OPTICAL SENSOR PACKAGING CONSIDERATIONS

Amkor Technology is a leader in optical sensor packaging technology and one of the world's largest outsource providers of sensor packages.

GENERAL REQUIREMENTS

▶ Cleanliness/Particle control

▶ Sensor tilt/shift management
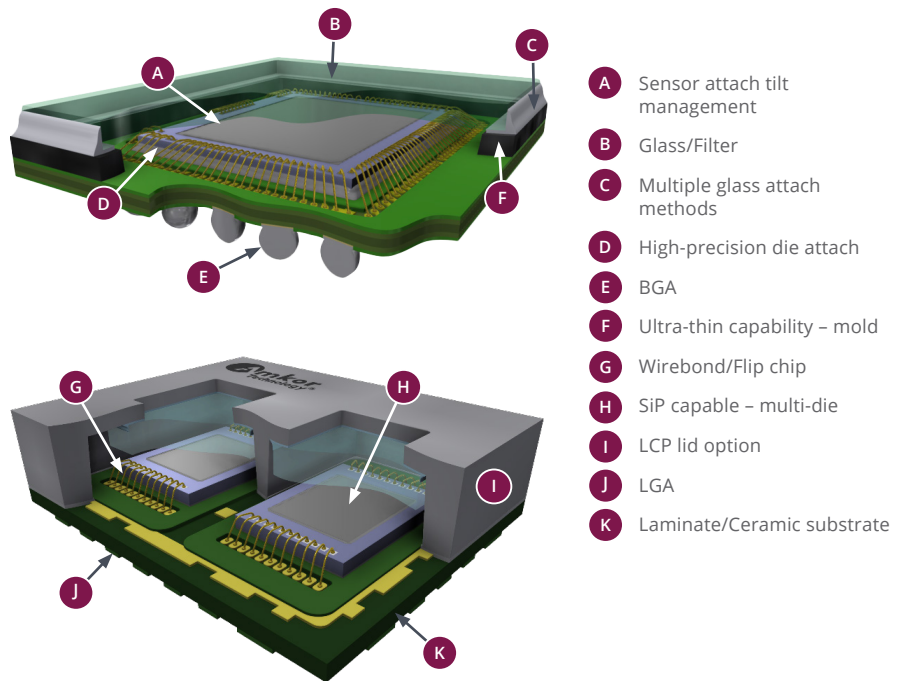
▶ Optical specific BOM

CONSUMER MARKET

▶ Package integration

▶ Cost effective solutions

▶ Miniaturization roadmap

AUTOMOTIVE MARKET

▶ More stringent device package protection

▶ IATF-16949 certification

▶ AEC-Q100 reliability

Optical Sensors

As technology advances in society, we will increasingly rely on developments in optical sensors to enhance reliable and fast sensing applications for the future.

Optical sensors convert various wavelengths into electrical signals for enhanced sensing applications. Ambient, infrared (IR) and ultraviolet (UV) light are some wave types that optical sensors measure to create applications for autonomous cars, in-display fingerprint scanners, secure facial recognition and many others. The push towards full autonomous driving will drive the combination of multiple sensors and light sources in automobiles to ensure safety and reliability is a priority. The consumer market will thrive through cost effective solutions and miniaturized packaging while maintaining quality devices and products. The adoption of many optical sensors is growing as we rely more on technology to sense the outside world for us.

Package Features

Amkor defines an optical sensor as a detector that can be used to convert light into electrical signals for enhanced sensing applications. Amkor offers a full turnkey solution that is SiP capable for an emitter/detector combo.

A   Sensor attach tilt management

B   Glass/Filter

C   Multiple glass attach methods

D   High-precision die attach

E   BGA

F   Ultra-thin capability – mold

G   Wirebond/Flip chip

H   SiP capable – multi-die

I   LCP lid option

J   LGA

K   Laminate/Ceramic substrate

Optical Sensor Applications

Amkor is the world's leading expert in packaging technologies which allows our standardized processes to support flexible applications. Amkor is also the #1 OSAT for automotive applications and leverages its experience and full turnkey solution in order to further advance ADAS packaging for exterior and interior sensing.

Market Category	Type of Sensor	Package Type	
		Molded Cavity BGA/LGA	Cavity BGA/LGA
Biometric Authentication	Fingerprint Sensor	✓	✓
	3D Depth Sensor	✓	✓
Automotive	Fingerprint Sensor	✓	✓
	3D Depth Sensor	✓	✓
	CMOS Image Sensor	✓	✓
	LIDAR	✓	✓
Human Interface	3D Depth Sensor	✓	✓
	Ambient Light Sensor	✓	✓
	Proximity Sensor	✓	✓
Environmental	Thermopile	✓	✓
	Spectrometer	✓	✓
	Gas Sensor	✓	✓
Healthcare/Fitness	Heart Rate Sensor	✓	✓
	Oximeter	✓	✓

Other Services Offered

Amkor offers a full range of package and board level reliability tests in multiple locations. Modeling and simulation is also available for all optical sensor packages.

Amkor's Value Proposition

▶ Standardized process and platforms
▶ Continued evolution of the optical toolbox
▶ Global and regional footprint for final assembly and test

Visit amkor.com or email sales@amkor.com for more information.