ISO 15693 ISO 14223 ISO 18000

Philips' Smart Label and Tag ICs

Product Features	Philips' Smart Label and Tag ICs										
	ICODE 1 SL1 ICS30	ICODE 1 HC* SL1 ICS31	ICODE SLI SL2 ICS20	ICODE EPC SL2 ICS10	ICODE UID SL2 ICS11	UCODE HSL SL3 ICS30	UCODE EPC 1.19	UCODE EPC G2 SL3 ICS10	HITAG™ 1	HITAG™ 2	HITAG™ S
Memory											
Size [bit]	512	512	1024	136	192	2048	96 + 256	512	2048	256	32, 256, 2048
Write Endurance [cycles]	100 000	100 000	100 000	-	10 000	100 000	100 000	100 000	100 000	100 000	100 000
Data Retention [yrs]	10	10	10	5	5	10	10	10	10	10	10
Organisation	16 blocks á 4 bytes	16 blocks á 4 bytes	32 blocks á 4 bytes	17 blocks á 1 byte	24 blocks á 1 byte	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
RF-Interface											
According to	ICODE 1	ICODE 1	ISO 15693, ISO 18000	EPC	EPC	ISO 18000	ISO 18000	UHF EPC 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	UHF / 2.45 GHz	UHF / 2.45 GHz	UHF	100 … 150 kHz	100 … 150 kHz	100 … 150 kHz
Baudrate [kbit/s]	up to 26.5	up to 26.5	up to 53	up to 53	up to 53	up to 40	up to 40	up to 640	up to 4	up to 4	up to 8
Anticollision	time slot	time slot	acc. ISO 15693	acc. EPC	acc. EPC	adapted binary tree	adapted binary tree	slotted ALOHA	yes, collision detection	-	yes, collision detection
Operating Distance [m]	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
Security											
Unique Serial Number [byte]	8	8	8	-	5	8	8	4	4	4	4
Write Protection	blockwise	blockwise	blockwise		-	bytewise	bytewise	blockwise	blockwise	blockwise	blockwise, multi user mode
Access Keys	-	-	-	-	-	-		32-bit	32-bit	48-bit	48-bit
Access Conditions	-	-	-	-	-	-		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
Special Features											
EAS	yes	yes	yes	-	-	-	-	yes	-	-	-
AFI	yes	yes	yes	-	-	yes	yes	yes	-	-	-
EPC	-	-	yes	yes	yes	-	yes	yes	-	-	-
TTF Modes	-	-	-	-	-	-	-	-	-	yes	yes
Destroy Command	-	-	-	yes	yes	-	-	yes	-	-	-
Packaging											
Sawn Wafer	-	SL1 ICS3101W/N5D	-	-	-	-	-	-	HT1ICS3002W/N5A	HT2ICS2002W/N5A	-
Sawn Wafer (Au-Bumped)	SL1 ICS3001W/N4D	SL1 ICS3101W/N4D	SL2 ICS2001DW/V4D	SL2 ICS1001DW/V4	SL2 ICS1101DW/V4	SL3 ICS3001W/V4	SL3 ICS3101W/V4	SL3 ICS1001W/V4	-	-	HTSICHxx01EW/V4**
MOA2 Module	SL1 MOA2S30/D	-	SL2 MOS2001DV	-	-	-	-	-	HT1MOA2S30/E/3	HT2MOA2S20/E/3	HTSMOHxx01EV**
FCP2 Module	-	-	SL2 FCS2001DV/DX	SL2 FCS1001DV/DH	SL2 FCS1101DV/DH	-	-	SL3 FCS1001DV/DH	-	-	HTSFCHxx01EV/DH**
Stick SOT 385-1	-	-	-	-	-	-	-	-	HT1DC20S30/F	HT2DC20S20/F	-
TSSOP8	-	-	-	-	-	SL3S3001FTT	-	SL3 S1001FTT	-	-	-

** HC: high capacitance (97pF)*

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

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
Supported Products		
HITAG™ 1	yes	-
HITAG™ 2	yes	yes
HITAG™ S	yes	yes
Security		
HITAG™ 1 data encryption	-	-
HITAG™ 2 data encryption	-	yes
HITAG™ S data encryption	-	yes
Package		
SO14,Tube	HTRC110 01T/02EE	-
SO14, Reel	HTRC110 01T/03EE	-
SSOP20	-	PCF7921ATS/3391