

## **Interrogation of surface roughness and bond force effect**

### **Abstract**

In the macro world surface roughness is a feature undoubtedly not to be ignored. In the current trend towards the nano-scale feature in the devices related to the semiconductor and other various niche, surface roughness is being propelled as an important element. In this work the surface roughness at nano level is investigated for the adhesion interaction and influence. The samples for the roughness feature and ranges were prepared using controlled plasma etching. The wire bonding bond force parameter was chosen as the factor to be tested and shear test as the response. The shear value ranged from 13g to 22g for the low to high bond force respectively for the lower range surface roughness, for the higher surface roughness the value ranged 5g to 9g respectively. The interaction shows surface roughness has tangible effect on adhesion for a more thorough detailed investigation.

### **Keywords**

Adhesion; Bonding; Nano-scale; Plasma and asperities; Surface roughness