Flash Memory

Quick Reference Guide

SPANSION™

Part Number Construction

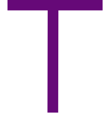
Part Number Construction

(S)

Spansion™ Ordering Part Number Construction: Single-die Products

SPANSION™

Generic OPN									Ordering Options							
Prefix	Series		Family		Density			Tech	Speed		Package		Temp	Model Number		Pack Type
S	2	9	G	L	5	1	2	N	1	0	F	A	I	0	0	2



Product Series
25 = Serial Peripheral Interface (SPI) Flash memory
29 = Sector Erase NOR Flash memory

Prefix
S = Spansion™ memory

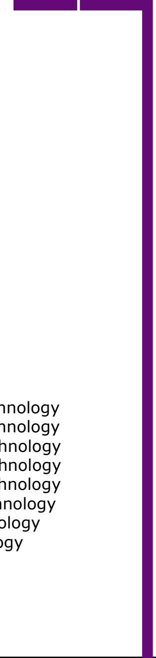
Density
K05 = 512 Kb
001-999 = 1 Mb – 999 Mb
01G-64G = 1 Gb – 64 Gb

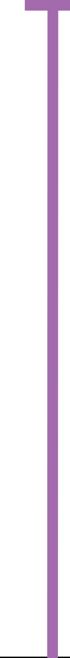
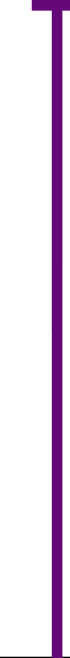
Core Voltage
F = 5-volt VCC D = 2.5-volt VCC
L = 3-volt VCC S = 1.8-volt VCC

Flash Interface and Simultaneous Read–Write

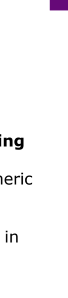
	SRW	No SRW
Standard	J	A
Page	P	G
Burst (Demux Add/Data)	W	R
Burst (Mux Add/Data)	N	K
Serial (SPI)		F
Automotive Burst (Demux)	C	

Process Technology
B = 320 nm, Floating Gate Technology
C = 320 nm, Floating Gate Technology
D = 230 nm, Floating Gate Technology
G = 170 nm, Floating Gate Technology
H = 130 nm, Floating Gate Technology
J = 110 nm, Floating Gate Technology
M = 230 nm, MirrorBit™ Technology
N = 110 nm, MirrorBit Technology



Additional Ordering Options
Varies for each generic OPN
(characters 1-9).
Meaning is defined in each datasheet



Packing Type
0 = Tray
1 = Tube
2 = 7″ Tape & Reel
3 = 13″ Tape & Reel

Speed Option
Asynchronous (no CLK input)
"Speed Option" represents random access time (ns).
If greater than 100 ns, use the two leftmost digits.

Synchronous (CLK input)
"Speed Option" represents clock frequency (MHz). First digit represents 100s of MHz.
Second digit represents the speed between 0 and 99 MHz:

A	0-4	F	25-29	L	50-54	R	75-79
B	5-9	G	30-34	M	55-59	S	80-84
C	10-14	H	35-39	N	60-64	T	85-89
D	15-19	J	40-44	P	65-69	U	90-94
E	20-24	K	45-49	Q	70-74	W	95-99

Temperature Grade
E = Engineering Samples
C = Commercial (0 – 70 ºC)
W = Wireless (-25 – 85 ºC)
I = Industrial (-40 – 85 ºC)
N = Extended (-40 – 125 ºC)

Package Material Set (Varies by Package Type)
[BGA] A = Standard Not Lead (Pb)-Free
[BGA] F = Standard Lead (Pb)-Free
[Lead Frame] A = Standard Not Lead (Pb)-Free, Copper
[Lead Frame] F = Standard Lead (Pb)-Free, Copper, Sn

Package Type [Family]
B = BGA [BGA]
C = CSOP [Lead Frame]
D = Die [Die/Wafer]
E = Super CSP [BGA]
F = Fortified BGA [BGA]
M = SOIC/SOP [Lead Frame]
N = WSON [Lead Frame]

(Am)
Spansion™ Ordering Part Number Construction: Single-die Products

SPANSION™

Generic OPN										Ordering Options								
Prefix	Series		Family			Density			Tech	Sector	Speed Option				Package		Temp	Option
Am	2	9	B	D	S	3	2	3	D	T	1	1	A	(R)	W	K	I	

Prefix
Am = Spansion™ memory originally developed by AMD

Product Series
29 = Sector Erase NOR Flash memory

Device Family

BDS	=	1.8V, SRW, Burst
DS	=	1.8V, SRW
SL	=	1.8V
LV	=	3V
DL	=	3V, SRW
BL	=	3V, Burst
PL	=	3V, Page
PDL	=	3V, SRW, Page
F	=	5V
SRW	=	Simultaneous Read–Write

Density
Density is as noted in tables and data sheets. Digits broadly indicate device density.
Bus width and organization vary by family.

Process Technology
B: 320nm Floating Gate
C: 320nm Floating Gate
D: 230nm Floating Gate
G: 170nm Floating Gate
H: 130nm Floating Gate
M: 230nm MirrorBit™

Sector Architecture and Sector Write Protection
T = Top boot sector
B = Bottom boot sector
U/blank = Uniform sector
H = Uniform sector, WP# protects highest addressed sector
L = Uniform sector, WP# protects lowest addressed sector

Temperature Range
C = Commercial (0° - 70°C)
I = Industrial (-40° - 85°C)
E = Extended (-55° - 125°C)

Optional Processing
blank = standard
N = ESN device

Speed Option, Voltage Regulation

1.8V Devices

**(*) = (SL,DS) 2 or 3 digits indicate speed in ns, V_{CC} = 1.8–2.2V.

**(*) = (BDS) 2 or 3 characters indicate clock rate, asynchronous read access, handshaking type.

3V Devices

**(*) = 2 or 3 digits indicate speed in ns, device is full voltage range.

*(*)1 = (LV64xD/G) First two digits indicate speed in ns x 10. "1" indicates $V_{IO} < V_{CC}$.

** = (PDL) First digit is speed in ns x 10. Last is V_{IO} range, 3 : V_{IO} = 3V, 8 : V_{IO} = 1.8V.

5V Devices

*(*)0 = Ends in "0" - indicates speed in ns, V_{CC} = 5.0 V ±10% (4.5-5.5V).

*5 = Ends in "5" - check table or data sheet for actual speed and voltage range.

(F400) If part number has a "0" after the temperature range, then V_{CC} = 4.5-5.5V.

"R" indicates regulated voltage range

Package Type

J = Rectangular Plastic Leaded Chip Carrier (PLCC)
K = 80-pin Plastic Quad Flat Package (PQFP) (PQR080)
P = Plastic Dual Inline Package (PDIP)
S = 44-pin Small Outline (SO) Package (SO 044)
SK = 44-pin Reverse Pinout Small Outline Package (SOR044)
Z = 56pin Shrink Small Outline Package (SSOP) (SSO056)

Thin Small Outline Packages (TSOP):

E = 32, 40, or 48Pin Standard Pinout (TS 048) (for Am29F016/017 devices only, E = 48-pin, E4 = 40-pin)
E2 = 40/44-pin Type-II Standard Pinout (TS 044)
F = 32, 40, or 48pin Reverse Pinout (TSR048) (for Am29F016/017 devices only, F = 48-pin, F4 = 40-pin)
F2 = 40/44-pin Type-II Reverse Pinout (TSR044)

Fine-Pitch Ball Grid Array Packages, 0.8 mm ball pitch (unless otherwise noted):

MA = 63-ball, 11 x 12 mm body (FSA063)
MD = 63-ball, 10.95 x 11.95 body (FSD063)
VA = 44-ball, 9.2 x 8 mm body, 0.5 mm pitch (VDA044)
VK = 80-ball, 11.5 x 9 mm body (VBB080)
VM = 64-ball, 8 x 9 mm (VBD064)
WA = 48-Ball, 6 x 8 mm body (FBA048)
WB = 48-Ball, 6 x 9 mm body (FBB048)
WC = 48-Ball, 8 x 9 mm body (FBC048)
WD = 63-Ball, 8 x 14 mm body (FBD063)
WG = 40-Ball, 8 x 15 mm body (FBE040)
WH = 63-Ball, 12 x 11 mm body (FBE063)
WK = 47-Ball, 7 x 10 mm body, 0.5 mm ball pitch (FDD047)
WL = 48-Ball, 11 x 10 mm body, 0.5 mm ball pitch (FDE048)
WM = 48-Ball, 6 x 12 mm body (FBD048)
WP = 84-Ball, 11 x 12 mm body (FBF084)
WS = 80-Ball, 11 x 12 mm body (FBE080)

Fortified Ball Grid Array Packages, 1.0 mm ball pitch (unless otherwise noted):

PA = 64-Ball, 13 x 11 mm body (LSA064)
PB = 80-Ball, 13 x 11 mm body (LAA080)
PC = 64-Ball 13 x 11 mm body (LAA064)
PE = 80-Ball, 10 x 15 mm body (LAB080)
PG = 64-Ball, 18 x 12 mm body (LAC064)
PH = 80-Ball, 13 x 11 mm body (LSB080)
PI = 80-Ball, 11 x 12 mm body (LSC080)

(MBM)

Spansion™ Ordering Part Number Construction: Single-die Products (230nm, 330nm technology)

Generic OPN																			
Prefix	Series		Family			Density			Sector	Rev.	Speed Option		Package				Other Options	
MBM	2	9	D	L		4	0	0	T	C	5	5	P	F	T	N		

(Ordering Options: Speed Option, Package, Other Options)

Prefix
MBM = Spansion™ memory originally developed by Fujitsu

Product Series
29 = NOR Flash memory

Device Family

Dual: dual operation

PDS = 1.8V, Dual, Page
DS = 1.8V, Dual
SL = 1.8V
PDD = 2.5V, Dual, Page
DD = 2.5V, Dual
LL = 2.5V
BL = 3V, Burst
PL = 3V, Page
DL = 3V, Dual
LV = 3V
F = 5V

Density
Density is as noted in tables and data sheets. Digits broadly indicate device density.
Bus width and organization vary by family.

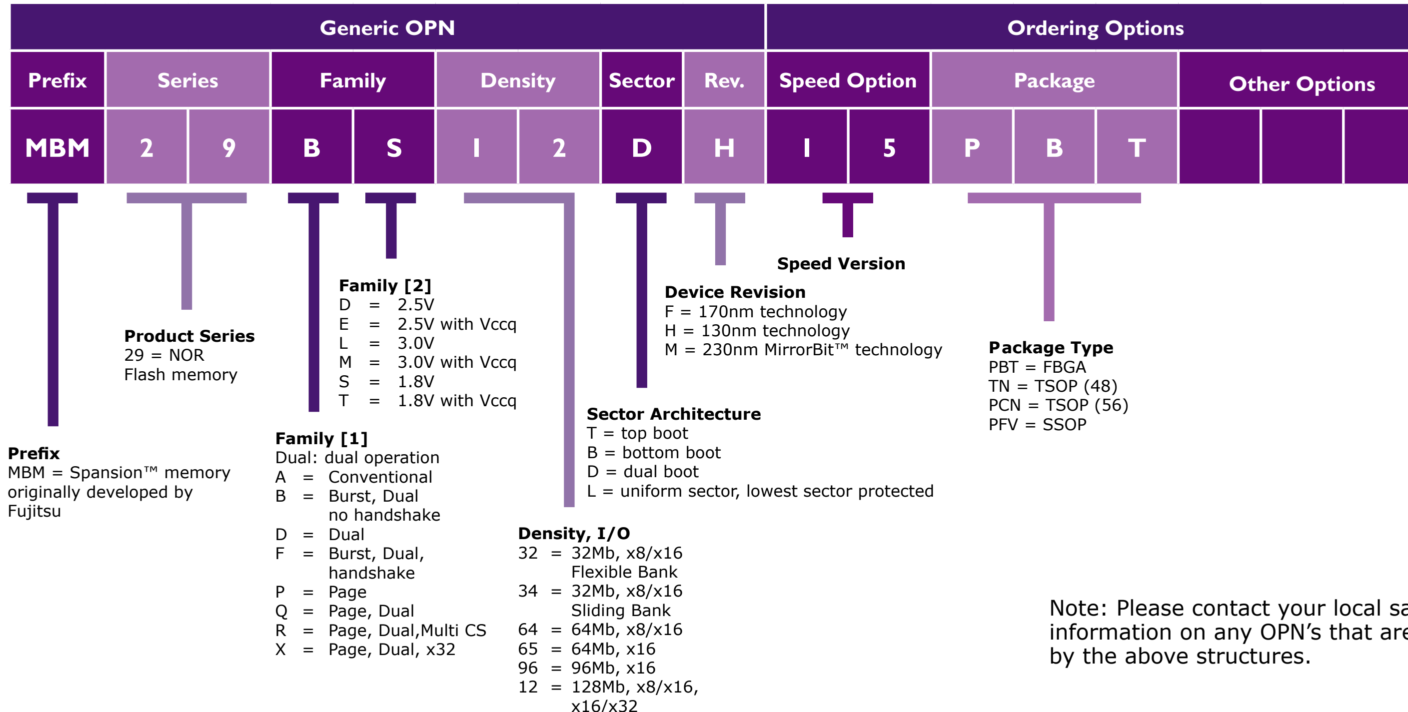
Sector Architecture
T = Top boot sector
B = Bottom boot sector
U = Uniform sector

Device Revision
A = 330nm technology
C = 330nm technology
D = 330nm technology
E = 230nm technology

Package
PFTN, PTN, TN: Thin Small Outline Package (TSOP), standard pinout
PFTR, PTR, TR: Thin Small Outline Package (TSOP), reverse pinout
PD: Plastic Leaded Chip Carrier (PLCC)
PF: Small Outline Package (SOP)
PBT: Fine pitch Ball Grid Array (FBGA)
PCV: C-leaded Small Outline Package (CSOP)
PFV: Shrink Outline L-leaded Package (SSOP)
PNS: Small Outline Non-leaded Package (SON)

(MBM)

Spansion™ Ordering Part Number Construction: Single-die Products (170nm technology and newer)



Note: Please contact your local sales office for information on any OPN's that are not covered by the above structures.

SPANSION™

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