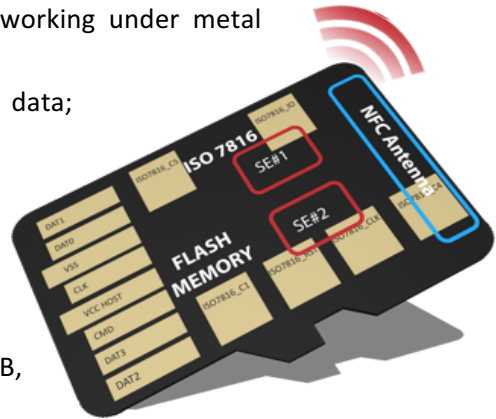


Contactless smart microSD (LGM Card) Data Sheet

General Description

LGM Card is contactless smart microSD card with three unique features:

- embedded high performance NFC antenna that provides contactless communication via NFC interface and perfectly working under metal covers;
- two independent secure chips to store sensitive data; and
- ISO 7816 contacts on its which can be used for physical access to secure chips during pre-personalization and personalization.



LGM Card is also a standard memory card that provides 4GB, 8GB or 16GB memory for the user.

Basic Technical Characteristics

LGM Card – Gen 1 are available for pilots.

Form Factor	SDHC microSD card, Speed Class 10, Bus interface UHS50 (UHS-I)
Flash Controller	32-bit RISC microprocessor, PS8033
Flash Memory	Toshiba NAND 19nm
Type MSD-101BA	SE#1: NXP J5C145, JCOP 2.4.2 R1, 145 KB EEPROM memory, MIFARE Flex® (4K) SE#2: NXP J5D081, JCOP 2.4.2 R2, 80 KB EEPROM memory, MIFARE® DESFire® EV1 8K
NFC Antenna	ISO 14443A, ISO 18092, Compliant with MIFARE®
Interfaces Standards Applets	Standard microSD interface, ISO 14443A, ISO 7816 Global Platform Card Specification v.2.1.1, Security certification: CC EAL5+ MasterCard (MMPP), VISA (VMPA), Mifare4Mobile (M4M)

LGM Card – Gen 2 will be available in configurations with 1 or 2 SE (SWP) from various vendors.

Basic Physical Characteristics

Size	L:15 x W:11 x T:1 mm (standard)
Weight	Maximum 1g
Operating temperature	0° to -70°C
Operating voltage range	2.7-3.6 V (standard)
Communication interface	8-pin interface (standard)

On the bottom side, the LGM microSD has:

- six ISO 7816 contacts (external ISO 7816 interface) used for contact personalization of the secure chips; and,
- eight standard microSD pins which connect the LGM Card to a mobile phone

During contact personalization via ISO7816 contacts the LGM Card has to be inserted in a plastic ID-1 size carrier



Basic Functions

Some unique technical features that are the subject of patent protection of the product characterize LGM Card construction:

- Existence of two mutually interconnected SmartCard chips with independent encryption keys and independent access to them.
- Contact interconnection of SmartCard chips enables contact payments within an SD card using an ISO7816 internal bus.
- Unique antenna design enables reception and the emission of radio signal for contactless communication (including contactless payments).
- μ SD card sandwich design enabling concentration of all necessary hardware SD card components in its body.
- The routine features of the SD card are electric power supply from the phone and data contact connection with the phone enabling cooperation with this device.
- The existence of external contacts on μ SD card in accordance with ISO7816 standard and placement of the card into a plastic carrier with size identical to a payment card. This kind of design enables the μ SD card to be personalized on existing personalization machines.

LGM Card Antenna

LGM Card has embedded an active NFC antenna supporting ISO 14443A CE mode. It uses power from phone battery to operate and is being switched on from the mobile wallet application and used only during NFC use-case (payment, gate entry, door access etc.). After that the antenna is switched off.

LGM Card Software Specification

LGM Card MobileAPI is a library developed by SMK-LOGOMOTION Corporation and used for communication between LGM Card and mobile phone application. It provides functions for contact communication between mobile phone and Secure elements inside the LGM Card over SD interface (APDU commands) and to control of NFC module of the LGM Card (e.g. settings of the NFC antenna, monitoring the status of the NFC field, etc.). LGM Card MobileAPI package will be provided based on signed SW License and Distribution Agreement.