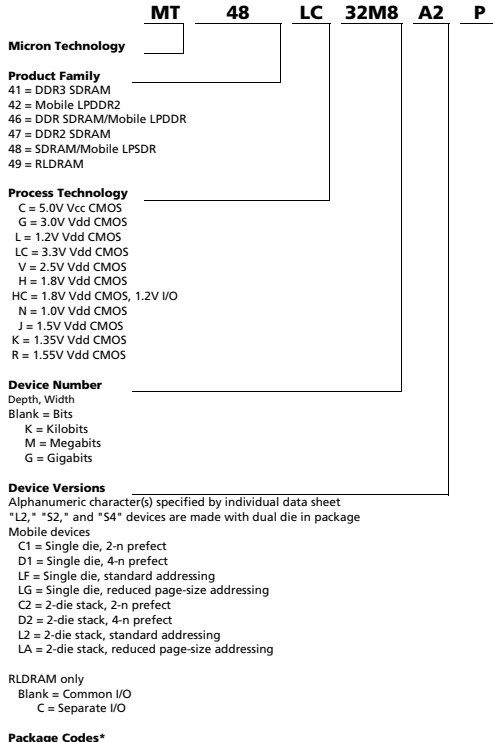


# DRAM Component Part Numbering System

The part numbering system is available at [www.micron.com/support/designsupport/documents/png](http://www.micron.com/support/designsupport/documents/png)

## DDR3/DDR2/DDR/SDRAM, Mobile LPDDR2/LPDDR/LPSDR, and RDRAM® Memory



Lead Plating	Pb-Free/ROHS-Compliant Plating	Package Description***
<b>DDR3 SDRAM</b>		
--	HX	FBGA (78-ball, 9 x 11.5)
--	JP	FBGA (78-ball, 8 x 11.5)
--	BY	FBGA (86-ball, 9 x 15.5)
--	JE	FBGA (80-ball, 12.5 x 15)
--	LA	FBGA (96-ball, 9 x 15.5)
--	JT	FBGA (96-ball, 8 x 14)
--	HA	FBGA (96-ball, 9 x 14)
--	THR	FBGA 2COB (TwinDie, 78-ball, 9 x 11.5)
--	THV	FBGA 2COB (TwinDie, 78-ball, 8 x 11.5)
--	THU	FBGA 2COB (TwinDie, 82-ball, 12.5 x 15)
--	THS	FBGA 4COB (QuadDie, 78-ball, 9 x 11.5)
--	THW	FBGA 4COB (QuadDie, 78-ball, 8 x 11.5)
<b>DDR2 SDRAM</b>		
FP	BP	FBGA (60-ball, 8 x 12)
JN	BG	FBGA (84-ball, 8 x 14)
HR	CF	FBGA (84-ball, 8 x 10)
HW	HR	FBGA (84-ball, 8 x 12.5)
FG	BE	FBGA (60-ball, 10 x 10)
FN	BN	FBGA (84-ball, 10 x 12.5)
HV	HQ	FBGA (60-ball, 8 x 11.5)
HW	HR	FBGA (84-ball, 8 x 12.5)
--	HG	FBGA (60-ball, 84-ball, 11.5 x 14)
--	THM	FBGA 2COB (TwinDie, 63-ball, 12 x 14)
--	THN	FBGA 2COB (TwinDie, 63-ball, 9 x 11.5)
--	THT	FBGA 4COB (Quad die, 65-ball, 9 x 11.5)
<b>DDR SDRAM</b>		
CV	CY	FBGA (84-ball, 60-ball, 8 x 12.5)
FG	BG	FBGA (84-ball, 60-ball, 8 x 14)
FN	BN	FBGA (54-ball, 60-ball, 84-ball, 10 x 12.5)
TG	P	TSOP (Type II)
<b>SDRAM</b>		
FB	BB	FBGA (60-ball, 8 x 16)
FG	BG	VFPGA (54-ball); FBGA (84-ball, 60-ball, 8 x 14)
F4	B4	VFPGA (54-ball, 8 x 8)
F5	B5	VFPGA (90-ball, 8 x 13)
TG	P	TSOP (Type II)
xTG	xP	Stacked TSOP, "x" = internal stacking code
<b>Mobile LPDDR2</b>		
--	KF	PoP (136-ball, 10 x 10)
--	KH	PoP (216-ball, 12 x 12)
--	KJ	PoP (216-ball, 12 x 12)
--	KL	PoP (168-ball, 12 x 12)
<b>Mobile LPDDR</b>		
--	BF	VFPGA (54-ball, 60-ball, 8 x 9)
--	B5	VFPGA (90-ball, 8 x 13)
--	CF	VFPGA (54-ball, 60-ball, 8 x 10)
--	CK	VFPGA (60-ball, 10 x 11.5)
--	CM	VFPGA (90-ball, 10 x 13)
--	CX	VFPGA (90-ball, 9 x 13)
--	JG	PoP (168-ball, 12 x 12)
--	CG	PoP (152-ball, 14 x 14)
<b>Mobile LPSDR</b>		
--	B4	VFPGA (54-ball, 8 x 8)
--	B5	VFPGA (90-ball, 8 x 13)
--	BF	VFPGA (54-ball, 8 x 9)
--	CJ	VFPGA (54-ball, 10 x 11.5)
--	CM	VFPGA (90-ball, 10 x 13)
<b>RDRAM</b>		
FM	BM	µBGA (144-ball, 11 x 18.5)
HU	HT	FBGA (144-ball, 11 x 18.5)

### Die Revision Designator

### Special Processing

ES = Engineering Sample  
 MS = Mechanical Sample

### Operating Temperatures

Blank = 0°C to +70°C  
 IT\*\* = -40°C to +85°C  
 AT = -40°C to +105°C

\*\*The number one (1) and the capital letter "I" utilize the same laser mark—"I"

### Special Options

(Multiple processing codes are separated by a space and are listed in hierarchical order)  
 L = Low Power

### Access/Cycle Time

DRAM Technology	Speed Grade Mark	tRAC Access Time
<b>All DRAM</b>	-0	Untested
	-A	Untested

DRAM Technology	Speed Grade Mark	MAX Clock Frequency	PC Targets CL-tRCD-tRP	
<b>DDR3 SDRAM</b>	-25	400 MHz	6-6-6	
	-25E	400 MHz	5-5-5	
	-187	533 MHz	8-8-8	
	-187E	533 MHz	7-7-7	
	-187F	533 MHz	6-6-6	
	-15	667 MHz	10-10-10	
	-15E	667 MHz	9-9-9	
	-15F	667 MHz	8-8-8	
	-125	800 MHz	11-11-11	
	-125E	800 MHz	10-10-10	
	<b>DDR2 SDRAM</b>	-5E	200 MHz	3-3-3
		-37E	267 MHz	4-4-4
-3		333 MHz	5-5-5	
-3E		333 MHz	4-4-4	
-25		400 MHz	6-6-6	
-25E		400 MHz	5-5-5	
<b>DDR SDRAM</b>	-187E	533 MHz	7-7-7	
	-75	133 MHz	2-5-3-3	
	-6T	167 MHz	2-5-3-3	
	-6	167 MHz	2-5-3-3	
<b>SDRAM</b>	-5B	200 MHz	3-3-3	
	-75	133 MHz	3-3-3	
	-7E	133 MHz	2-2-2	
	-7	143 MHz		
	-6	167 MHz		
<b>Mobile LPDDR2</b>	-6A	167 MHz		
	-55	183 MHz		
	-5	200 MHz		
	-18	533 MHz		
	-25	400 MHz		
<b>Mobile LPDDR</b>	-3	333 MHz		
	-37	266 MHz		
	-5	200 MHz		
	-75	133 MHz		
<b>Mobile LPSDR</b>	-6	167 MHz		
	-54	185 MHz		
	-5	200 MHz		
<b>RDRAM</b>	-8	125 MHz		
	-75	133 MHz		
	-6	167 MHz		
	-5	200 MHz		
	-33	300 MHz		
	-25	400 MHz with tRC 20ns		
	-25E	400 MHz with tRC 15ns		
	-18	533 MHz		

\*Due to space limitations, FBGA- and µBGA-packaged components and flip chips in packages have an abbreviated part mark that is different from the part number.

See our Web site for more information on abbreviated component marks.

\*\*\*Dimensions in millimeters

Some device offerings are available in a VFPGA rather than an FBGA package; this is noted on the data sheet.

Rev. 8/19/2009

© 2009 Micron Technology, Inc.  
 Micron and the Micron logo are trademarks of Micron Technology, Inc. RDRAM is a registered trademark of Qimonda AG in various countries, and is used by Micron Technology, Inc. under license from Qimonda. Products and specifications are subject to change without notice. Dates are estimates only.

