT
E1	7.20 BSC.			MATRIX FOOTPRINT
MD	12			MATRIX SIZE D DIRECTION
ME	10			MATRIX SIZE E DIRECTION
n	107			BALL COUNT
$\varnothing$ b	0.35	0.40	0.45	BALL DIAMETER
eE	0.80 BSC.			BALL PITCH
eD	0.80 BSC.			BALL PITCH
SD / SE	0.40 BSC.			SOLDER BALL PLACEMENT
	A3,A4,A5,A6,A7,A8, B1,M3,M4,M5,M6,M7,M8			DEPOPULATED SOLDER BALLS

NOTES:

- DIMENSIONING AND TOLERANCING METHODS PER ASME Y14.5M-1994.
- ALL DIMENSIONS ARE IN MILLIMETERS.
- BALL POSITION DESIGNATION PER JEP95, SECTION 4.3, SPP-010.
- eE REPRESENTS THE SOLDER BALL GRID PITCH.
- SYMBOL "MD" IS THE BALL MATRIX SIZE IN THE "D" DIRECTION.  
SYMBOL "ME" IS THE BALL MATRIX SIZE IN THE "E" DIRECTION.  
n IS THE NUMBER OF POPULATED SOLDER BALL POSITIONS FOR MATRIX SIZE MD X ME.
- $\Delta$ 6 DIMENSION "b" IS MEASURED AT THE MAXIMUM BALL DIAMETER IN A PLANE PARALLEL TO DATUM C.
- $\Delta$ 7 SD AND SE ARE MEASURED WITH RESPECT TO DATUMS A AND B AND DEFINE THE POSITION OF THE CENTER SOLDER BALL IN THE OUTER ROW.
- WHEN THERE IS AN ODD NUMBER OF SOLDER BALLS IN THE OUTER ROW SD OR SE = 0.000.  
WHEN THERE IS AN EVEN NUMBER OF SOLDER BALLS IN THE OUTER ROW, SD OR SE = eE/2
- "+" INDICATES THE THEORETICAL CENTER OF DEPOPULATED BALLS.
- $\Delta$ 9 A1 CORNER TO BE IDENTIFIED BY CHAMFER, LASER OR INK MARK, METALLIZED MARK INDENTATION OR OTHER MEANS.

3512 \ 16-038.19 \ 8.9.05

## 4. Revision History

### 4.1 Revision A (April 21, 2006)

Initial release.

#### ***Colophon***

The products described in this document are designed, developed and manufactured as contemplated for general use, including without limitation, ordinary industrial use, general office use, personal use, and household use, but are not designed, developed and manufactured as contemplated (1) for any use that includes fatal risks or dangers that, unless extremely high safety is secured, could have a serious effect to the public, and could lead directly to death, personal injury, severe physical damage or other loss (i.e., nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system), or (2) for any use where chance of failure is intolerable (i.e., submersible repeater and artificial satellite). Please note that Spansion will not be liable to you and/or any third party for any claims or damages arising in connection with above-mentioned uses of the products. Any semiconductor devices have an inherent chance of failure. You must protect against injury, damage or loss from such failures by incorporating safety design measures into your facility and equipment such as redundancy, fire protection, and prevention of over-current levels and other abnormal operating conditions. If any products described in this document represent goods or technologies subject to certain restrictions on export under the Foreign Exchange and Foreign Trade Law of Japan, the US Export Administration Regulations or the applicable laws of any other country, the prior authorization by the respective government entity will be required for export of those products.

#### ***Trademarks and Notice***

The contents of this document are subject to change without notice. This document may contain information on a Spansion product under development by Spansion. Spansion reserves the right to change or discontinue work on any product without notice. The information in this document is provided as is without warranty or guarantee of any kind as to its accuracy, completeness, operability, fitness for particular purpose, merchantability, non-infringement of third-party rights, or any other warranty, express, implied, or statutory. Spansion assumes no liability for any damages of any kind arising out of the use of the information in this document.

Copyright © 2006 Spansion LLC. All Rights Reserved. Spansion, the Spansion logo, MirrorBit, ORNAND, and combinations thereof are trademarks of Spansion LLC. Other names are for informational purposes only and may be trademarks of their respective owners.