

MACHINE DE CONTROLE TRIDIMENSIONNEL

Acceptance profile

Shows the tolerable limits for the various categories measured in microns

Rework+

Tolerance to one side of the X-axis while inspecting the alignment of the spheres

Rework -

Tolerance to the other side of the X-axis while inspecting the alignment of the spheres

Reject+ / -

Limits at which the device is completely rejected

UCL

Upper Control Limit - any reading above this value will be rejected

LCL

Lower Control Limit - any reading below this value will be rejected

XO

x-axis for inspecting alignment

YO

y-axis for inspecting alignment

Pi

pitch of the device – set value of distance from centre of sphere to centre of sphere

wi

size of sphere

qu

Quality of the curvature of the top of the sphere – ensures that the sphere is rounded within tolerable limit

Log Category

shows the maximum, minimum and average results for this particular batch

Yield

Accepted and rejected yield for this particular batch

Component Summary

explains the worst result for the categories for every device inspected

Exemple

No ball	>XO ball	>YO ball	>PI ball	>wi ball	-qu Flags
1 C5	16 A8	17 G14	18 K13	14 E1	96

Explication

This implies that on device 1 the worst case result for XO was +16 on ball C5 - within the tolerable limits YO was + 17 on ball A8 and so on. Any value outwith tolerable limits is flagged with an X.

ERSASCOPE INSPECTION OF CERAMIC DEVICES

The devices are inspected for alignment by visually looking up and down the rows of spheres. If a sphere seems to be out of synchronisation in a row the difference is measured and determined to be within or outwith tolerable limits – in this case 25% of the pad size = 125microns. If a sphere seems to be higher or lower than the others it is also measured and determined pass or fail as above. The devices are also inspected from directly above and from a 45 degree angle to check for solderability faults such as dry joints, paste not reflowed, etc. The size of the spheres used in this reballing is 760micron. There were no major faults found during this inspection.

ELECTRICAL TESTING

The statistical reports of the Electrical testing of the 3 batches of devices are also attached.

To explain the statistics of the electrical test in layman's terms:

BGA288	39 devices tested	39 devices passed test for short circuits and open circuits
CSP132	39 devices tested	39 devices passed test for short circuits and open circuits
	4 devices failed initial test due to incorrect placement in the jig array	
CBGA575	36 devices tested	36 devices passed test for short circuits and open circuits