



QFP/SOP/SOT/SSOP/TO Assembly Generic QC Flow & Control Plan

| Process Flow | Operation | Function | Frequency | Sample size |
|---------------------------|-----------|--|---|---|
| Incoming Wafer Inspection | | Visual check for broken wafer | Every wafer | Whole area of wafer back |
| | | wafer backside check for crack and scratch | Every wafer | 5 wafer |
| | | Inspection for die defect | Every wafer | 75ea/5 wafers; 9points per wafer |
| Backgrinding | | Backgrind thickness | Every setup | 5 data. 1 wafer |
| | | Wafer backside roughness measure | 1x/shift/machine | 1 pcs wafer |
| | | TTV | Every setup | 1 pcs wafer |
| Wafer saw | | Visual check | 1x/shift/every change device | 50 units |
| | | Saw Line | Between 5th to 15th line in wafer | Every wafer |
| 2/0 QC Gate | | Visual defects | Every wafer lot | 125 dies |
| Die Attach | | Visual inspection | Every set-up | 2ea |
| | | Die backside inspection | Every setup, Every 8 hrs / MC | 5ea, (2ea monitor) |
| | | Die tilt | Every setup, Every 8 hrs / MC | 2ea |
| | | Fillet height | Every setup, Every 8 hrs / MC | 2ea |
| | | Epoxy coverage | Every setup, Every 8 hrs / MC | 2ea |
| | | Die backside chip measurement | Every setup | 2ea |
| | | Die placement | Every setup, Every 8 hrs / MC | 2ea |
| | | Epoxy void | Every setup, Every 12 hrs / MC | 2ea, size<100 units 10% lot size; >100 units 10 good dice |
| | | Bondline thickness | Every setup, Every 8 hrs / MC | 2ea |
| Die Attach Cure | | Die shear | per oven/12hours | 2ea |
| | | Epoxy void | Per day/mc | 1 strip |
| Plasma clean | | Contact angle measurement on die surface | 1x / 1day / machine | 3ea |
| Wire Bond | | Wire pull test | 1x/shift/machine | 10 wires |
| | | Ball shear test | 1x/shift/machine | 10 balls |
| | | Cratering | Every setup | 1 ea |
| 3/0 QC Gate | | Visual inspection | Per lot | 125ea: Lot sizes≤3200, |
| | | | | 200ea: 3200 < Lot sizes≤10000 |
| | | | | 315ea: 10000 < Lot sizes≤35000 |
| | | | | 500ea: Lot size > 35000 |
| Plasma clean | | Contact angle measurement on die surface | 1x / 1day / machine | Every machine |
| Mold | | Visual inspection | Every setup | 1st good shot |
| | | warpage | Every mold die set-up | 1st good shot,2unit/strip |
| | | Package thickness | Every mold die set-up 1X/mold die/MC/shift | 1st good shot,1unit/strip 1X/mold die/MC/shift (monitor) |
| | | leadframe off centering | Every mold die set-up, 1x/day/machine (for the day w/o setup buyoff) | 5 unit in 1 shot |
| Post mold cure | | Temperature / time | 3 oven/1shift | Nil |
| | | Warpage | Per pkg type/size/day | 2 units |
| | | Delamination | 3 ovens/ shift | 1 strip/Oven |
| Trim | | Visual defects | After each change of trim die set/ PM & machine repaired; | the first strip, |
| | | Micro defects | at least once per shift for machines that | 3 units/strip, 1 strips; |
| | | dambar intrusion/protrusion | After each change of trim die set/ PM & machine repaired. | 1 unit (monitor) |
| Debleed | | visual inspection | 1x / shift / Machine | 5 strips |
| Plating | | visual inspection | After equipment repair or PM,each time 3 strips. | 3 strips |
| | | composition | 3 kinds of pkg size, 3 lots/shift, each time 3 strips. | 3 strips , 12 readings |
| | | plating thickness | When machine idle At least 1 lots/shift do | 3 strips , 12 readings |
| | | solderability test | Per day/bathe | 5 units |
| | | ion contamination | Per bath / week | 3 strips |
| Laser marking | | Visual inspection | Every setup; 1X/Shift/Machine | First strip; 1 strips |
| | | Engraving depth | Every setup | 5 points of 1st strip |
| Form | | visual inspection | After each change of form die set/die set cleaning/PM & machine repaired; | 5 units; 1 trav |
| | | micro defects | 1x/shift/machine | 5 units |
| | | co-planarity | | 5 units |
| | | dimension check | After each change of form die set/die set cleaning/PM & machine repaired; | 5 units |
| | | External width,Stand off | 1x/shift/machine | 5 units |
| Final visual QC Gate | | Visual defects | Per sub-lot | AQL 0.04 |
| | | Side defects visual | Per sub-lot | 10 units |
| | | Reject verification | Per sub-lot | 5 units |

Test Generic QC Flow & Control Plan

| Process Flow | Process | Function | Frequency | Sample size |
|--------------|-----------------|-----------------|----------------|----------------------------------|
| | Electrical Test | EQA buyoff | Every lot | per AQL sampling plan, min 0.065 |
| | | OQA | Visual defects | Every lot |
| | Pack | Document, label | | Every lot |