CMOS Image Sensors - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-07-01 | 151 pages | Mordor Intelligence

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Report description:

CMOS Image Sensors Market Analysis

The CMOS image sensor market stands at USD 24.58 billion in 2025 and is forecast to reach USD 34.52 billion by 2030, registering a 7.12% CAGR. Demand spreads from smartphone cameras to automotive safety, industrial automation and medical diagnostics, reflecting the technology's growing functionality advantages over CCD designs. Stacked backside-illuminated (BSI) architectures incorporating on-die AI logic raise performance while trimming power budgets, reinforcing the CMOS image sensor market's cost-leadership in mass-volume electronics. Regionally, Asia-Pacific anchors production through Taiwan's foundries, while Middle East and Africa outpace with double-digit expansion on smart-city surveillance deployments. Consolidation continues as legacy producers divest capacity and specialist acquisitions accelerate, even as U.S.-China export controls and 300 mm wafer shortages inject supply-chain risk.

Global CMOS Image Sensors Market Trends and Insights

Smartphone Multi-Camera Adoption by APAC OEMs

APAC handset makers are extending multi-camera arrays from flagships into mid-range lines, driving sustained unit growth for high-dynamic-range image sensors. Samsung's 2024 release of 200 MP and 50 MP ISOCELL devices underscored the pivot toward computational photography and higher frame-rate video. OmniVision's OV50X, offering 110 dB single-exposure HDR, illustrates how premium smartphones now differentiate on sensor capability rather than megapixel count alone. Sony's LYT-828, entering

mass production in 2025, embeds Hybrid Frame-HDR logic on-die, allowing AI-assisted low-light processing without external ISP cycles. The combination of higher pixel densities and on-sensor compute supports feature expansion while raising average selling prices for advanced parts, reinforcing revenue growth for the CMOS image sensor market.

Regulatory Mandates for ADAS Cameras in US & EU

NHTSA's December 2024 New Car Assessment Program upgrade mandates camera-based blind-spot, lane-keeping and automatic emergency-braking systems across light vehicles, anchoring long-term sensor demand. Global-shutter architectures mitigate motion artifacts essential for safety-critical imaging, evident in Subaru's next-generation EyeSight system that selects onsemi's Hyperlux AR0823AT sensor meeting ASIL C safety standards. The EU's General Safety Regulation mirrors U.S. requirements, synchronizing specifications and giving CMOS foundry operators visibility for a decade of automotive-grade capacity investments.

Advanced 300 mm CIS Wafer Capacity Constraints in Taiwan & Korea

Surging AI-chip orders compete with image-sensor output for advanced 300 mm lines at Taiwanese and Korean foundries, extending lead times from 12-16 weeks to 20-24 weeks. TSMC's Arizona expansion, though capitalized at USD 165 billion, will not meaningfully relieve CIS bottlenecks before 2027. The geographic clustering of stacked BSI manufacturing heightens geopolitical exposure, significantly tempering near-term supply elasticity for the CMOS image sensor market.

Other drivers and restraints analyzed in the detailed report include:

Video-Centric Social-Media Demand for 4K/8K Sensors in North America / Miniaturized Sensors for Wearable Medical Imaging in Japan & EU / ASP Erosion in Entry-Level Smartphones /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Backside-illuminated sensors captured 65% CMOS image sensor market share in 2024, reflecting superior sensitivity and higher signal-to-noise ratios. The segment's ascendancy lifted the BSI-based CMOS image sensor market size for premium smartphones and automotive cameras. Stacked BSI/3D sensors are advancing at 9.8% CAGR, integrating logic layers that execute AI inference in situ and further enlarge value per square millimeter.

Front-side-illuminated devices maintain relevance in cost-constrained SKUs such as entry-level IoT cameras. Global-shutter architectures, often FSI-based, gain adoption in industrial automation to thwart motion artefacts. Emerging glass-substrate 3D stacking, projected between 2026 and 2030, promises tighter thermal profiles and higher interconnect densities, widening high-end differentiation.

The 12-24 MP band accounted for 25% CMOS image sensor market share in 2024, balancing storage and compute overhead in mainstream handsets. ?49 MP devices, though niche, are growing 9.5% annually as surveillance, medical and professional photography favor extreme digital zoom. Canon's 410 MP prototype highlights technical viability of full-frame ultra-high-density sensors, potentially catalyzing new diagnostic imaging modalities.

Sub-12 MP parts endure in barcode scanning and dashcams where frame rate trumps definition. Mid-tier 25-48 MP sensors serve mirrorless cameras leveraging multi-frame computational overlays. The pixel-count bifurcation sharpens price segmentation across the CMOS image sensor market, preserving margin tiers.

The CMOS Image Sensor Market Report is Segmented by Technology (Front Side Illuminated, Backside-Illuminated, and More), Resolution (Less Than 12 Megapixels, 12-24 Megapixels, and More), Spectrum (Visible, Non-Visible), Communication Type (Wired, Wireless), End-User Industry (Consumer Electronics, Automotive, Industrial, and More), and Geography. The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

Asia-Pacific holds 34% of 2024 revenue, benefiting from vertically integrated ecosystems spanning foundry silicon to final handset assembly. Taiwanese fabs supply the bulk of stacked-BSI wafers, while mainland China remains the world's largest smartphone export base. Korean innovation, led by Samsung's ISOCELL roadmap, sustains technology leadership inside the CMOS image sensor market. Supply-chain concentration confers scale economics yet elevates earthquake and geopolitical exposure.

Middle East and Africa present the fastest growth at 9.8% CAGR to 2030 as Gulf smart-city blueprints demand networked surveillance and traffic-analytics cameras. ADAS-equipped vehicle imports lift aftermarket replacement cycles, while Africa's mobile-first e-commerce boom drives low-light selfie camera volumes. Public-private funding incentives accelerate local system integration, creating an emerging corridor for CMOS image sensor market expansion.

North America influences global design through social-media platform demands and stringent automotive safety rules. Content-creator ecosystems prioritize sensors optimized for high-frame-rate 8K capture, pushing domestic fabless vendors toward premium niches. Europe, anchored by Germany's Industry 4.0 investments, channels photonics R&D into high-reliability industrial and medical segments. South America and South Asia represent untapped volume, though price sensitivity steers procurement toward established mid-tier designs rather than bleeding-edge sensors.

List of Companies Covered in this Report:

Sony Group Corporation / Samsung Electronics Co., Ltd. / OmniVision Technologies, Inc. / onsemi Corporation / STMicroelectronics N.V. / Canon Inc. / Panasonic Holdings Corporation / SK Hynix Inc. / Hamamatsu Photonics K.K. / Teledyne Technologies Incorporated / GalaxyCore Shanghai Limited Corporation / SmartSens Technology Co., Ltd. / PixArt Imaging Inc. / Tower Semiconductor Ltd. / ams-OSRAM AG / Teledyne e2v (UK) Ltd. / Himax Technologies, Inc. / Siliconfile Technologies Inc. / Sharp Corporation / Caeleste CVBA /

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