



**CYPRESS**<sup>®</sup>  
EMBEDDED IN TOMORROW™

Cypress Roadmap:

# Automotive Flash Memory

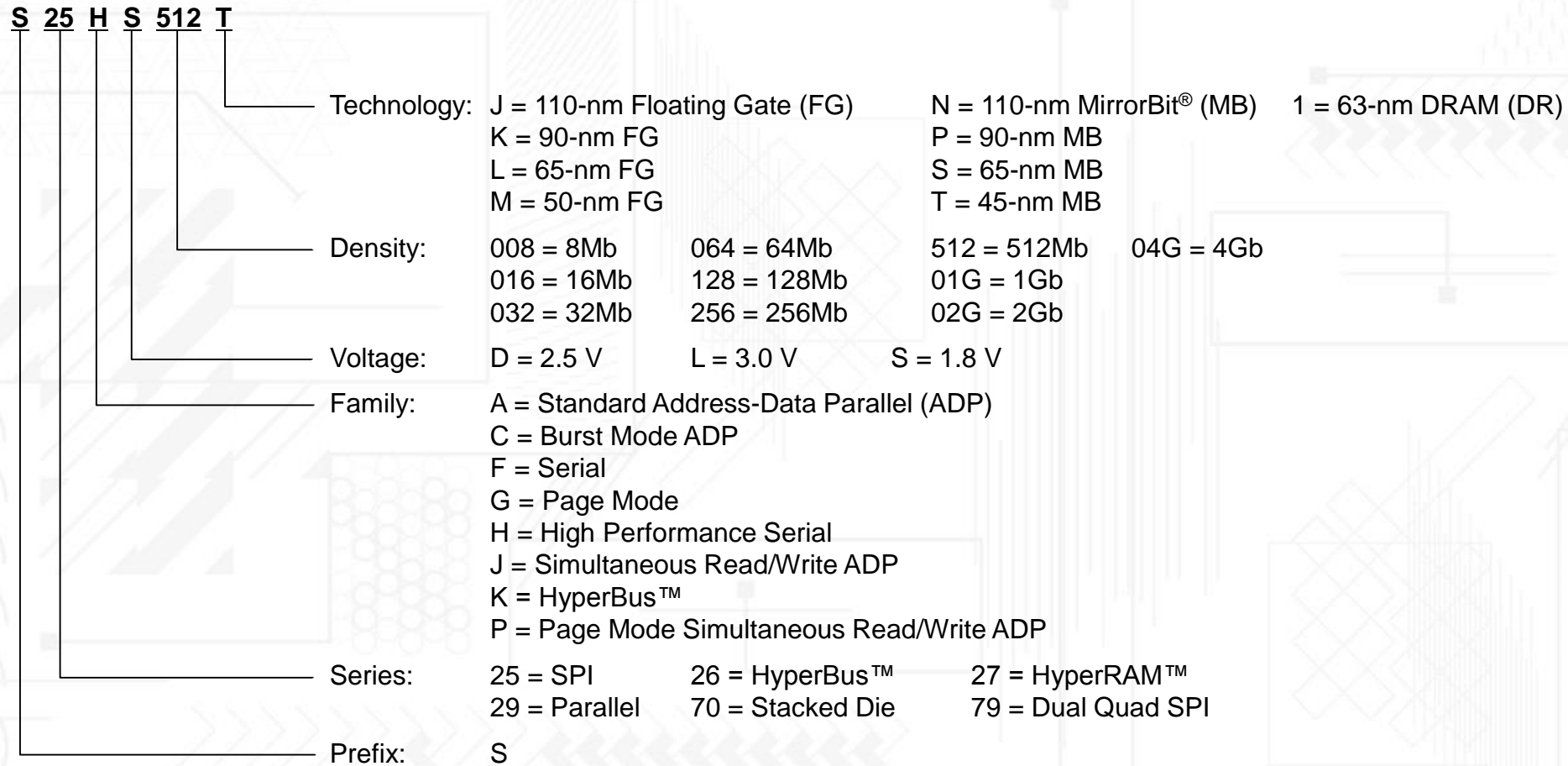
Q1 2018



# NOR Flash Memory Automotive Family



# NOR Flash Memory Automotive Family Decoder



# NOR Flash Memory Automotive Product Portfolio – New Products

Family	Interface	Sector Size	Series	Voltage	Densities	Lead	Tech	2018	2019	2020	2021	2022	2023	2024
High Performance	Quad SPI	Hybrid	S25HS-T S25HL-T	1.8V 3.0V	512Mb-4Gb	512Mb	45nm MB	[Timeline bar: 2018-2024]						
	HyperBus <sup>1</sup>		S26HS-T S26HL-T	1.8V 3.0V	512Mb-4Gb	512Mb	45nm MB	[Timeline bar: 2018-2024]						
QSPI	QSPI	Hybrid	S25FS-S	1.8V	64Mb-1Gb	-	65nm MB	[Timeline bar: 2018-2024]						
			S25FL-S	3.0V	128Mb-1Gb	-	65nm MB	[Timeline bar: 2018-2024]						
		Uniform 4kB	S25FL-L	3.0V	64Mb-256Mb	-	65nm FG	[Timeline bar: 2018-2024]						
Dual Quad SPI	QSPI	Hybrid	S79FS-S S79FL-S	1.8V 3.0V	256Mb-1Gb	-	65nm MB	[Timeline bar: 2018-2024]						
HyperFlash	HyperBus	Hybrid	S26KS-S S26KL-S	1.8V 3.0V	128Mb-512Mb	-	65nm MB	[Timeline bar: 2018-2024]						
HyperRAM	HyperBus	N/A	S27KS-1 S27KL-1	1.8V 3.0V	64Mb-256Mb	-	63nm DR	[Timeline bar: 2018-2024]						
Parallel	Parallel	Hybrid	S29GL-T	3.0V	512Mb-2Gb	-	45nm MB	[Timeline bar: 2018-2024]						

<sup>1</sup> JEDEC xSPI Compliant

  Concept  
   Engineering Samples  
   AEC-Q100 / Production  
   EOL

# x8 Memory Automotive Roadmap

Product Family	Density	(Prod <sup>1</sup> ) [EOL]	2018				2019				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	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S26KS-T <sup>2</sup> (1.8 V) S26KL-T <sup>2</sup> (3.0 V) HyperFlash 45-nm MB <sup>3</sup>	4Gb <sup>4</sup> 2Gb <sup>4</sup> 1Gb 512Mb	(TBD) (TBD) (Q3'19) (Q1'19)																												
S26KS-S (1.8 V) S26KL-S (3.0 V) HyperFlash 65-nm MB <sup>3</sup>	512Mb 256Mb 128Mb																													
S79FS-S (1.8 V) S79FL-S (3.0 V) QSPI 65-nm MB <sup>3</sup>	1Gb <sup>5</sup> 512Mb <sup>5</sup> 256Mb <sup>5</sup>																													
S27KS-1 (1.8 V) S27KL-1 (3.0 V) HyperRAM 63-nm DRAM	256Mb <sup>6</sup> 128Mb <sup>6</sup> 64Mb	(TBD)																												

<sup>1</sup> AEC-Q100  
<sup>2</sup> JEDEC xSPI Compliant  
<sup>3</sup> Hybrid Sector  
<sup>4</sup> Stacked Die  
<sup>5</sup> S79 Dual Quad SPI  
<sup>6</sup> S70 series (stacked die)

Concept
  Engineering Samples
  AEC-Q100 / Production
  EOL - LTB
  EOL - LTS

Products supported by Longevity Program unless noted



# x8 NOR Memory Automotive Portfolio

	HyperRAM S27KL-1 63 nm, 3.0 V	HyperRAM S27KS-1 63 nm, 1.8 V	HyperFlash S26KL-S <sup>1</sup> 65 nm, 3.0 V	QSPI S79FL-S <sup>1</sup> 65 nm, 3.0 V	HyperFlash S26KL-T <sup>1, 2</sup> 45 nm, 3.0 V	HyperFlash S26KS-S <sup>1</sup> 65 nm, 1.8 V	QSPI S79FS-S <sup>1</sup> 65 nm, 1.8 V	HyperFlash S26KS-T <sup>1, 2</sup> 45 nm, 1.8 V
≥256Mb	<b>Density</b> Initial Access / DDR Clock * Temp Range  All parts supported by Longevity Program unless noted		<b>Density (S79)</b> SDR Clock / DDR Clock * Temperature Range		<b>4Gb<sup>3</sup></b> 80ns / 200 MHz Contact Sales  <b>2Gb<sup>3</sup></b> 80ns / 200 MHz Contact Sales  <b>1Gb</b> 80ns / 200 MHz * A, B, M Q418 Q319		<b>4Gb<sup>3</sup></b> 80ns / 200 MHz Contact Sales  <b>2Gb<sup>3</sup></b> 80ns / 200 MHz Contact Sales  <b>1Gb</b> 80ns / 200 MHz * A, B, M Q418 Q319	
	<b>256Mb<sup>4</sup></b> 36 ns / 100 MHz Contact Sales		<b>512Mb</b> 96 ns / 100 MHz * A, B, M  <b>256Mb</b> 96 ns / 100 MHz * A, B, M		<b>512Mb</b> 133 MHz / 80 MHz * A, B  <b>256Mb</b> 133 MHz / 80 MHz * A, B		<b>1Gb</b> 133 MHz / 80 MHz * A, B  <b>512Mb</b> 133 MHz / 80 MHz * A, B  <b>256Mb</b> 133 MHz / 80 MHz * A, B	
	<b>128Mb<sup>4</sup></b> 36 ns / 100 MHz * A, B  <b>64Mb</b> 36 ns / 100 MHz * A, B		<b>128Mb</b> 96 ns / 100 MHz * A, B, M		<b>512Mb</b> 133 MHz / 80 MHz * A, B  <b>256Mb</b> 133 MHz / 80 MHz * A, B		<b>1Gb</b> 133 MHz / 80 MHz * A, B  <b>512Mb</b> 133 MHz / 80 MHz * A, B  <b>256Mb</b> 133 MHz / 80 MHz * A, B	
64-128Mb	<b>128Mb<sup>4</sup></b> 36 ns / 100 MHz * A, B  <b>64Mb</b> 36 ns / 100 MHz * A, B		<b>128Mb</b> 96 ns / 100 MHz * A, B, M		<b>128Mb</b> 96 ns / 166 MHz * A, B, M		<b>128Mb</b> 96 ns / 166 MHz * A, B, M	

<sup>1</sup> Hybrid Sector  
<sup>2</sup> JEDEC xSPI Compliant  
<sup>3</sup> Stacked die  
<sup>4</sup> S70 series (stacked die)

\* 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

Engineering AEC-Q100/  
 Status Availability EOL (Last-Time-Ship)

Concept 
 Development 
 Sampling 
 Production

QQQY QQYY
 QQQY QQYY
 QQQY QQYY



# x4 NOR Flash Memory Automotive Roadmap

Product Family	Density	(Prod <sup>1</sup> ) [EOL]	2018				2019				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	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S25FS-T (1.8 V) S25FL-T (3.0 V) QSPI 45-nm MB <sup>2</sup>	4Gb <sup>4</sup> 2Gb <sup>4</sup> 1Gb 512Mb	(TBD) (TBD) (Q3'19) (Q1'19)																												
S25FL-L (3.0 V) QSPI 65-nm FG <sup>3</sup>	256Mb 128Mb 64Mb																													
S25FS-S (1.8 V) S25FL-S (3.0 V) QSPI 65-nm MB <sup>2</sup>	1Gb <sup>5</sup> 512Mb 256Mb 128Mb <sup>6</sup> 64Mb <sup>7</sup>																													
S25FL-P (3.0 V) QSPI 90-nm MB <sup>2</sup>	256Mb <sup>5</sup> 128Mb <sup>8</sup> 64Mb 32Mb																													
S25FL1-K (3.0 V) QSPI 90-nm FG <sup>3</sup>	64Mb 32Mb 16Mb	[Q1'19] [Q1'19] [Q1'19]																												

<sup>1</sup> AEC-Q100  
<sup>2</sup> Hybrid Sector  
<sup>3</sup> Uniform Sector  
<sup>4</sup> Stacked Die  
<sup>5</sup> S70 Series (stacked die)  
<sup>6</sup> S25FL127S and S25FL128S  
<sup>7</sup> FS-S only  
<sup>8</sup> S25FL128P and S25FL129P



# x4 NOR Flash Memory Automotive Portfolio

	QSPI S25FL1-K <sup>1</sup> 90 nm, 3.0 V	QSPI S25FL-P <sup>1</sup> 90 nm, 3.0 V	QSPI S25FL-S <sup>1</sup> 65 nm, 3.0 V	QSPI S25HL-T <sup>1</sup> 45 nm, 3.0 V	QSPI S25FL-L <sup>2</sup> 65 nm, 3.0 V	QSPI S25FS-S <sup>1</sup> 65 nm, 1.8 V	QSPI S25HS-T <sup>1</sup> 45 nm, 1.8 V
≥256Mb	Density (Name) SDR Clock / DDR Clock * Temp Range			4Gb <sup>3</sup> 166 MHz / 100 MHz * A, B, M			4Gb <sup>3</sup> 166 MHz / 100 MHz * A, B, M
	All parts supported by Longevity Program unless noted			2Gb <sup>3</sup> 166 MHz / 100 MHz * A, B, M			2Gb <sup>3</sup> 166 MHz / 100 MHz * A, B, M
			1Gb <sup>4</sup> 133 MHz / 80 MHz * A, B, M	Q418 1Gb Q219 166 MHz / 100 MHz * A, B, M		1Gb <sup>4</sup> 133 MHz / 80 MHz * A, B, M	Q418 1Gb Q219 166 MHz / 100 MHz * A, B, M
		512Mb 133 MHz / 80 MHz * A, B, M	Q218 512Mb Q119 166 MHz / 100 MHz * A, B, M		512Mb 133 MHz / 80 MHz * A, B, M	Q218 512Mb Q119 166 MHz / 100 MHz * A, B, M	
	256Mb <sup>4</sup> 104 MHz / -- * A	256Mb 133 MHz / 80 MHz * A, B, M		256Mb 133 MHz / 66 MHz * A, B, M	256Mb 133 MHz / 80 MHz * A, B, M		
64–128Mb		128Mb <sup>5</sup> 104 MHz / -- * A, B	128Mb <sup>7</sup> 133 MHz / 80 MHz * A, B, M		128Mb 133 MHz / 66 MHz * A, B, M	128Mb 133 MHz / 80 MHz * A, B, M	
		128Mb <sup>6</sup> 104 MHz / -- * A, B	128Mb <sup>8</sup> 108 MHz / -- * A, B				
	64Mb Q119 108 MHz / -- * A, B	64Mb 104 MHz / -- * A, B			64Mb 108 MHz / 54 MHz * A, B, M	64Mb 133 MHz / 80 MHz * A, B, M	
≤32Mb	32Mb Q119 108 MHz / -- * A, B	32Mb 104 MHz / -- * A, B					
	16Mb Q119 108 MHz / -- * A, B						

<sup>1</sup> Hybrid Sector

<sup>2</sup> Uniform Sector

<sup>3</sup> Stacked die

<sup>4</sup> S70 series (stacked die)

<sup>5</sup> S25FL129P Quad SPI

<sup>6</sup> S25FL128P Dual SPI

<sup>7</sup> S25FL128S 133-MHz SDR / 80-MHz DDR

<sup>8</sup> S25FL127S 108-MHz SDR

\* 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

Status

Availability

EOL (Last-Time-Ship)

Concept

Development

Engineering AEC-Q100/  
Sampling Production

QQYY

QQYY

QQYY





# Parallel and Burst Parallel NOR Flash Memory Automotive Roadmap

Product Family	Density	(Prod <sup>1</sup> ) [EOL]	2018				2019				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	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S29GL-T <sup>2</sup> (3.0 V) 45-nm MB	2Gb <sup>4</sup> 1Gb 512Mb		[Green Bar]																											
S29GL-S <sup>2</sup> (3.0 V) 65-nm MB	2Gb <sup>4</sup> 1Gb 512Mb 256Mb 128Mb 64Mb		[Green Bar]																											
S29GL-N <sup>2</sup> (3.0 V) 110-nm MB	64Mb 32Mb		[Green Bar]																											
S29PL-J <sup>2,3</sup> (3.0 V) 110-nm FG	128Mb 64Mb 32Mb		[Green Bar]																											
S29JL-J <sup>3</sup> (3.0 V) 110-nm FG	64Mb 32Mb		[Green Bar]																											
S29AL-J (3.0 V) 110-nm FG	16Mb 8Mb		[Green Bar]																											
S29AS-J (1.8 V) 110-nm FG	16Mb 8Mb		[Green Bar]																											
S29CD-J (2.5 V) Burst Parallel 110-nm FG	32Mb 16Mb		[Green Bar]																											
S29CL-J (3.0 V) Burst Parallel 110-nm FG	32Mb 16Mb		[Green Bar]																											

<sup>1</sup> AEC-Q100

<sup>2</sup> Supports Page Mode

<sup>3</sup> Supports Simultaneous Read/Write Operation

<sup>4</sup> S70 series (stacked die)



Products supported by Longevity Program unless noted



# Parallel and Burst Parallel NOR Flash Memory Automotive Portfolio

	Burst Parallel S29CL-J <sup>1</sup> 110 nm, 3.0 V	Burst Parallel S29CD-J <sup>1</sup> 110 nm, 2.5 V	S29AS-J 110 nm, 1.8 V	S29AL-J 110 nm, 3.0 V	S29JL-J <sup>2</sup> 110 nm, 3.0 V	S29PL-J <sup>2, 3</sup> 110 nm, 3.0 V	S29GL-N <sup>3</sup> 110 nm, 3.0 V	S29GL-S <sup>3</sup> 65 nm, 3.0 V	S29GL-T <sup>3</sup> 45 nm, 3.0 V
≥256Mb	<b>Density</b> Initial / Page Access * Temp Range							<b>2Gb<sup>4</sup></b> 110 ns / 20 ns * A, B	<b>2Gb<sup>4</sup></b> 110 ns / 20 ns * A, B
	All parts supported by Longevity Program unless noted							<b>1Gb</b> 100 ns / 15 ns * A, B	<b>1Gb</b> 100 ns / 15 ns * A, B
64–128Mb								<b>512Mb</b> 100 ns / 15 ns * A, B	<b>512Mb</b> 100 ns / 15 ns * A, B
						<b>128Mb</b> 60 ns / 20 ns * A		<b>256Mb</b> 90 ns / 15 ns * A, B	
≤32Mb					<b>64Mb</b> 55 ns / -- * A	<b>64Mb</b> 55 ns / 20 ns * A	<b>64Mb</b> 90 ns / 25 ns * A	<b>128Mb</b> 90 ns / 15 ns * A, B	
							<b>64Mb</b> 70 ns / 15 ns * A, B		
	<b>32Mb</b> 54 ns / 75 MHz * A, M, T	<b>32Mb</b> 54 ns / 75 MHz * A, M, T			<b>32Mb</b> 60 ns / -- * A	<b>32Mb</b> 55 ns / 20 ns * A	<b>32Mb</b> 90 ns / 25 ns * A		
	<b>16Mb</b> 54 ns / 66 MHz * A, M, T	<b>16Mb</b> 54 ns / 66 MHz * A, M, T	<b>16Mb</b> 70 ns / -- * A	<b>16Mb</b> 55 ns / -- * A, M					
		<b>8Mb</b> 70 ns / -- * A	<b>8Mb</b> 55 ns / -- * A, M						

<sup>1</sup> Address Data Parallel (ADP) Burst

<sup>2</sup> Supports Simultaneous Read/Write Operation

<sup>3</sup> Supports Page Mode

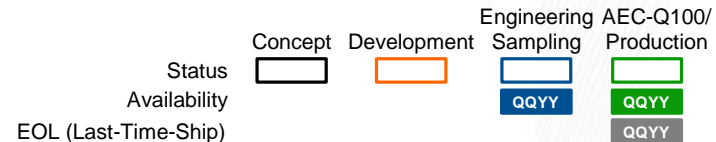
<sup>4</sup> S70 series (stacked die)

\* 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

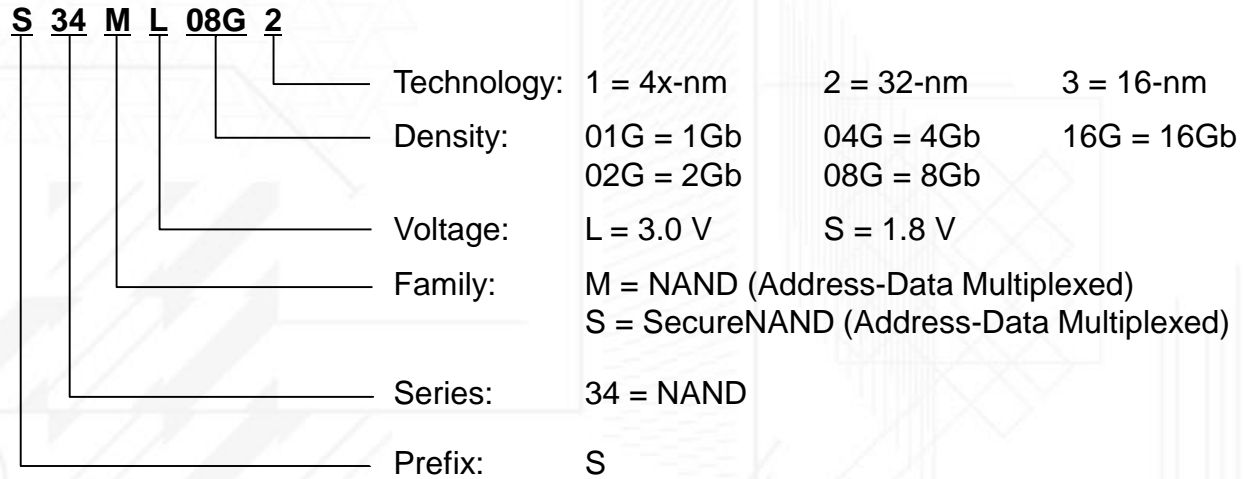
T = Automotive, AEC-Q100 Grade 0: -40°C to +145°C



# NAND Flash Memory Automotive Family



# NAND Flash Memory Automotive Family Decoder



# SLC NAND Flash Memory Automotive Roadmap

Product Family	Density	(Prod <sup>1</sup> ) [EOL]	2018				2019				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	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S34MS-2 (1.8 V) 32-nm SLC ONFI <sup>2</sup> 1.0	16Gb 8Gb 4Gb 2Gb 1Gb		[Production]																											
S34MS-1 (1.8 V) 4x-nm SLC ONFI <sup>2</sup> 1.0	4Gb 2Gb 1Gb	[Q4'19] [Q4'19] [Q4'19]	[EOL - LTB]																											
S34SL-2 (3.0 V) 32-nm SLC ONFI <sup>2</sup> 1.0	4Gb 2Gb 1Gb		[Production]																											
S34ML-3 (3.0 V) 16-nm SLC ONFI <sup>2</sup> 1.0	16Gb 8Gb 4Gb	(TBD) (TBD) (Q3'18)	[Production]																											
S34ML-2 (3.0 V) 32-nm SLC ONFI <sup>2</sup> 1.0	16Gb 8Gb 4Gb 2Gb 1Gb		[Production]																											
S34ML-1 (3.0 V) 4x-nm SLC ONFI <sup>2</sup> 1.0	8Gb 4Gb 2Gb 1Gb	[Q4'19] [Q4'19] [Q4'19] [Q4'19]	[EOL - LTB]																											

<sup>1</sup> AEC-Q100  
<sup>2</sup> Open NAND Flash Interface

Concept
  Engineering Samples
  AEC-Q100 / Production
  EOL - LTB
  EOL - LTS

Products supported by Longevity Program unless noted



# SLC NAND Flash Memory Automotive Portfolio

	S34ML-1 <sup>1</sup> 4x nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34ML-2 <sup>3</sup> 32 nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34ML-3 <sup>1</sup> 16 nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34SL-2 <sup>3, 4</sup> 32 nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34MS-1 <sup>1</sup> 4x nm, 1.8 V SLC, ONFI 1.0 <sup>2</sup>	S34MS-2 <sup>3</sup> 32 nm, 1.8 V SLC, ONFI 1.0 <sup>2</sup>
8-16Gb	Density; Bus Width Interface Bandwidth * Temp Range					
	All parts supported by Longevity Program unless noted					
		16Gb; x8 40 MBps * I, V <sup>5</sup>	16Gb; x8 40 MBps * A, B			16Gb; x8 40 MBps * I, V <sup>5</sup>
	8Gb; x8 Q419 40 MBps * A, B	8Gb; x8 40 MBps * A, B	8Gb; x8 40 MBps * A, B			8Gb; x8 40 MBps * A, B
1-4Gb	4Gb; x8/16 Q419 40 MBps * A, B	4Gb; x8/16 40 MBps * A, B	Q118 4Gb; x8 Q318 40 MBps * A, B	4Gb; x8 40 MBps * I, V	4Gb; x8 Q419 40 MBps * A, B	4Gb; x8/16 40 MBps * A, B
	2Gb; x8/16 Q419 40 MBps * A, B	2Gb; x8/16 40 MBps * A, B		2Gb; x8 40 MBps * I, V <sup>5</sup>	2Gb; x8/16 Q419 40 MBps * A, B	2Gb; x8/16 40 MBps * I, V <sup>5</sup>
	1Gb; x8 Q419 40 MBps * A, B	1Gb; x8/16 40 MBps * A, B		1Gb; x8 40 MBps * I, V	1Gb; x8/16 Q419 40 MBps * A, B	1Gb; x8/16 40 MBps * A, B

<sup>1</sup> 1-bit error-correcting code (ECC)

<sup>2</sup> Open NAND Flash Interface

<sup>3</sup> 4-bit error-correcting code (ECC)

<sup>4</sup> SecureNAND™: Cypress's SLC NAND Flash Memory with full-capacity volatile and nonvolatile block protection

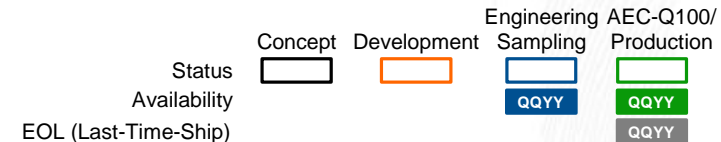
<sup>5</sup> Contact Sales

\* 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

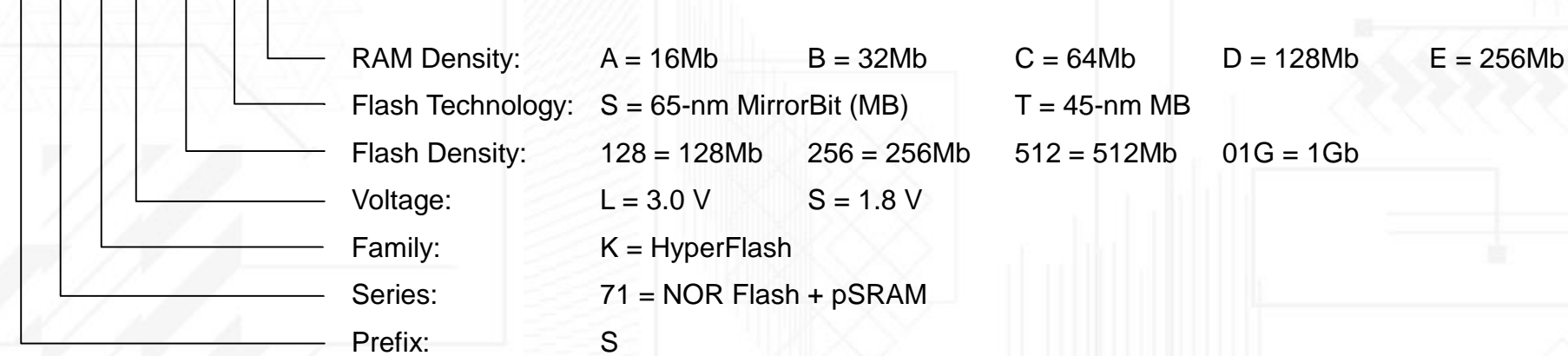


# Flash and RAM Memory Automotive MCP



# Flash and RAM Memory Automotive MCP Decoder

**S 71 K S 512 R D**





# Flash and RAM Memory Automotive MCP Roadmap

Product Family Flash / RAM	Flash / RAM Density	(Prod <sup>1</sup> ) [EOL]	2018				2019				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	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S71KS-T (1.8 V) HyperFlash / HyperRAM	512Mb / 64Mb	(Q4'19)																												
S71KS-S (1.8 V) HyperFlash / HyperRAM	512Mb / 64Mb 256Mb / 64Mb 128Mb / 64Mb	(TBD) (TBD)																												
S71KL-T (3.0 V) HyperFlash / HyperRAM	512Mb / 64Mb	(Q4'19)																												
S71KL-S (3.0 V) HyperFlash / HyperRAM	512Mb / 64Mb 256Mb / 64Mb 128Mb / 64Mb	(TBD)																												

<sup>1</sup>AEC-Q100

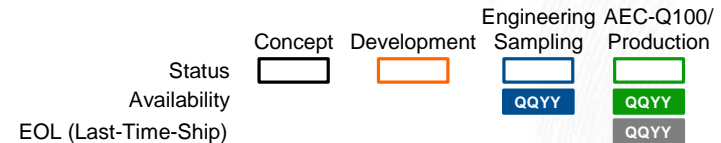


# Flash and RAM Memory Automotive MCP Portfolio

	S71KL-S 65nm 3.0V	S71KL-T 65nm 3.0V	S71KS-S 65nm 1.8V	S71KS-T 65nm 1.8V
≥256Mb	Flash Density RAM Density * Temp Range			
	All parts supported by Longevity Program unless noted			
64-128Mb	512Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B	Q319 512Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B Q419	512Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B	Q319 512Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B Q419
	256Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B		256Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B	
	128Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B		128Mb <sup>1</sup> 64Mb <sup>2</sup> * A, B	

<sup>1</sup> HyperFlash  
<sup>2</sup> HyperRAM

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



# x8 NOR Flash 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	80-ball FBGA (1.0-mm pitch)	80-pin PQFP	KGD	
HyperFlash	HyperBus	HS-T	512Mb	S26HS512T		CF	CF			CF	
			1Gb	S26HS01GT		CF				CF	
			2Gb	S26HS02GT		CF					
			4Gb	S26HS04GT		CF					
		HL-T	512Mb	S26HL512T		CF	CF			CF	
			1Gb	S26HL01GT		CF				CF	
			2Gb	S26HL02GT		CF					
			4Gb	S26HL04GT		CF					
		KS-S	128Mb	S26KS128S				✓			CF
			256Mb	S26KS256S				✓			CF
			512Mb	S26KS512S				✓			CF
			1Gb	S70KS01GS				✓			
		KL-S	128Mb	S26KL128S				✓			CF
			256Mb	S26KL256S				✓			CF
			512Mb	S26KL512S				✓			CF
			1Gb	S70KL01GS				✓			
HyperRAM	HyperBus	KS-1	64Mb	S26KS0641			✓			CF	
			128Mb	S70KS1281			✓				
			256Mb	S70KS2561				✓			
		KL-1	64Mb	S26KL0641				✓			CF
			128Mb	S70KL1281				✓			
			256Mb	S70KL2561				✓			
Dual Quad SPI	QSPI	FS-S Dual Quad	256Mb	S79FS256S	✓						
			512Mb	S79FS512S	✓						
			1Gb	S79FS01GS				✓			
		FL-S Dual Quad	256Mb	S79FL256S	✓						
			512Mb	S79FL512S	✓						
			1Gb	S79FL01GS				✓			

CF = Contact Factory

# x4 NOR Flash Memory Packages

Family	Interface	Series	Density	Device	SOIC-8 150 mil	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		
QSPI	QSPI	HS-T	512Mb	S25HS512T			CF				CF	CF		CF		
			1Gb	S25HS01GT			CF				CF			CF		
			2Gb	S25HS02GT								CF				
			4Gb	S25HS04GT								CF				
		HL-T	512Mb	S25HL512T					CF				CF	CF		CF
			1Gb	S25HL01GT					CF				CF			CF
			2Gb	S25HL02GT									CF			
			4Gb	S25HL04GT									CF			
		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-P	32Mb	S25FL032P				✓	✓		✓	✓		✓	✓	✓
			64Mb	S25FL064P					✓			✓		✓	✓	✓
			128Mb	S25FL128P					✓			✓		✓	✓	
			128Mb	S25FL129P					✓			✓		✓	✓	
			256Mb	S70FL256P					✓			✓		✓		
		FL-L	64Mb	S25FL064L				✓	UD	✓	UD			✓	✓	CF
			128Mb	S25FL128L				✓	UD		✓			✓	✓	CF
			256Mb	S25FL256L					✓			✓		✓	✓	CF
		FL1-K	16Mb	S25FL116K			✓	✓			✓			✓	✓	✓
			32Mb	S25FL132K			✓	✓		✓	✓			✓	✓	✓
			64Mb	S25FL164K				✓	✓		✓			✓	✓	✓

CF = Contact Factory

UD = Under Development

# Parallel and Burst Parallel NOR Flash Memory Packages

Series	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	80-ball FBGA (1.0-mm pitch)	80-pin PQFP	KGD
GL-T	512Mb	S29GL512T			✓		✓		✓			
	1Gb	S29GL01GT			✓		✓		✓			
	2Gb	S70GL02GT					✓					
GL-S	64Mb	S29GL064S	✓				✓	✓	✓			
	128Mb	S29GL128S			✓		✓		✓			
	256Mb	S29GL256S			✓		✓		✓			
	512Mb	S29GL512S			✓		✓		✓			
	1Gb	S29GL01GS					✓		✓			
	2Gb	S70GL02GS					✓					
							✓					
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	8Mb	S29AS008J	✓					✓				
	16Mb	S29AS016J	✓	✓				✓				
CD-J	16Mb	S29CD016J								✓	✓	✓
	32Mb	S29CD032J								✓	✓	
CL-J	16Mb	S29CL016J								✓	✓	
	32Mb	S29CL032J								✓	✓	

# SLC NAND and SecureNAND Flash Memory Packages

Family	Density	Device	63-Ball BGA (0.8-mm pitch)	67-Ball BGA (0.8-mm pitch)	48-Pin TSOP
MS-2	1Gb	S34MS01G2	✓	✓	✓
	2Gb	S34MS02G2	✓	✓	✓
	4Gb	S34MS04G2	✓		✓
	8Gb	S34MS08G2	✓		
	16Gb	S34MS16G2	✓		
MS-1	1Gb	S34MS01G1	✓		
	2Gb	S34MS02G1	✓		✓
	4Gb	S34MS04G1	✓		✓
ML-3	4Gb	S34ML04G3	✓		✓
	8Gb	S34ML08G3	✓		✓
	16Gb	S34ML16G3	✓		✓
ML-2	1Gb	S34ML01G2	✓	✓	✓
	2Gb	S34ML02G2	✓	✓	✓
	4Gb	S34ML04G2	✓		✓
	8Gb	S34ML08G2	✓		✓
	16Gb	S34ML16G2	✓		✓
ML-1	1Gb	S34ML01G1	✓		✓
	2Gb	S34ML02G1	✓		✓
	4Gb	S34ML04G1	✓		✓
	8Gb	S34ML08G1	✓		✓
SL-2	1Gb	S34SL01G2	✓		
	2Gb	S34SL02G2	✓		
	4Gb	S34SL04G2	✓		

# Flash and RAM Memory MCP Packages

Family	Flash Density	RAM Density	BGA24 8 x 6 mm, 1.0 mm pitch 5 x 5 Ball
S71KS-T	128Mb	64Mb	
	256Mb	64Mb	
	512Mb	64Mb	CF
S71KS-S	128Mb	64Mb	✓
	256Mb	64Mb	✓
	512Mb	64Mb	✓
S71KL-T	128Mb	64Mb	
	256Mb	64Mb	
	512Mb	64Mb	CF
S71KL-S	128Mb	64Mb	✓
	256Mb	64Mb	✓
	512Mb	64Mb	✓

CF = Contact Factory



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