OPTIGA™ Authenticate On
Optimized anti-counterfeiting solution for mobile batteries

public

"What is the biggest problem? There are many fakes. If there were no counterfeits, our sales would be double or triple."

Xiaomi CEO Lei Jun on Mi Power Bank battery pack sales*

The many dangers of counterfeit products

Severe risks for customers

Loss of trust in the original brand/company

Counterfeiting needs to be avoided

Unjustified warranty claims

Damaged/destroyed products

Financial damage

Exceptional application & transaction performance

Lost sales due to
counterfeiting of batteries
(EU-28) per year:

179

million euros

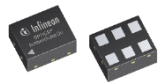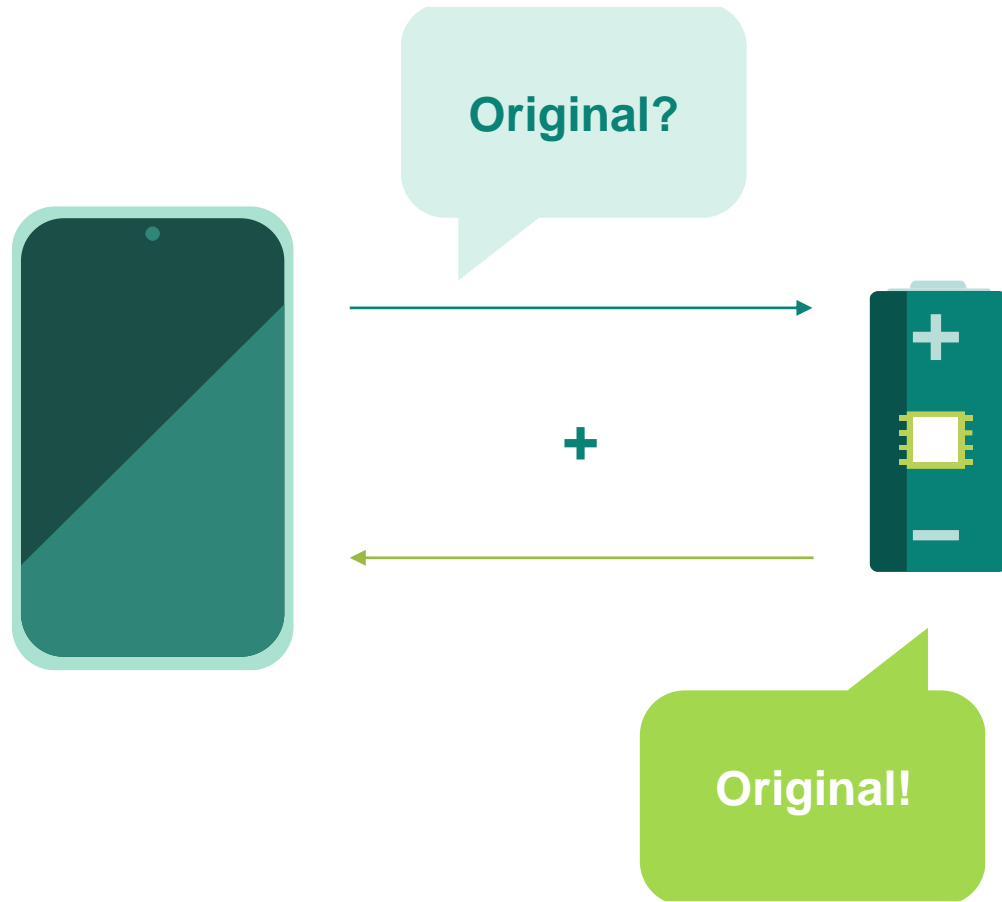(Source: European Union Intellectual Property Office, 2018)

OPTIGA™ Authenticate On

measures

1.5 mm x 1.2 mm x 0.4 mm

and is less than a

quarter of the size of a ladybug.

public

High security standards for batteries

With
OPTIGA™ Authenticate On
the smartphone itself
can check the battery for original

OPTIGA™ Authenticate On – Tailormade authentication for mobile device batteries

⊗ Smaller package

↓ Low-voltage support for indirect power mode operation (1.6 V)

⊗ Reduced bill of material: Fewer components needed for indirect powering – diode already included

⇡ Robust single-wire interface

OPTIGA™ Authenticate On – the ultimate mobile device battery authentication solution

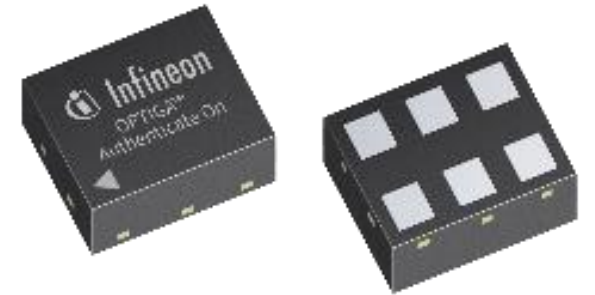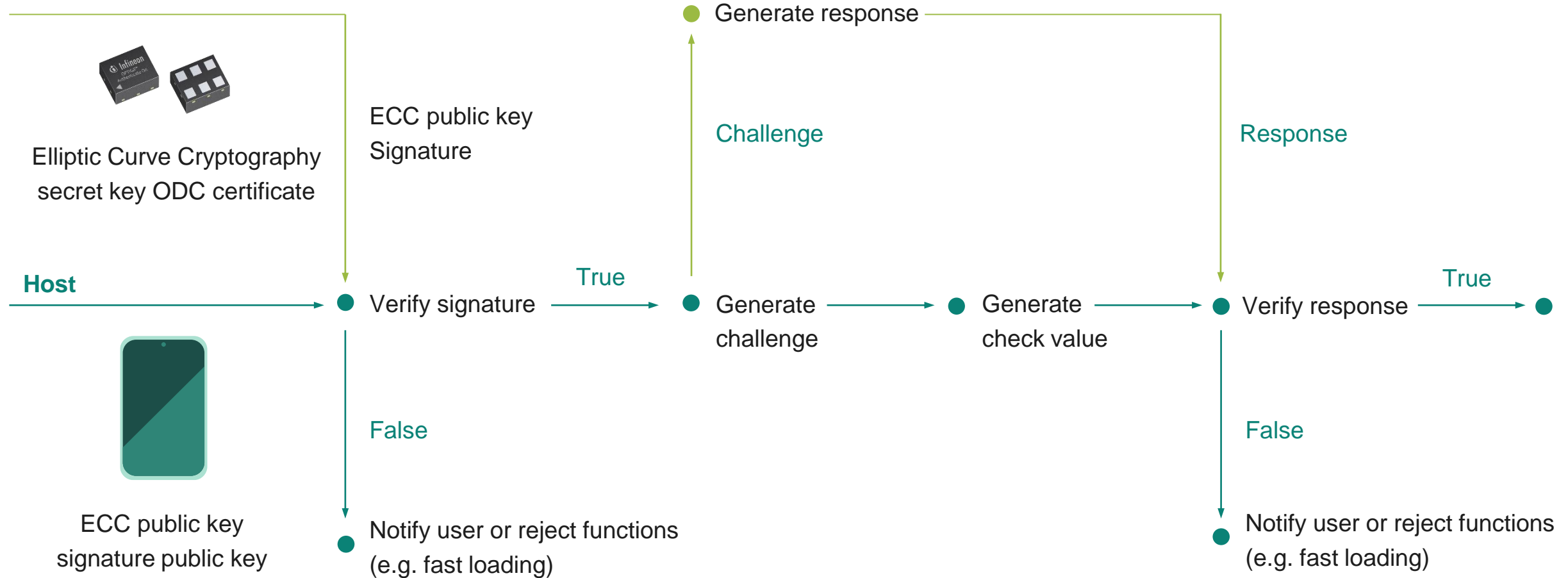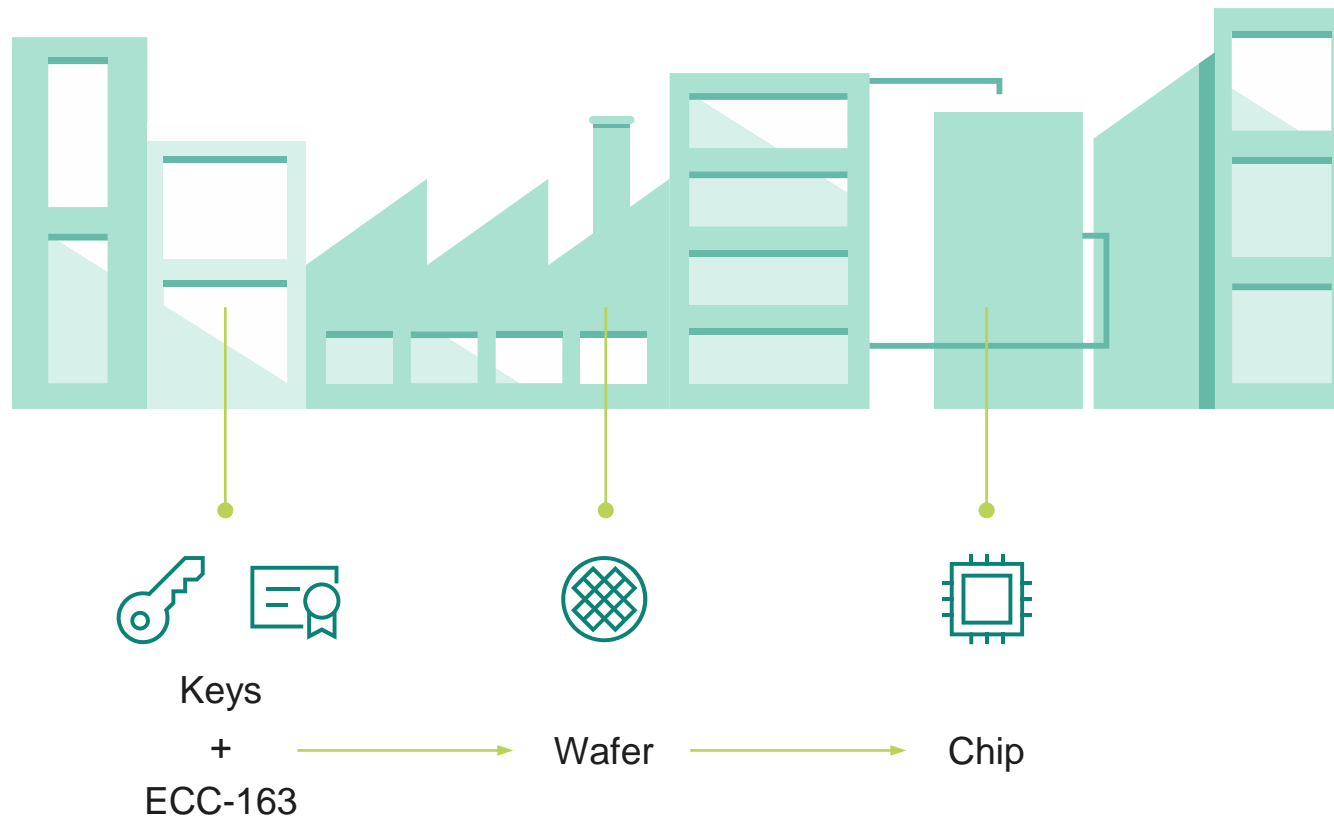|	
Tailored solution for mobile device battery authentication	– 500 kbps single-wire interface – Optimized for indirect power supply (1.8 V systems) – Direct power supply – 1.24 V-3.63 V – Fewer external components with diodes already integrated – Extensive error detection (CRC) – Easily implemented using any GPIO control – 2 kb embedded EEPROM
Easy to implement authentication while reducing costs	– SWI interface following the MIPI alliance specification – and suitable for any mobile device – Small package – 1.2 mm x 1.5 mm x 0.4 mm
Attack protection	– 163-bit key length – Implicit session key generation – Evaluated by an external security lab

One-way authentication with OPTIGA™ Digital Certificate (ODC) verification

OPTIGA™ Authenticate

Elliptic Curve Cryptography
secret key ODC certificate

ECC public key
Signature

Generate response

Challenge

Response

Host

True

True

Verify signature

Generate
challenge

Generate
check value

Verify response

ECC public key
signature public key

False

Notify user or reject functions
(e.g. fast loading)

False

Notify user or reject functions
(e.g. fast loading)

Keys and certificates provisioned at Infineon's secured fab
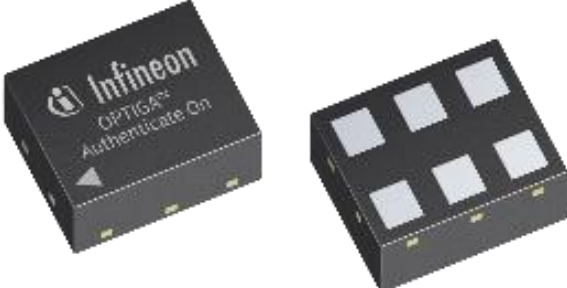

Keys
+
ECC-163

Wafer → Chip

Infineon's secured fab:

– Common Criteria (CC) certified site/factory

– Site audit and inspection on yearly basis

OPTIGA™ Authenticate On is just one of a line of solutions

## OPTIGA™ Authenticate On

Smartphone battery authentication

OPTIGA™ Authenticate S

Enhanced authentication for electronics and replacement parts

OPTIGA™ Trust and OPTIGA™ Authenticate Family

	OPTIGA™ Authenticate S	OPTIGA™ Authenticate On	OPTIGA™ Trust Charge
Security level	Enhanced	Enhanced	CC EAL 6+
Functionality	Authentication for devices	Authentication for smartphones	Authentication for wireless charging
NVM (data)	1 k, 2 k, 5 kb	2 kb	10 kb
Cryptography Private key stored in Security HW	ECC-163	ECC-163	ECC384 AES, SHA, Qi
Type of host system	MCU without OS / proprietary OS / RTOS		
Interface	SWI & I^{2}C	SWI	I^{2}C
Package	TSNP6-12	TSNP6-16	USON10
System integration	✔	✔	✔
Security level	Optimized for battery applications		

* Availability:
✔ − Done by Infineon

You can count on us

Infineon

Extensive track record and reliable logistics
> 3 billion
Security ICs shipped every year

Best partner network
50 partners
for security
Most trustworthy and innovative network of partners in the security space

Shaping tomorrow's standards
> 100
standardization bodies
Driving standardization bodies like GSMA, ETSI, Global Platform, 3GPP, and NFC Forum

Strong innovation power
> 25,000
patents
7,161 R&D employees; 11 % of Infineon's revenue goes into R&D

public

Protect your IP and your customers with OPTIGA™ Authenticate On:

infineon.com/OPTIGA-Authenticate-On