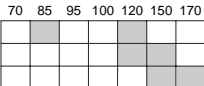
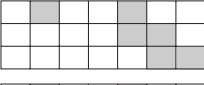
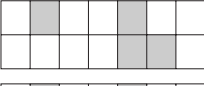
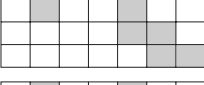
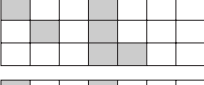
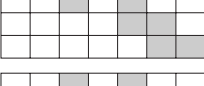


# PRODUCT LINEUP

## ■ Symmetrical Block SmartVoltage Flash Memories

Supply voltage	Smart voltage	Supply voltage can be selected automatically from following combinations; VCC = 3.3 V, VPP = 3.3 V/VCC = 3.3 V, VPP = 5 V/VCC = 3.3 V, VPP = 12 V/ VCC = 5 V, VPP = 5 V/VCC = 5 V, VPP = 12 V
----------------	---------------	---

Capacity	Bit Configuration	Erasable block size (bytes/words)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
2 M	x 8	64 kB	0 to 70	LH28F002SC-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	 <ul style="list-style-type: none"> <li>• Readable at 2.7 V</li> </ul>
			-40 to 85	LH28F002SCH-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
4 M	x 8	64 kB	0 to 70	LH28F004SC-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	 <ul style="list-style-type: none"> <li>• Readable at 2.7 V</li> <li>• Full compatible with Intel's flash memories except CSP.*</li> </ul>
			-40 to 85	LH28F004SCH-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
8 M	x 8	64 kB	0 to 70	LH28F008SC	VCC = 5 V VCC = 3.3 V	 <ul style="list-style-type: none"> <li>• Full compatible with Intel's flash memories except CSP.*</li> </ul>
			-25 to 85	LH28F008SCH	VCC = 5 V VCC = 3.3 V	
			0 to 70	LH28F008SC-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	 <ul style="list-style-type: none"> <li>• Readable at 2.7 V</li> <li>• Full compatible with Intel's flash memories except CSP.*</li> </ul>
			-25 to 85	LH28F008SCH-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
	x 16	32 kW	0 to 70	LH28F800SG-L (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	 <ul style="list-style-type: none"> <li>• Readable, programmable and erasable at 2.7 V</li> </ul>
			-40 to 85	LH28F800SGH-L (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
16 M	x 8	64 kB	0 to 70	LH28F016SC-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	 <ul style="list-style-type: none"> <li>• Readable at 2.7 V</li> <li>• Full compatible with Intel's flash memories except CSP.*</li> </ul>
			-40 to 85	LH28F016SCH-L	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	

※ Make sure of the actual pin spec. etc. in the latest specifications.

■ Symmetrical Block SmartVoltage Flash Memories (contd.)

Supply voltage	Smart 3	Supply voltage can be selected automatically from following combinations; $V_{CC} = 3.3\text{ V}$ , $V_{PP} = 3.3\text{ V}/V_{CC} = 3.3\text{ V}$ , $V_{PP} = 12\text{ V}$
----------------	---------	---

Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.		Access time (ns)	Remarks																												
8 M	x 8	64 kB	0 to 70	LH28F008SC-T	V <sub>CC</sub> = 3.3 V	<table><tr><td>70</td><td>85</td><td>95</td><td>100</td><td>120</td><td>150</td><td>170</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	70	85	95	100	120	150	170																						• Full compatible with Intel's flash memories except CSP.*
			70	85	95	100	120	150	170																										
-25 to 85	LH28F008SCH-T	V <sub>CC</sub> = 3.3 V	<table><tr><td>70</td><td>85</td><td>95</td><td>100</td><td>120</td><td>150</td><td>170</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	70	85	95	100	120	150	170																									
70	85	95	100	120	150	170																													
0 to 70	LH28F008SC-TL	V <sub>CC</sub> = 3.3 V V <sub>CC</sub> = 2.7 V	<table><tr><td>70</td><td>85</td><td>95</td><td>100</td><td>120</td><td>150</td><td>170</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	70	85	95	100	120	150	170																						• Readable at 2.7 V • Full compatible with Intel's flash memories except CSP.*			
70	85	95	100	120	150	170																													
-25 to 85	LH28F008SCH-TL	V <sub>CC</sub> = 3.3 V V <sub>CC</sub> = 2.7 V	<table><tr><td>70</td><td>85</td><td>95</td><td>100</td><td>120</td><td>150</td><td>170</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	70	85	95	100	120	150	170																									
70	85	95	100	120	150	170																													

Supply voltage	Smart 5	Supply voltage can be selected automatically from following combinations; $V_{CC} = 5\text{ V}$ , $V_{PP} = 5\text{ V}/V_{CC} = 5\text{ V}$ , $V_{PP} = 12\text{ V}$
----------------	---------	---

Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.		Access time (ns)	Remarks														
8 M	x 8	64 kB	0 to 70	LH28F008SC-V	V <sub>CC</sub> = 5 V	<table><tr><td>70</td><td>85</td><td>95</td><td>100</td><td>120</td><td>150</td><td>170</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	70	85	95	100	120	150	170								• Full compatible with Intel's flash memories except CSP.*
			70	85	95	100	120	150	170												
-25 to 85	LH28F008SCH-V	V <sub>CC</sub> = 5 V	<table><tr><td>70</td><td>85</td><td>95</td><td>100</td><td>120</td><td>150</td><td>170</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	70	85	95	100	120	150	170											
70	85	95	100	120	150	170															

※ Make sure of the actual pin spec. etc. in the latest specifications.

## ■ Boot Block SmartVoltage Flash Memories \*1

Supply voltage	Smart Voltage	Supply voltage can be selected automatically from following combinations; VCC = 3.3 V, VPP = 3.3 V/VCC = 3.3 V, VPP = 5 V/VCC = 3.3 V, VPP = 12 V/ VCC = 5 V, VPP = 5 V/VCC = 5 V, VPP = 12 V (Operable at VCC = 2.7 V, VPP = 2.7 V)
----------------	---------------	--

Capacity	Bit Configuration	Erasable block size (words)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
4 M	x 16	4 kW, 32 kW	0 to 70	LH28F400BG-TL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	<ul style="list-style-type: none"> <li>• Top boot</li> <li>• Pin compatible with Intel's flash memories except CSP.*</li> </ul>
				LH28F400BG-TL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
			-40 to 85	LH28F400BGH-TL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F400BGH-TL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
			0 to 70	LH28F400BG-BL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	<ul style="list-style-type: none"> <li>• Bottom boot</li> <li>• Pin compatible with Intel's flash memories except CSP.*</li> </ul>
				LH28F400BG-BL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
8 M	x 16	4 kW, 32 kW	-40 to 85	LH28F400BGH-BL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F800BG-TL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	<ul style="list-style-type: none"> <li>• Top boot</li> <li>• Pin compatible with Intel's flash memories except CSP.*</li> </ul>
			0 to 70	LH28F800BG-TL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F800BGH-TL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
			-40 to 85	LH28F800BGH-TL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F800BG-BL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	<ul style="list-style-type: none"> <li>• Bottom boot</li> <li>• Pin compatible with Intel's flash memories except CSP.*</li> </ul>
			0 to 70	LH28F800BG-BL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F800BGH-BL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
			-40 to 85	LH28F800BGH-BL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F800BGH-BL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
			0 to 70	LH28F800BG-TL (FOR TSOP, CSP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	
				LH28F800BG-TL (FOR SOP)	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	

\*1 Boot block architecture : A well-balanced block architecture for storage of system programs. This architecture consists of small-sized blocks (4 k-word) for storage of boot code and parameters, and larger size symmetrical blocks (32 k-word) for storage of main code.

※ Make sure of the actual pin spec. etc. in the latest specifications.

■ Boot Block Flash Memories (contd.) \*1

★ Under development

Supply voltage	Smart 3	Supply voltage can be selected automatically from following combinations; VCC = 2.7 to 3.6 V, VPP = 2.7 to 3.6 V/VCC = 2.7 to 3.6 V, VPP = 12 V
----------------	---------	--

Capacity	Bit Configuration	Erasable block size (bytes/words)	Operating temp. (°C)	Model No.		Access time (ns)	Remarks
16 M	x 16	4 kW, 32 kW	0 to 70	★LH28F160BG-TTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	• Top boot • Pin compatible with Intel's flash memories except CSP.*
			-25 to 85	★LH28F160BGH-TTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	
			0 to 70	★LH28F160BG-BTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	• Bottom boot • Pin compatible with Intel's flash memories except CSP.*
			-25 to 85	★LH28F160BGH-BTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	
	x 8/x 16	8 kB, 64 kB	0 to 70	★LH28F160BV-TTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	• Top boot • Pin compatible with Intel's flash memories except CSP.*
			-40 to 85	★LH28F160BVH-TTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	
			0 to 70	★LH28F160BV-BTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	• Bottom boot • Pin compatible with Intel's flash memories except CSP.*
			-40 to 85	★LH28F160BVH-BTL	VCC = 2.7 to 3.6 V	<div><div></div><div></div><div></div><div></div><div></div></div>	

\*1 Boot block architecture : A well-balanced block architecture for storage of system programs. This architecture consists of small-sized blocks (4 k-word) for storage of boot code and parameters, and larger size symmetrical blocks (32 k-word) for storage of main code.

※ Make sure of the actual pin spec. etc. in the latest specifications.

# Fast Programming Flash Memories \*1

★ Under development

Supply voltage	Smart 3	Supply voltage can be selected automatically from following combinations; $V_{CC} = 3.3\text{ V}$ , $V_{PP} = 3.3\text{ V}$ / $V_{CC} = 3.3\text{ V}$ , $V_{PP} = 5\text{ V}$ (Operable at $V_{CC} = 2.7\text{ V}$ , $V_{PP} = 2.7\text{ V}$ )
----------------	---------	---

Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
16 M	x 8/x 16	64 kB	0 to 70	LH28F160S3-L	$V_{CC} = 3.3\text{ V}$ $V_{CC} = 2.7\text{ V}$	• Full compatible with Intel's flash memories except CSP.*
			-40 to 85	LH28F160S3H-L	$V_{CC} = 3.3\text{ V}$ $V_{CC} = 2.7\text{ V}$	
32 M	x 8/x 16	64 kB	0 to 70	★LH28F320S3-L	$V_{CC} = 3.3\text{ V}$ $V_{CC} = 2.7\text{ V}$	• Full compatible with Intel's flash memories except CSP.*
			-40 to 85	★LH28F320S3H-L	$V_{CC} = 3.3\text{ V}$ $V_{CC} = 2.7\text{ V}$	

Supply voltage	Smart 5	$V_{CC} = 5\text{ V}$ , $V_{PP} = 5\text{ V}$
----------------	---------	---

Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
16 M	x 8/x 16	64 kB	0 to 70	LH28F160S5-L	$V_{CC} = 5\text{ V}$	• Full compatible with Intel's flash memories except CSP.*
			-40 to 85	LH28F160S5H-L	$V_{CC} = 5\text{ V}$	
32 M	x 8/x 16	64 kB	0 to 70	★LH28F320S5-L	$V_{CC} = 5\text{ V}$	• Full compatible with Intel's flash memories except CSP.*
			-40 to 85	★LH28F320S5H-L	$V_{CC} = 5\text{ V}$	

\*1 Fast programming is available with two 32-byte page buffers/bank.

※ Make sure of the actual pin spec. etc. in the latest specifications.

■ Dual Work Flash Memories \*1

Supply voltage		VCC = 2.9 to 3.3 V, VPP = 2.9 to 3.3 V				
Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
8 M	x 8	64 kB	-40 to 85	LH28F008SCHSD-ZL	VCC = 2.7 to 3.3 V	• Readable at 2.7 V
					85 90 100 120 130 150	

Supply voltage	Smart Voltage	Supply voltage can be selected automatically from following combinations; VCC = 3.3 V, VPP = 3.3 V/VCC = 3.3 V, VPP = 5 V/VCC = 3.3 V, VPP = 12 V/ VCC = 5 V, VPP = 5 V/VCC = 5 V, VPP = 12 V (Operable at VCC = 2.7 V, VPP = 2.7 V)			
----------------	---------------	--	--	--	--

Capacity	Bit Configuration	Erasable block size (words)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
16 M	x 16	32 kW	-10 to 70	LH28F160SGED-L10	VCC = 5 V VCC = 3.3 V VCC = 2.7 V	—
					85 90 100 120 130 150	

Supply voltage	Smart 3	Supply voltage can be selected automatically from following combinations; VCC = 3.3 V, VPP = 3.3 V/VCC = 3.3 V, VPP = 5 V (Operable at VCC = 2.7 V, VPP = 2.7 V)			
----------------	---------	---	--	--	--

Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
32 M	x 8/x 16	64 kB	0 to 70	LH28F320S3TD-L10	VCC = 3.3 V VCC = 2.7 V	—
					85 90 100 120 130 150	

■ Dual 5 V/12 V Power Supply Flash Memories \*1

Supply voltage	VCC = 5 V, VPP = 12 V				
----------------	-----------------------	--	--	--	--

Capacity	Bit Configuration	Erasable block size (bytes)	Operating temp. (°C)	Model No.	Access time (ns)	Remarks
8 M	x 8	64 kB	0 to 70	LH28F008SA-K	Vcc = 5 V	• Full compatible with Intel's flash memories except CSP.*
			-25 to 85	LH28F008SAH-K	Vcc = 5 V	
					85 90 100 120 130 150	

\*1 Capable of performing erase, write and read for each bank independently.  
(Impossible to perform read from both banks at a time.)

※ Make sure of the actual pin spec. etc. in the latest specifications.