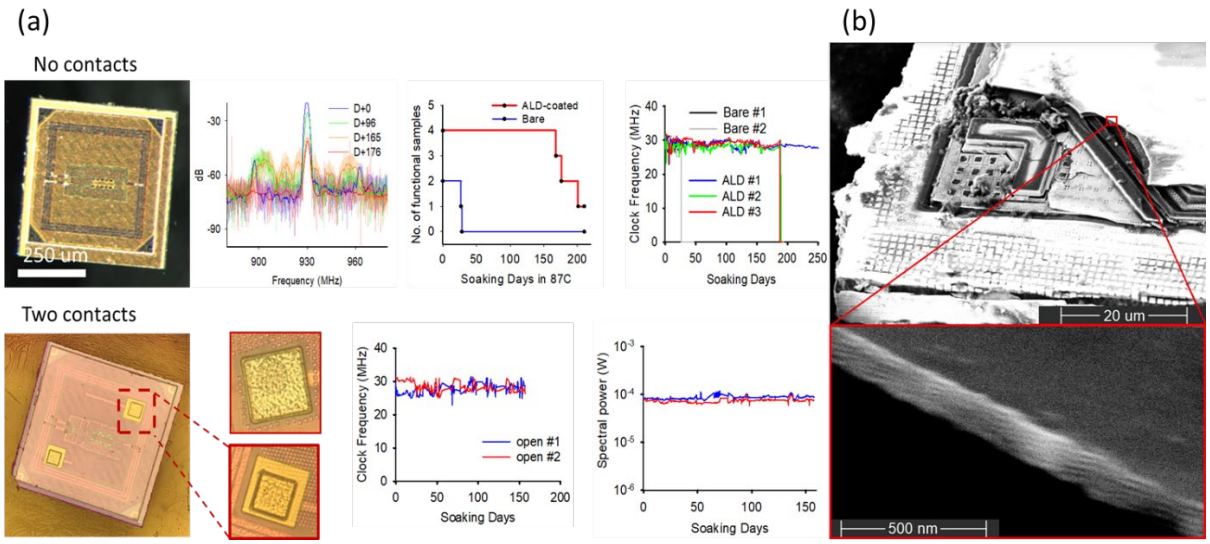

Figure 1. ALD coated Active microchiplets soaked in saline bath at 87 C. Performance evaluated by monitoring wireless data. Coated chips are functional for >150 days in both intermittently and continuously powered states (RF communications),even after small apertures have been opened into the coating for formation of electrodes; (b) Scanning electron micrograph of a failed chiplet showing disruption of ALD film at chiplet corner. Inset shows laminar structure of ALD stack is maintained adjacent to failure site.

Supplemental Figures:

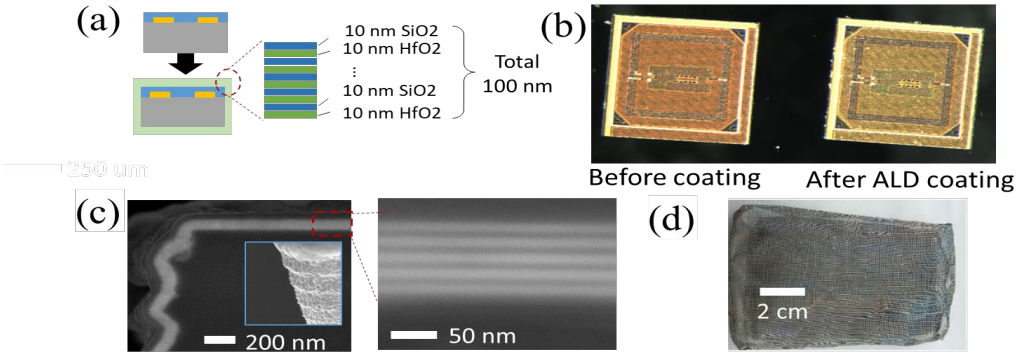

Figure S1: *(a) Cornformal ALD coating process; (b) Active microchiplets before and after ALD coating; (c) SEM images of substrate plane and edges demonstrating continuous ALD films; (d) A woven wrapping, in which the samples were coated (Picosun ®)*

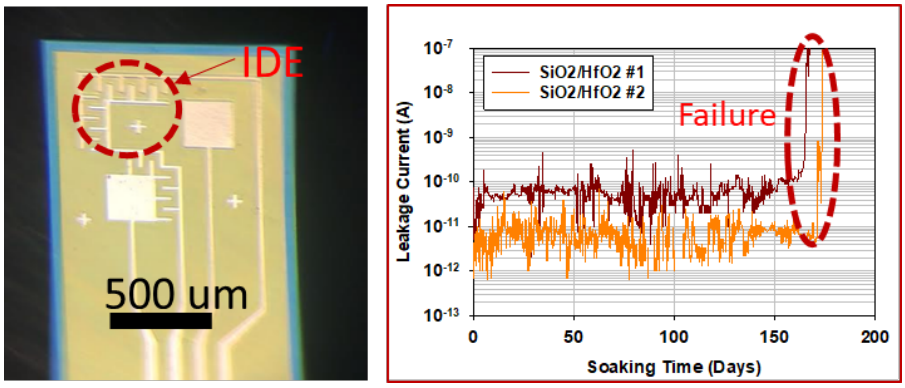

Figure S2: *ALD-coated Interdigitated Electrode (IDE) substrates (left) and soak test results (right). Failure at >150 days represented by increased leakage currents (from pA at baseline to >100 nA)*