

STMicroelectronics EEPROMs & Non-Volatile RAMs



STMicroelectronics

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Memory

STMicroelectronics

DUAL INTERFACE EEPROMS

Dual Interface EEPROMs from STMicroelectronics are an innovative family of memories that provides new features and capabilities. The EEPROM memory bank can be accessed either by a standard I2C interface or by an ISO 15693 RF interface. In this way, you can remotely update electronic product parameters anytime during their lifetime, anywhere in the supply chain or at the end user. The ISO 15693 RF interface is based on a passive RFID technology that does not require a battery or power to operate, as it gets both the energy and the data stream from the RF reader. This enables on-board energy savings and provides easy and convenient remote access to electronic product parameters. Based on two proven industry-standard interfaces, Dual Interface EEPROM products also feature a unique and flexible data protection scheme that protects some or all of the information contained in the memory.

Features:

- 12C Interface
- Two-wire I2C serial interface supports 400 kHz protocol
- Single supply voltage: -1.8 V to 5.5 V
- Byte and Page Write (up to 4 bytes)
- Random and Sequential Read modes
- Self-timed programming cycle
- Automatic address incrementing
- Enhanced ESD/latch-up protection

Contactless Interface

- ISO 15693 and ISO 18000-3 mode 1 compliant
- 13.56 MHz $\pm 7k$ Hz carrier frequency
- To tag: 10% or 100% ASK modulation using 1/4 (26Kbit/s) or 1/256 (1.6 Kbit/s) pulse position coding
- From tag: load modulation using Manchester coding with 423 kHz and 484 kHz subcarriers in low (6.6 Kbit/s) or high (26 Kbit/s) data rate mode. Supports the 53 Kbit/s with Fast commands

Memory

- 64 Kbit EEPROM organized into: 8192 bytes in IC mode, 2048 blocks of 32 bits in RF mode
- Write time: IC: 5 ms (Max), RF: 5.75 ms including the internal Verify time
- More than 1 Million erase/write cycles in I2C mode
- More than 100 000 erase/write cycles in RF mode
- Multiple password protection in RF mode
- Single password protection in I2C mode
- More than 40-year data retention

For quantities of 250 and up, call for quote.

MOUSER STOCK NO.	STMicroelectronics Part No.	Package Type	Density	Interface		Clock Freq. (Max)(kHz)	Temp. Range (°C)	Supply Voltage (V)	Price Each		
				I2C	RF - ISO				1	10	100
Surface Mount											
511-M24LR64-RMN6T/2	M24LR64-RMN6T/2	SO-8	64K	2-Wire	15693/18000-3	400	-40 to +85	5.0			
511-M24LR64-RDW6T/2	M24LR64-RDW6T/2	TSSOP-8	64K	2-Wire	15693/18000-3	400	-40 to +85	5.0			
511-M24LR64-RMR6T/2	M24LR64-RMR6T/2	DFPN-8	64K	2-Wire	15693/18000-3	400	-40 to +85	5.0			

STARTER, DEMONSTRATION AND DEVELOPMENT KITS

ST provides tools for system designers to evaluate Dual Interface EEPROM product features, in particular for the first device introduced, the M24LR64. Those tools help customers determine the remote operating distance they can expect from the device and the impact of the reader antenna, as well as impact of reader and IC antenna sizes on the overall system performance. They also allow evaluation of interaction of I2C and RF modes, entire memory, partitioning, lock mechanisms and password protection. All tools come with an I2C programmer, an RF reader, two different M24LR64 reference antennas with PC connector. Connections to host computers are USB based.

MOUSER STOCK NO.	STMicroelectronics Part No.	Description	Price Each
511-STARTKIT-M24LR-A	STARTKIT-M24LR-A	Starter (evaluation, proof-of-concept) kit for M24LR series	
511-DEMOKIT-M24LR-A	DEMOKIT-M24LR-A	Demonstration kit for M24LR series dual interface EEPROMs	
511-DEVKIT-M24LR-A	DEVKIT-M24LR-A	Development (advanced evaluation) kit for M24LR series	

ZEROPOWER® NON-VOLATILE RAMS

ZEROPOWER® NVRAMs combine Low Power SRAMs and Automatic Battery Switchover and Write Protect circuits to implement Non-Volatile RAMs. They can be used just like standard SRAMs, but retain their contents when power is removed. Densities range from 16Mbits down to 16Kbits.

For quantities of 250 and up, call for quote.

MOUSER STOCK NO.	STMicroelectronics Part No.	Package Type	Density	Organization	Access Time(ns)	Temp. Range (°C)	Supply Voltage (V)	Nominal Battery Cap.(mAh)	Price Each		
									1	10	100
Surface Mount											
511-M48Z58Y-70MH1E	M48Z58Y-70MH1E	SOH-28	64K	8K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48Z35Y-70MH1E	M48Z35Y-70MH1E	SOH-28	256K	32K X 8	70	0 to 70	4.5 to 5.5	-			
Thru Hole											
511-M48Z0270PC1	M48Z02-70PC1	PCDIP-24	16K	2K X 8	70	0 to 70	4.75 to 5.5	-			
511-M48Z0215PC1	M48Z02-150PC1	PCDIP-24	16K	2K X 8	150	0 to 70	4.75 to 5.5	-			
511-M48Z1270PC1	M48Z12-70PC1	PCDIP-24	16K	2K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48Z1215PC1	M48Z12-150PC1	PCDIP-24	16K	2K X 8	150	0 to 70	4.5 to 5.5	-			
511-M48Z0810PC1	M48Z08-100PC1	PCDIP-28	64K	8K X 8	100	0 to 70	4.75 to 5.5	-			
511-M48Z1810PC1	M48Z18-100PC1	PCDIP-28	64K	8K X 8	100	0 to 70	4.5 to 5.5	-			
511-M48Z58Y70PC1	M48Z58Y-70PC1	PCDIP-28	64K	8K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48Z5870PC1	M48Z58-70PC1	PCDIP-28	64K	8K X 8	70	0 to 70	4.75 to 5.5	-			
511-M48Z35Y70PC1	M48Z35Y-70PC1	PCDIP-28	256K	32K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48Z3570PC1	M48Z35-70PC1	PCDIP-28	256K	32K X 8	70	0 to 70	4.75 to 5.5	-			
511-M48Z128Y70PM1	M48Z128Y-70PM1	DIP-32 Module	1M	128K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48Z128Y85PM1	M48Z128Y-85PM1	DIP-32 Module	1M	128K X 8	85	0 to 70	4.5 to 5.5	-			
511-M48Z128Y70PM1	M48Z128-70PM1	DIP-32 Module	1M	128K X 8	70	0 to 70	4.75 to 5.5	-			
511-M48Z512AY70PM1	M48Z512AY-70PM1	DIP-32 Module	4M	512K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48Z512A70PM1	M48Z512A-70PM1	DIP-32 Module	4M	512K X 8	70	0 to 70	4.75 to 5.5	-			
Snapshot Battery and Crystal for Realtime Clocks											
511-M4Z28BR00SH1	M4Z28-BR00SH1	SH-28For SOH-28	ZeroPower SRAMs 0 to 70				-	48.0			

TIMEKEEPER® NON-VOLATILE RAMS

TIMEKEEPER® NVRAMs build on ST's ZEROPOWER® NVRAMs by adding non-volatile Real-Time Clocks. The Automatic Battery Switchover and Write Protect circuits are extended to the RTC section where counter-registers keep track of year, month, day, date, hours, minutes, and seconds. A low-power 32KHz oscillator provides the timing. It is optimized to draw only a tiny amount of current - as low as 40nA - so it adds only a small additional load to the battery. The RTC registers are mapped into the LPSRAM. Eight to 16 bytes of the LPSRAM are replaced by the RTC registers. The day, date, and time are read and written just like RAM locations.

For quantities of 250 and up, call for quote.

MOUSER STOCK NO.	STMicroelectronics Part No.	Package Type	Density	Organization	Access Time(ns)	Temp. Range (°C)	Supply Voltage (V)	Nominal Battery Cap.(mAh)	Price Each		
									1	10	100
Surface Mount											
511-M48T08Y-10MH1E	M48T08Y-10MH1E	SOH-28	64K	8K X 8	100	0 to 70	4.5 to 5.5	-			
511-M48T35AV-10MH1E	M48T35AV-10MH1E	SOH-28	256K	32K X 8	100	0 to 70	3.0 to 3.6	-			
511-M48T35Y-70MH1E	M48T35Y-70MH1E	SOH-28	256K	32K X 8	70	0 to 70	4.5 to 5.5	-			
Thru Hole											
511-M48T0270PC1	M48T02-70PC1	PCDIP-24	16K	2K X 8	70	0 to 70	4.75 to 5.5	-			
511-M48T0220PC1	M48T02-200PC1	PCDIP-24	16K	2K X 8	200	0 to 70	4.75 to 5.5	-			
511-M48T5870PC1	M48T58-70PC1	PCDIP-28	64K	8K X 8	70	0 to 70	4.75 to 5.5	-			
511-M48T0810PC1	M48T08-100PC1	PCDIP-28	64K	8K X 8	100	0 to 70	4.75 to 5.5	-			
511-M48T1810PC1	M48T18-100PC1	PCDIP-28	64K	8K X 8	100	0 to 70	4.5 to 5.5	-			
511-M48T35Y70PC1	M48T35Y-70PC1	PCDIP-28	256K	32K X 8	70	0 to 70	4.5 to 5.5	-			
511-M48T3570PC1	M48T35-70PC1	PCDIP-28	256K	32K X 8	70	0 to 70	4.75 to 5.5	-			
Snapshot Battery & Crystal for Timekeeper Non-Volatile RAMs											
511-M4T28BR12SH1	M4T28-BR12SH1	SH-28For SOH-28	44 realtime clocks 0 to 70				-	48			
511-M4T32BR12SH1	M4T32-BR12SH1	SH-28For SOH-28	44 realtime clocks 0 to 70				-	120			
511-M4T32-BR12SH6	M4T32-BR12SH6	SH-28For SOH-28	44 realtime clocks -40 to +85				-	120			