Serial EEPROM for Automotive
New Advanced series

More parameters, quicker, safer

http://www.st.com/automotiveEEPROM
Good reasons to use EEPROM in cars

Applications in cars become Smarter, Customized and need Datalogging
Parameters are multiplying quickly…

- **Flexible for parameter update**
- **Adapts easily with scalability in package and densities**
- **High endurance Cycling - Retention**
- **Reliable device suited for 0 defect approach**

External EEPROM is the first choice for high quality and flexible parameter management
ST EEPROM every where in cars

**Powertrain**
- Engine management, transmission control
- Fuel pumps/gauge, exhaust control
- Hybrid power management

**Audio/Infotainment/Telematics**
- AM/FM Tuner, Digital radio, Amplifiers
- Navigation, Passenger entertainment, Emergency/crash call

**ADAS**
- Rear and Front Camera, Night vision
- Radars, blind spot detection, line deviation
- Head up displays, Head lamp control

**Body & Comfort**
- Junction box, gateway, Keyless Entry
- Aircon, Door, Seat, Roof modules
- Dashboard, cockpit, face plate

**Safety/Chassis**
- Airbag, Occupant detection, Pedestrian safety
- ABS, ESP, active suspension
- Steering, Drive by Wire
- Electric parking brake, TPMS
- Black box, Event recording

Traceability, calibration tables, manufacturing and user settings, error flags, event recording, datalogging, easy and flexible for parameter management
EEPROM families

**SPI, preferred interface**
- M95xxx-A125
- M95xxx-A145
  - Robust interface
  - Easy for upgrade
  - Fast: up to 20MHz clock rate
  - High temperature up to 150°C
  - All automotive applications

**I2C, 2 wires interface**
- M24xxx-A125
  - Low cost 2 wires interface
  - Easy for upgrade
  - Slow: 1MHz clock rate
  - 125°C
  - ADAS, Body, multimedia and infotainment

**Microwire**
- M93Cxx-A125
  - Robust interface
  - Limited to 16Kbit
  - Slow: 2MHz clock rate
  - 125°C
  - All automotive applications
Small packages

**SO8N**
- 6mm x 5mm
- Thickness 1,75mm
- 80mg
- Fits up to 2Mbit

**TSSOP8**
- 6,4mm x 3mm
- Thickness 1,2mm
- 34mg
- Fits up to 1Mbit

**WFDFPN8**
- 3mm x 2mm
- Thickness 0,8mm
- 16mg
- Fits up to 512Kbit

**Qualified AEC-Q100 Grade 0**

Dimension at scale
ST EEPROM – Automotive grade

+++ Long term commitment +++

Advanced proven technologies

Robust designs
Built-in quality and Reliability

Safe launch
In volume with consumer segment

AEC-Q100
Grade 0
PPAP level3

High Reliability
Test Flow
0 defect
## Advanced series Portfolio

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Advanced series features

- 1 Mbit in TSSOP8
- SPI in package 145°C
- 512 Kbit in WFDFPN8
- WFDFPN8 125°C
- 1.8V to 5.5V
- SPI 20MHz
- I2C 1MHz
- 4 million cycles per cell
- Write time 4ms
- Error Code Correction
- Software identification
- AEC-Q100 Grade 0
- Lockable page
## Benefits Advanced series

| Complete offer | • 1 Kbit up to 1 Mbit and 3 serial interface SPI, I2C, Microwire  
  • Small low pin count packages: SO8N, TSSOP, WFDFPN8 |
| 145°C in package | • Designed to run at very high temperature in SO8N or TSSOP packages  
  • Flexibility to choose a same product in 125°C or 145°C range |
| Faster Application | • 20MHz max. clock frequency => gain 50% time in communications  
  • Short Write time at 4ms => Store 20% more parameters in same time |
| Wake Up | • Up to 4 million cycles per byte  
  • Over 100 million cycles per device => EEPROM as efficient datalogger |
| For Datalogging & Monitoring | • New Identification page enables software id => ease platform approach  
  • Write Lockable page to store and protect sensitive data in a safer way. |
| Identification & Data protection | • Lower consumption in read and write mode  
  • Power supply 1.8V at 125°C |
| Low power | • AEC-Q100 Grade 0 qualification for all products  
  • Error Correction Code and over 100 years data retention  
  • 100% Cold, Hot and Ambient testing |
| 0 defect |  
  

Thank you!

ST stands for life.augmented