Supplementary File

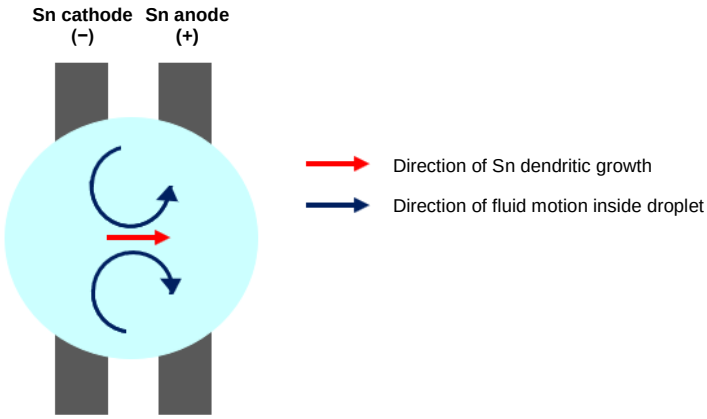
In-situ study of electrochemical migration of tin in the presence of bromide ion

Ee Lynn Lee[1], A. S. M. A. Haseeb[1], Wan Jeffrey Basirun[2], Yew Hoong Wong[1], Mohd Faizul Mohd Sabri[1] & Boon Yew Low[3]

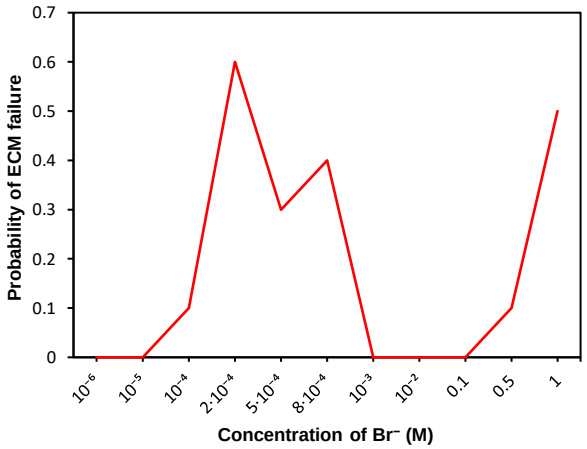
[1]Department of Mechanical Engineering, Faculty of Engineering, University of Malaya, Kuala Lumpur 50603, Malaysia.

[2]Department of Chemistry, Faculty of Science, University of Malaya, Kuala Lumpur 50603, Malaysia.

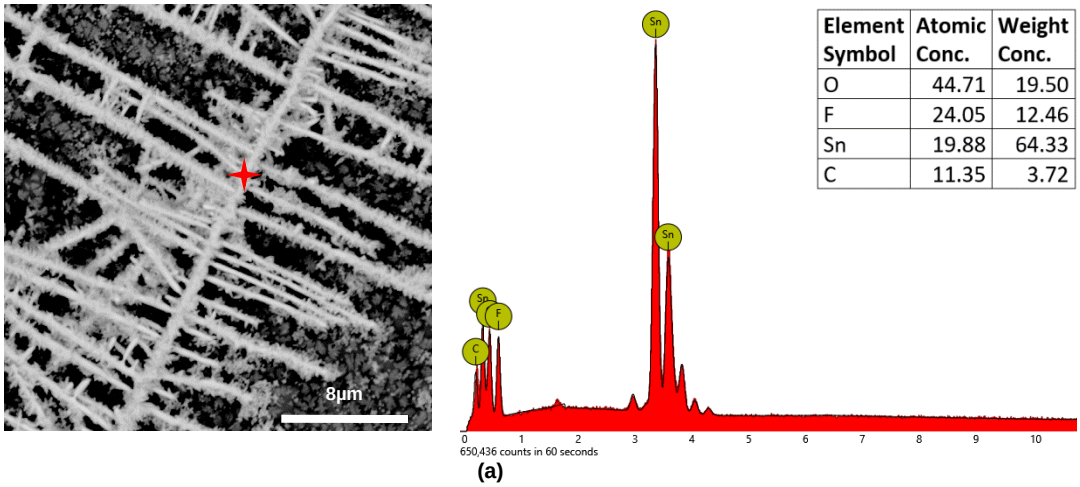
[3]Process Innovation, NXP Semiconductors Malaysia Sdn. Bhd., Selangor, Malaysia.



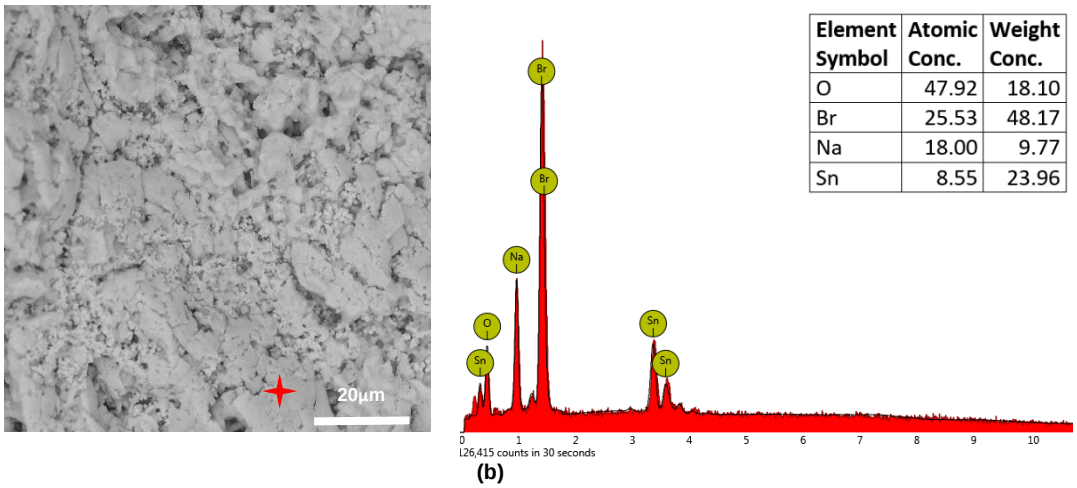
Supplementary Figure S1. Schematic of electrolyte flow (top view) when 3 V bias voltage was applied.



Supplementary Figure S2. Probability of short circuit as a function of bromide content.

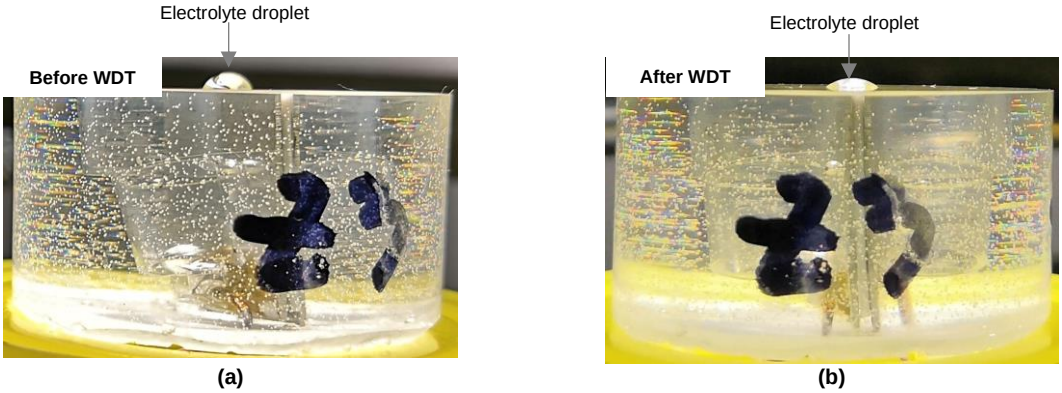


Element Symbol	Atomic Conc.	Weight Conc.
O	44.71	19.50
F	24.05	12.46
Sn	19.88	64.33
C	11.35	3.72



Element Symbol	Atomic Conc.	Weight Conc.
O	47.92	18.10
Br	25.53	48.17
Na	18.00	9.77
Sn	8.55	23.96

Supplementary Figure S3. SEM images of (a) Sn dendrite (in $2 \cdot 10^{-4}$ M NaBr, 3 V) and its respective EDX spectrum. (b) Precipitate (in 0.5 M NaBr, 3 V) and its respective EDX spectrum.



Supplementary Figure S4. Front view of a typical test sample showing the thickness of NaBr electrolyte droplet (a) before the WDT at 0 s and (b) after the WDT at 450 s.