

## Aluminum Bonding Ribbon for Power Electronics



**Heraeus Aluminum Bonding Ribbon – maintaining the strength of Heraeus Bonding Wire materials and outperforming the technical feasibilities in power electronics assembly.**

The increasing demands for transmitting high currents in electronic power devices have driven the industry to investigate alternative interconnect solutions.

Ultimate reliability and extreme robustness, together with improvements in productivity are always considered to be the main objectives of technical enhancements.

Heraeus' Aluminum Ribbons for power applications provide an evolutionary extension to its well proven thick aluminum wire program – utilizing the strength of thick wire technology for ribbon products.

For the demands in fulfilling high electrical load requirements in today's power devices, the aluminum thick wire bonding has its limitations, e.g. once it becomes necessary to bond a significant number of parallel wires.

In such cases, Heraeus Aluminum Bonding Ribbon can be

### Benefits of Heraeus Aluminum Ribbon

- High electrical loads
- High reliability
- Corrosion resistant
- A significant number of wires replaced by one ribbon
- Saves space and time in electronic housing concepts
- Softest bonding with ribbon
- Potential for higher manufacturing yields
- Bondable on all common surfaces that are applicable for Al bonding

an alternative. Due to ribbon's larger cross-section compared to wire, Heraeus Aluminum Bonding Ribbon can carry higher currents.

The idea behind using Heraeus Aluminum Bonding Ribbon for interconnect purposes is to give up some of the overall flexibility of Aluminum wire bonding, in order to gain a one dimensional interconnect design with at least comparable or even better reliability and the potential of higher electrical performance.

Quality and consistency of the alloys used in manufacture of Heraeus' Aluminum Bonding Ribbons is an important factor to achieve best reliability and robustness.

Heraeus decided to transfer the advantages of its enhanced Aluminum materials, already successfully in use in today's automotive electronic devices, to Aluminum Ribbon manufacture.

The material compositions and mechanical properties are equivalent to those of aluminum wires.

In order to satisfy the requirements on the dimensional tolerances, Heraeus is using a fully computer controlled rolling equipment.



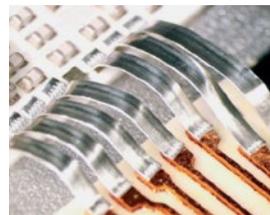
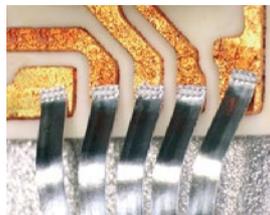
#### Aluminum Ribbon Alloy

AluBond Prime H14CR
Highest purity
High reliability
Anti-corrosion doped

#### Dimension table – Equivalent numbers of wires per one ribbon

Al Ribbon Size	Mil	Microns (µm)	Mil	8	10	12	15	20
			(µm)	200	250	300	380	500
40 x 4	1000 x 100			3.2	2.0	1.4		
60 x 8	1500 x 200			9.5	6.1	4.2	2.7	1.5
80 x 8	2000 x 200			12.7	8.1	5.7	3.6	2.0
80 x 12	2000 x 300			19.1	12.2	8.5	5.4	3.1

Alternative dimensions on request



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