



# ML-8150A

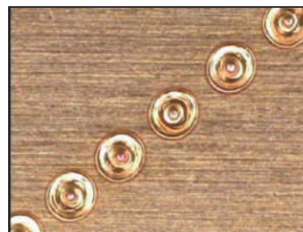
## Green Pulse Laser Welder

- For solder-less joining of semiconductor substrate
- SHG laser can weld copper wire directly onto a semiconductor substrate without using solder
- Combination of YAG fundamental laser and SHG laser realizes welding of thick copper plates; which is difficult to weld by a conventional way
- SHG laser is the best solution for welding copper and gold
- Copper and gold are materials with high reflectance so that those are known as hard-to-weld materials
- Wavelength of SHG laser is 532 nm which is a half of fundamental laser (1064 nm) and that makes laser absorptance to copper and gold 4.5 to 20 times higher than fundamental laser
- Even copper and gold does not reflect SHG laser

### KEY FEATURES

- Maximum power is 5 W! Its power gets much stronger than ML-8050A with 2 W
- Beam quality is up and power density is nine times higher than the existing model. (190 kW/mm<sup>2</sup> @1.5 kW)
- High-speed, Welding shortens takt time
- Real-time power feedback control feature supports stable laser output
- Air cooling method is employed; no additional heat exchanger is necessary

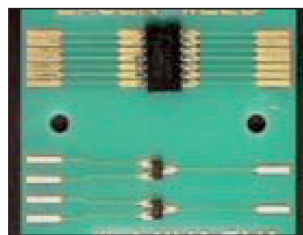
### TYPICAL APPLICATIONS



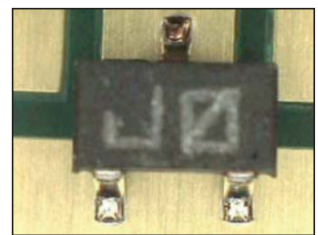
*Spot welding of copper*



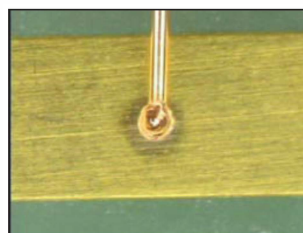
*Welding of bus bars*



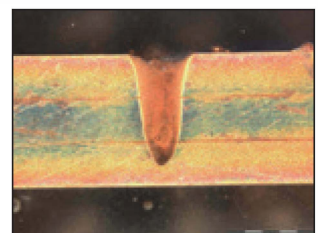
*Welding of copper on PCB*



*Welding of mount parts onto PCB without solder*



*Penetration of 1.26 mm in CuSn6*

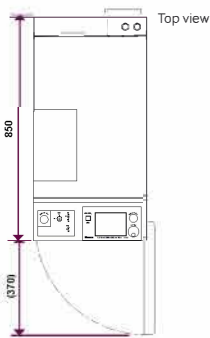


*Penetration of 1.26 mm in CuSn6*

**TECHNICAL SPECIFICATIONS**

|  |  |   |
|--|--|---|
| <b>Oscillator</b>                                  | <b>Technical specifications</b>                          | 5 W   |
|  | <b>Weldheads</b>   | 4 JP / 1.5 kW                                   |
|  | <b>Available for</b>                                     | 0.20 to 5.00 ms (0.02ms step)                   |
|  | <b>Offset</b>  | 1 to 30 pps                                     |
|  | <b>Front head 40 mm lower (other steps upon request)</b> | 532 nm  |
|  | <b>Head selection</b>                                    | Optical fiber / Two energy sharing at maximum   |
| <b>Power supply</b>                                | <b>Camera</b>  | 200/220/240 VAC +10% -15% 50/60 Hz Single phase |
|  | <b>Shielding gas</b>                                     | 7A / 2.0 kVA                                    |
|  | <b>Maximum output</b>                                    | 15A   |
|  | <b>Beam quality</b>                                      | RS-485  |
|  | <b>Pulse width</b>                                       | Air cooling                                     |
|  | <b>Pulse width resolution</b>                            | 5 to 30 °C / 85% or below                       |
| <b>Weight ML-8150A (Power supply / Oscillator)</b> |  | approx. 175 kg                                  |

**DRAWINGS**



Unit: mm

