

NXP® IoT Security and Authentication Portfolio

EdgeLock® SECURE ELEMENT & SECURE AUTHENTICATOR PORTFOLIO							
PRODUCT	A5000	SE050E	SE050F (FIPS Module)	SE051C2	SE051A2	SE051W	
Product Description	Certified EdgeLock secure authenticator with symmetric and asymmetric crypto for authentication use cases	Certified EdgeLock secure element family with extended crypto functionalities for multi-IoT use cases		Certified EdgeLock secure element family with applet updatability capability		Certified EdgeLock secure element for secure UWB ranging in IoT in conjunction with NXP's Trimension™ SR150	
Webpage	www.nxp.com/A5000	www.nxp.com/SE050		www.nxp.com/SE051		www.nxp.com/SE051W	
Authentication Application / IoT Applet							
ECC Crypto Schemes	ECDSA	✓	✓	✓	✓	✓	
	ECDH/ ECDHE	✓	✓	-	✓	✓	
	DH_Mont	-	✓	-	✓	-	
	ECDAA	-	✓	-	✓	-	
	EdDSA	-	✓	-	✓	-	
Supported Elliptic Curves	NIST (192 to 521 bit)	✓ (256/384 only)	✓	✓ (>=224 bit)	✓	✓	
	Brainpool (160 to 512 bit)	-	✓	✓ (>=224 bit)	✓	✓	
	Koblitz (160 to 256 bit)	-	✓	✓ (>=224 bit)	✓	✓	
	Barreto-Naehrig (256 bit)	-	✓	-	✓	-	
	Curve25519 [Twisted Edwards/Montgomery]	-	✓	-	✓	-	
	Montgomery-Curve448	-	✓	-	✓	-	
RSA	RSA	-	-	>=2048 bit, no RSA plain, no RSA 4096 bit key Gen	Up to 4096 bit	-	Up to 2048 bit only
Symmetric Crypto Algorithm	3DES (2K, 3K)	✓	✓	✓ (only 3K)	✓	✓	
	AES (128, 192, 256 bit)	✓	✓	✓	✓	✓	
AES Modes	CBC, ECB, CTR	✓	✓	✓	✓	✓	
	CCM, GCM	✓	✓	-	✓	✓	
MAC	HMAC, CMAC	✓	✓	✓	✓	✓	
	GMAC	✓	✓	-	-	✓	
Hash Function	SHA-1, SHA-224 to 512	✓ -256/384	✓	✓ (No SHA-1)	✓	✓	
Key Derivation (KDF)	TLS (KDF, PSK)	✓	✓	-	✓	✓	
	MIFARE DESFire	-	✓	-	✓	✓	
	PBKDF2 (Wi-Fi EAP)	-	✓	-	✓	✓	
	HKDF	✓	✓	✓	✓	✓	
TPM Functionality	-	✓	-	✓	-	-	
Secure Channel	Secure Channel Host-SE (Platform SCP)	✓	✓	✓ (Mandatory)	✓	✓	
Pre-Provisioned	✓	✓	✓	✓	✓	✓	
Application Specific Support							
Updatability	SEMS Lite	-	-	-	✓	✓	
UWB	-	-	-	-	-	UWB secure ranging	
Hardware Features							
TRNG	NIST SP800-90B, AIS31	NIST SP800-90B, AIS31	NIST SP800-90B, AIS31	NIST SP800-90B, AIS31	NIST SP800-90B, AIS31	NIST SP800-90B, AIS31	
DRBG	NIST SP800-90A, AIS20	NIST SP800-90A, AIS20	NIST SP800-90A, AIS20	NIST SP800-90A, AIS20	NIST SP800-90A, AIS20	NIST SP800-90A, AIS20	
User Memory – Full Feature - NV	8 kB	50 kB	50 kB	46 kB	46 kB	25 kB	
User Memory – Maximum - NV	8 kB	50 kB	50 kB	104 kB	104 kB	25 kB	
Interfaces	ISO14443	-	-	✓	✓	✓	
	I ² C Target	✓ (up to 1 Mbit/s)	✓ (up to 1 Mbit/s)	✓ (up to 3.4 Mbit/s)	✓ (up to 3.4 Mbit/s)	✓ (up to 3.4 Mbit/s)	
	I ² C Controller	-	✓	✓	✓	✓	
Temperature Range	-40 to +105 °C	-40 to +105 °C	-40 to +105 °C	-40 to +105 °C	-40 to +105 °C	-40 to +105 °C	
Package	HX2QFN20	HX2QFN20	HX2QFN20	HX2QFN20	HX2QFN20	HX2QFN20	
Ordering Information							
Orderable Part Number	A5000R2HQ1/Z016UZ	SE050E2HQ1/Z0123Z	SE050F2HQ1/Z018HZ	SE051C2HQ1/Z01XDZ	SE051A2HQ1/Z01XEZ	SE051W2HQ1/Z019TZ	
12NC	9354 262 25472	9354 343 82472	9354 284 44472	9354 144 57472	9354 144 58472	9354 284 64472	
Development Boards							
Development Boards	OM-A5000ARD	OM-SE050ARD-E	OM-SE050ARD-F	OM-SE051ARD	OM-SE051ARD-W		
12NC	9354 243 19598	9354 332 66598	9354 357 63598	9353 991 87598	9354 210 01598		
Webpage	www.nxp.com/OM-A5000	www.nxp.com/OM-SE050		www.nxp.com/OM-SE051	www.nxp.com/OM-SE051W		

NXP EdgeLock secure elements (SE) and secure authenticators (SA) provide a root of trust at IC level and deliver real end-to-end security from edge to cloud. By offering enhanced Common Criteria EAL 6+ based security, we enable strong protection against the latest attack scenarios.

The EdgeLock SE and SA product families simplify the integration of security, implementing the cryptographic algorithms and protocols required for many IoT and authentication applications. In addition, the products come with [EdgeLock 2GO](#) enablement for credential management.

To find out more visit: www.nxp.com/iotsecurity



Specifications subject to change without notice.
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