

ISO 15693    ISO 18000    ISO 11784/85

NXP Smart Label and Tag ICs

Product Features	ICODE SLI-S SL2 ICS53 SL2 ICS54*	ICODE SLI SL2 ICS20	ICODE SLI-L ICODE SLI-L HC* SL2 ICS50 SL2 ICS51*	ICODE UID-OTP SL2 ICS12	ICODE UID SL2 ICS11	ICODE EPC SL2 ICS10	ICODE 1 ICODE 1 HC* SL1 ICS30 SL1 ICS31*	UCODE HSL SL3 ICS30	UCODE EPC G2 SL3 ICS10	UCODE G2XL	UCODE G2XM	HITAG™ 1	HITAG™ 2	HITAG™ S
Memory	2048	1024	512	192	192	136	512	2048	512	368	880	2048	256	256, 2048
Size [bit]	100 000	100 000	100 000	-	10 000	-	100 000	100 000	100 000	10 000	10 000	100 000	100 000	100 000
Write Endurance [cycles]	10	10	10	5	5	5	10	10	10	10	10	10	10	10
Data Retention [yrs]	16 pages each 4 blocks á 4 bytes	32 blocks á 4 bytes	4 pages each 4 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	32 blocks á 2 bytes	23 blocks á 2 bytes	55 blocks á 2 bytes	64 blocks á 4 bytes	8 blocks á 4 bytes	64 blocks á 4 bytes
Organisation														
RF Interface														
According to	ISO 15693, ISO 18000, EPC**	ISO 15693, ISO 18000	ISO 15693, ISO 18000	EPC**	EPC**	EPC**	ICODE 1	ISO 18000	EPC class 1 Gen2	EPC Class 1 Gen2	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	13.56 MHz	UHF / 2.45 GHz	860 - 960 MHz	840...960 MHz	840...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 53	up to 26.5 time slot	up to 40	up to 640	up to 640	up to 640	up to 4	up to 4	up to 8
Anticollision	acc. ISO 15693, ISO 18000, EPC**	acc. ISO 15693, ISO 18000	acc. ISO 15693, ISO 18000	acc. EPC**	acc. EPC**	acc. EPC**		adapted binary tree	slotted ALOHA	slotted ALOHA	slotted ALOHA	yes, collision detection	-	yes, collision detection
Operating Distance [m]	up to 2.0***	up to 1.5	up to 2.0***	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 7.0	up to 1.5	up to 1.5	up to 2.0
Security														
Unique Serial Number [byte]	8	8	8	5	5	-	8	8	TID: 8 including SN (4)	TID: 8 incl. 4 byte SN	TID: 8 incl. 4 byte SN	4	4	4
Write Protection	blockwise	blockwise	blockwise	OTP	-	OTP	blockwise	bitwise	blockwise	blockwise	blockwise	blockwise	blockwise	blockwise, multi user mode
Access Keys	32-bit	-	-	-	-	-	-	-	32-bit	32-bit	32-bit	32-bit	48-bit	48-bit
Access Conditions	Plain, Password	-	-	-	-	-	-	-	Plain, Password	Plain, Password	Plain, Password	Encrypted Mutual Authentication or Plain	Encrypted Mutual Authentication or Plain	Encrypted Mutual Authentication or Plain
Encryption Algorithm	Pagewise configurable password protection read/write	-	-	-	-	-	-	-	-	-	-	yes	yes	yes, for authentication only
Special Features														
EAS	yes (Plain, Password)	yes	yes (Plain, Password)	-	-	-	yes	-	yes	yes	yes	-	-	-
AFI	yes	yes	yes	-	-	-	yes	yes	yes	yes	no	-	-	-
EPC	yes	-	-	yes	yes	yes	-	yes, 96-bit	yes, up to 240 bit	yes, up to 240 bit	yes, up to 240 bit	-	-	-
TTF Modes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Destroy Command	yes	-	yes	yes	yes	yes	-	-	yes	yes	yes	-	yes	yes
Privacy Command	yes	-	yes	-	-	-	-	-	-	-	-	-	-	-
Packaging														
Sawn Wafer	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sawn Wafer (Au-Bumped)	SL2 ICS5301EW/V7 SL2 ICS5401EW/V7*	SL2 ICS2001DW/V1D	SL2 ICS5001EW/V7 SL2 ICS5101EW/V7*	SL2 ICS1201DW/V1	SL2 ICS1101DW/V4	SL2 ICS1001DW/V4	SL1 ICS3001W/N4D SL1 ICS3101W/N4D*	SL3 ICS3001W/V4	SL3 ICS1001FW/V7AJ	SL3 ICS1202FUG/V7AF	SL3 ICS1002FUG/V7AF	HTICS3002W/NSA	HT2ICS2002W/NSA	-
MOA2 Module	SL2 MOS5301EV SL2 MOS5401EV*	SL2 MOS2001DV	SL2 MOS5001EV SL2 MOS5101EV*	-	-	-	-	-	-	-	-	HT1MOA2530/E/3	HT2MOA2520/E/3	HTSMOHxx01EV**
FCP2 Module	SL2 FCS5301EVDH SL2 FCS5401EVDH*	SL2 FCS2001DWDH	SL2 FCS5001EVDH SL2 FCS5101EVDH*	-	SL2 FCS1101DWDH	SL2 FCS1001DWDH	-	-	SL3 FCS1001FV/DH	SL3 FCS1202FC	SL3S1002FTT	-	-	HTSFCHxx01EV/DH**
Stick SOT 385-1	-	-	-	-	-	-	-	-	-	-	-	-	HT2DC20520/F	-
TSSOP8	-	-	-	-	-	-	-	SL3S3001FTT	SL3 S1001FTT	SL3S1202FTT	SL3FCS1002FC	-	-	-
HVSON2	-	-	-	-	-	-	-	-	-	-	-	-	-	HTSHxx01ETK

\* HC: high capacitance (97pF); \*\* HF EPC Class 1; EPCglobal/Auto-ID Center Specification; \*\*\* based on ECC regulations

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