

Quad-Flat-No-Lead Packaging Market By Type (Air-cavity QFN, Plastic-moulded QFN, Others), By Moulding Method (Punched, Sawn), By Terminal Pads (Fully Exposed Terminal Ends, Pull-back Terminal Ends, Side Wettable Flank Terminal Ends), By Industry Vertical (Consumer Electronics, Industrial, Automotive, Computing/Networking, Communications): Global Opportunity Analysis and Industry Forecast, 2021-2031

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Report description:

The global quad-flat-no-lead packaging market is envisioned to garner \$1.1 billion by 2031, growing from \$0.4 billion in 2021 at a CAGR of 8.8% from 2022 to 2031.

No-lead packaging like the quad flat no-lead (QFN) is becoming more and more common for IC devices. This packaging type was initially created as low-form factor containers for hand-held consumer electronics. Additionally, they are less expensive overall than comparable packaging, use less board space, have great thermal management qualities, and may have higher electrical performance. The use of QFN packages has increased recently in the telecom and automotive industries, where the criteria for long-term board-level reliability for thermal fatigue resistance are more stringent than in consumer applications. These factors are anticipated to boost the demand for quad-flat-no-lead packaging market share in consumer electronics applications.

The quad-flat-no-lead packaging failure due to solder thermal fatigue is a major worry due to the non-leaded package's inherent high coefficient of thermal expansion mismatch, low solder standoff, and non-compliant peripheral interconnects. These packages also pose difficulties for solder assembly, which may have an even greater effect on board-level reliability. The packaging industry is moving toward larger bodies, finer pitches, and more pins, which all pose reliability risks and assembly issues for the quad-flat-no-lead packaging market size.

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The advancement of micro lead film (MLF) packaging technology has been able to expand its capacity for offering solutions in the power sector due to the flexible lead design. The power QFN (PQFN) is an MLF technology version that provides numerous exposed pads with multiple fused leads. The PQFN packaging solution offers the thermal performance required for power metal-oxide-semiconductor field-effect transistor (MOSFET) designs while maintaining its compact size. This is achieved by combining the integration abilities of copper (Cu) clips and heat. All types of portable, handheld and electronic charging devices are quickly adopting these methods. The sintering paste and the solder die attachment both have additional extended PQFN solution thermal performance. Thermal dissipation for precisely manufactured PQFN devices has been particularly robust. Devices capable of a sustained drain current of 15 amps and drain-to-source voltages of 150 volts can be supported by the embedded heat slug and external heat sink. The use of Cu lead frames and lead-free solders are crucial components of this packaging solution that enable the on-resistance performance required for devices with demanding high-power needs.

The COVID-19 pandemic brought several uncertainties leading to severe economic losses as various businesses across the world were at a standstill. There were import-export restrictions laid down on various countries such as the U.S., China, India, and others which imposed significant challenges on the market. Demand for quad-flat-no-lead packaging used in consumer electronics applications declined during the pandemic. Mobile phone sales were sharply down due to shifting in customer preferences toward less-priced phones, which hampered the market growth.

The key players profiled in this report include Amkor Technology, Inc., Texas Instruments Incorporated, Microchip Technology Inc., STATS ChipPAC Pte Ltd, ASE, NXP Semiconductors, JCET Group, Powertech Technology Inc., Tianshui Huatian Technology Co., Ltd, ChipMOS TECHNOLOGIES INC.

Key Benefits For Stakeholders

- This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the quad-flat-no-lead packaging market analysis from 2021 to 2031 to identify the prevailing quad-flat-no-lead packaging market opportunities.
- The market research is offered along with information related to key drivers, restraints, and opportunities.
- Porter's five forces analysis highlights the potency of buyers and suppliers to enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.
- In-depth analysis of the quad-flat-no-lead packaging market segmentation assists to determine the prevailing market opportunities.
- Major countries in each region are mapped according to their revenue contribution to the global market.
- Market player positioning facilitates benchmarking and provides a clear understanding of the present position of the market players.
- The report includes the analysis of the regional as well as global quad-flat-no-lead packaging market trends, key players, market segments, application areas, and market growth strategies.

Key Market Segments

By Terminal Pads

- Fully Exposed Terminal Ends
- Pull-back Terminal Ends
- Side Wettable Flank Terminal Ends

By Industry Vertical

- Consumer Electronics
- Industrial
- Automotive
- Computing/Networking
- Communications

By Type

- Air-cavity QFN
- Plastic-moulded QFN
- Others

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By Moulding Method

- Punched
- Sawn

By Region

- North America
- U.S.
- Canada
- Mexico
- Europe
- Germany
- UK
- France
- Spain
- Italy
- Rest of Europe
- Asia-Pacific
- Taiwan
- China
- Japan
- India
- South Korea
- Rest Of Asia
- LAMEA
- Brazil
- United Arab Emirates
- Saudi Arabia
- South Africa
- Rest of LAMEA
- Key Market Players
- Amkor Technology, Inc.
- Texas Instruments Incorporated
- Microchip Technology Inc.
- STATS ChipPAC Pte Ltd
- ASE
- NXP Semiconductors
- JCET Group
- Powertech Technology Inc.
- Tianshui Huatian Technology Co.,Ltd
- ChipMOS TECHNOLOGIES INC.

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