

Product Roadmap: Flash Memory

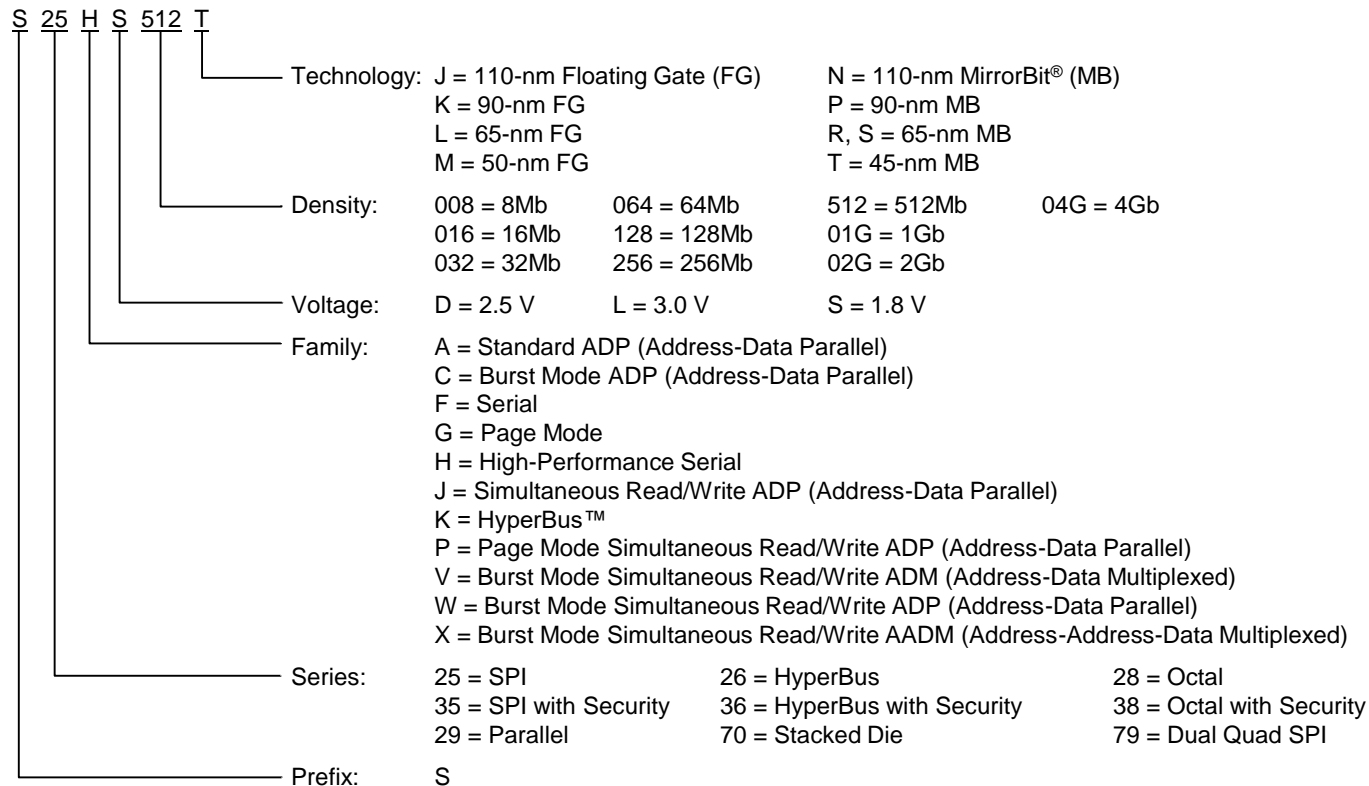
Q3 2020

Cypress Semiconductor Corp.
An Infineon Technologies Company



NOR Flash Memory Family

NOR Flash Memory Family Decoder



NOR Flash Memory Product Portfolio: New Products



Family	Interface	Sector	Series	Voltage	Densities	Lead	Tech	2020	2021	2022	2023	2024
Semper™ Flash	QSPI	Hybrid	S25HS-T S25HL-T	1.8 V 3.0 V	128Mb–4Gb	512Mb	45-nm MB					
	HyperBus™		S26HS-T S26HL-T	1.8 V 3.0 V	128Mb–4Gb	512Mb	45-nm MB					
	Octal		S28HS-T S28HL-T	1.8 V 3.0 V	128Mb–4Gb	512Mb	45-nm MB					
Semper Secure Flash	QSPI	Hybrid	S35HS-T S35HL-T	1.8 V 3.0 V	128–512Mb	256Mb	45-nm MB					
	HyperBus		S36HS-T S36HL-T	1.8 V 3.0 V	128–512Mb	256Mb	45-nm MB					
	Octal		S38HS-T S38HL-T	1.8 V 3.0 V	128–512Mb	256Mb	45-nm MB					
Quad SPI	QSPI	Hybrid	S25FS-S	1.8 V	64Mb–1Gb	-	65-nm MB					
			S25FL-S	3.0 V	128Mb–1Gb	-	65-nm MB					
		Uniform 4KB	S25FL-L	3.0 V	64–256Mb	-	65-nm FG					
Dual Quad SPI	QSPI	Hybrid	S79FS-S S79FL-S	1.8 V 3.0 V	256Mb–1Gb	-	65-nm MB					
HyperFlash	HyperBus	Hybrid	S26KS-S S26KL-S	1.8 V 3.0 V	128–512Mb	-	65-nm MB					
Parallel	Parallel	Hybrid	S29GL-T	3.0 V	512Mb–2Gb	-	45-nm MB					

 Concept
 Samples
 Production
 EOL

x8 Serial NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S28HS-T ¹ (1.8 V) S28HL-T ¹ (3.0 V) Semper™ Flash with Octal Interface 45-nm MB ²	4Gb ³	(TBD)																				
	2Gb ^{3,4}																					
	1Gb																					
	512Mb																					
S26HS-T ¹ (1.8 V) S26HL-T ¹ (3.0 V) Semper Flash with HyperBus™ Interface 45-nm MB ²	256Mb	(TBD)																				
	128Mb	(TBD)																				
	4Gb ³	(TBD)																				
	2Gb ³	(TBD)																				
S26KS-S (1.8 V) S26KL-S (3.0 V) HyperFlash 65-nm MB ²	1Gb																					
	512Mb																					
	256Mb	(TBD)																				
S79FS-S (1.8 V) Dual Quad SPI 65-nm MB ²	128Mb	(TBD)																				
	512Mb ⁵	(TBD)																				
	256Mb ⁵	(TBD)																				
S79FL-S (3.0 V) Dual Quad SPI 65-nm MB ²	1Gb ⁵																					
	512Mb ⁵																					
	256Mb ⁵																					

¹ JEDEC xSPI Compliant

² Hybrid Sector

³ Stacked Die

⁴ 1.8 V only in production

⁵ S79 Series (stacked die)

Products supported by Longevity Program unless noted

- Concept
- Production
- EOL - LTB
- Samples
- EOL - LTS

x8 Serial NOR Flash Memory Portfolio

	Dual Quad SPI S79FL-S ^{1, 2} 65-nm MB, 3.0 V	HyperFlash S26KL-S ¹ 65-nm MB, 3.0 V	Semper™ Flash ³ S26HL-T ¹ 45-nm MB, 3.0 V	Semper Flash ⁵ S28HL-T ¹ 45-nm MB, 3.0 V	Dual Quad SPI S79FS-S ^{1, 2} 65-nm MB, 1.8 V	HyperFlash S26KS-S ¹ 65-nm MB, 1.8 V	Semper Flash ³ S26HS-T ¹ 45-nm MB, 1.8 V	Semper Flash ⁵ S28HS-T ¹ 45-nm MB, 1.8 V
	Product Family Number SDR Clock/DDR Clock * Temperature Range							
	All parts supported by Longevity Program unless noted							
≥256Mb			S26HL04GT ^{5, 6} -/133 MHz * I, A, V, B, M	S28HL04GT ^{5, 6} 133 MHz/133 MHz * I, A, V, B, M			S26HS04GT ^{5, 6} -/166 MHz * I, A, V, B, M	S28HS04GT ^{5, 6} 166 MHz/166 MHz * I, A, V, B, M
			S26HL02GT ^{5, 6} -/133 MHz * I, A, V, B, M	S28HL02GT ^{5, 6} 133 MHz/133 MHz * I, A, V, B, M			S26HS02GT ^{5, 6} -/166 MHz * I, A, V, B, M	S28HS02GT ⁵ 166 MHz/166 MHz * I ⁶ , A ⁶ , V ⁶ , B, M
	S79FL01GS 133 MHz/80 MHz * I, A, V, B		S26HL01GT -/166 MHz * I, A, V, B, M	S28HL01GT 166 MHz/166 MHz * I, A, V, B, M	S79FS01GS 133 MHz/102 MHz * I, A, V, B		S26HS01GT -/200 MHz * I, A, V, B, M ⁶	S28HS01GT ⁶ 200 MHz/200 MHz * I, A, V, B, M
S79FL512S 133 MHz/80 MHz * I, A, V, B	S26KL512S -/100 MHz * I, A, V, B, M	S26HL512T -/166 MHz * I, A, V, B, M	S28HL512T 166 MHz/166 MHz * I, A, V, B, M	S79FS512S 133 MHz/80 MHz * I, A, V, B	S26KS512S -/166 MHz * I, A, V, B, M	S26HS512T -/200 MHz * I, A, V, B, M	S28HS512T 200 MHz/200 MHz * I, A, V, B, M	
S79FL256S 133 MHz/80 MHz * I, A, V, B	S26KL256S -/100 MHz * I, A, V, B, M	S26HL256T -/166 MHz * I, A, V, B, M	S28HL256T 166 MHz/166 MHz * I, A, V, B, M	S79FS256S 133 MHz/80 MHz * I, A, V, B	S26KS256S -/166 MHz * I, A, V, B, M	S26HS256T -/200 MHz * I, A, V, B, M	S28HS256T 200 MHz/200 MHz * I, A, V, B, M	
64–128Mb		S26KL128S -/100 MHz * I, A, V, B, M	S26HL128T -/166 MHz * I, A, V, B, M	S28HL128T 166 MHz/166 MHz * I, A, V, B, M		S26KS128S -/166 MHz * I, A, V, B, M	S26HS128T -/200 MHz * I, A, V, B, M	S28HS128T 200 MHz/200 MHz * I, A, V, B, M

¹ Hybrid Sector
² S79 series (stacked die)
³ HyperBus Interface (xSPI Profile 2.0)

⁴ Octal Interface (xSPI Profile 1.0)
⁵ Stacked die
⁶ Contact Sales

* I = Industrial: -40°C to +85°C
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C
 V = Industrial-plus: -40°C to +105°C
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

Concept Development Sampling Production
 Status Availability EOL (Last-Time-Ship)

x4 Serial NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S25HS-T (1.8 V) S25HL-T (3.0 V) Semper™ Flash with QSPI Interface 45-nm MB ¹	4Gb ⁴	(TBD)																				
	2Gb ⁴																					
	1Gb																					
S25FS-S (1.8 V) S25FL-S ² (3.0 V) QSPI 65-nm MB ¹	512Mb	(TBD)																				
	256Mb	(TBD)																				
	128Mb ⁷																					
S25FL-L (3.0 V) QSPI 65-nm FG ³	64Mb ⁸																					
	256Mb																					
	128Mb																					
	64Mb																					

¹ Hybrid Sector
² VIO 1.8 V to 3.0 V
³ Uniform Sector
⁴ Stacked die

⁵ 3.0 V only in production
⁶ S70 Series (stacked die)
⁷ S25FL127S & S25FL128S
⁸ FS-S only

Products supported by Longevity Program unless noted

- Concept
- Production
- EOL - LTB
- EOL - LTS
- Samples

x4 Serial NOR Flash Memory Portfolio

	QSPI S25FL-L ¹ 65-nm FG, 3.0 V	QSPI S25FL-S ² 65-nm MB, 3.0 V	Semper™ Flash ³ S25HL-T ² 45-nm MB, 3.0 V	QSPI S25FS-S ² 65-nm MB, 1.8 V	Semper Flash ³ S25HS-T ² 45-nm MB, 1.8 V
≥256Mb	Product Family Number SDR Clock/DDR Clock * Temperature Range All parts supported by Longevity Program unless noted		S25HL04GT^{4,6} 133 MHz/66 MHz * I, A, V, B, M S25HL02GT^{4,6} 166 MHz/102 MHz * I, A, V, B, M		S25HS04GT^{4,6} 133 MHz/66 MHz * I, A, V, B, M S25HS02GT^{4,6} 133 MHz/66 MHz * I, A, V, B, M
		S70FL01GS⁵ 133 MHz/80 MHz * I, A, V, B, M S25FL512S 133 MHz/80 MHz * I, A, V, B, M S25FL256L 133 MHz/66 MHz * I, A, V, B, M	S25HL01GT 166 MHz/102 MHz * I, A, V, B, M S25HL512T 166 MHz/102 MHz * I, A, V, B, M S25HL256T 166 MHz/102 MHz * I, A, V, B, M	S70FS01GS⁵ 133 MHz/80 MHz * I, A, V, B, N, M S25FS512S 133 MHz/80 MHz * I, A, V, B, N, M S25FS256S 133 MHz/80 MHz * I, A, V, B, M	S25HS01GT 166 MHz/102 MHz * I, A, V, B, M S25HS512T 166 MHz/102 MHz * I, A, V, B, M S25HS256T 166 MHz/102 MHz * I, A, V, B, M
		S25FL128L 133 MHz/66 MHz * I, A, V, B, M S25FL064L 108 MHz/54 MHz * I, A, V, B, M	S25FL128S 133 MHz/80 MHz * I, A, V, B, M S25FL127S 108 MHz/-- * I, A, V, B	S25HL128T 166 MHz/102 MHz * I, A, V, B, M	S25FS128S 133 MHz/80 MHz * I, A, V, B, M S25FS064S 133 MHz/80 MHz * I, A, V, B, N, M
64–128Mb					

* I = Industrial: -40°C to +85°C
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C
 V = Industrial-plus: -40°C to +105°C
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

¹ Uniform Sector
² Hybrid Sector
³ With QSPI
⁴ Stacked die
⁵ S70 series (stacked die)
⁶ Contact Sales

Status
 Availability
 EOL (Last-Time-Ship)

Concept
 Development
 Sampling
 Production
 QQQY
 QQQY
 QQQY

Semper™ Secure Serial NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024						
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
S35HS-T ¹ (1.8 V) S35HL-T ¹ (3.0 V) Semper Secure Flash with QSPI Interface 45-nm MB ²	512Mb 256Mb 128Mb	(TBD) (Q421) (Q322)			Samples				Production																
S36HS-T ¹ (1.8 V) S36HL-T ¹ (3.0 V) Semper Secure Flash with HyperBus™ Interface 45-nm MB ²	512Mb 256Mb 128Mb	(TBD) (Q222) (Q422)				Samples				Production															
S38HS-T ¹ (1.8 V) S38HL-T ¹ (3.0 V) Semper™ Secure Flash with Octal Interface 45-nm MB ²	512Mb 256Mb 128Mb	(TBD) (Q122) (Q322)			Samples				Production																

¹ JEDEC xSPI Compliant
² Hybrid Sector



Semper™ Secure Serial NOR Flash Memory Portfolio

	Semper™ Secure Flash ¹ S35HL-T ² 45-nm MB, 3.0 V	Semper Secure Flash ³ S36HL-T ² 45-nm MB, 3.0 V	Semper Secure Flash ⁴ S38HL-T ² 45-nm MB, 3.0 V	Semper Secure Flash ¹ S35HS-T ² 45-nm MB, 1.8 V	Semper Secure Flash ³ S36HS-T ² 45-nm MB, 1.8 V	Semper Secure Flash ⁴ S38HS-T ² 45-nm MB, 1.8 V
≥256Mb	All parts supported by Longevity Program unless noted	Product Family Number SDR Clock/DDR Clock * Temperature Range				
	<div style="border: 1px dashed black; padding: 5px;"> S35HL512T 166 MHz/102 MHz * I, A, V, B, M </div> <div style="border: 1px solid purple; padding: 5px;"> S35HL256T Q421 166 MHz/102 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> S36HL512T -/166 MHz * I, A, V, B, M </div> <div style="border: 1px solid orange; padding: 5px;"> Q420 S36HL256T Q222 -/166 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> S38HL512T 166 MHz/166 MHz * I, A, V, B, M </div> <div style="border: 1px solid orange; padding: 5px;"> Q320 S38HL256T Q122 166 MHz/166 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> S35HS512T 166 MHz/102 MHz * I, A, V, B, M </div> <div style="border: 1px solid purple; padding: 5px;"> S35HS256T Q421 166 MHz/102 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> S36HS512T -/200 MHz * I, A, V, B, M </div> <div style="border: 1px solid orange; padding: 5px;"> Q420 S36HS256T Q222 -/200 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> S38HS512T 200 MHz/200 MHz * I, A, V, B, M </div> <div style="border: 1px solid orange; padding: 5px;"> Q320 S38HS256T Q122 200 MHz/200 MHz * I, A, V, B, M </div>
64–128Mb	<div style="border: 1px dashed black; padding: 5px;"> Q321 S35HL128T Q322 166 MHz/102 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> Q421 S36HL128T Q422 -/166 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> Q321 S38HL128T Q322 166 MHz/166 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> Q321 S35HS128T Q322 166 MHz/102 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> Q421 S36HS128T Q422 -/200 MHz * I, A, V, B, M </div>	<div style="border: 1px dashed black; padding: 5px;"> Q321 S38HS128T Q322 200 MHz/200 MHz * I, A, V, B, M </div>

¹ With QSPI
² Hybrid Sector
³ HyperBus Interface (xSPI Profile 2.0)
⁴ Octal Interface (xSPI Profile 1.0)

* I = Industrial: -40°C to +85°C
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C
 V = Industrial-plus: -40°C to +105°C
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

Status
 Availability
 EOL (Last-Time-Ship)

Concept
 Development
 Sampling
 Production

QQQY
 QQQY
 QQQY

Parallel NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S29GL-T ¹ (3.0 V) 45-nm MB	2Gb ³ 1Gb 512Mb		Production																			
S29GL-S ¹ (3.0 V) 65-nm MB	2Gb ³ 1Gb 512Mb 256Mb 128Mb 64Mb		Production																			
S29GL-P ¹ (3.0 V) 90-nm MB	256Mb 128Mb		Production																			
S29GL-N ¹ (3.0 V) 110-nm MB	64Mb 32Mb		Production																			
S29PL-J ^{1,2} (3.0 V) 110-nm FG	128Mb 64Mb 32Mb		Production																			
S29JL-J ² (3.0 V) 110-nm FG	64Mb 32Mb		Production																			
S29AL-J (3.0 V) 110-nm FG	16Mb 8Mb		Production																			
S29AS-J (1.8 V) 110-nm FG	16Mb		Production																			

¹ Supports Page Mode
² Supports simultaneous read/write operation
³ S70 series (stacked die)

Products supported by Longevity Program unless noted

	Concept		Samples
	Production		EOL - LTB
	EOL - LTS		

Parallel NOR Flash Memory Portfolio

	S29AS-J 110-nm FG, 1.8 V	S29AL-J 110-nm FG, 3.0 V	S29JL-J ¹ 110-nm FG, 3.0 V	S29PL-J ^{1, 2} 110-nm FG, 3.0 V	S29GL-N ² 110-nm MB, 3.0 V	S29GL-P ² 90-nm MB, 3.0 V	S29GL-S ² 65-nm MB, 3.0 V	S29GL-T ² 45-nm MB, 3.0 V
≥256Mb	Product Family Number Initial/Page Access * Temperature Range						S70GL02GS³ 110 ns/20 ns * I, A, V, B	S70GL02GT³ 110 ns/20 ns * I, A, V, B, N
	All parts supported by Longevity Program unless noted						S29GL01GS 100 ns/15 ns * I, A, V, B	S29GL01GT 100 ns/15 ns * I, A, V, B, N
							S29GL512S 100 ns/15 ns * I, A, V, B	S29GL512T 100 ns/15 ns * I, A, V, B, N
64–128Mb				S29PL128J 60 ns/20 ns * I, A		S29GL256P 90 ns/25 ns * I	S29GL256S 90 ns/15 ns * I, A, V, B	
			S29JL064J 55 ns/-- * I, A	S29PL064J 55 ns/20 ns * I, A	S29GL064N 90 ns/25 ns * I, A	S29GL128P 90 ns/25 ns * I	S29GL128S 90 ns/15 ns * I, A, V, B	S29GL064S 70 ns/15 ns * I, A, B
≤32Mb	S29AS016J 70 ns/-- * I, A	S29AL016J 55 ns/-- * I, A, N, M	S29JL032J 60 ns/-- * I, A	S29PL032J 55 ns/20 ns * I, A	S29GL032N 90 ns/25 ns * I, A			
		S29AL008J 55 ns/-- * I, A, N, M						

¹ Supports simultaneous read/write operation

² Supports Page Mode

³ S70 series (stacked die)

* I = Industrial: -40°C to +85°C

V = Industrial-plus: -40°C to +105°C

N = Extended: -40°C to +125°C

A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C

B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C

M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

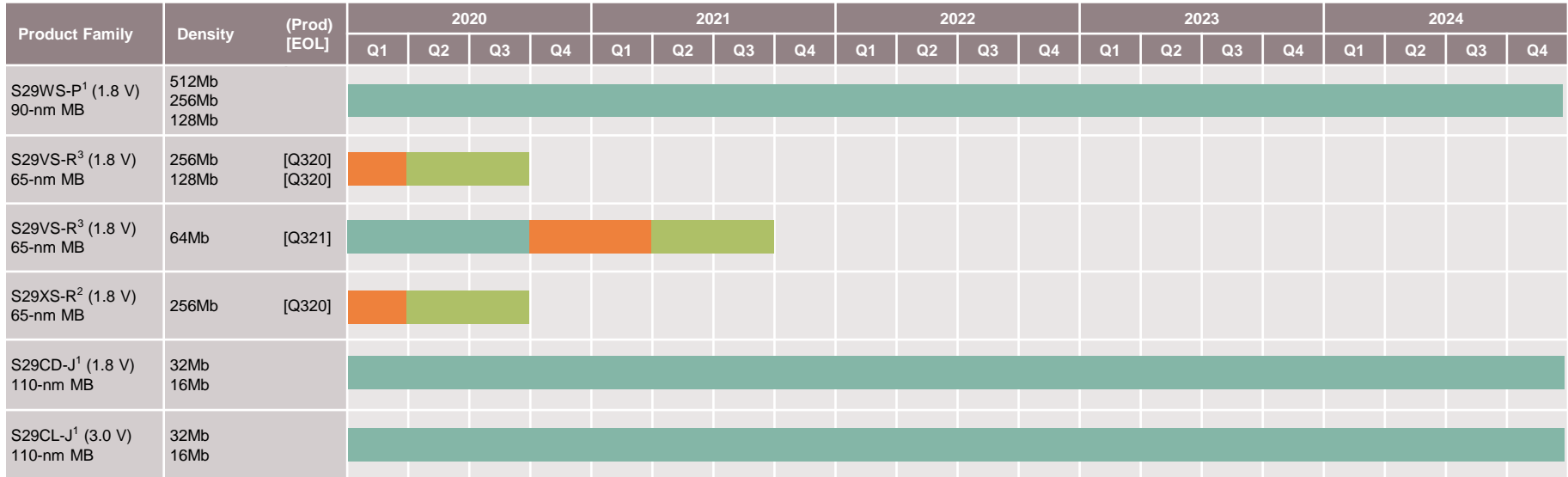
Concept Development Sampling Production

Status

Availability

EOL (Last-Time-Ship)

Burst NOR Flash Memory Roadmap



¹ Address Data Parallel (ADP) Burst
² Address high, Address low, Data Multiplex (AADM) Burst
³ Address Data Multiplex (ADM) Burst



Burst NOR Flash Memory Portfolio

	S29CL-J ¹ 110-nm FG, 3.0 V	S29CD-J ¹ 110-nm FG, 2.5 V	S29XS-R ² 65-nm MB, 1.8 V	S29VS-R ³ 65-nm MB, 1.8 V	S29WS-P ¹ 90-nm MB, 1.8 V
≥256Mb	Product Family Number Initial Access/SDR Clock * Temp Range	All parts supported by Longevity Program unless noted	S29XS256R Q320 80 ns/108 MHz * W, I	S29VS256R Q320 80 ns/108 MHz * W, I	S29WS512P 80 ns/104 MHz * W S29WS256P 80 ns/104 MHz * W
64–128Mb				S29VS128R Q320 80 ns/108 MHz * W, I S29VS064R Q321 80 ns/108 MHz * W, I	S29WS128P 80 ns/104 MHz * W
≤32Mb	S29CL032J 54 ns/75 MHz * I, A, N, M, H, T S29CL016J 54 ns/66 MHz * I, A, N, M, H, T	S29CD032J 54 ns/75 MHz * I, A, N, M, H, T S29CD016J 54 ns/66 MHz * I, A, N, M, H, T			

* W = Wireless: -25°C to +85°C
 I = Industrial: -40°C to +85°C
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C
 N = Extended: -40°C to +125°C
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C
 T = Automotive, AEC-Q100 Grade 0: -40°C to +150°C

¹ Address Data Parallel (ADP) Burst

² Address high, Address low, Data Multiplex (AADM) Burst

³ Address Data Multiplex (ADM) Burst

Status

Concept	Development	Sampling	Production
Availability		QQYY	QQYY
EOL (Last-Time-Ship)		QQYY	QQYY

KGD/KGW NOR Flash Memory Portfolio¹

	HyperFlash 3.0 V	HyperFlash 1.8 V	Quad SPI 3.0 V	Quad SPI 1.8 V	Parallel 3.0 V
	Product Family Number Initial Access/DDR Clock * Temperature Range		Product Family Number SDR Clock/DDR Clock * Temperature Range		Product Family Number Initial/Page Access * Temperature Range
≥256Mb	All parts supported by Longevity Program unless noted				S29GL01GS 100 ns/15 ns * I, V
	S26KL512S 96 ns/100 MHz * I, V	S26KS512S 96 ns/166 MHz * I, V	S25FL512S 133 MHz/80 MHz * I, V		S29GL512S 100 ns/15 ns * I, V
	S26KL256S 96 ns/100 MHz * I, V	S26KS256S 96 ns /166 MHz * I, V	S25FS256L 133 MHz/66 MHz * I, V	S25FS256S 80 MHz /- * I, V	S29GL256S 90 ns/15 ns * I, V
				S25FS256T 104 MHz /- * C, I	
64–128Mb	S26KL128S 96 ns/100 MHz * I, V	S26KS128S 96 ns/166 MHz * I, V	S25FL128L 133 MHz/66 MHz * I, V	S25FS128S 133 MHz/80 MHz * I, V	S29GL128S 90 ns/15 ns * I, V
			S25FL064L 108 MHz/54 MHz * I, V	S25FS064S 133 MHz/80 MHz * I, V, N	
≤32Mb					S29AL016J 55 ns/- * I, V, N
					S29AL008J 55 ns/- * I, V, N

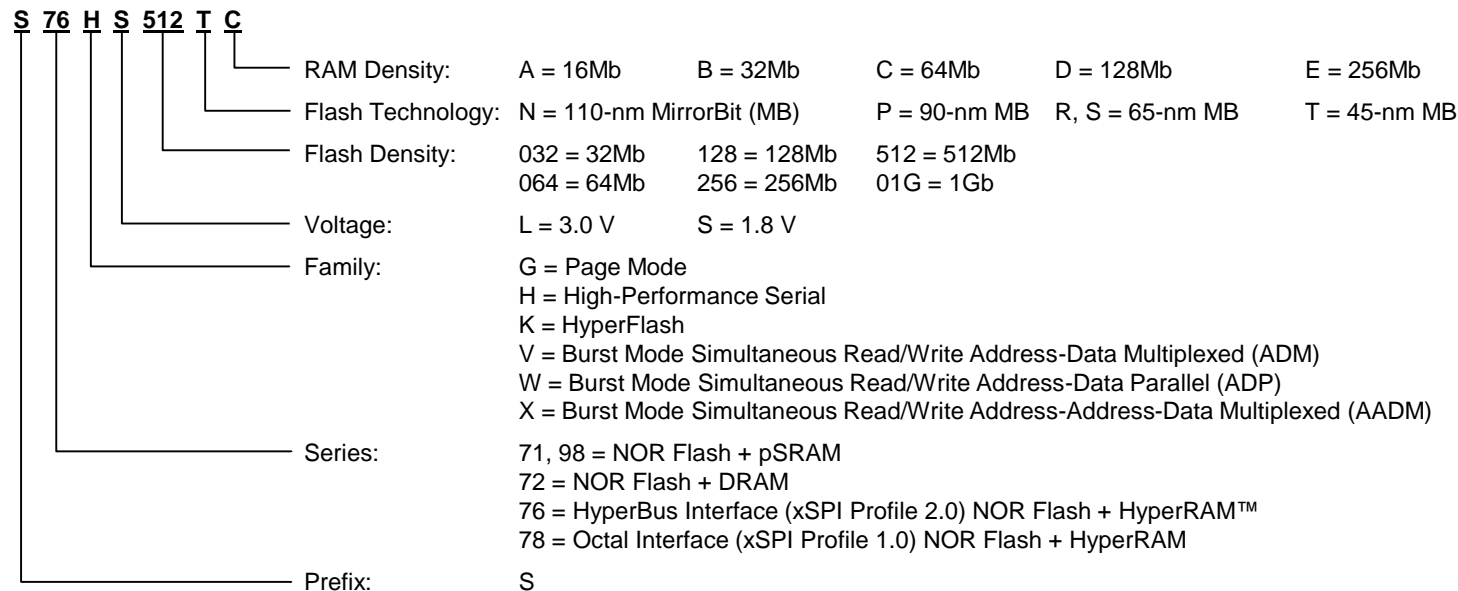
* C = Commercial: 0°C to +70°C
 I = Industrial: -40°C to +85°C
 V = Industrial-plus: -40°C to +105°C
 N = Extended: -40°C to +125°C
 All temperature grades are T_j

¹ Contact Sales for KGD datasheets

Concept
 Development
 Sampling
 Production
 Status
 Availability
 QQQY
 QQQY
 EOL (Last-Time-Ship)
 QQQY

Flash and RAM Memory MCP

Flash and RAM Memory MCP Decoder



Serial Flash and RAM Memory MCP Roadmap

Product Family Flash/RAM	Flash/RAM Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S78HS-T (1.8 V) ¹ 45-nm Semper™ Flash/HyperRAM™	1Gb/128Mb	(TBD)																				
	1Gb/64Mb	(TBD)																				
	512Mb/128Mb	(TBD)																				
	512Mb/64Mb	(Q221)																				
S76HS-T (1.8 V) ² 45-nm Semper Flash/HyperRAM	1Gb/128Mb	(TBD)																				
	1Gb/64Mb	(Q221)																				
	512Mb/128Mb	(TBD)																				
	512Mb/64Mb	(TBD)																				
S71KS-S (1.8 V) ³ 65-nm HyperFlash/ HyperRAM	512Mb/64Mb	(TBD)																				
	256Mb/64Mb	(TBD)																				
	128Mb/64Mb	(TBD)																				
S78HL-T (3.0 V) ¹ 45-nm Semper Flash/HyperRAM	1Gb/128Mb	(TBD)																				
	1Gb/64Mb	(TBD)																				
	512Mb/128Mb	(TBD)																				
	512Mb/64Mb	(TBD)																				
S76HL-T (3.0 V) ² 45-nm Semper Flash/HyperRAM	1Gb/128Mb	(TBD)																				
	1Gb/64Mb	(Q421)																				
	512Mb/128Mb	(TBD)																				
	512Mb/64Mb	(Q122)																				
S71KL-S (3.0 V) ³ 65-nm HyperFlash/ HyperRAM	512Mb/64Mb	(TBD)																				
	256Mb/64Mb	(TBD)																				
	128Mb/64Mb	(TBD)																				

¹ Octal Interface (xSPI Profile 1.0)

² HyperBus Interface (xSPI Profile 2.0)

³ HyperBus Interface



Parallel Flash and RAM Memory MCP Roadmap

Product Family Flash/RAM	Flash/RAM Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S98GL-N (3.0 V) 110-nm MB/pSRAM	64Mb/32Mb	[Q320]	Concept	EOL - LTS																		
S72XS-R (1.8 V) 65-nm MB/DRAM	256Mb/256Mb	[Q321]	Production	EOL - LTB	EOL - LTS																	
S72VS-R (1.8 V) 65-nm MB/DRAM	256Mb/256Mb	[Q121]	Production	EOL - LTB	EOL - LTS																	
S71VS-R (1.8 V) 65-nm MB/pSRAM	256Mb/128Mb 256Mb/64Mb 128Mb/64Mb 128Mb/32Mb	[Q321] [Q321] [Q321] [Q321]	Production	EOL - LTB	EOL - LTS																	
S71VS-R (1.8 V) 65-nm MB/pSRAM	64Mb/32Mb	[Q320]	Concept	EOL - LTS																		
S71WS-P (1.8 V) 90-nm MB/pSRAM	256Mb/64Mb		Production																			



Serial Flash and RAM Memory MCP Portfolio

	S71KL-S 65-nm MB, 3.0 V	S76HL-T 45-nm MB, 3.0 V	S78HL-T 45-nm MB, 3.0 V	S71KS-S 65-nm MB, 1.8 V	S76HS-T 45-nm MB, 1.8 V	S78HS-T 45-nm MB, 1.8 V
	Product Family Number RAM Density / DDR Clock * Temperature Range	All parts supported by Longevity Program unless noted				
≥256Mb		S76HL01GTD ² 128Mb ⁴ / 133MHz * I, A, V, B	S78HL01GTD ³ 128Mb ⁴ / 133MHz * I, A, V, B		S76HS01GTD ² 128Mb ⁴ / 166MHz * I, A, V, B	S78HS01GTD ³ 128Mb ⁴ / 166MHz * I, A, V, B
		Q121 S76HL01GTC ² Q421 64Mb ⁴ / 166MHz * I, A, V, B	S78HL01GTC ³ 64Mb ⁴ / 166MHz * I, A, V, B		Q420 S76HS01GTC ² Q221 64Mb ⁴ / 200MHz * I, A, V, B	S78HS01GTC ³ 64Mb ⁴ / 200MHz * I, A, V, B
		S76HL512TD ² 128Mb ⁴ / 133MHz * I, A, V, B	S78HL512TD ³ 128Mb ⁴ / 133MHz * I, A, V, B		S76HS512TD ² 128Mb ⁴ / 166MHz * I, A, V, B	S78HS512TD ³ 128Mb ⁴ / 166MHz * I, A, V, B
64–128Mb	S71KL512SC ¹ 64Mb ⁴ / 100MHz * I, A, V, B	Q321 S76HL512TC ² Q122 64Mb ⁴ / 166MHz * I, A, V, B	S78HL512TC ³ 64Mb ⁴ / 166MHz * I, A, V, B	S71KS512SC ¹ 64Mb ⁴ / 166MHz * I, A, V, B	S76HS512TC ² 64Mb ⁴ / 200MHz * I, A, V, B	Q121 S78HS512TC ³ Q221 64Mb ⁴ / 200MHz * I, A, V, B
	S71KL256SC ¹ 64Mb ⁴ / 100MHz * I, A, V, B			S71KS256SC ¹ 64Mb ⁴ / 166MHz * I, A, V, B		
	S71KL128SC ¹ 64Mb ⁴ / 100MHz * I, A, V, B			S71KS128SC ¹ 64Mb ⁴ / 166MHz * I, A, V, B		

¹ HyperFlash
² HyperBus Interface (xSPI Profile 2.0)
³ Octal Interface (xSPI Profile 1.0)
⁴ HyperRAM™

* I = Industrial: -40°C to +85°C
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C
 V = Industrial-plus: -40°C to +105°C
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C

Concept Development Sampling Production
 Status Availability EOL (Last-Time-Ship)

 QQQY QQQY QQQY

Parallel Flash and RAM Memory MCP Portfolio

	S71WS-P ¹ 90-nm MB, 1.8 V	S71VS-R ² 65-nm MB, 1.8 V	S72VS-R ³ 65-nm MB, 1.8 V	S72XS-R ³ 65-nm MB, 1.8 V	S98GL-N ⁴ 110-nm MB, 3.0 V
≥256Mb	Product Family Number RAM Density * Temperature Range	All parts supported by Longevity Program unless noted		S72XS256RE Q321 256Mb ⁵ * I	
	S71WS256PC 64Mb * W	S71VS256RD Q321 128Mb * W S71VS256RC Q321 64Mb * W	S72VS256RE Q121 256Mb * W	S72XS256RE Q321 256Mb ⁶ * W, I	
64–128Mb		S71VS128RC Q321 64Mb * W S71VS128RB Q321 32Mb * W S71VS064RB Q320 32Mb * W			S98GL064NB Q320 32Mb * I

¹ Address Data Parallel (ADP) Burst

² Address Data Multiplex (ADM) Burst

³ Address High, Address Low, Data Multiplex (AADM) Burst

⁴ Parallel, Page Mode

⁵ DRAM Version 2

⁶ DRAM Version 1

* W = Wireless: -25°C to +85°C

I = Industrial: -40°C to +85°C



Package Offerings

x8 1.8V Serial Memory Packages

Family	Interface	Series	Density	Device	SOIC-16 300 mil	BGA24 8 x 8 mm/5 x 5 Ball	BGA24 8 x 6 mm/5 x 5 Ball	KGD
Semper™ Flash	HyperBus™	HS-T ¹	256Mb	S28HS256T			CF	CF
			512Mb	S28HS512T			✓	CF
			1Gb	S28HS01GT		✓		CF
			2Gb	S28HS02GT		✓		
			4Gb	S28HS04GT		CF		
		HS-T ²	256Mb	S26HS256T			CF	CF
			512Mb	S26HS512T			✓	CF
			1Gb	S26HS01GT		✓		CF
			2Gb	S26HS02GT		CF		
			4Gb	S26HS04GT		CF		
HyperFlash	KS-S ³	128Mb	S26KS128S			✓	UD	
		256Mb	S26KS256S			✓	CF	
		512Mb	S26KS512S			✓	CF	
Quad SPI	QSPI	FS-S Dual Quad	256Mb	S79FS256S	CF		CF	
			512Mb	S79FS512S	CF		CF	
			1Gb	S79FS01GS			✓	

¹ Octal Interface (xSPI Profile 1.0)

² HyperBus Interface (xSPI Profile 2.0)

³ HyperBus Interface

CF = Contact Factory
UD = Under Development

x8 3.0V Serial Memory Packages

Family	Interface	Series	Density	Device	SOIC-16 300 mil	BGA24 8 x 8 mm/5 x 5 Ball	BGA24 8 x 6 mm/5 x 5 Ball	KGD	
Semper™ Flash	HyperBus™	HL-T ¹	256Mb	S28HL256T			CF	CF	
			512Mb	S28HL512T			✓	CF	
			1Gb	S28HL01GT		✓		CF	
			2Gb	S28HL02GT		CF			
			4Gb	S28HL04GT		CF			
		HL-T ²	256Mb	S26HL256T				CF	CF
			512Mb	S26HL512T				✓	CF
			1Gb	S26HL01GT		✓			CF
			2Gb	S26HL02GT		CF			
			4Gb	S26HL04GT		CF			
HyperFlash	KL-S ³	128Mb	S26KL128S			✓	CF		
		256Mb	S26KL256S			✓	CF		
		512Mb	S26KL512S			✓	CF		
Quad SPI	QSPI	FL-S Dual Quad	256Mb	S79FL256S	✓				
			512Mb	S79FL512S	✓				
			1Gb	S79FL01GS			✓		

¹ Octal Interface (xSPI Profile 1.0)

² HyperBus Interface (xSPI Profile 2.0)

³ HyperBus Interface

CF = Contact Factory
UD = Under Development

x4 Serial NOR Flash Memory Packages

Family	Interface	Series	Density	Device	SOIC-8 208 mil	SOIC-16 300 mil	WSON 4 x 4 mm	WSON 6 x 5 mm	WSON 8 x 6 mm	BGA24 8 x 8 mm 5 x 5 Ball	BGA24 8 x 6 mm 5 x 5 Ball	BGA24 8 x 6 mm 4 x 6 Ball	KGD	
Semper™ Flash		HS-T	256Mb	S25HS256T		CF			CF		CF		CF	
			512Mb	S25HS512T		✓			✓		✓		CF	
			1Gb	S25HS01GT		✓					✓		CF	
			2Gb	S25HS02GT							✓			
			4Gb	S25HS04GT							CF			
		HL-T	256Mb	S25HL256T		CF				CF		CF		CF
			512Mb	S25HL512T		✓				✓		✓		CF
			1Gb	S25HL01GT		✓					✓			CF
			2Gb	S25HL02GT							✓			
			4Gb	S25HL04GT							CF			
Quad SPI	QSPI	FS-S	64Mb	S25FS064S	✓			✓			✓		✓	
			128Mb	S25FS128S	✓	CF		✓	✓		✓	✓	CF	
			256Mb	S25FS256S		✓			✓		✓	✓	✓	
			512Mb	S25FS512S		✓			✓		✓	✓	CF	
			1Gb	S70FS01GS		✓					✓			
		FL-S	128Mb	S25FL127S	✓	✓		✓				✓	✓	
			128Mb	S25FL128S		✓				✓		✓	✓	
			256Mb	S25FL256S		✓				✓		✓	✓	
			512Mb	S25FL512S		✓						✓	✓	✓
			1Gb	S70FL01GS		✓						✓		
		FL-L	64Mb	S25FL064L	✓	✓		✓				✓	✓	CF
			128Mb	S25FL128L	✓	✓			✓			✓	✓	CF
			256Mb	S25FL256L		✓				✓		✓	✓	CF

CF = Contact Factory
UD = Under Development

Parallel NOR Flash Memory Packages

Family	Density	Device	48-Ball FBGA (0.8-mm pitch)	48-Ball FBGA (0.5-mm pitch)	56-Ball BGA (0.8-mm pitch)	64-Ball BGA (0.8-mm pitch)	64-Ball Fortified BGA (1.0-mm pitch)	48-Pin TSOP	56-Pin TSOP	KGD
GL-T	512Mb	S29GL512T			✓		✓		✓	
	1Gb	S29GL01GT			✓		✓		✓	
	2Gb	S70GL02GT					✓			
GL-S	64Mb	S29GL064S	✓				✓	✓	✓	
	128Mb	S29GL128S			✓		✓		✓	✓
	256Mb	S29GL256S			✓		✓		✓	✓
	512Mb	S29GL512S			✓		✓		✓	✓
	1Gb	S29GL01GS					✓		✓	✓
	2Gb	S70GL02GS					✓			
GL-P	128Mb	S29GL128P					✓		✓	✓
	256Mb	S29GL256P					✓		✓	✓
GL-N	32Mb	S29GL032N	✓				✓	✓	✓	✓
	64Mb	S29GL064N	✓				✓	✓	✓	✓
PL-J	32Mb	S29PL032J	✓		✓					
	64Mb	S29PL064J	✓		✓					
	128Mb	S29PL127J				✓			✓	✓
JL-J	32Mb	S29JL032J	✓					✓		
	64Mb	S29JL064J	✓					✓		✓
AL-J	8Mb	S29AL008J	✓					✓		✓
	16Mb	S29AL016J	✓				✓	✓		✓
AS-J	16Mb	S29AS016J	✓	✓				✓		✓

Burst NOR Flash Memory Packages

Family	Density	Device	44-Ball FBGA (0.5-mm pitch)	64-Ball BGA (0.5-mm pitch)	84-Ball Fortified BGA (0.8-mm pitch)	80-Ball FBGA (1.0-mm pitch)	80-Pin PQFP	KGD
WS-P	128Mb	S29WS128P			✓			
	256Mb	S29WS256P			✓			
	512Mb	S29WS512P			✓			
VS-R	64Mb	S29VS064R	EOL					
	128Mb	S29VS128R	EOL					
	256Mb	S29VS256R	EOL					
XS-R	256Mb	S29XS256R	EOL					
CD-J	16Mb	S29CD016J				✓	✓	✓
	32Mb	S29CD032J				✓	✓	
CL-J	16Mb	S29CL016J				✓	✓	
	32Mb	S29CL032J				✓	✓	

Flash and RAM Memory MCP Packages

Family	Flash Density	RAM Density	BGA24 8 x 6 mm 5 x 5 Ball	BGA24 8 x 8 mm 5 x 5 Ball	56-Ball Very Thin FBGA (0.5-mm pitch)	56-Ball FBGA (0.8-mm pitch)	84-Ball FBGA (0.8-mm pitch)	133-Ball FBGA (0.5-mm pitch)
S76HS-T S76HL-T	512Mb	64Mb	CF					
	512Mb	128Mb	CF					
	1Gb	64Mb		CF				
	1Gb	128Mb		CF				
S78HS-T S78HL-T	512Mb	64Mb	CF					
	512Mb	128Mb	CF					
	1Gb	64Mb		CF				
	1Gb	128Mb		CF				
S71KS-S	128Mb	64Mb	✓					
	256Mb	64Mb	✓					
	512Mb	64Mb	✓					
S71KL-S	128Mb	64Mb	✓					
	256Mb	64Mb	✓					
	512Mb	64Mb	✓					
S98GL-N	64Mb	32Mb				EOL		
S72XS-R	256Mb	256Mb					EOL	
S72VS-R	256Mb	256Mb					EOL	
S71VS-R	256Mb	128Mb			EOL			
	256Mb	64Mb			EOL			
	128Mb	64Mb			EOL			
	128Mb	32Mb			EOL			
	64Mb	32Mb			EOL			
S71WS-P	256Mb	64Mb					✓	

CF = Contact Factory
UD = Under Development



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