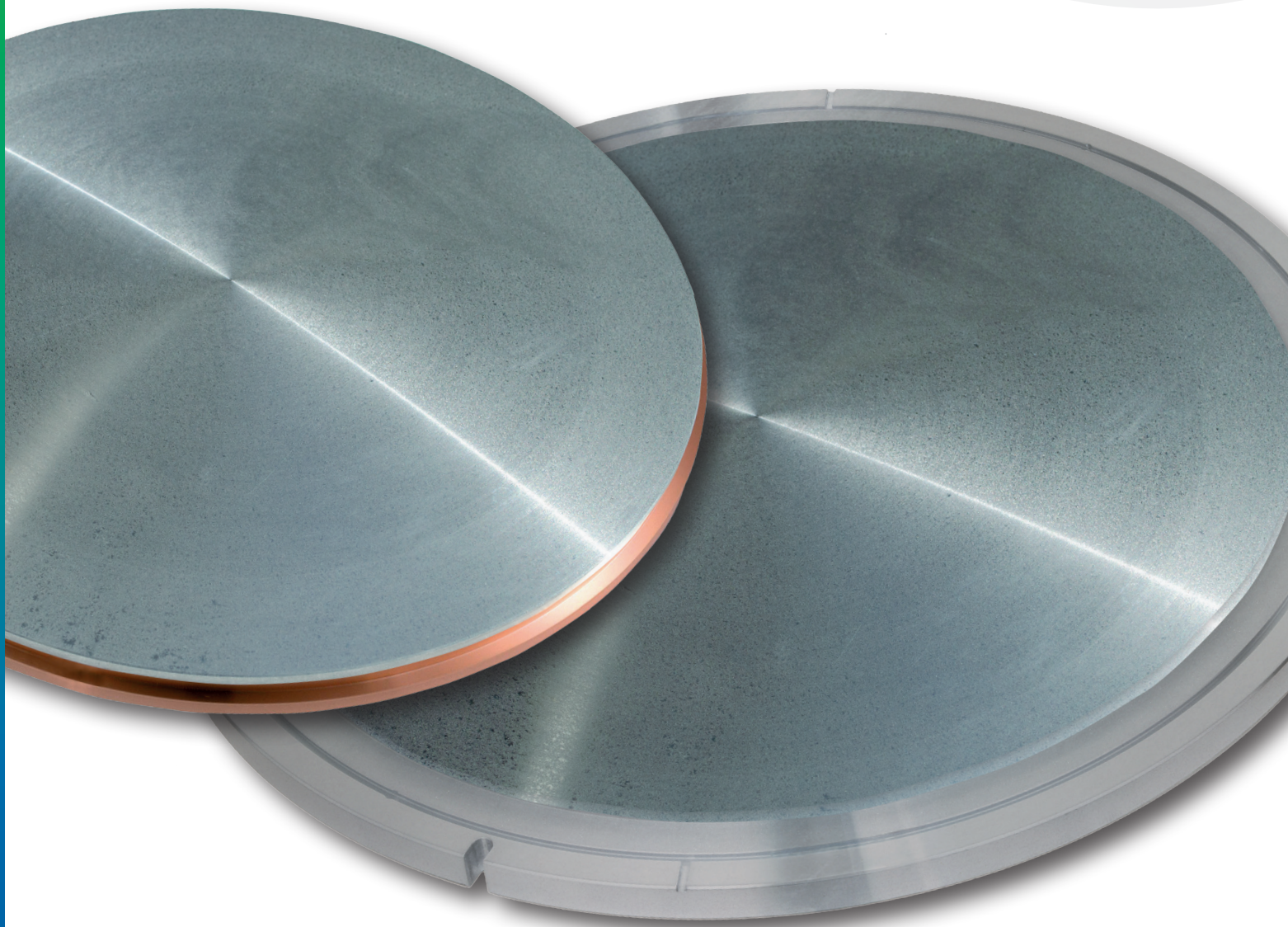


Sputtering Targets for Thin Film Deposition

AlSc Alloys for Microelectronic Applications



AlScN Thin Films

AlN is widely used as the piezoelectric film in piezoMEMS. The addition of ScN strongly improves the limited performance of AlN. Until 43at% Sc content AlScN crystallizes in the wurtzite structure and exhibits a continuous improvement of the piezoelectric coupling. Above 43at% Sc content AlScN reverts to the cubic structure, which has no piezoelectric properties. AlScN is most advantageously sputtered from AlSc alloy targets in a N₂ atmosphere.

APPLICATIONS OF AlScN THIN FILMS

- piezoMEMS
 - BAW (Bulk Acoustic Wave) RF-Filters for 5G
 - acoustic sensing for microphones, fingerprint recognition pMUT
- potential applications
 - ferroelectrics for memories
 - power electronics making use of the wide band gap semiconductor properties

UMICORE OFFERING

- AlSc up to 9.6at%
- AlSc up to 43at% under development
- min. purity 3N (= 99.9%)
- solder bonded or diffusion bonded to backing plate
- for all prominent OEMs

Please find your local sales partner at: www.thinfilmproducts.umicore.com

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