MF1 MOA2 S50

Contactless chip card module addendum

Rev. 3.3 — 18 December 2006
030533

1. General description

1.1 Addendum

This document gives specifications for the product MF1 MOA2 S50.

The MF1 MOA2 S50 is the integrated circuit MF1 ICS50 in the package SOT500AA1.

Therefore this document encompasses all information not covered by the specification of the package and/or the functional specification of the integrated circuit.

Detailed information on the package is given in the "Contactless chip card module specification.

Functionality of the integrated circuit is described in the "MF1 IC S50 functional specification".

1.2 Chip

Functionality of the integrated circuit is described in the document "MF1 IC S50 functional specification".

2. Applications

The MF1 MOA2 S50 contactless chip card module has to be connected to a coil at pads La, Lb defined in the application note „mifare (card) coil design guide" by NXP Semiconductors.

3. Ordering information

Table 1.   Ordering information

Type number	Package		
	Name	Description	Ordering Code
MF1 MOA2 S50 /D/3	MOS4, ASMC		12 NC: 9352 616 11118
MF1 MOA2 S50 /D3F	PSF		12 NC: 9352 722 12118
MF1 MOA2 S50 /D3FN	PSF		12 NC: 9352 835 94118

4. Limiting values

Table 2.   Limiting values[1][2][3]
In accordance with the Absolute Maximum Rating System(IEC 134)

Symbol	Parameter	Min	Max	Unit
T_{STOR}	Storage temperature	-25	85	°C
T_{OP}	Operating temperature	-25	70	°C

[1]   Stresses above one or more of the limiting values may cause permanent damage to the device

[2]   These are stress ratings only. Operation of the device at these or any other conditions above those given in the Characteristics section of the specification is not implied

[3]   Exposure to limiting values for extended periods may affect device reliability

5. Characteristics

5.1 Characteristics

Table 3.   Electrical characteristics [1][2][3]

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
C_{IN}	Input capacitance	Input voltage 3 V_{RMS} 25 °C	[4]	14.85	-	20.13	pF
F_{IN}	Input Frequency			-	13.56	-	MHz
t_W	EEPROM write time			-	2.9	-	ms
N_{WE}	EEPROM write endurance			100,000	-	-	cycles
t_{RET}	EEPROM data retention			10	-	-	years
V_{ESD}	ESD Voltage Level	MIL883D, human body	[5]	2	-	-	kV

[1]   Stresses above one or more of the limiting values may cause permanent damage to the device

[2]   These are stress ratings only. Operation of the device at these or any other conditions above those given in the Characteristics section of the specification is not implied

[3]   Exposure to limiting values for extended periods may affect device reliability

[4]   RMS between LA and LB

[5]   MIL Standard 883-C method 3015; Human body model: C = 100 pF, R = 1.5 kW

6. Support information

For additional information, please visit: **http://www.nxp.com**

7. Revision history

Table 4. **Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
	18 December 2006	Product data sheet		5.1
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate.			

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8. Legal information

8.1 Data sheet status

Document status[1][2]	Product status[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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