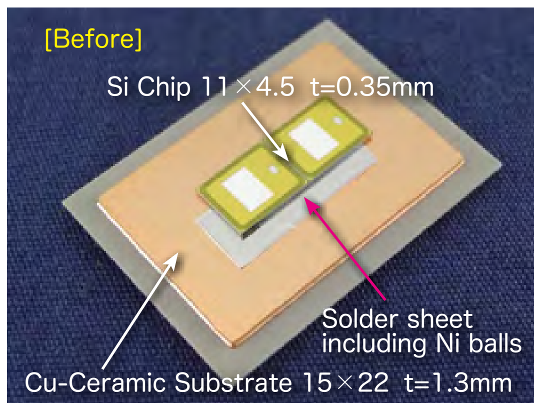
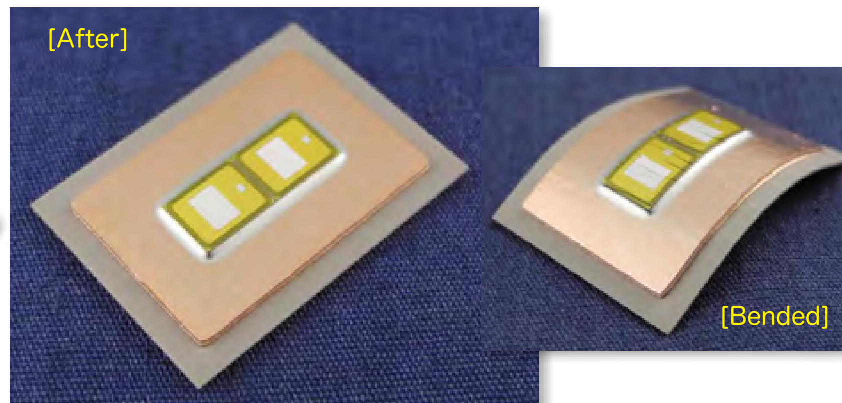
technical information

<The die bonding with solder sheet including **Ni** balls in the atomosphere & room temperature by **SEB**>

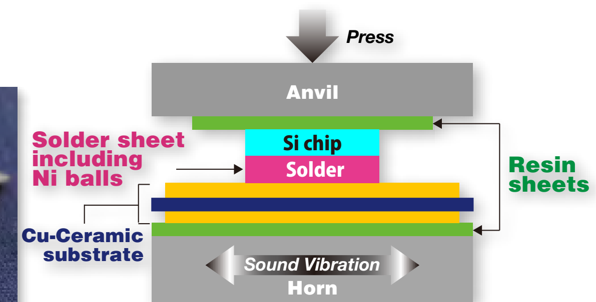
No need of reflow sytem / No voids / Relieve thermal stress

The solder sheet including nickel balls is sandwiched by [Si Chip] and [Cu-Ceramic Substrate] through resin sheets.
The atoms of the solder sheet excited and melted by <Sound Power Energy> bond Chip and Substrate each. (Patents pending)





(The spread of solder can be adjusted by changing thickness of solder sheet and size of Ni balls)



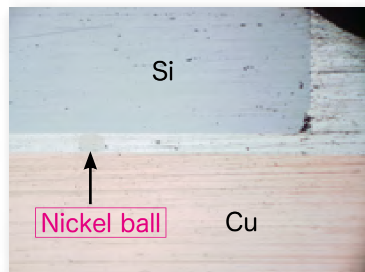
[**S**ound **E**xcitation **B**onding]

〈Advantages of **SEB**〉

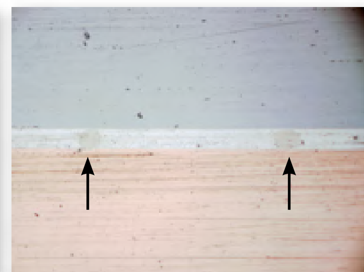
- ★ Sound Frequency [15kHz]
- ★ [Atmosphere・Room temperature]
- ★ [Free motion of excited atoms]
- ★ [Diffusion/Alloy] with solder
- ★ Bonding takes [A few10 of seconds]
- ★ [No warp/No Stress]
- ★ [No Time-dependent change]
- ★ [No voids]
- ★ [No whisker]
- ★ [No knurls]
- ★ [Flux free]
- ★ Bonding in N_2 purge [No Oxidation]

[The cross sections]

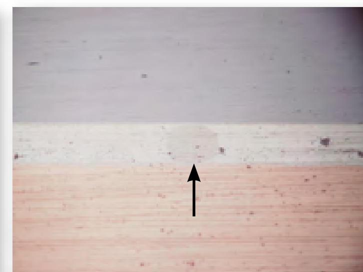
(No voids by action of Sound Power Energy)



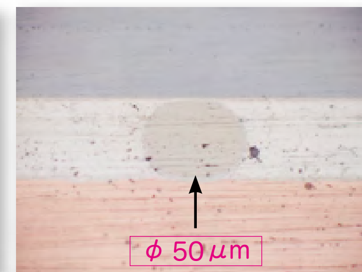
x350 [corner]



x350 [center]



x700



x1400

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