

ISO 14443

# Philips Semiconductors' Contactless mifare® Smart Card ICs

	mifare® UltraLight	mifare® Standard	
Product Features	MF0 IC U1X	MF1 IC S50	MF1 IC S70
<b>Memory</b>			
EEPROM size	512 bit	1024 byte	4096 byte
OTP area	32 bit	-	-
Write Endurance	1000 cycles	100 000 cycles	100 000 cycles
Data Retention	2 years	10 years	10 years
Organisation	16 pages á 4 byte	16 sectors á 64 byte	32 sectors á 64 byte 8 sectors á 256 byte
<b>RF-Interface</b>			
Acc. to ISO 14443 A	yes	yes	yes
Frequency	13.56 MHz	13.56 MHz	13.56 MHz
Baudrate	106 kbit	106 kbit	106 kbit
Anticollision	bit-wise	bit-wise	bit-wise
Operating Distance	up to 10 cm	up to 10 cm	up to 10 cm
<b>Security</b>			
Unique Serial Number	7 byte, cascaded	4 byte	4 byte
Random Number Generator	-	yes	yes
Access Keys	-	2 keys per sector	2 keys per sector
Access Conditions	per page	per sector	per sector
mifare® Classic Security	-	supported	supported
<b>Special Features</b>			
Multiapplication	-	supports MAD *	supports MAD2 **
Purse Functionality	-	Value block format	Value block format
Secure Transport Transaction	48 byte read 16 byte write	512 byte read 16 byte write	512 byte read 128 byte write
Transaction Time [ms]	31.4	164	140
<b>Packaging</b>			
Sawn Wafer	-	MF1ICS5005W/V5D	MF1ICS7001W/V5D
Sawn Wafer (Au-Bumped)	MF0ICU101W/V4D	MF1ICS5005W/V4D	MF1ICS7001W/V4D
MOA2 Module	-	MF1MOA2S50/D/3	MF1MOA2S70/D
FCP2 Module	MF0FCP2U1X/D	MF1FCP2S50/D	-

\* MAD: mifare® Application Directory \*\* MAD2: MAD Extension for 4 kbyte EEPROM size