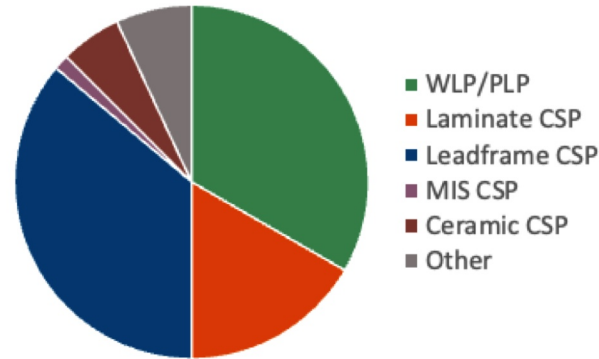


# Honor Watch 4 with LTE

Teardown from TechSearch International, Inc.



72 Packages Examined



## Contents and Highlights

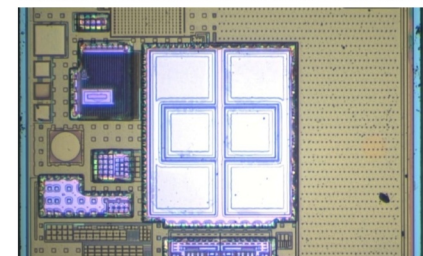
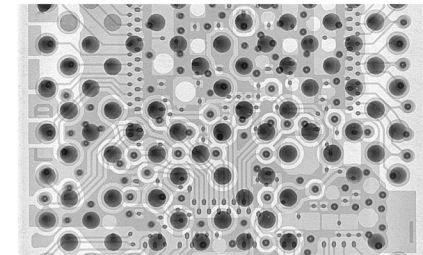
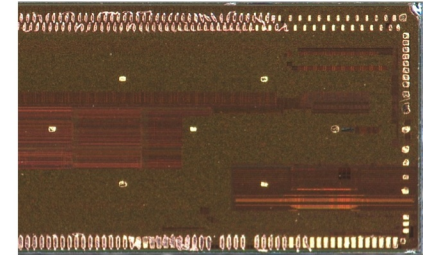
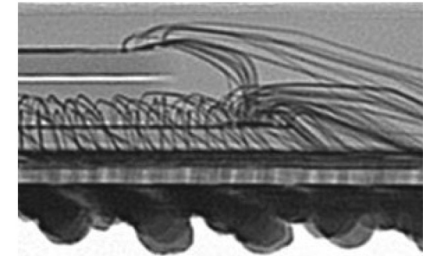
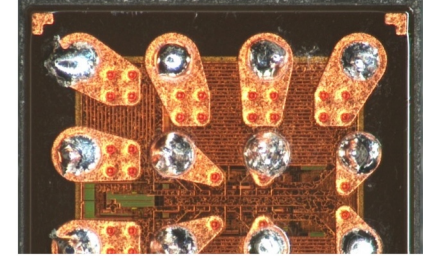
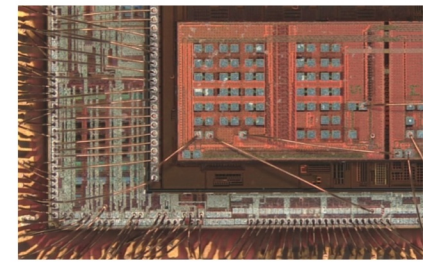
- 99-page report with package quantity summaries, high-resolution photos and x-rays, chip function and package dimensions, die images and characteristics, and more
- 13 additional slides with extra details about the package construction and die characteristics for chips including UNISOC UMS9117 AP with stacked DRAM in FBGA, UNISOC SR3595D RF transceiver and SC2720A PMIC both of which have die mounted to FBGA substrates with Cu pillars, OnMicro OM9902-11 RF PAM containing six die interconnected with Cu wire bonds, Bestechnic BES2500L Smart Bluetooth audio IC with three die stacked and bonded with Cu wire, Airoha AG3335M GNSS receiver with two stacked die, and AWINIC AW35206FOR 6-channel load switch assembled in a unique FO-WLP

**Teardowns backed by 37 years serving as the industry's trusted source for semiconductor packaging trend analysis**

- Examination of all chips with emphasis on assembly and packaging technologies
- Superb quality photographs and x-ray images
- Both the packages and the die within are identified and characterized
- Detailed construction analysis of key chips and packages



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# Sample pages from the report and slides

### Honor Watch 4 (LTE)

TMA-L19  
category Wearable  
released Jul 2023

**Package quantities (by package type)**

WLP/PLP	
Laminate CSP	
Leadframe CSP	
MIS CSP	
Ceramic CSP	4
Other	
<b>TOTAL</b>	<b>72</b>

**Die quantities (by die interconnect type)**

RDL/WLP	
Flip chip	
Wire bond	51
Clip	
Ribbon	
<b>TOTAL</b>	

**Package area**  Bare die solutions  included  excluded

**Package area** (mm<sup>2</sup>)

Package = Any device that has completed final packaging steps, includes all packaged devices as well as finished packages mounted inside other packages/modules. Counts include not counted as packages. Bare die solutions = Finished devices received directly on boards or flex circuits (e.g., chip on board, chip on flex, chip on substrate, etc.)

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### ASSEMBLY 4 — Display flex circuit

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### ASSEMBLY 1 — Main board side 1 (1 of 2)

1-19 1 JouWatt Step-down converter JW Analog/Mix-Sig

WLP (WLP/PLP)

**Component Details** Die count: 1

1-19-1 1 JouWatt Step-down converter

8 Solder balls, mm pitch, mm width

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### PACKAGE QUANTITY DETAILS

Board-level assembled packages	Board-level	Package-level
WLP/PLP		
Laminate CSP		
Leadframe CSP		
MIS CSP		
Ceramic CSP		
Bare die on board/flex		
Other		
<b>TOTAL</b>	<b>72</b>	

Package-level assembled packages	Board-level	Package-level
WLP/PLP		
Laminate CSP		
Leadframe CSP		
MIS CSP		
Ceramic CSP		
Other		
<b>TOTAL</b>	<b>72</b>	<b>0</b>

Board-level = Packaged devices mounted to boards, flex circuits, etc. during electronics assembly  
Package-level = Pre-packaged devices assembled inside other encapsulated packages or modules  
L = Laminate substrate; C = Ceramic substrate

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### ASSEMBLY 1 — Main board side 1 (1 of 2)

1-16 1 Airoha GNS5 receiver AG3335M RF Analog

FBGA (Laminate CSP) 3.72 mm x 4.11 mm 0.79 mm 73 mm Flip chip, Wire bond, Stacked die

Comet Xylon provided equipment for x-rays

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### Die from SR3595D and SC2720A

SR3595D RF transceiver mm x mm Cu pillars

SC2720A PMIC mm x mm Cu pillars

• Cu pillars on both die have μm pitch and μm diameter

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### PACKAGES BY SUPPLIER LOCATION

Supplier HQ	Count
China	
Europe	
Japan	11
Korea	
N America	
SE Asia	
Taiwan	
Other	
unknown	
<b>TOTAL</b>	<b>72</b>

Geographic quantities based on headquarters location of chip suppliers; includes bare die solutions

### PACKAGE AREA BY CHIP TYPE

Chip Type	Area (mm <sup>2</sup> )
Analog/Mixed-signal	67.6
RF analog	
Logic	
Memory	
Sensor-Actuator	
Image sensor	
Discrete	
Opto	
RF Passive	
IPD	
unknown	
<b>TOTAL</b>	

Measured width x length; includes bare die solutions

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### ASSEMBLY 1 — Main board side 1 (1 of 2)

Component Details Die count: 2

1-16-1 1 MediaTek GNS5 receiver 1-16-2 1 GigaDevice 32Mb NOR flash

Flip chip mm x mm Cu pillars, μm pitch, μm width Wire bond mm x mm 10 Cu wires, μm pitch, μm width

**Additional Images**

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### Honor Watch 4 (LTE)

QTY	REF	DESCRIPTION	PACKAGE	FEATURES	QTY	REF	DESCRIPTION	PACKAGE	FEATURES	QTY	REF	DESCRIPTION	PACKAGE	FEATURES
1	121	Advanced Analog Technology (AAT)	AAT1951	LED driver	Analog/Mix-Sig	WLP	1.28 x 2.84 x 0.50	21	A	1				
1	122	AWNC	AWNC3260R	6-channel load switch	Analog/Mix-Sig	FO-WLP								
1	123	Leishan Radio	LMBR410B8T	Schottky barrier diode	Discrete	DFN	0.99 x 0.99 x 0.50	2	AS	1	Wire bond			
1	124	Rohdak		LDO regulator	Analog/Mix-Sig	DFN								
1	125	Rohdak		LDO regulator	Analog/Mix-Sig	SON								
1	126	Leishan Radio	LESOR05.0CE	ESD protection diode	Discrete	DFN								
3	127	Nasipera	SC2M4-C016	Zener diode	Discrete	DFN								
2	128	Leishan Radio		No-channel MOSFET	Discrete	DFN								
2	129	Leishan Radio	LES211D5.0C	ESD protection diode	Discrete	DFN								
1	130	Qualcomm (RF3G)	BS367	SAW filter	RF Passive	CSP-L								
1	131	Taiyo Yuden	F8H4G305EH	FBAR filter	RF Passive	CSP-C								
1	132	AWNC	AW3616	LNA for LTE	RF Analog	DFN								
1	133			SAW filter for GNS5	RF Passive	CSP-C								
1	134	Maximint		RF switch	RF Analog	MS								
1	135	Murata	SAPQA204M	SAW filter (H.P.)	RF Passive	CSP-L	0.99 x 1.09 x 0.6	5	0.4	1	Flip chip			
2	136	Leishan Radio		ESD protection diode	Discrete	DFN								
1	21			NFC controller	RF Analog	WLP								
1	22	Rohdak		LDO regulator	Analog/Mix-Sig	DFN								
1	23	Leishan Radio	LMBR410B8T	Schottky barrier diode	Discrete	DFN								
1	24			Back converter	Analog/Mix-Sig	WLP								
1	25	STMicroelectronics	L5MDSL	NEMO 6-axis IMU	Sensor-Actuator	FLGA								
1	26			3-axis e-compass (AMR)	Sensor-Actuator	WLP								
1	27			Audio amplifier	Analog/Mix-Sig	WLP								

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For pricing, please call +1-512-372-8887