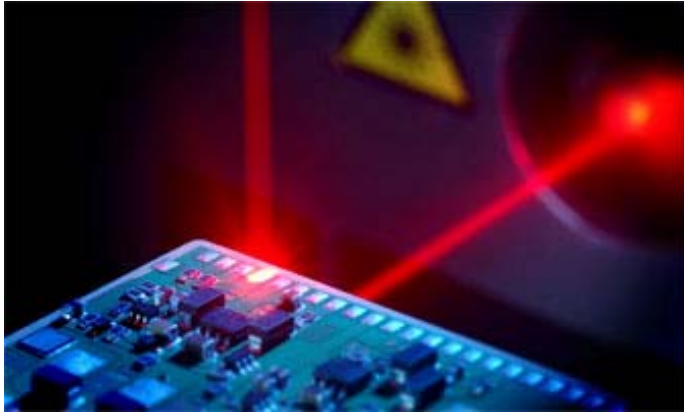


## ▶▶ SELECTIVE SOFT SOLDERING



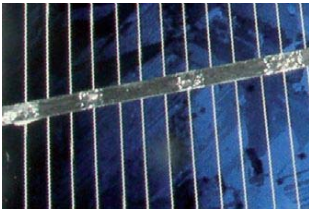
Soft soldering using laser radiation is becoming more and more significant in the field of selective soldering techniques.

Fast power controllability combined with a contactless temperature measurement to minimize thermal damage make the diode laser an ideal tool for this application. These advantages come into full effect when soldering of increasingly small parts in temperature sensitive environments is necessary.

Typical applications of diode laser soft soldering include soldering of **electronic components** as well as fragile components such as **solar cells**.

### Overview of process advantages

- contactless energy input
- spatially confined energy
- reduced thermal stress
- stable process
- high flexibility
- controllable soldering temperature
- contactless temperature measurement using pyrometers



Soldering of tin-plated contact strips on silicon solar cells



Connecting of temperature sensitive components



Soldering in confined spaces



Via soldering in hard to reach places

### Reliable soldering process for perfect joints

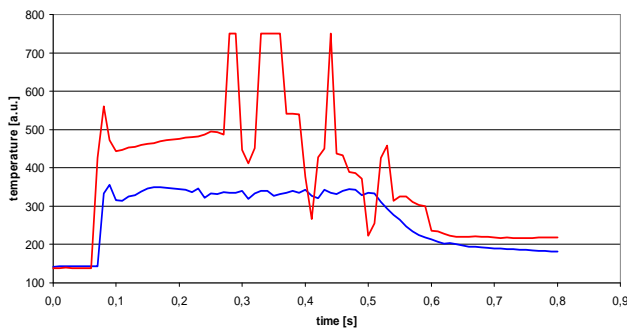
When using diode lasers for selective soft soldering, the required thermal energy is applied to the joint without direct mechanical contact. Due to the good focussing capabilities of laser radiation, the area of thermal input is very small and highly accurate.

A small beam waist also enables soldering in hard to reach places. This creates a great advantage over conventional selective soldering methods, which require direct mechanical contact with the joint (e.g. soldering iron, inductor,...).

The solder can be brought to the joint using automated solder wire transport or solder depots such as paste or pre-tinned contacts.

## ▶▶ SELECTIVE SOFT SOLDERING

### Process reliability and control



Example:      **blue** – good solder joint  
                  **red** – bad solder joint

The pyrometer is a well-established tool for process control in laser soldering and serves as a reliable quality monitor. A contactless temperature measurement of the joint using a pyrometer enables direct temperature control of the soldering process. A closed-loop system between temperature (pyrometer) and laser power (diode laser system) enables fast and precise process control. This is an especially important feature when soldering intricate and/or temperature sensitive parts. Using the pyrometer measurement, incorrect joints can be detected and automatically rejected.

### Products



COMPACT  
Diode Laser System

The COMPACT is a diode laser system in a standard 19-inch format. The modular concept enables the integration of various diode laser modules with output powers of up to 500W with a standardized interface and footprint.



Processing Optics  
PHFS9 including  
camera and pyrometer

Tailored accessories, such as processing optics at various focal lengths, homogenous beam profiles and scanner heads, that are optionally equipped with pyrometer, complete the product range, making this system the perfect tool for selective soft soldering.