DDR4 Module Part Numbering System
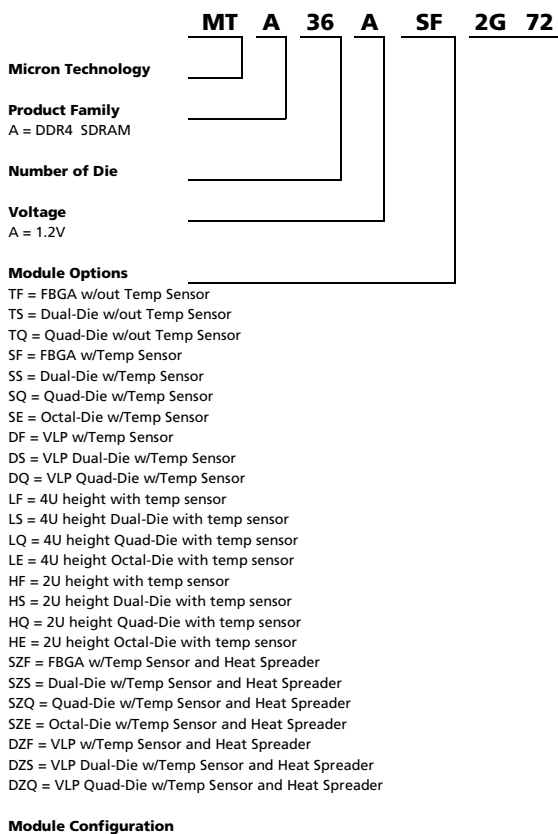
The part numbering system is available at **www.micron.com/numbering**

DDR4 SDRAM modules

MT A 36 A SF 2G 72 P Z - 2G3 A 1

Micron Technology

Product Family
A = DDR4 SDRAM

Number of Die

Voltage
A = 1.2V

Module Options
TF = FBGA w/out Temp Sensor
TS = Dual-Die w/out Temp Sensor
TQ = Quad-Die w/out Temp Sensor
SF = FBGA w/Temp Sensor
SS = Dual-Die w/Temp Sensor
SQ = Quad-Die w/Temp Sensor
SE = Octal-Die w/Temp Sensor
DF = VLP w/Temp Sensor
DS = VLP Dual-Die w/Temp Sensor
DQ = VLP Quad-Die w/Temp Sensor
LF = 4U height with temp sensor
LS = 4U height Dual-Die with temp sensor
LQ = 4U height Quad-Die with temp sensor
LE = 4U height Octal-Die with temp sensor
HF = 2U height with temp sensor
HS = 2U height Dual-Die with temp sensor
HQ = 2U height Quad-Die with temp sensor
HE = 2U height Octal-Die with temp sensor
SZF = FBGA w/Temp Sensor and Heat Spreader
SZS = Dual-Die w/Temp Sensor and Heat Spreader
SZQ = Quad-Die w/Temp Sensor and Heat Spreader
SZE = Octal-Die w/Temp Sensor and Heat Spreader
DZF = VLP w/Temp Sensor and Heat Spreader
DZS = VLP Dual-Die w/Temp Sensor and Heat Spreader
DZQ = VLP Quad-Die w/Temp Sensor and Heat Spreader

Module Configuration
Depth, Width
Blank = Megabits
 G = Gigabits

Printed Circuit Board Revision

Die Revision (up to 2 characters)

DDR4 SDRAM Module Speed

Module Speed Grade	Component Speed Grade/ Part Mark	Component Speed Bin	Clock Freq. (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
-2G1	-093E	DDR4-2133	1067	2133	PC4-2133	15-15-15
-2S1	-093H	DDR4-2133	1067	2133	PC4-2133	18-15-15
-2G3	-083	DDR4-2400	1200	2400	PC4-2400	17-17-17
-2G4	-083E	DDR4-2400	1200	2400	PC4-2400	16-16-16
-2S3	-083H	DDR4-2400	1200	2400	PC4-2400	20-18-18
-2S4	-083J	DDR4-2400	1200	2400	PC4-2400	19-17-17
-2G6	-075	DDR4-2666	1333	2666	PC4-2666	19-19-19
-2S6	-075H	DDR4-2666	1333	2666	PC4-2666	22-19-19
-2G7	-075E	DDR4-2666	1333	2666	PC4-2666	18-18-18
-2G9	-068	DDR4-2933	1467	2933	PC4-2933	21-21-21
-2S9	-068H	DDR4-2933	1467	2933	PC4-2933	24-21-21
-3G2	-062E	DDR4-3200	1600	3200	PC4-3200	22-22-22
-3S2	-062H	DDR4-3200	1600	3200	PC4-3200	26-22-22

SPD = serial presence-detect pin (module only)

Package Codes

Pb-Free Devices	Package Descriptions
Z	Commercial temp; halogen-free; single-, dual-, quad- or octal-rank DIMM
DZ	Commercial temp; halogen-free; select dual-, quad- or octal-rank DIMM
DZM	Commercial temp; Reduced Standby; halogen-free; select dual-, quad- or octal-rank DIMM
IZ	Industrial temp, halogen-free; single-, dual- or quad-rank DIMM
TZ	Industrial temp, halogen-free; select dual- or quad-rank DIMM
ZM	Commercial temp; Reduced Standby; halogen-free; single-, dual-, quad- or octal-rank DIMM

Module Type
A = 288-pin UDIMM (unbuffered)
H = 260-pin SODIMM
L = 288-pin LRDIMM
LS = 288-pin 3DS (M/S) LRDIMM
P = 288-pin RDIMM
PS = 288-pin 3DS (M/S) RDIMM
AK = 288-pin miniUDIMM (unbuffered)
PK = 288-pin miniRDIMM

Rev. 05-Dec-2018

Micron®

DDR3 Module Part Numbering System

The part numbering system is available at **www.micron.com/numbering**

DDR3 SDRAM modules

MT 36 K SF 2G 72 P Z - 1G6 E 1

Micron Technology

Number of Die

Voltage
J = 1.5V
K = 1.35V
M = 1.35V reduced standby

Module Options
TF = FBGA
TS = DDP (dual die in package)
SF = FBGA with temp sensor
SS = DDP with temp sensor
BF = VLP (17.9mm) with temp sensor
BS = VLP (17.9mm) DDP with temp sensor
DF = VLP (18.75mm) with temp sensor
DS = VLP (18.75mm) DDP with temp sensor
GF = 1.5U height FBGA with temp sensor
GS = 1.5U height DDP with temp sensor
HF = 2U height with temp sensor
LF = 4U height with temp sensor
SZF = FBGA with temp sensor and heat spreader
SZS = DDP with temp sensor and heat spreader
SZQ = QDP with temp sensor and heat spreader
BZF = VLP (17.9mm) with temp sensor and heat spreader
BZS = VLP (17.9mm) DDP with temp sensor and heat spreader
DYS = VLP (18.75mm) DDP with temp sensor and alternate heat spreader
DZF = VLP (18.75mm) with temp sensor and heat spreader
DZS = VLP (18.75mm) DDP with temp sensor and heat spreader
DZQ = VLP (18.75mm) QDP with temp sensor and heat spreader

Module Configuration
Depth, Width
Blank = Megabits
G = Gigabits

Module Type
Blank = 240-pin registered DIMM
A = 240-pin unbuffered DIMM
H = 204-pin SODIMM
HS = 204-pin SODIMM (R/C G: standard layout)
HR = 204-pin SODIMM (R/C H: reverse layout)
P = 240-pin parity RDIMM
L = 240-pin LRDIMM
AK = 244-pin unbuffered miniDIMM
PK = 244-pin parity miniRDIMM

MB Vendor/Revision*
*Applies to LRDIMM modules only

Printed Circuit Board Revision

Die Revision

DDR3 SDRAM Module Speed

Module Speed Grade	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Freq. (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
-80B	-25	DDR3-800	400	800	PC3-6400	6-6-6
-80C	-25E	DDR3-800	400	800	PC3-6400	5-5-5
-1G0	-187	DDR3-1066	533	1066	PC3-8500	8-8-8
-1G1	-187E	DDR3-1066	533	1066	PC3-8500	7-7-7
-1G2	-187F	DDR3-1066	533	1066	PC3-8500	6-6-6
-1G3	-15	DDR3-1333	667	1333	PC3-10600	10-10-10
-1G4	-15E	DDR3-1333	667	1333	PC3-10600	9-9-9
-1G5	-15F	DDR3-1333	667	1333	PC3-10600	8-8-8
-1GA**	-125	DDR3-1333	667	1333	PC3-10600	11-11-11
-1G6	-125	DDR3-1600	800	1600	PC3-12800	11-11-11
-1G7	-125E	DDR3-1600	800	1600	PC3-12800	10-10-10
-1G8	-125F	DDR3-1600	800	1600	PC3-12800	9-9-9
-1G9	-107	DDR3-1866	933	1866	PC3-14900	13-13-13
-1GB	-107E	DDR3-1866	933	1866	PC3-14900	12-12-12
-1GC	-107F	DDR3-1866	933	1866	PC3-14900	11-11-11
-2G1	-093	DDR3-2133	1067	2133	PC3-17000	14-14-14
-2G2	-093E	DDR3-2133	1067	2133	PC3-17000	13-13-13
-2G3	-093F	DDR3-2133	1067	2133	PC3-17000	12-12-12

** -1GA = -1333 SPD with -125 tested DRAM
SPD = serial presence-detect pin (module only)

Package Codes

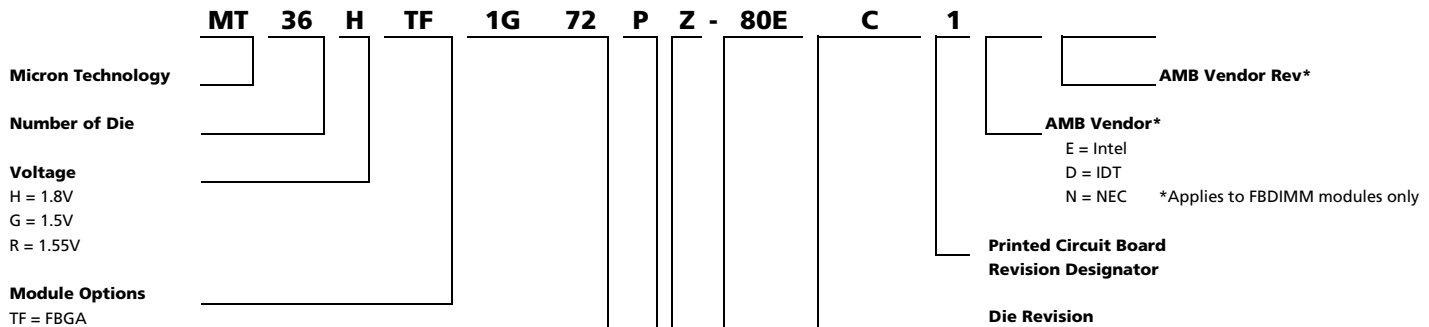| Pb-Free Devices	Package Descriptions
Y	Commercial temp; single-, dual- or quad-rank DIMM
Z	Halogen-free; commercial temp; single-, dual-, quad- or octal-rank DIMM
IZ	Halogen-free; Industrial temp, commercial temp; single-, dual- or quad-rank DIMM
TZ	Halogen-free; Industrial temp; select dual- and quad-rank DIMM
DY	Commercial temp; select dual- or quad-rank DIMM
DZ	Halogen-free; commercial temp; select dual-, quad- or octal-rank DIMM

Rev. 27-Nov-2018

Micron®

DDR2 Module Part Numbering System

*The part numbering system is available at **www.micron.com/numbering***

DDR2 SDRAM modules

MT 36 H TF 1G 72 P Z - 80E C 1

Micron Technology

Number of Die

Voltage
H = 1.8V
G = 1.5V
R = 1.55V

Module Options
TF = FBGA
TS = DDP (dual die in package)
TZS = Heatspreader DDP
VF = VLP (very low profile)
VS = VLP DDP
VZS = VLP Heatspreader DDP

Module Configuration
Depth, Width
Blank = Megabits
　G = Gigabits

Module Type
Blank = 240-pin registered DIMM
　A = 240-pin unbuffered DIMM
　F = 240-pin fully buffered DIMM
　H = 200-pin SODIMM
　P = 240-pin Parity RDIMM
　PK = 244-pin Parity MiniRDIMM
　RH = 200-pin SORDIMM

AMB Vendor Rev*

AMB Vendor*
E = Intel
D = IDT
N = NEC　　*Applies to FBDIMM modules only

Printed Circuit Board Revision Designator

Die Revision

DDR2 SDRAM Module Speed

Module Speed Grade	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Frequency (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-^{t}RCD-nRP)
-40E	-5E	DDR2-400	200	400	PC2-3200	3-3-3
-53E	-37E	DDR2-533	267	533	PC2-4200	4-4-4
-667	-3	DDR2-667	333	667	PC2-5300	5-5-5
-80E	-25E	DDR2-800	400	800	PC2-6400	5-5-5
-800	-25	DDR2-800	400	800	PC2-6400	6-6-6
-1GA	-187E	DDR2-1066	533	1066	PC2-8500	7-7-7

SPD = serial presence-detect pin (module only)

Package Codes

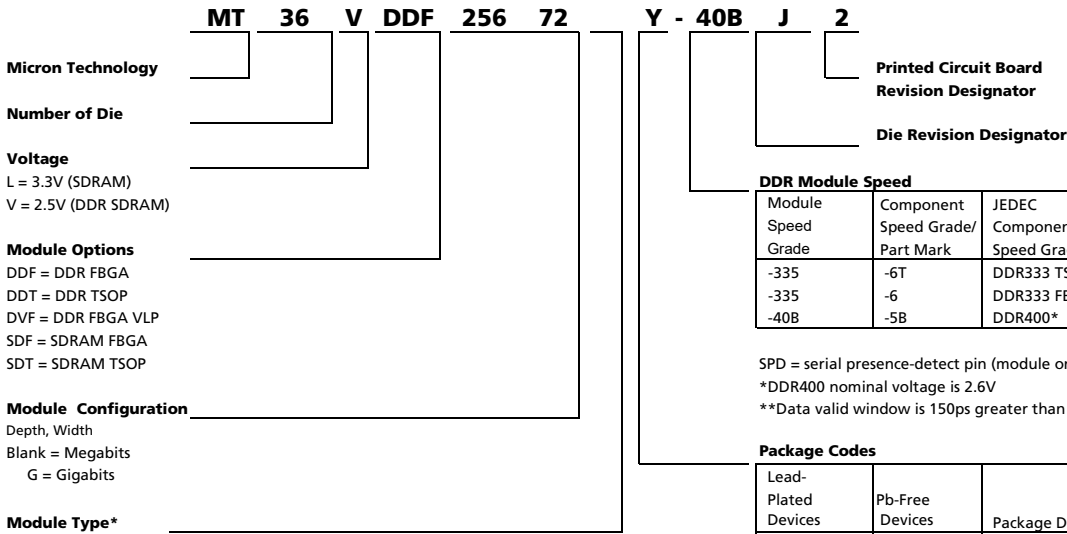| Pb-Free Devices	Package Descriptions
Y	Commercial temp; single- or dual-rank DIMM
Z.	Halogen-free; commercial temp; single- or dual-rank DIMM
DY	Commercial temp; select dual-rank
DZ	Halogen-free; commercial temp; select dual- or quad-rank DIMM
IY	Industrial temp; select single and dual-rank DIMM
TY	Industrial temp; select dual and quad-rank DIMM
IZ	Halogen-free; industrial temp; select single and dual-rank DIMM
TZ	Halogen-free; industrial temp; select dual and quad-rank DIMM

Rev. 27-Nov-2018

Micron®

DDR/SDRAM Module Part Numbering System

The part numbering system is available at **www.micron.com/numbering**

DDR/SDRAM modules

MT 36 V DDF 256 72 Y - 40B J 2

Micron Technology

Number of Die

Voltage
L = 3.3V (SDRAM)
V = 2.5V (DDR SDRAM)

Module Options
DDF = DDR FBGA
DDT = DDR TSOP
DVF = DDR FBGA VLP
SDF = SDRAM FBGA
SDT = SDRAM TSOP

Module Configuration
Depth, Width
Blank = Megabits
   G = Gigabits

Module Type*
Blank = 168-pin/184-pin/240-pin registered DIMM
   A = 168-pin/184-pin/240-pin unbuffered DIMM
   H = 144-pin/200-pin SODIMM
   PH = 144-pin/200-pin unbuffered SODIMM with PLLs
   U = 100-pin unbuffered DIMM

*All SDRAM and DDR DIMMs have serial-presence detect.

Printed Circuit Board Revision Designator

Die Revision Designator

DDR Module Speed

Module Speed Grade	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Frequency (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
-335	-6T	DDR333 TSOP	167	333	PC2700	2.5-3-3
-335	-6	DDR333 FBGA	167	333	PC2700	2.5-3-3**
-40B	-5B	DDR400*	200	400	PC3200	3-3-3

SPD = serial presence-detect pin (module only)
*DDR400 nominal voltage is 2.6V
**Data valid window is 150ps greater than -6T

Package Codes

Lead-Plated Devices	Pb-Free Devices	Package Descriptions
G	Y	Commercial temp; single- or dual-rank DIMM
DG	DY	Commercial temp; select dual-rank
I	IY	Industrial temp DIMM
T	TY	Industrial temp; select dual-rank DIMM

SDR Modules

Module Speed	Allowable Component Speed	CL-^{t}RCD-^{t}RP
-133	-6A, -75, -7E	3-3-3
-13E	-7E	2-2-2

DDR Modules

Module Speed	Allowable Component Speed
-335	-6, -6T, -5B
-40B	-5B

Micron®

DDR4 NVDIMM Part Numbering System

The part numbering system is available at **www.micron.com/numbering**

DDR4 SDRAM Nonvolatile modules

MT A 18 A SF 2G 72 XF 1 Z - 2G9 WP 1 AB
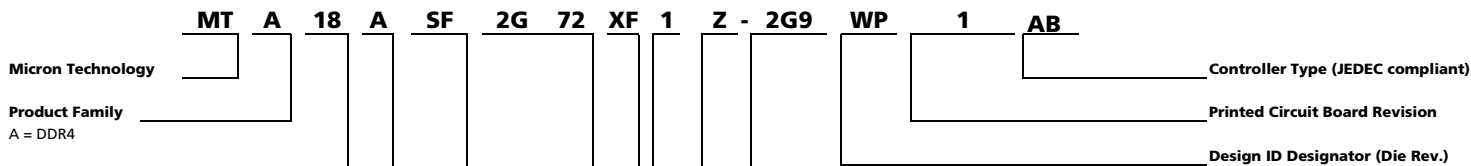
Micron Technology

Product Family
A = DDR4

Number of DRAM Die

Voltage
A = 1.2V

Module Options
SF = FBGA with temp sensor
SS = DDP with temp sensor
SQ = QDP with temp sensor
SZF = FBGA with temp sensor and heat spreader
SZS = DDP with temp sensor and heat spreader
SZQ = QDP with temp sensor and heat spreader
DZF = VLP (22mm) with temp sensor and heat spreader

Module Configuration
Depth, Width
Blank = Megabits
 G = Gigabits

Module Type
DDR4: PF = 288-pin parity NAND Based NVRDIMM (Save-N, with Pullup Resistor)
DDR4: XF = 288-pin parity NAND Based NVRDIMM (Save-N, No Pullup Resister)
DDR4: LF = 288-pin NAND Based NVLRDIMM

Controller Type (JEDEC compliant)

Printed Circuit Board Revision

Design ID Designator (Die Rev.)

DDR4/DDR3 SDRAM Module Speed

DRAM Technology	Module Speed Grade	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Freq. (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
DDR4 SDRAM	-1G6	-125E	DDR4-1600	800	1600	PC4-1600	11-11-11
	-1G9	-107E	DDR4-1866	933	1866	PC4-1866	13-13-13
	-1S9	-107H	DDR4-1866	933	1866	PC4-1866	14-13-13
	-2G1	-093E	DDR4-2133	1067	2133	PC4-2133	15-15-15
	-2S1	-093H	DDR4-2133	1067	2133	PC4-2133	16-15-15
	-2G3	-083	DDR4-2400	1200	2400	PC4-2400	17-17-17
	-2G4	-083E	DDR4-2400	1200	2400	PC4-2400	16-16-16
	-2G6	-075	DDR4-2666	1333	2666	PC4-2666	19-19-19
	-2G9	-068	DDR4-2933	1467	2933	PC4-2933	21-21-21
	-3G2	-062E	DDR4-3200	1600	3200	PC4-3200	22-22-22

SPD = serial presence-detect pin (module only)

Package Codes

Pb-Free Devices	Package Descriptions
Z	Halogen-free; commercial temp; single-, dual-, quad- or octal-rank DIMM
DZ	Halogen-free; commercial temp; select dual-, quad- or octal-rank DIMM
IZ	Halogen-free; Industrial temp, commercial temp; single-, dual- or quad-rank DIMM
TZ	Halogen-free; Industrial temp; select dual- and quad-rank DIMM

Flash Type
1 = Initial version of module
2–9 = Subsequent version of module with different Flash memory