

# Videojet® Electronics

Industry Laser Case Study

Laser Marking in the  
Electrical Goods and  
Electronics Industry

## Laser.

Ink Jet.

Thermal Transfer.

Labelers.

Track & Trace.

Supplies.

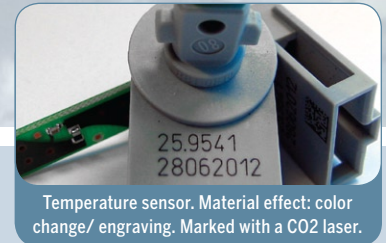
Parts & Service.



Terminal strip. Material effect: color change. Marked with a fiber laser.



Automotive switches. Material effect: color change. Marked with a fiber laser.



Temperature sensor. Material effect: color change/ engraving. Marked with a CO2 laser.

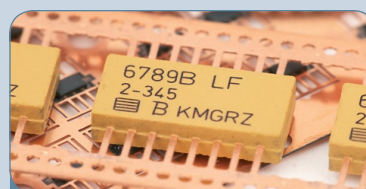
No other market is as complex as the electronics industry. There is much more to it than just chip production in Asia. A wide range of products manufactured in Europe and America also belong to this sector, e.g. plugs/connectors, housings, sensors, transistors, switches, resistors, capacitors and many more. While chip manufacturers produce heavily in Asia, the European and American markets are characterized by small and medium sized enterprises specializing in the manufacture of components or plant machinery and equipment.

## Challenges

All electric and electronic products, components and parts have to be marked, identified or coded one way or another. The marking contents range from simple alphanumeric codes to complex 2D codes, logos or individual data. Often, the data that has to be applied is very tiny, as many products are extremely small. The range of substrates that have to be marked is wide and integration into machines, production lines and clean rooms is also an issue. As a result, laser markers have to be flexible and compact to be suitable for the electronics industry.

## Solution

Laser marking is highly cost-effective for the electronics industry and offers the best quality with easily traceable marks. Videojet develops the latest and most effective laser marking systems suitable for the electrical goods, electronics and semiconductor industries.



Lead frame and IC. Material effect: color change.  
Marked with a fiber laser marker.  
Line width 100 µm, character height 1,190 µm.

## The Industry

**The Electronics industry is much more than just chips and ICs! Companies within the Electronics sectors ...**

- Manufacture machinery for the industry (e.g. handling/inspection/assembly/packaging equipment and machines).
- Manufacture components and parts (e.g. passive/ active components; housings; wire, cable; electromechanic parts such as switches, connectors; others - e.g. sensors, fuses, alloyed materials).

## Laser marking systems

- Are usually integrated into handling/testing/packaging machines
- Mark nearly all electric/electronic parts and components with the data companies need to apply - e.g. (bar) codes, logos/ symbols, (serial) numbers and letters.

**Smallest and Sharpest Codes in the Shortest of Time**

Videojet's proprietary scan technology incorporated in all its laser systems delivers optimum marking quality at highest marking speeds. Our fiber laser markers have been designed to precisely mark molded housings of discrete and integrated components as well as circuit boards, with high quality and in the shortest amount of time. With these systems, line widths well below 30 µm can be achieved, enabling character heights of 150 µm and less.

**Materials**

The materials that are processed most commonly range from a variety of plastics to ceramics, metals and various alloys. Depending on the respective material, Videojet can offer the optimal laser marker for nearly any application.

**Integration**

Due to their generally small sizes, compact mechanical design, flexibility and the many available options (e.g. with/without beam turn), our laser systems can be perfectly integrated into new and existing production lines and industrial electronic handling/automation systems (e.g. assembly, packaging or handling machines). The smallest models are the most cost-effective solutions for clean room environments.

**Additional Advantages**

**Extensive Experience in the Laser Marking Business**

Our systems are well established in Asia and number among the preferred solutions for laser marking in the electronics and semiconductor industries. Thousands of Videojet laser markers have been delivered to Asian electronics customers and are integrated in many different handling and inspection machines.

**Powerful Software**

Due to the tremendous amount of successful installations, our laser marking software, SmartGraph™, already offers many required extra functionalities as standard features.

**Superior Service**

Time and again the service and support within our global sales and service organizations is emphasized by our customers.

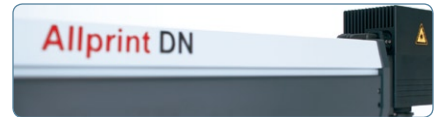
**Laser Markers and Engravers Especially Suited for Electronics**

Our laser marker portfolio spans fiber systems for high resolution and micro marking applications that require footprint, Nd:YAG systems for high speed applications and CO2 laser coders for less demanding lower resolution applications.

**Fiber Laser Markers**



**Nd:YAG Laser Markers**



**CO2 Laser Markers**

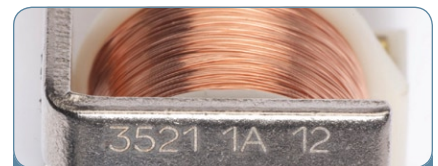


**Electronics References**

**Asia:** Laser marking of key pads/boards, capacitors, SiO ceramics, ICs, transistors, and many more.

**Europe:** Laser marking of active components/semiconductors, metal parts of crane magnets, connectors, plastic plugs, resistors (resistor alloys), electronic components (metal alloys), and many more.

**North America:** Laser marking of headlamp covers, measurement probes, key fobs for car alarms, and many more.



Modular relay. Material effect: engraving. Marked with a Nd:YAG system.



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