

Suppose peripheral test successfully executed and DRD test fails for row 2

**Chip Size:** 4 × 6, **Possible Fault Position:** (9..3)

Objective: Find out the exact fault Location.

Table Format:

|  |  |  |
| --- | --- | --- |
| Electrode actuation series | |  |
| **Time Cycle** | **Actuated Electrode Number** (If more than one electrodes actuated at the same time cycle then use comma as a separator) | **Conclusion(On basis of arrival of droplet at electrode 1 which is detected through capacitive sensing circuit)** |
| 1 | 1 | Fault was present at electrode 3 |
| 2 | 2 |  |
| 3 | 1 | Fault was present at electrode 4 |
| 4 | 3 |  |
| 5 | 2 |  |
| 6 | 1, 4 | Fault was present at electrode 5 |
| 7 | 3 |  |
| 8 | 2, 5 |  |
| 9 | 1, 4 | Fault was present at electrode 6 |
| 10 | 3, 6 |  |
| 11 | 2, 5 |  |
| 12 | 1, 4, 7 | Fault was present at electrode 7 |
| 13 | 3, 6 |  |
| 14 | 2, 5, 8 |  |
| 15 | 1, 4, 7 | Fault was present at electrode 8 |
| 16 | 3, 6 |  |
| 17 | 2, 5 |  |
| 18 | 1, 4 | Fault was present at electrode 9 |
| 19 | 3 |  |
| 20 | 2 |  |
| 21 | 1 | Fault was present at electrode 10 |
| **Total Time Cycles** |  |  |

The electrodes were actuated in the following sequence stated above

If the droplet at electrode is received at 12th clock-cycle then the fault was at electrode 7.

received at 15th clock-cycle then the fault was at electrode 8

received at 18th clock-cycle then the fault was at electrode 9

received at 21th clock-cycle then the fault was at electrode 10.

**Explanation :**

Suppose the fault was present at **electrode 7**.

Suppose peripheral test successfully executed and DRD test fails for row 2 so the droplet will be stuck at **electode 6.**

|  |  |  |
| --- | --- | --- |
| Time Cycle | Actuated Electrode Number (If more than one electrodes actuated at the same time cycle then use comma as a separator) | Current droplet position |
| 1 | 1 | 6 |
| 2 | 2 | 6 |
| 3 | 1 | 6 |
| 4 | 3 | 6 |
| 5 | 2 | 6 |
| 6 | 1, 4 | 6 |
| 7 | 3 | 6 |
| 8 | 2, 5 | 5 |
| 9 | 1, 4 | 4 |
| 10 | 3, 6 | 3 |
| 11 | 2, 5 | 2 |
| 12 | 1, 4, 7 | 1 |
| **Total Time Cycles** |  |  |

**#**Suppose the fault was present at **electrode 8**.

Suppose peripheral test successfully executed and DRD test fails for row 2 so the droplet will be stuck at **electode 7.**

|  |  |  |
| --- | --- | --- |
| Electrode actuation series | |  |
| **Time Cycle** | **Actuated Electrode Number** (If more than one electrodes actuated at the same time cycle then use comma as a separator) | **Current droplet position** |
| 1 | 1 | 7 |
| 2 | 2 | 7 |
| 3 | 1 | 7 |
| 4 | 3 | 7 |
| 5 | 2 | 7 |
| 6 | 1, 4 | 7 |
| 7 | 3 | 7 |
| 8 | 2, 5 | 7 |
| 9 | 1, 4 | 7 |
| 10 | 3, 6 | 6 |
| 11 | 2, 5 | 5 |
| 12 | 1, 4, 7 | 4 |
| 13 | 3, 6 | 3 |
| 14 | 2, 5, 8 | 2 |
| 15 | 1, 4, 7 | 1 |
| **Total Time Cycles** |  |  |

**#**Suppose the fault was present at **electrode 9**.

Suppose peripheral test successfully executed and DRD test fails for row 2 so the droplet will be stuck at **electode 8.**

|  |  |  |
| --- | --- | --- |
| Electrode actuation series | |  |
| **Time Cycle** | **Actuated Electrode Number** (If more than one electrodes actuated at the same time cycle then use comma as a separator) | **Current droplet position** |
| 1 | 1 | 8 |
| 2 | 2 | 8 |
| 3 | 1 | 8 |
| 4 | 3 | 8 |
| 5 | 2 | 8 |
| 6 | 1, 4 | 8 |
| 7 | 3 | 8 |
| 8 | 2, 5 | 8 |
| 9 | 1, 4 | 8 |
| 10 | 3, 6 | 8 |
| 11 | 2, 5 | 8 |
| 12 | 1, 4, 7 | 7 |
| 13 | 3, 6 | 6 |
| 14 | 2, 5, 8 | 5 |
| 15 | 1, 4, 7 | 4 |
| 16 | 3, 6 | 3 |
| 17 | 2, 5 | 2 |
| 18 | 1, 4 | 1 |
| **Total Time Cycles** |  |  |

**#**Suppose the fault was present at **electrode 10**.

Suppose peripheral test successfully executed and DRD test fails for row 2 so the droplet will be stuck at **electode 9.**

|  |  |  |
| --- | --- | --- |
| Electrode actuation series | |  |
| **Time Cycle** | **Actuated Electrode Number** (If more than one electrodes actuated at the same time cycle then use comma as a separator) | **Current droplet position** |
| 1 | 1 | 9 |
| 2 | 2 | 9 |
| 3 | 1 | 9 |
| 4 | 3 | 9 |
| 5 | 2 | 9 |
| 6 | 1, 4 | 9 |
| 7 | 3 | 9 |
| 8 | 2, 5 | 9 |
| 9 | 1, 4 | 9 |
| 10 | 3, 6 | 9 |
| 11 | 2, 5 | 9 |
| 12 | 1, 4, 7 | 9 |
| 13 | 3, 6 | 9 |
| 14 | 2, 5, 8 | 8 |
| 15 | 1, 4, 7 | 7 |
| 16 | 3, 6 | 6 |
| 17 | 2, 5 | 5 |
| 18 | 1, 4 | 4 |
| 19 | 3 | 3 |
| 20 | 2 | 2 |
| 21 | 1 | 1 |
| **Total Time Cycles** |  |  |