SL2MOS5401

Addendum contactless chip card module specification

Rev. 3.0 — 15 January 2009 Product data sheet
168230 PUBLIC

1. General description

This document gives specifications for the product SL2MOS5401.

- The SL2MOS5401 is the integrated circuit SL2ICS5401 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 “Product data sheet SL2ICS53/SL2ICS54”.

2. Ordering information

Table 1. Ordering information

Type number	Package		
	Name	Description	Version
SL2MOS5401EV	PLLMC	Plastic leadless module carrier package; 35 mm wide tape	SOT500

3. Specifications

3.1 Chip

Functionality of the integrated circuit is described in the “Product data sheet SL2ICS53/SL2ICS54”.

founded by Philips

4. Limiting values

Table 2. Limiting values [1][2]

In accordance with the Absolute Maximum Rating System (IEC 60134).
Processing temperature: refer to "Contactless chip card module specification"

Symbol	Parameter	Conditions	Min	Max	Unit
T_{stg}	storage temperature		−25	+85	°C
V_{ESD}	electrostatic discharge voltage	[3]	-	±2	kV_{peak}
$I_{max\ LA-LB}$	maximum input peak current		−60	+60	mA_{peak}
T_{jop}	operating junction temperature		−25	+85	°C
I_{LA-LB}	input current	[4]	-	30	mA_{rms}

[1] Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any conditions other than those described in the Operating Conditions and Electrical Characteristics section of this specification is not implied.

[2] This product includes circuitry specifically designed for the protection of its internal devices from the damaging effects of excessive static charge. Nonetheless, it is suggested that conventional precautions be taken to avoid applying greater than the rated maxima.

[3] MIL-STD-883D, Method 3015.7, Human Body Model.

[4] The voltage between LA and LB is limited by the on-chip voltage limitation circuitry (corresponding to parameter I_{LA-LB}).

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5. Characteristics

5.1 Electrical characteristics

Table 3. Characteristics[1]

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
T_{op} = −25 to 85 °C							
V_{LA-LB}	minimum supply voltage for READ/WRITE/EAS			± 2.5	± 2.6	± 2.9	V_{rms}
f_{op}	operating frequency		[2]	13.553	13.560	13.567	MHz
C_{res}	input capacitance between LA – LB	V_{LA-LB} = 2 V_{rms}	[3]	92	97	102	pF
P_{min}	minimum operating supply power		[4]	-	280	-	µW
m	modulation of RF voltage for demodulator response	$m = \frac{V_{max} - V_{min}}{V_{max} + V_{min}}$	[5]	-	-	-	%
t_{Psm}	modulation pulse length of RF voltage		[5]	-	-	-	µs
tD	demodulator response time	m ≥ 10 %, 100 %	[5]	-	-	-	µs
Rmod	load modulation		[5]	-	-	-	Ω
EEPROM characteristics:							
t_{ret}	data retention time	T_{amb} ≤ 55 °C		10		-	year
$n_{endu(W)}$	write endurance			100000	-	-	cycle

[1] Typical ratings are not guaranteed. These values listed are at room temperature.

[2] Bandwidth limitation (± 7 kHz) according to ISM band regulations.

[3] Measured with an HP 4285A LCR meter at 13.56 MHz.

[4] Including losses in resonant capacitor and rectifier.

[5] Refer to ISO/IEC 15693-2 and ISO/IEC 15693-3 including pulse shapes and tolerances; proper coil design assumed

6. References

[1] Data sheet — Product data sheet SL2ICS53/SL2ICS54

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7. Revision history

Table 4. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
168230	20090115	Product data sheet	-	-

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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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Date of release: 15 January 2009
Document identifier: 168230

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