

ISO 15693

ISO 18000

ISO 11784/85

## NXP Smart Label and Tag ICs

Product Features	ICODE SLI-S ICODE SLI-S HC*	ICODE SLI	ICODE UID-OTP	ICODE UID	ICODE EPC	ICODE 1 ICODE 1 HC*	UCODE HSL	UCODE EPC 1.19	UCODE EPC G2	HITAG™ 1	HITAG™ 2	HITAG™ S
	SL2 ICS53 SL2 ICS54*	SL2 ICS20	SL2 ICS12	SL2 ICS11	SL2 ICS10	SL1 ICS30 SL1 ICS31*	SL3 ICS30	SL3 ICS31	SL3 ICS10			
<b>Memory</b>												
Size [bit]	2048	1024	192	192	136	512	2048	96 + 256	512	2048	256	256, 2048
Write Endurance [cycles]	100 000	100 000	-	10 000	-	100 000	100 000	100 000	100 000	100 000	100 000	100 000
Data Retention [yrs]	10	10	5	5	5	10	10	10	10	10	10	10
Organisation	16 pages each 4 blocks á 4 bytes	32 blocks á 4 bytes	24 blocks á 1 byte	24 blocks á 1 byte	17 blocks á 1 byte	16 blocks á 4 bytes	64 blocks á 4 bytes	11 blocks á 4 bytes	32 blocks á 2 bytes	64 blocks á 4 bytes	8 blocks á 4 bytes	64 blocks á 4 bytes
<b>RF-Interface</b>												
According to	ISO 15693, ISO 18000, EPC	ISO 15693, ISO 18000	EPC	EPC	EPC	ICODE 1	ISO 18000	ISO 18000	EPC class 1 Gen2	HITAG 1	HITAG 2, ISO 11784/85	HITAG 1+, ISO 11784/85
Frequency	13.56 MHz	13.56 MHz	13.56 MHz	13.56 MHz	13.56 MHz	13.56 MHz	UHF / 2.45 GHz	UHF / 2.45 GHz	860 - 960 MHz	100 ... 150 kHz	100 ... 150 kHz	100 ... 150 kHz
Baudrate [kbit/s]	up to 53	up to 53	up to 53	up to 53	up to 53	up to 26.5	up to 40	up to 40	up to 640	up to 4	up to 4	up to 8
Anticollision	acc. ISO 15693, ISO 18000, EPC	acc. ISO 15693	acc. EPC	acc. EPC	acc. EPC	time slot	adapted binary tree	adapted binary tree	slotted ALOHA	yes, collision detection	-	yes, collision detection
Operating Distance [m]	up to 2.0***	up to 1.5	up to 1.5	up to 1.5	up to 1.5	up to 1.5	up to 7.0	up to 7.0	up to 7.0	up to 1.5	up to 1.5	up to 2.0
<b>Security</b>												
Unique Serial Number [byte]	8	8	5	5	-	8	8	8	TID: 8 including SN (4)	4	4	4
Write Protection	blockwise	blockwise	OTP	-	OTP	blockwise	bitwise	bitwise	blockwise	blockwise	blockwise	blockwise, multi user mode
Access Keys	-	-	-	-	-	-	-	-	32-bit	32-bit	48-bit	48-bit
Access Conditions	Plain, Password Pagewise configurable password protection read/write	-	-	-	-	-	-	-	Plain, Password	Encrypted Mutual Authentication or Plain	Encrypted Mutual Authentication or Plain	Encrypted Mutual Authentication or Plain
Encryption Algorithm	-	-	-	-	-	-	-	-	-	yes	yes	yes, for authentication only
<b>Special Features</b>												
EAS	yes (Plain, Password)	yes	-	-	-	yes	-	-	yes	-	-	-
AFI	yes	yes	-	-	-	yes	yes	yes	yes	-	-	-
EPC	yes	-	yes	yes	yes	-	-	yes	yes, 96-bit	-	-	-
TTF Modes	-	-	-	-	-	-	-	-	-	-	yes	yes
Destroy Command	yes	-	yes	yes	yes	-	-	-	yes	-	-	-
Privacy Command	yes	-	-	-	-	-	-	-	-	-	-	-
<b>Packaging</b>												
Sawn Wafer	-	-	-	-	-	SL1 ICS3101W/NSD*	-	-	-	HT1ICS3002W/NSA	HT2ICS2002W/NSA	-
Sawn Wafer (Au-Bumped)	SL2 ICS5301DW/V1 SL2 ICS5401DW/V1*	SL2 ICS2001DW/V1D SL2 ICS2001DW/V4D	SL2 ICS1201DW/V1	SL2 ICS1101DW/V4	SL2 ICS1001DW/V4	SL1 ICS3001W/N4D SL1 ICS3101W/N4D*	SL3 ICS3001W/V4	SL3ICS3101FW/V7AJ	SL3 ICS1001FW/V7AJ	-	-	HTSICHxx01EW/V4**
MOA2 Module	SL2 MOS5301DV SL2 MOS5401DV*	SL2 MOS2001DV	-	-	-	SL1 MOA2530/D	-	-	-	HT1MOA2530/E/3	HT2MOA2520/E/3	HTSMOHxx01EV**
FCP2 Module	SL2 FCS5301DV/DH SL2 FCS5401DV/DH*	SL2 FCS2001DV/DH	-	SL2 FCS1101DV/DH	SL2 FCS1001DV/DH	-	-	-	SL3 FCS1001FW/DH	-	-	HTSFCHxx01EV/DH**
Stick SOT 385-1	-	-	-	-	-	-	-	-	-	-	HT2DC20S20/F	-
TSSOP8	-	-	-	-	-	-	SL3S3001FTT	-	SL3 S1001FTT	-	-	-
HVSON2	-	-	-	-	-	-	-	-	-	-	-	HTSHxx01ETK

\* HC: high capacitance (97pF)

\*\*xx is: "32" for 32-bit, "56" for 256-bit, and "48" for 2048-bit memory size

\*\*\* based on ECC regulations

Product Features	HITAG™ Reader ICs HTRC110 HITAG™ Reader ICs	PCF7921, HITAG Reader Security Controller
Modulation Type	100 % ASK	not applicable
Dimensions [mm]	6.2 x 8.75 x 1.45	SSOP20
Interface	CMOS	programmable IO Pins
Supply Voltage [V]	5 ±10%	2.1V ... 3.6
Antenna Driver Current [mA]	200 continuous	not applicable
Clock Osc. Frequency [MHz]	4 ... 16	up to 2.2 (single clock instruction)
Operating Temperature [°C]	-40 ... +85	-40 ... +85
Power Down Current [µA typ.]	7	0.1 ; max: 0.5 (RUN: 300 ; IDLE:20 ; PD: 100nA)
Memory	-	4 Kbyte EROM (Flash) 512 Byte EEPROM 128 Byte RAM
<b>Supported Products</b>		
HITAG™ 1	yes	-
HITAG™ 2	yes	yes
HITAG™ S	yes	yes
<b>Security</b>		
HITAG™ 1 data encryption	-	-
HITAG™ 2 data encryption	-	yes
HITAG™ S data encryption	-	yes
<b>Package</b>		
SO14,Tube	HTRC110 01T/02EE	-
SO14, Reel	HTRC110 01T/03EE	-
SSOP20	-	PCF7921ATS/3391