AT25DF series
AT25DN series
Bios Flash Product Family

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AT25DF and AT25DN Series Offerings

PN	Density	Voltage	Interface	SSH	MAH	XMH
AT25DF256	256Kbit	1.65V - 3.6V	Dual SPI	●	●	●
AT25DF512C	512Kbit	1.65V - 3.6V	Dual SPI	●	●	●
AT25DF011	1Mbit	1.65V - 3.6V	Dual SPI	●	●	●
AT25DN256	256Kbit	2.3V - 3.6V	Dual SPI	●	●	●
AT25DN512C	512Kbit	2.3V - 3.6V	Dual SPI	●	●	●
AT25DN011	1Mbit	2.3V - 3.6V	Dual SPI	●	●	●

AT25F512B to AT25DN512C Comparison

AT25F512B

- Single 2.7V - 3.6V Supply
- Serial Peripheral Interface (SPI) Compatible
  - Supports SPI Modes 0 and 3
- 70 MHz Maximum Operating Frequency
  - Clock-to-Output (t_V) of 6 ns Maximum
- Flexible, Optimized Erase Architecture for Code + Data Storage Applications
  - Uniform 4-Kbyte Block Erase
  - Uniform 32-Kbyte Block Erase
  - Full Chip Erase
- Hardware Controlled Locking of Protected Sectors via $\overline{WP}$ Pin
- 128-Byte Programmable OTP Security Register
- Flexible Programming
  - Byte/Page Program (1 to 256 Bytes)
- Fast Program and Erase Times
  - 2.5 ms Typical Page Program (256 Bytes) Time
  - 100 ms Typical 4-Kbyte Block Erase Time
  - 500 ms Typical 32-Kbyte Block Erase Time
- Automatic Checking and Reporting of Erase/Program Failures
- JEDEC Standard Manufacturer and Device ID Read Methodology
- Low Power Dissipation
  - 6 mA Active Read Current (Typical at 20 MHz)
  - 5 µA Deep Power-Down Current (Typical)
- Endurance: 100,000 Program/Erase Cycles
- Data Retention: 20 Years
- Complies with Full Industrial Temperature Range
- Industry Standard Green (Pb/Halide-free/RoHS Compliant) Package Options
  - 8-lead SOIC (150-mil Wide)
  - 8-pad Ultra Thin DFN (2 x 3 x 0.6 mm)

AT25DN512C

- Single 2.3V - 3.6V Supply
- Serial Peripheral Interface (SPI) Compatible
  - Supports SPI Modes 0 and 3
  - Supports Dual Output Read
- 85MHz Maximum Operating Frequency
  - Clock-to-Output (t_V) of 7 ns
- Flexible, Optimized Erase Architecture for Code + Data Storage Applications
  - Uniform 256-Byte Page erase → New
  - Uniform 4-Kbyte Block Erase
  - Uniform 32-Kbyte Block Erase
  - Full Chip Erase
- Hardware Controlled Locking of Protected Sectors via $\overline{WP}$ Pin
- 128-Byte Programmable OTP Security Register
- Flexible Programming
  - Byte/Page Program (1 to 256 Bytes)
- Fast Program and Erase Times → Improved
  - 1.5ms Typical Page Program (256 Bytes) Time
  - 50ms Typical 4-Kbyte Block Erase Time
  - 400ms Typical 32-Kbyte Block Erase Time
- Automatic Checking and Reporting of Erase/Program Failures
- Software Controlled Reset → New
- JEDEC Standard Manufacturer and Device ID Read Methodology
- Low Power Dissipation → New
  - 200nA Ultra Deep Power Down current (Typical)
  - 5µA Deep Power-Down Current (Typical)
  - 25uA Standby current (Typical)
  - 5mA Active Read Current (Typical)
- Endurance: 100,000 Program/Erase Cycles
- Data Retention: 20 Years
- Complies with Full Industrial Temperature Range
- Industry Standard Green (Pb/Halide-free/RoHS Compliant) Package Options
  - 8-lead SOIC (150-mil)
  - 8-pad Ultra Thin DFN (2 x 3 x 0.6 mm)
  - 8-lead TSSOP Package → New

AT25DN512C is Backward Compatible with AT25F512B Command Set

Command	AT25F512B opcode	AT25DN512C opcode
Vcc	2.7V - 3.6V	2.3V - 3.6V
Read Array	0Bh	0Bh
Read Array	03h	03h
Dual-Output Read Array		3Bh
Page Erase		81h
Block Erase, 4KB	20h	20h
Block Erase, 32KB	52h	52h
Block Erase, 64KB	D8h	D8h
Chip Erase	60h	60h
Chip Erase	C7h	C7h
Chip Erase (Legacy)	62h	62h
Byte/Page Program	02h	02h
Write Enable	06h	06h
Write Disable	04h	04h
Program OTP Security Register	9Bh	9Bh
Read OTP Security Register	77h	77h
Read Status Register	05h	05h
Write Status Register Byte 1	01h	01h
Write Status Register byte 2		31h
Reset		F0h
Read Manufacturer and Device ID	9Fh	9Fh
Read ID (Legacy)	15h	15h
Deep Power-Down	B9h	B9h
Resume from Deep Power-Down	ABh	ABh
Ultra-Deep Power Down		79h

AT25DN512C Improved Performance and More Package Options

Command	AT25F512B opcode	AT25DN512C opcode
Page Program Time	5 msec Max	5 msec Max
Block Erase, 4KB	250 msec Max	120 msec Max
Block Erase, 32KB	1000 msec Max	1000 msec Max
Block Erase, 64KB	2 sec Max	1.2 sec Max
Chip Erase	2 sec Max	1.2 sec Max
Manufacture and Product ID	1F 65 00 00	1F 65 01 00
Status Register	2 bytes	2 bytes
MH		
SSH, SSU	SSH	SSH
SH, SU		
MAH (2x3x0.6mm)	MAH	MAH
XMH (TSSOP)		XMH

Software Change May be Required

The following change may require software change when migrating from AT25F512B to AT25DN512C

Product ID:

AT25F512B:	1F 65 00 00
AT25DN512C:	1F 65 01 00