

# SEMICONDUCTOR GENERAL CATALOG

## Memories and Storage Devices

NAND Flash Memory

# NAND Flash Memory

## SLC Small Block

Capacity	Part Number	Page Size (bit)	Block Size (bit)	Access Time		Program/Erase Time (typ.)		Power Supply (V)	Operating Temperature (°C)	Package
				Serial cycle (min) (ns)	1st access (max) (µs)	Program Time (ms)	Block Erase Time (ms)			
512 Mbits	TC58DVM92A5TA00 *	(512 + 16) x 8	(16K + 512) x 8	40	25	0.3	2.5	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
512 Mbits	TC58DVM92A5BAJ3 *	(512 + 16) x 8	(16K + 512) x 8	40	25	0.3	2.5	2.7 to 3.6	-40 to 85	P-TFBGA63-0813-0.80AZ
1 Gbits	TC58DVG02A5TA00 *	(512 + 16) x 8	(16K + 512) x 8	40	25	0.3	2.5	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
1 Gbits	TC58DVG02A5BAJ4 *	(512 + 16) x 8	(16K + 512) x 8	40	25	0.3	2.5	2.7 to 3.6	-40 to 85	P-TFBGA63-0911-0.80CZ

• Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

\*: New product

## SLC Large Block Middle Capacity

Capacity	Part Number	Page Size (bit)	Block Size (bit)	Access Time		Program/Erase Time (typ.)		Power Supply (V)	Operating Temperature (°C)	Package
				Serial cycle (min) (ns)	1st access (max) (µs)	Program Time (ms)	Block Erase Time (ms)			
512 Mbits	TC58NVM9S3ETA00 *	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
512 Mbits	TC58NVM9S3EBAI3 *	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	-40 to 85	P-TFBGA63-0813-0.80AZ
1 Gbits	TC58NVG0S3ETA00	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
1 Gbits	TC58NVG0S3EBAI4	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	-40 to 85	P-TFBGA63-0911-0.80CZ
2 Gbits	TC58NVG1S3ETA00	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
2 Gbits	TC58NVG1S3EBAI5	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	-40 to 85	P-TFBGA63-1013-0.80AZ
4 Gbits	TC58NVG2S3ETA00	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
4 Gbits	TC58NVG2S3EBAI5	(2048 + 64) x 8	(128K + 4K) x 8	25	30	0.3	2.5	2.7 to 3.6	-40 to 85	P-TFBGA63-1013-0.80AZ

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\*: New product

## SLC Large Capacity

Capacity	Part Number	Page Size (bit)	Block Size (bit)	Access Time		Program/Erase Time (typ.)		Power Supply (V)	Operating Temperature (°C)	Package
				Serial cycle (min) (ns)	1st access (max) (µs)	Program Time (ms)	Block Erase Time (ms)			
8 Gbits	TC58DVG3S0ETA00 *	(4096 + 218) x 8	(256K + 13.6K) x 8	25	30	0.4	3	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
16 Gbits	TH58DVG4S0ETA20 *	(4096 + 218) x 8	(256K + 13.6K) x 8	25	30	0.4	3	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50
32 Gbits	TH58DVG5S0ETA20 *	(4096 + 218) x 8	(256K + 13.6K) x 8	25	30	0.4	3	2.7 to 3.6	0 to 70	TSOP I 48-P-1220-0.50

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\*: New product

## e-MMC™\*1

The e-MMC series has an interface compatible with the JEDEC/MMCA V4.4/4.41 high-speed memory card standard, which simplifies its use as an embedded MMC memory in end products.

Capacity	Part Number	e-MMC Version	Speed (MHz)	Power Supply		Operating Temperature (°C)	Package
				Vcc (V)	VccQ (V)		
2 GBytes	THGBM3G4D1FBAI8 **	4.41	52	2.7 to 3.6	1.7 to 1.95, 2.7 to 3.6	-25 to 85	P-FBGA153-1113-0.50B4
4 GBytes	THGBM3G5D2FBAI8 **	4.41	52	2.7 to 3.6	1.7 to 1.95, 2.7 to 3.6	-25 to 85	P-FBGA169-1216-0.50A4
8 GBytes	THGBM2G6D2FBAI9	4.4	52	2.7 to 3.6	1.7 to 1.95, 2.7 to 3.6	-25 to 85	P-FBGA169-1216-0.50A4
16 GBytes	THGBM2G7D4FBAI9	4.4	52	2.7 to 3.6	1.7 to 1.95, 2.7 to 3.6	-25 to 85	P-FBGA169-1216-0.50A4
32 GBytes	THGBM2G8D8FBAI8	4.4	52	2.7 to 3.6	1.7 to 1.95, 2.7 to 3.6	-25 to 85	P-FBGA169-1216-0.50B4
64 GBytes	THGBM2G9DBFBAI2	4.4	52	2.7 to 3.6	1.7 to 1.95, 2.7 to 3.6	-25 to 85	P-FBGA169-1418-0.50B4

• e-MMC™ is the trademark of JEDEC/MMCA.

\*: New product

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## eSD (Embedded SD) \*1

The eSD series has an interface compatible with the SDA V3.0 (SDHC) SD card standard, which simplifies its use as an embedded SD-interface memory.

Capacity	Part Number	Speed (MHz)	Power Supply (V)	Operating Temperature (°C)	Package
1 GByte	THGVS4G3D1EBAI8	50	2.7 to 3.6	-25 to 85	P-FBGA153-1113-0.50A4
2 GByte	THGVS4G4D1EBAI4	50	2.7 to 3.6	-25 to 85	P-FBGA169-1218-0.50A4
4 GByte	THGVS4G5D2EBAI4	50	2.7 to 3.6	-25 to 85	P-FBGA169-1218-0.50A4
8 GByte	THGVS4G6D4EBAI4	50	2.7 to 3.6	-25 to 85	P-FBGA169-1218-0.50A4
16 GByte	THGVS4G7D8EBAI0	50	2.7 to 3.6	-25 to 85	P-FBGA169-1218-0.50A4
32 GByte	THGVS4G8D8EBAI2	50	2.7 to 3.6	-25 to 85	P-FBGA169-1418-0.50A4

• Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

\*1: NAND flash memories with an integrated controller, which supports error correction, wear leveling, bad block management and so on. This eliminates the need for external control specifically required for NAND flash and simplifies use of eSD.

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