"Spansion, Inc." and "Cypress Semiconductor Corp." have merged together to deliver high-performance, high-quality solutions at the heart of today's most advanced embedded systems, from automotive, industrial and networking platforms to highly interactive consumer and mobile devices. The new company "Cypress Semiconductor Corp." will continue to offer "Spansion, Inc." products to new and existing customers.

Continuity of Specifications

There is no change to this document as a result of offering the device as a Cypress product. Any changes that have been made are the result of normal document improvements and are noted in the document history page, where supported. Future revisions will occur when appropriate, and changes will be noted in a document history page.

Continuity of Ordering Part Numbers

Cypress continues to support existing part numbers. To order these products, please use only the Ordering Part Numbers listed in this document.

For More Information

Please contact your local sales office for additional information about Cypress products and solutions.

S98GL064NB0-007 MCP
S98GL064NB0-008 MCP

64 Mbit (4M x 16-bit), 3 V, Flash and 32 Mbit (2M x 16-bit) Async Pseudo Static RAM

Distinctive Characteristics

MCP Features

- Power supply voltage of 2.7 to 3.6 volt
- High performance
  - 90 ns access time (90 ns Flash, 70 ns pSRAM/SRAM)
  - 25 ns page read times
- Packages
  - 7 x 9 x 1.2 mm 56-ball FBGA
- Operating temperature
  - -40°C to +85°C

General Description

The S98GL064NB0-007, -008 product series consists of:

- One S29GL064N flash memory device
- Top Boot (-007)
- Bottom Boot (-008)
- One 32 Mb asynchronous pSRAM (SPG032D970R3R)

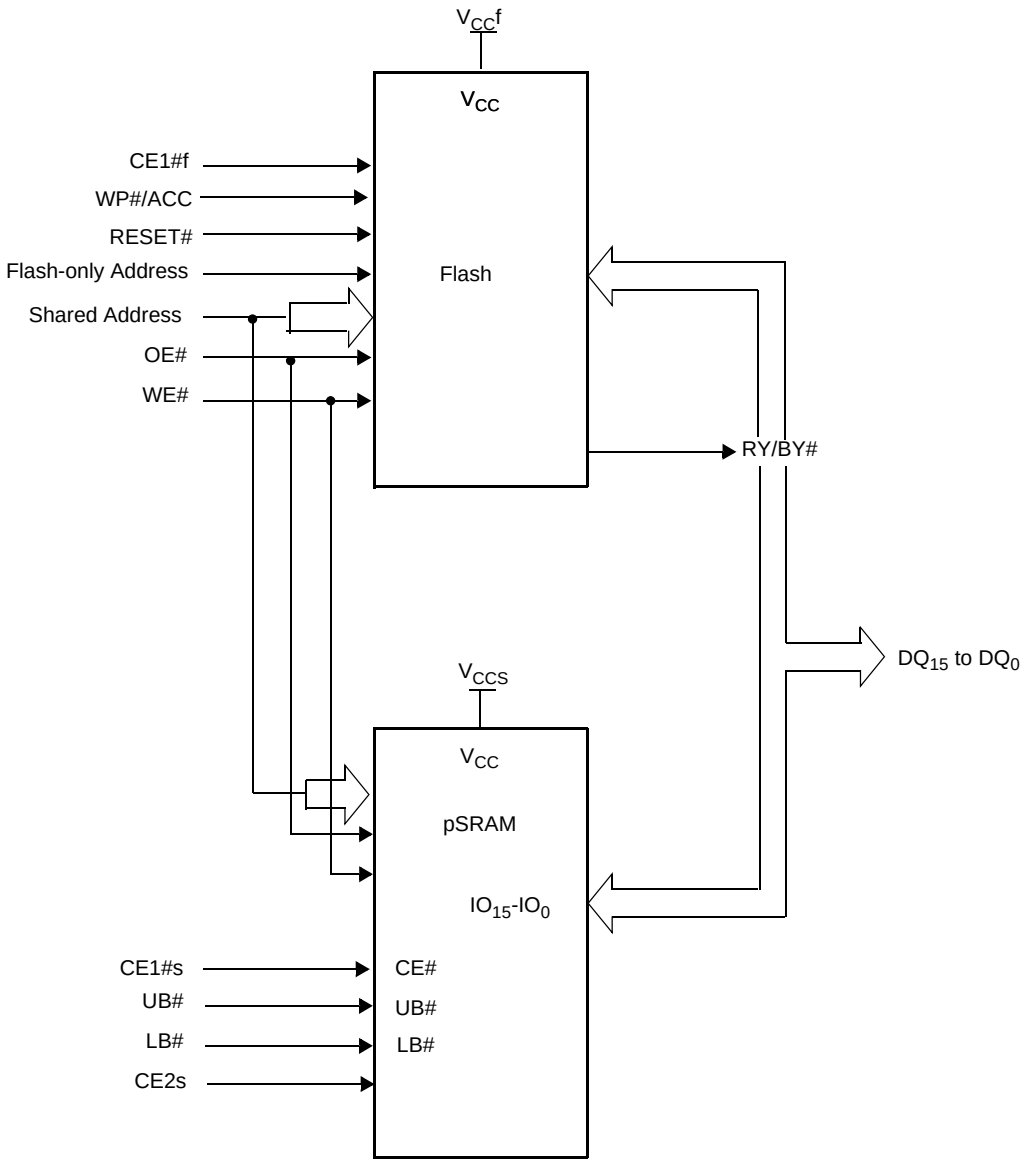
For detailed specifications, please refer to the individual data sheets.

Document	Publication Identification Number (PID)
S29GL-N	S29GL-N_00
SPG032D970R3R	SPG032D970R3R

1. Product Selector Guide

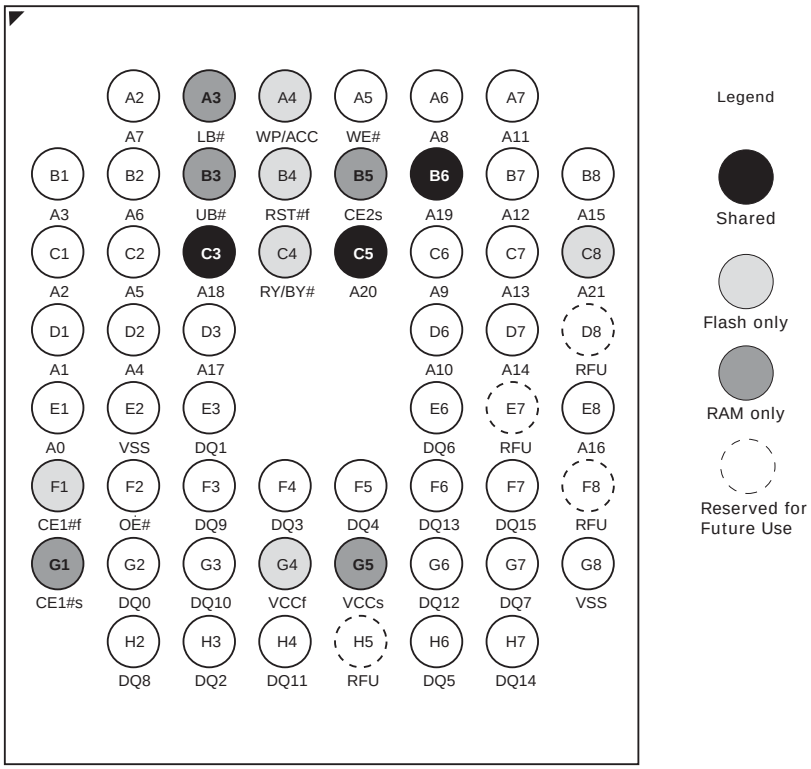
Device-Model#	Flash Access time (ns)	(p)SRAM density	(p)SRAM Access time (ns)	(p)SRAM type	Package
S98GL064NB0-007, -008	90	32 Mb	70	SPG032D970R3R	TLC056

2. MCP Block Diagram



3. Connection Diagram

56-ball Fine-Pitch Ball Grid Array
(Top View, Balls Facing Down)



MCP	Flash-only Addresses	Shared Addresses
S98GL064NB0	A21	A20-A0

3.1 Special Handling Instructions For FBGA Package

Special handling is required for flash memory products in FBGA packages.

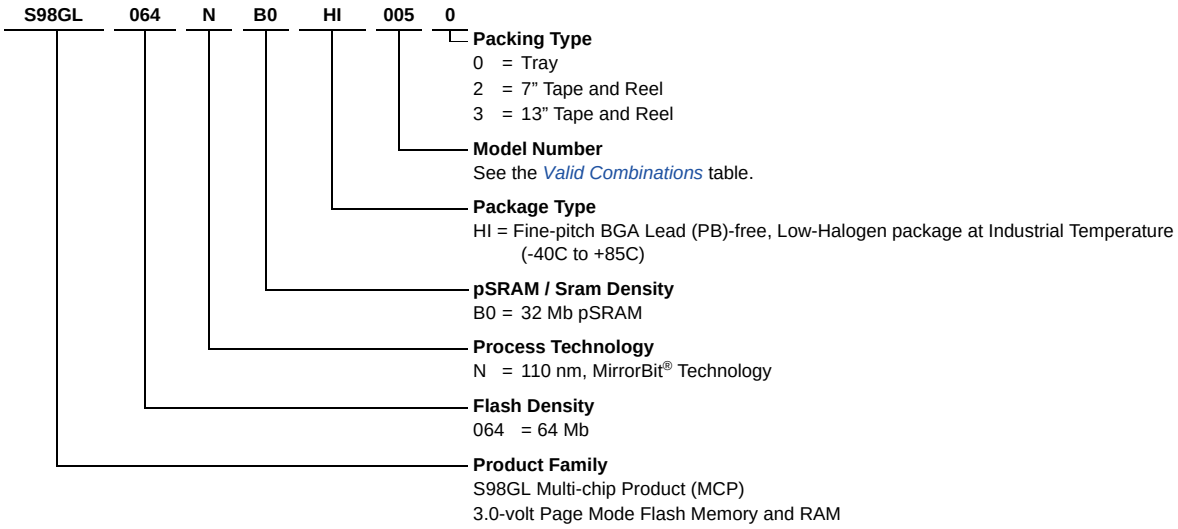
Flash memory devices in FBGA packages may be damaged if exposed to ultrasonic cleaning methods. The package and/or data integrity may be compromised if the package body is exposed to temperatures above 150°C for prolonged periods of time.

4. Pin Description

Pin	Description
A21–A0	22 Address Inputs (Common and Flash only) (A20-A0 for the S71GL032N)
DQ15–DQ0	16 Data Inputs/Outputs (Common)
CE1#f	Chip Enable (Flash)
CE1#s	Chip Enable 1 (pSRAM/SRAM)
CE2s	Chip Enable 2 (pSRAM/SRAM)
OE#	Output Enable (Common)
WE#	Write Enable (Common)
RY/BY#	Ready/Busy Output (Flash 1)
UB#	Upper Byte Control (pSRAM/SRAM)
LB#	Lower Byte Control (pSRAM/SRAM)
RESET#	Hardware Reset Pin, Active Low (Flash)
WP#/ACC	Hardware Write Protect/Acceleration Pin (Flash)
V_{CC}f	Flash 3.0 volt-only single power supply (see *Product Selector Guide* for speed options and voltage supply tolerances)
V_{CCS}	pSRAM/SRAM Power Supply
V_{SS}	Device Ground (Common)
NC	Not Connected. No device internal signal is connected to the package connector nor is there any future plan to use the connector for a signal. The connection may safely be used for routing space for a signal on a Printed Circuit Board (PCB).
RFU	Reserved for Future Use. No device internal signal is currently connected to the package connector but there is potential future use for the connector for a signal. It is recommended to not use RFU connectors for PCB routing channels so that the PCB may take advantage of future enhanced features in compatible footprint devices.

5. Ordering Information

The order number is formed by a valid combinations of the following:



Valid Combinations

S98GL064NB0 Valid Combinations				Speed Options (ns) / Boot Sector Option	(p)SRAM Type / Access Time (ns)	Package
Base Ordering Part Number	Package & Temperature	Package Modifier / Model Number	Packing Type			
S98GL064NB0	HI	007	0, 2, 3 (1)	90 / Top Boot Sector	SPG032D970R3R	TLC056
		008		90 / Bottom Boot Sector		

Note

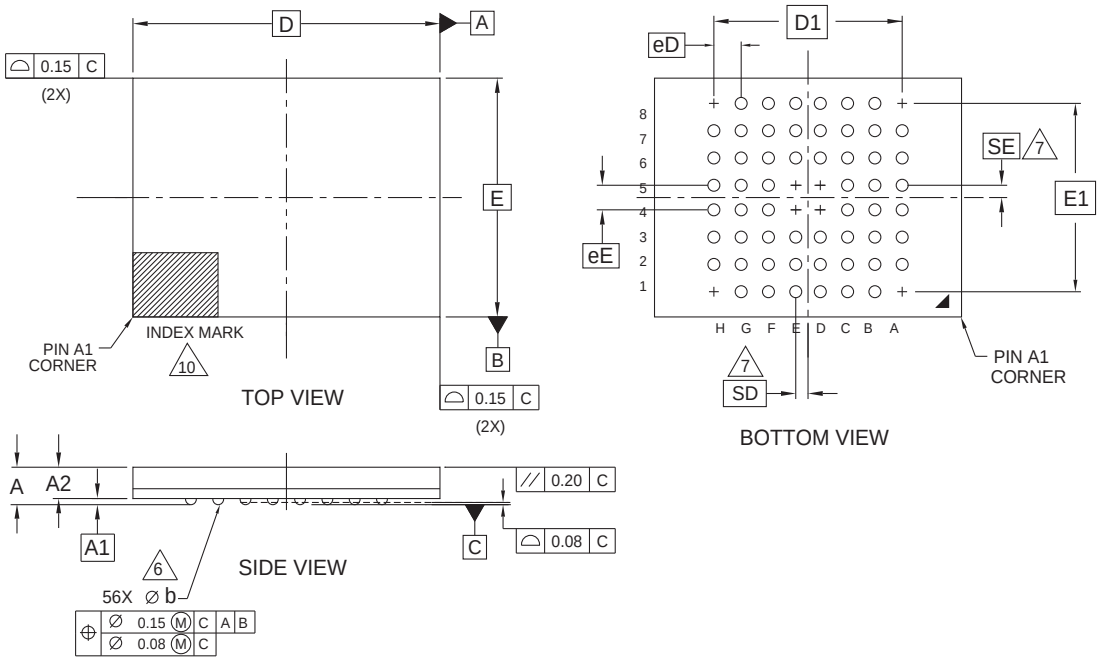
1. Type 0 is standard. Specify other options as required.

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.

6. Physical Dimensions

6.1 TLC056—56-ball Fine-Pitch Ball Grid Array (FBGA) 9 x 7 mm Package



PACKAGE	TLC 056			
JEDEC	N/A			
D x E	9.00 mm x 7.00 mm PACKAGE			
SYMBOL	MIN	NOM	MAX	NOTE
A	---	---	1.20	PROFILE
A1	0.20	---	---	BALL HEIGHT
A2	0.81	---	0.97	BODY THICKNESS
D		9.00 BSC.		BODY SIZE
E		7.00 BSC.		BODY SIZE
D1		5.60 BSC.		MATRIX FOOTPRINT
E1		5.60 BSC.		MATRIX FOOTPRINT
MD		8		MATRIX SIZE D DIRECTION
ME		8		MATRIX SIZE E DIRECTION
n		56		BALL COUNT
ϕb	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
		A1,A8,D4,D5,E4,E5,H1,H8		DEPOPULATED SOLDER BALLS

NOTES:

1. DIMENSIONING AND TOLERANCING METHODS PER ASME Y14.5M-1994.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. BALL POSITION DESIGNATION PER JESD 95-1, SPP-010.
4. e REPRESENTS THE SOLDER BALL GRID PITCH.
5. 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 POPULTED SOLDER BALL POSITIONS FOR MATRIX SIZE MD X ME.

6. DIMENSION "b" IS MEASURED AT THE MAXIMUM BALL DIAMETER IN A PLANE PARALLEL TO DATUM C.
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 = e/2
8. "+" INDICATES THE THEORETICAL CENTER OF DEPOPULATED BALLS.
9. N/A
10. A1 CORNER TO BE IDENTIFIED BY CHAMFER, LASER OR INK MARK, METALLIZED MARK INDENTATION OR OTHER MEANS.

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7. Revision History

Spansion Publication Number: S98GL064NB0-007_008

Section	Description
Revision 01 (October 21, 2014)	
	Initial release

Document History Page

Document Title: S98GL064NB0-007 MCP, S98GL064NB0-008 MCP 64 Mbit (4M x 16 bit), 3 V, Flash and 32 Mbit (2M x 16 bit) Async Pseudo Static RAM Document Number: 002-00509				
Rev.	**ECN No.**	**Orig. of Change**	**Submission Date**	**Description of Change**
**	–	RYSU	10/21/2014	Initial release
*A	4996550	RYSU	10/30/2015	Updated to Cypress template

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