



## Card



### The Mifare®

range of secure, contactless memory cards (ISO 14443 A) is based on ICs with Mifare® protocol and security, with the added benefit of ASK's advanced manufacturing process and a large installed base of readers.

**Mifare® cards** are used for access control and electronic ticketing on public transport networks.

## Mifare® Classic 1k & 4k Secure Memory Card

### Card body

- PVC/PET matt/glossy
- 50.000 bending qualification tests
- Damage traceability
- Thickness standard/thin

### Standards

- ISO 14443 A
- Mifare® communication protocol
- ISO 10373 card body

### Feature

- 1k or 4kBytes EEPROM
- Mifare® cryptographic algorithms
- Graphical and electrical personalization

### Option

- PET Body
- 4 colors printing
- Magnetic stripe
- Signature panel
- Thermo rewrite coating





## Worldwide application

Mifare® Classic was the first IC to be used in Public transport ticketing systems in Korea. ASK Mifare® cards and ASK readers have been selected by major operators in Europe, Asia and America for their quality and reliability.

## Physical characteristics

- ISO 7816 / ISO 7810 ID1
- 85.5 x 54 mm
- Thickness < 0.9 mm
- Resistance to chemicals: compliant with ISO 10373 standard
- Thin card 0.6 mm

## Material

- PVC with antenna printed on paper insert
- PET optional for extended temperature range
- 1000 bending and torsion cycles tests in production
- 50.000 bending cycles tests in qualification
- Patented damage traceability
- Global lifetime: 2 years in normal usage

## Electrical

- ISO 14443 type A modulation
- Communication distance: up to 10 cm with CPL 4XX readers
- Communication speed: 106 kbit/s
- Number of reads: unlimited
- Number of writes: 100.000
- Data retention: 10 years
- Temperature: -25°C to +50°C

## Security features

- Mifare® cryptographic algorithms
- 16 bits CRC per block
- Parity bits for each byte
- Bit count checking

## Memory organization

- MF1K: 1 kByte EEPROM  
16 sectors of 4 blocks
- MF4K: 4 kBytes EEPROM  
32 sectors of 4 blocks  
8 sectors of 16 blocks
- Security: sector protected by 2 keys each

## Graphical personalization

- Artwork printing: offset litho (4 colors) or screen printing
- Post printing: compatible with thermal transfer printing
- Finishing: transparent matt overlay recommended for intensive usage

