

OTP and UV EPROM Products

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More Intelligent Solutions



OTP and UV EPROM Products

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LONG-TERM COMMITMENT



STMicroelectronics supports the **EPROM** market with a strong commitment and with a manufacturing capability which is able to provide super delivery and service to our customers. Continuous innovations in technology drive the expansion of the product portfolio, giving better performance, higher densities and lower voltage products.

64 Kbit to 64 Mbit

A world leading range of **OTP** and **UV EPROMs** ideal for development, production and mask ROM replacement.

- Unequalled high density range of both 5V and 3V types up to 64 Mbit
- Fast access times
- Standard 5V and 3V (2.7–3.6V) low voltage operation
- Ceramic windowed DIP, Plastic DIP and surface mounting packages

Device organizations include x8, x16 and x8/x16 types. **EPROM** is the most suitable solution for mask ROM replacement, bringing the advantage of flexibility for last minute programming of the latest software, without mask charges.

ADVANCED TECHNOLOGY AND PRODUCTION

ST's **EPROMs** benefit from an on-going, advanced research program with a technology roadmap that is continuously improving.

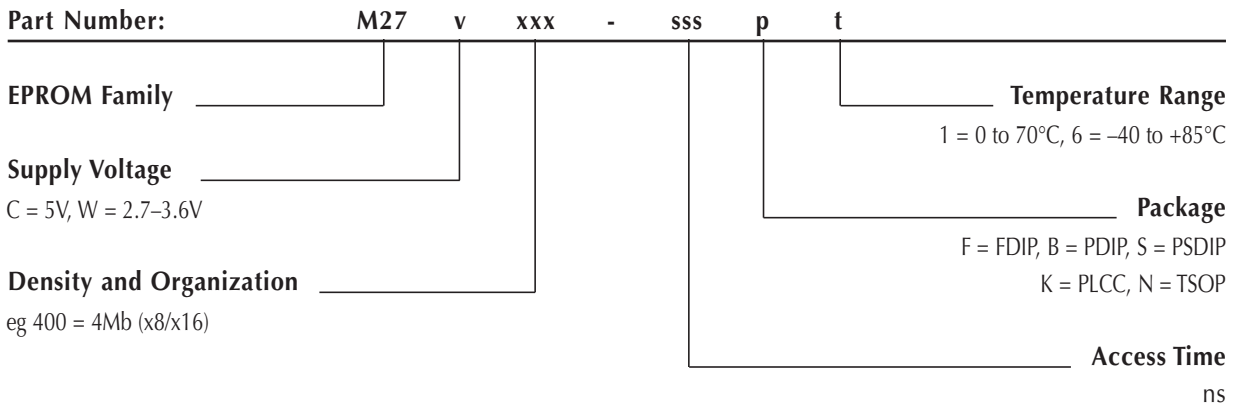
They also benefit from advanced architecture solutions such as Multi-Bit Cells recently introduced for the high density 64 Mbit.

Each new process includes several photolithographic innovations to achieve better electrical performance.



New 64 Mbit range of 5V EPROMs

HOW TO ORDER AN EPROM PRODUCT



PRODUCT PORTFOLIO

The product portfolio includes a standard range of 5V types and the innovative **Tiger Range** of 3V (2.7–3.6V) types.

Products from both ranges are available in the FDIP ceramic windowed and PDIP plastic dual-in-line packages, and in the PLCC and TSOP surface mounting packages.

OTP and UV EPROM, 5V Supply



Size	Ref	Description	Package
256Kb	M27C256B	256Kb (x8), 45 - 150ns	FDIP28W, PDIP28, PLCC32, TSOP28
512Kb	M27C512	512Kb (x8), 45 - 150ns	FDIP28W, PDIP28, PLCC32, TSOP28
	M27C516	512Kb (x16), 35 - 100ns	PLCC44, TSOP40B
1Mb	M27C1001	1Mb (x8), 35 - 150ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27C1024	1Mb (x16), 35 - 150ns	FDIP40W, PDIP40, PLCC44, TSOP40B
2Mb	M27C2001	2Mb (x8), 35 - 100ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27C202	2Mb (x16), 45 - 100ns	FDIP40W, PDIP40, PLCC44, TSOP40B
4Mb	M27C4001	4Mb (x8), 35 - 150ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27C4002	4Mb (x16), 45 - 150ns	FDIP40W, PDIP40, PLCC44, TSOP40A
	M27C400	4Mb (x8/x16), 50 - 100ns	FDIP40W, PDIP40
8Mb	M27C801	8Mb (x8), 45 - 150ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27C800	8Mb (x8/x16), 50 - 120ns	FDIP42W, PDIP42, PLCC44, S044
16Mb	M27C160	16Mb (x8/x16), 50 - 120ns	FDIP42W, PDIP42, PLCC44, S044
32Mb	M27C322	32Mb (x16), 50 - 100ns	FDIP42W, PDIP42, PSDIP42
	M27C320	32Mb (x8/x16), 50 - 100ns	TSOP48, S044
64Mb	M27C642	64Mb (x16), 80 - 100ns	FDIP42W, PDIP42
	M27C640	64Mb (x8/x16), 80 - 100ns	TSOP48



TIGER RANGE OTP and UV EPROM, 3V Supply

Size	Ref	Description	Package
256Kb	M27W256	256Kb (x8), 80ns (70ns/3V) - 100ns	FDIP28W, PDIP28, PLCC32, TSOP28
	M27W512	512Kb (x8), 80ns (70ns/3V) - 100ns	FDIP28W, PDIP28, PLCC32, TSOP28
1Mb	M27W101	1Mb (x8), 80ns (70ns/3V) - 100ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27W102	1Mb (x16), 80ns (70ns/3V) - 100ns	FDIP40W, PDIP40, PLCC44, TSOP40B
2Mb	M27W201	2Mb (x8), 80ns (70ns/3V) - 100ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27W202	2Mb (x16), 100ns (80ns/3V)	FDIP40W, PDIP40, PLCC44, TSOP40B
4Mb	M27W401	4Mb (x8), 80ns (70ns/3V) - 100ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27W402	4Mb (x16), 100ns (80ns/3V) - 120ns	FDIP40W, PDIP40, PLCC44, TSOP40A
	M27W400	4Mb (x8/x16), 100ns (80ns/3V) - 120ns	FDIP40W, PDIP40, PLCC44
8Mb	M27W801	8Mb (x8), 100ns (80ns/3V) - 120ns	FDIP32W, PDIP32, PLCC32, TSOP32A
	M27W800	8Mb (x8/x16), 100ns (90ns/3V)	FDIP42W, PDIP42, PLCC44

THE INNOVATIVE, LOW VOLTAGE TIGER RANGE

The innovative ST technology used for the low voltage **Tiger Range** of **OTP** and **UV EPROMs** includes structural improvements related to the thickness of key layers. This is done to achieve better electrical performance. A 25% reduction in the gate oxide thickness gives a lower cell threshold voltage which results in better access times at 2.7V supply voltage, over the full temperature range of -40 to +85°C.

With improved electrical performance, ST is able to supply better value products and recommends that customers replace “V” series, 3–3.6V types, with the higher performance “W” **Tiger Range**, 2.7–3.6V types. Access times for the **Tiger Range** are guaranteed at both 2.7V and 3V by double electrical testing.

The access time at 2.7V supply voltage is marked on the device and a faster access time at 3V is specified on the data sheet. The access times over the range 3–3.6V are always faster than the one specified for 2.7V operation.

Replacement of “V” series types with Tiger Range devices

“V” series type	Tiger Range device
M27V256	M27W256
M27V512	M27W512
M27V101	M27W101
M27V102	M27W102
M27V201	M27W201 M27W202
M27V401	M27W401
M27V402	M27W402
M27V400	M27W400
M27V801	M27W801
M27V800	M27W800

New Tiger Range Products

The **Tiger Range** has recently been extended to include four new products:

- M27W256 - 256Kb (x8)
- M27W202 - 2Mb (x16)
- M27W400 - 4Mb (x8/x16 selectable)
- M27W800 - 8Mb (x8/x16 selectable)

Very Low Power Consumption

The **Tiger Range UV** and **OTP EPROMs** feature a very low power consumption at high frequencies of operation, together with fast access and programming times. Programming times for Word-wide devices are the same as for Byte-wide types.

For the newly introduced 4 Mbit and 8 Mbit densities the programming speed has been improved to 50µsec per Word or Byte.



Ref	Size (Org)	Power Consumption	Access Speed	Programming Speed
M27W256	256Kb (x8)	15mA @ 5MHz	80ns (70ns/3V)	100µs/Byte
M27W512	512Kb (x8)	15mA @ 5MHz	80ns (70ns/3V)	100µs/Byte
M27W101	1Mb (x8)	15mA @ 5MHz	80ns (70ns/3V)	100µs/Byte
M27W102	1Mb (x16)	15mA @ 5MHz	80ns (70ns/3V)	100µs/Word
M27W201	2Mb (x8)	15mA @ 5MHz	80ns (70ns/3V)	100µs/Byte
M27W202	2Mb (x16)	20mA @ 5MHz	100ns (80ns/3V)	100µs/Word
M27W401	4Mb (x8)	15mA @ 5MHz	80ns (70ns/3V)	100µs/Byte
M27W402	4Mb (x16)	15mA @ 5MHz	100ns (80ns/3V)	100µs/Word
M27W400	4Mb (x8/x16)	20mA @ 8MHz	100ns (80ns/3V)	50µs/Word
M27W801	8Mb (x8)	15mA @ 5MHz	100ns (80ns/3V)	50µs/Byte
M27W800	8Mb (x8/x16)	30mA @ 8MHz	100ns (90ns/3V)	50µs/Word

Pin Compatible 5V and 3V

The low voltage **Tiger Range** products are pin compatible with the 5V **UV** and **OTP EPROM** standard range. This ensures that they are suitable for every application where the microprocessor is moving from 5V to 3V supply voltage.

3V Ref	Size (Org)	5V Ref
M27W256	256Kb (x8)	M27C256B
M27W512	512Kb (x8)	M27C512
M27W101	1Mb (x8)	M27C1001
M27W102	1Mb (x16)	M27C1024
M27W201	2Mb (x8)	M27C2001
M27W202	2Mb (x16)	M27C202

3V Ref	Size (Org)	5V Ref
M27W401	4Mb (x8)	M27C4001
M27W402	4Mb (x16)	M27C4002
M27W400	4Mb (x8/x16)	M27C400
M27W801	8Mb (x8)	M28C801
M27W800	8Mb (x8/x16)	M27C800

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APPLICATION SOLUTIONS

EPROM memories are acknowledged world-wide as highly flexible commodity products, with each device being suitable for a wide variety of different applications.

They provide the optimum solution for several key applications in the computer and consumer market segments.

Networking and printer solutions - 4 Mbit

The 4 Mbit types, with their two alternative organizations of x16 and x8/x16 selectable, are ideally suited for printer applications.

The x8 organization version has been selected for use in emerging network equipments like hub, routers and switches. Available in the ceramic windowed FDIP and the plastic PDIP and PLCC packages, they are pin-to-pin compatible with the majority of competitors' OTP and mask ROM products on the market.





Leading supplier for DVD - 16 Mbit

The high density 16 Mbit **EPROM** is the best solution for emerging video applications such as HDTV and DVD systems. With an organization of x8/x16, it is compatible with many 16 Mbit mask ROMs.



High Density for Games 16, 32, 64 Mbit

Today's systems are providing higher resolution images and improved fidelity sound effects. An high density **EPROM** is ideally suited for these processing systems, which require large amounts of data storage.

The high density **EPROMs** are also ideal for non-portable systems where high density ROM was previously used, such as game machines and musical instruments.

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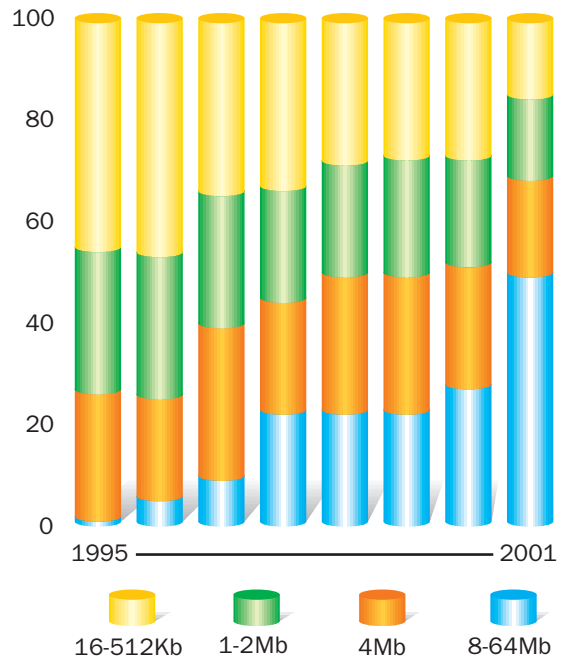
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THE MOVE TO HIGH DENSITY AND MASK ROM REPLACEMENT

For many years there has been a clear trend to higher densities. ST has responded to this demand by developing both the technologies and products to meet customer design needs.

EPROM high density memories, with their growing variety of package options - both through hole and surface mounting - and their advanced electrical performance, are the best solutions for many applications. These include games, VCRs, DVDs, printers, EMI, fax machines and many others.

The flexibility of **EPROMs**, which have lower inventory costs and can be programmed with the latest versions of system software on the production line, means that many customers now prefer them to mask ROMs. The ST **EPROM** range includes many types which can easily be used to replace mask ROM devices.



The move to higher density EPROMs (%)

High density EPROMs and Mask ROM Replacements

Ref	Organization	Access Speed	Power Consumption
5V			
M27C801	x8	45ns	35mA @ 5MHZ
M27C800 *	x8/x16	50ns	70mA @ 8MHz
M27C160 *	x8/x16	50ns	70mA @ 8MHz
M27C322 *	x16	50ns	50mA @ 5MHz
M27C320 *	x8/x16	50ns	70mA @ 8MHz
2.7V min			
M27W801 *	x8	100ns (80ns/3V)	15mA @ 5MHz
M27W800 *	x8/x16	100ns (90ns/3V)	30mA @ 8MHz

* Mask ROM replacements



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Full Product Information at www.st.com



ORDER CODE: BREPROM/0101