



Machine to Machine Identity Modules
USIM Quad Short Product Information



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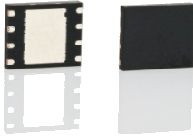
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1. Overview

The USIM Quad is a Machine Identity Module (MIM) designed for M2M applications requiring a miniaturized SIM. The USIM Quad MIM is designed to avoid usage of a SIM socket (direct soldering on device's printed circuit board).



This MIM has a specific form factor (DFN-8, also called SON-8, and previously called VQFN-8 in some documents) defined as MFF2 in the ETSI M2M UICC standard (TS 102.671).

2. Physical characteristics

packaging	ETSI MFF2 (DFN8 / SON8 / VQFN-8)
Package size	6 mm x 5 mm
Operating temperature	-25°C to + 85°C
Storage temperature	-25°C to + 85°C
Operating System	2G/3G, Javacard
Supply Voltage	Supply voltage class A (5V), B (3V) & C (1.8V)
Communication protocol	ISO T=0
PPS procedure	Default speed: 223200 bds at 3.57 MHz. Max. speed: 446400 bds at 3.57 MHz.
Available EEPROM sizes	64k, 128k or 256k

3. Embedded Security

Authentication algorithms	Comp128-v1, v2, v3, v4. Milenage
Symmetric algorithms	DES, 3DES, AES
Hashing functions	SHA-1
SW & HW Counter-measures	Single power attacks (SPA) Differential power attacks (DPA) Fault attacks (FA)

4. Soldering Profile

- MSL3 package
- Compliant with standard JEDEC J-STD-020C:
- Package classification reflow temperature: 260°C
- Lead free packaging compliant to the European Directive for Restriction of Hazardous Substances (RoHS directive).

5. Packaging and personalization

5.1. Graphical personalization

Gemalto proposes to personalize characters thanks to laser technology on the top of the Full M2M Quad package.



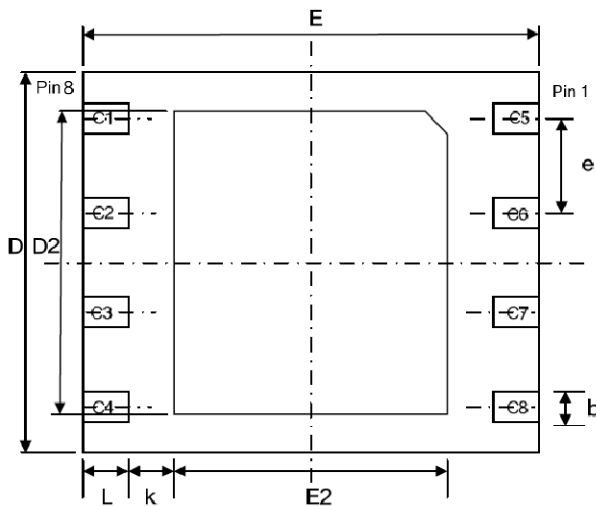
First line is reserved for silicon provider traceability

2 lines of 10 characters maximum for customer personalization
We strongly recommend printing a visual identifier (ICCID for example).

1 line for MNO identifier (TRIGRAM).

5.2. Package dimensions

Package dimensions are compliant with ETSI TS 102.671 MFF2



Parameter	Dimensions (mm)
E	6,00 ± 0,15
D	5,00 ± 0,15
L	0,60 ± 0,15
b	0,40 ± 0,10
E2	min 3,30
D2	min 3,90
k	min 0,20
e	1,27 for tolerances see parameters bbb and ddd
bbb	0,10
ddd	0,05



Max 0,9mm

5.3. PIN outline

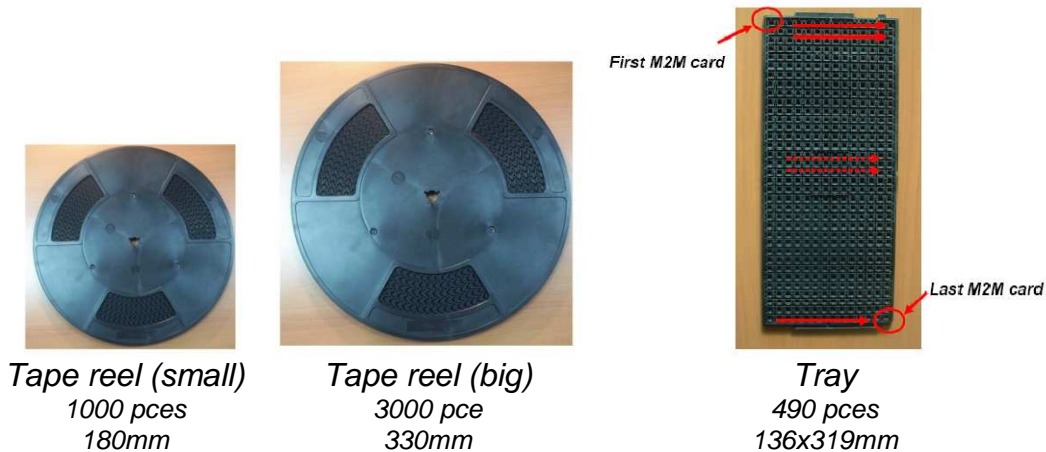
PIN configuration is compliant with MFF2 ETSI specifications (M2M UICC - TS102.671).

Pin #01 = VSS
Pin #03 = I/O
Pin #06 = CLK
Pin #07 = RST
Pin #08 = VDD

5.4. Handling & Packing

- Package outline according to JEDEC MO-220
- Moisture sensitivity characterization: MSL level 3 (168h after bag opening) with 220°C peak temperature (with limited duration for floor life)

Gemalto delivers volumes using tape reel packing method. However, Gemalto is able to deliver small quantities (less than 500 units) using tray packing method.



According to MSL3, reels (or trays) are packaged in anti-static moisture-barrier bags, vacuum sealed and including 2 drying desiccant bags and a humidity indicator.



According to MSL3, once bags are sealed in Gemalto premises, they can be kept a maximum of 12 months (at max 40°C/90%RH) before being opened, and once opened, the products it contains has to be soldered in maximum 168h.