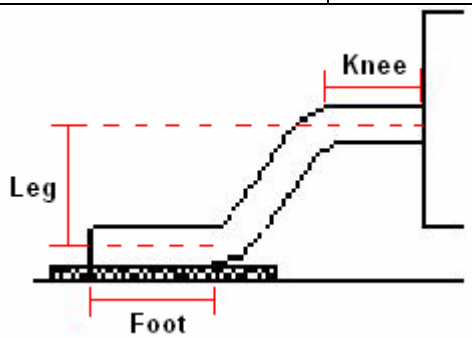
Package: PBGA-225 SAC 405

Feature	Value [mm] (in)
Package length Fig 6	27.102 (1.067)
Package width Fig 6	27.102 (1.067)
Package thickness Fig 6	1.254 (0.0494)
Pitch Fig 5	1.504 (0.0592)
Mass	2.3 g
CTE Strain Gauge Technique Temp range -50°C to 100°C Linear Correlation	8.107 ppm/°C (X - axis) 7.269 ppm/°C (Y- axis)
Die length Fig 6	24.011 (0.9453)
Die width Fig 6	24.011 (0.9453)
Die thickness Fig 6	1.254 (0.0494)
Lead width	N/A
Lead thickness	N/A
Minimum lead gap	N/A
	
Lead foot length	N/A
Lead leg length	N/A
Lead knee length	N/A

Feature	Value
Lead/Termination Base Metal Alloy	Cu/32.78 [µm] Fig 11,14
Lead/Termination Metallization / thickness	Ni/7.76[µm] Fig 10,13
Plating 1 metallization / thickness	N/A
Plating 2 metallization / thickness	N/A
Plating 3 metallization / thickness	N/A
Over-plate to protect during cross section?	No
Diameter of solder balls	0.78 Fig 9 (0.0397)
Solder ball alloy (SEM or XRF estimate)	SAC 405 Fig 12
Width of solder ball in contact w/ component pad	0.62 Fig 9 (0.0244)
Width of component pad	0.84 Fig 9 (0.0331)
Thickness of component pad	40.67[µm] Fig 11 (0.001601)
Diameter of solder mask opening	0.62 Fig 9 (0.0244)

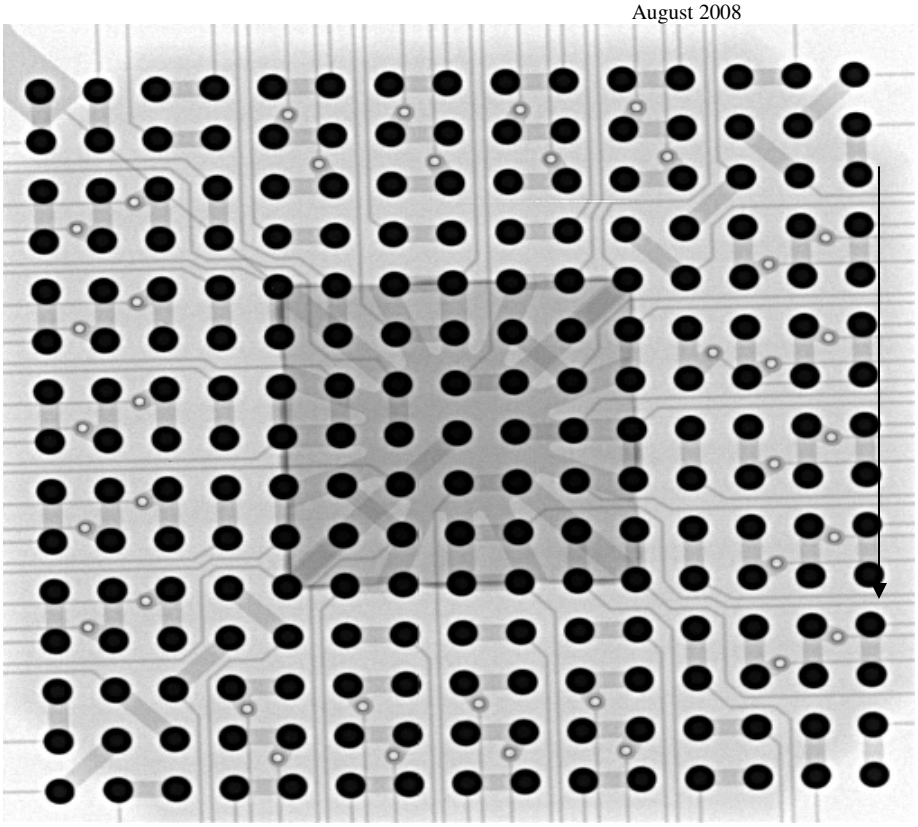


Fig.No.1 PBGA-225 SAC 405, X-ray, View Z

Fig.No.2 PBGA-225 SAC 405, X-ray, Inclined X-axis View

Fig No3. PBGA-225 SAC 405, Top View M~6X

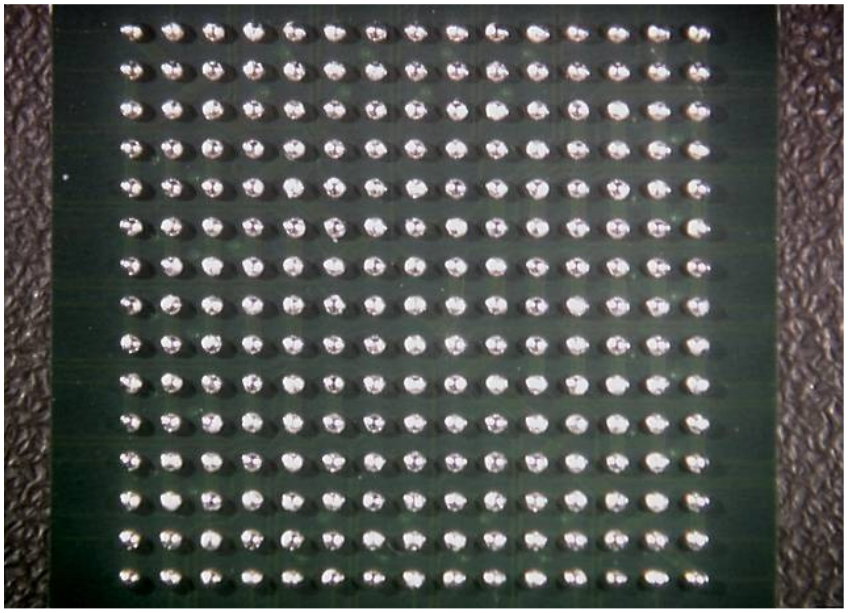


Fig No .4 PBGA-225 SAC 405, Bottom View M~6X

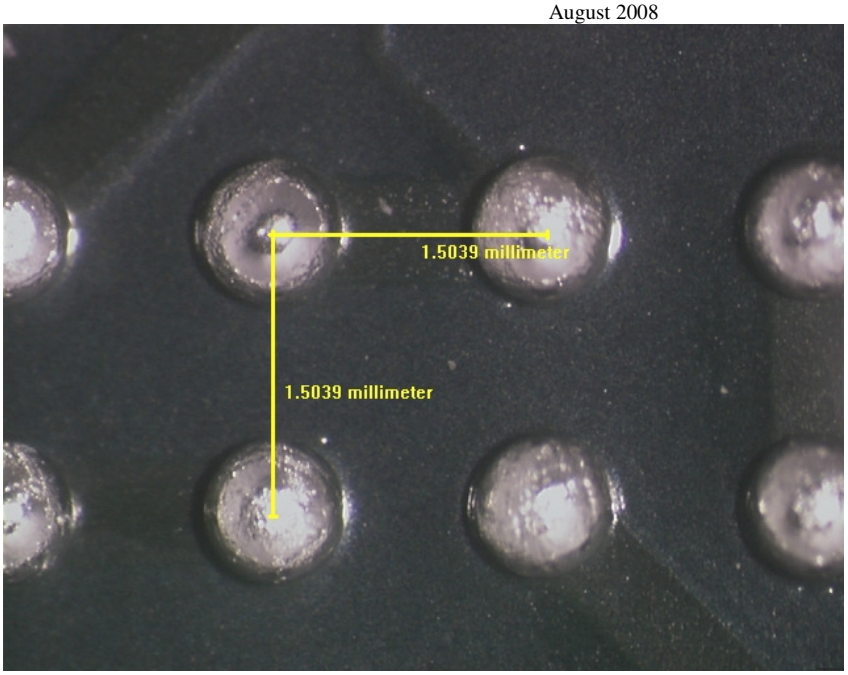


Fig No .5 PBGA-225 SAC 405, Bottom View M~6X

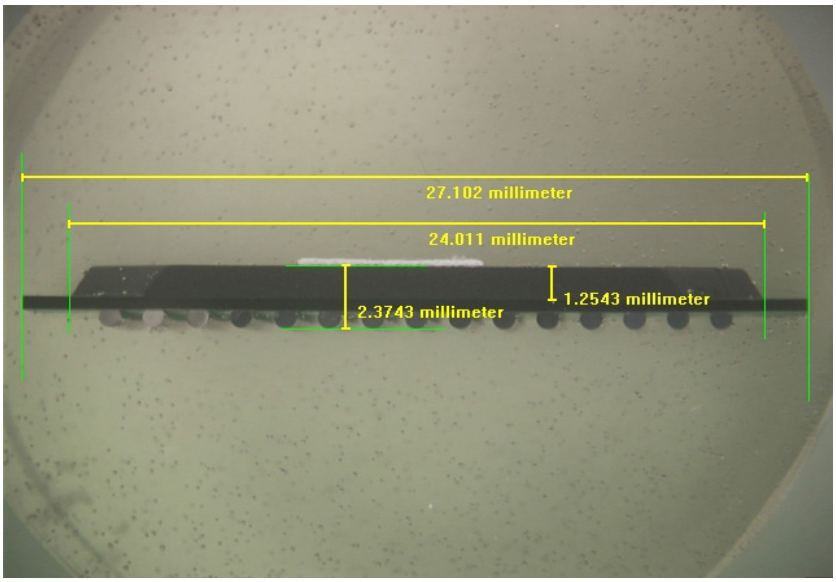


Fig No .6 PBGA-225 SAC 405, Cross section, Overall M~6X

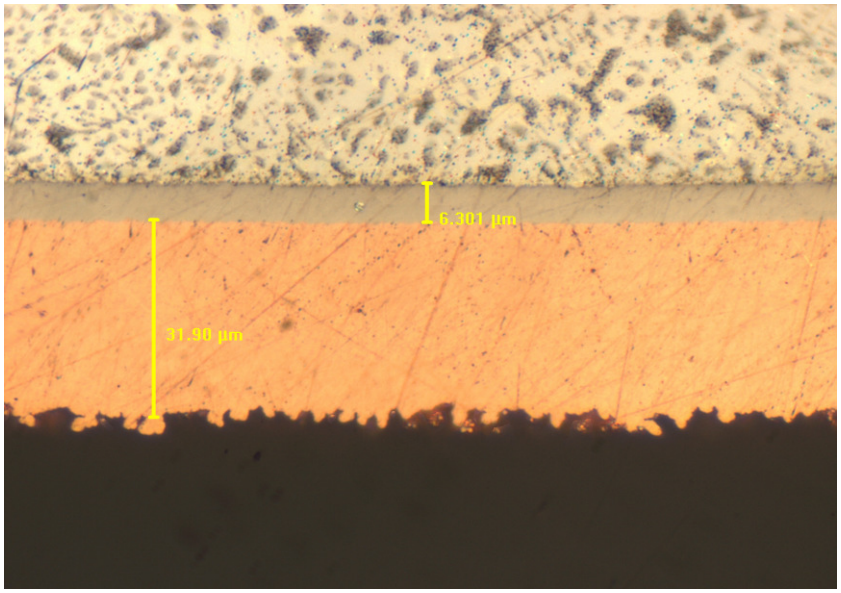


Fig No .7 PBGA-225 SAC 405, Cross section, Pad/Plating/Solder M~1000X

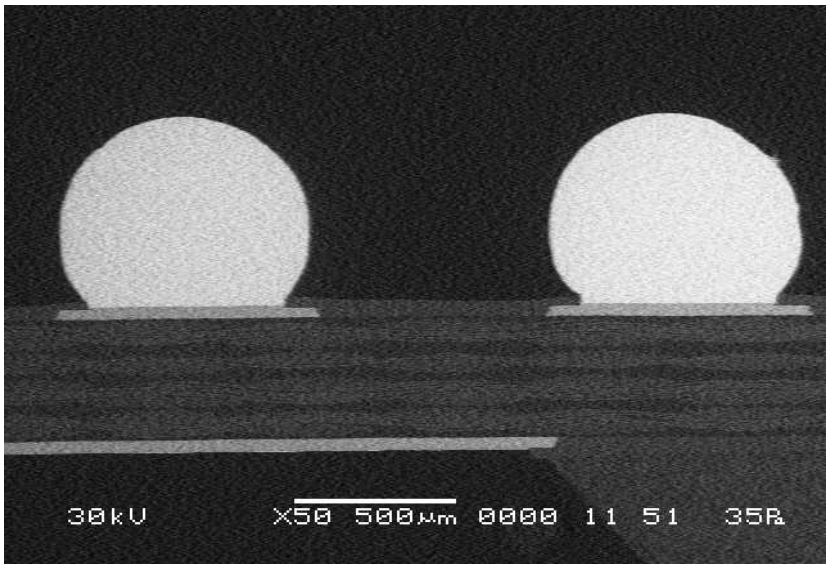


Fig No .8 PBGA-225 SAC 405, Cross section, Ball to PCB Structure M~50X

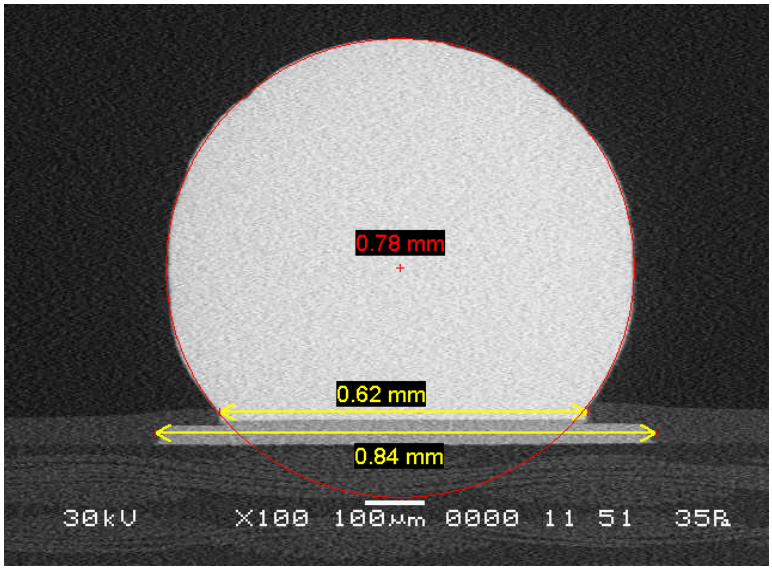


Fig No .9 PBGA-225 SAC 405, Cross section, Ball, Pad, Solder Mask Opening Widths M~100X

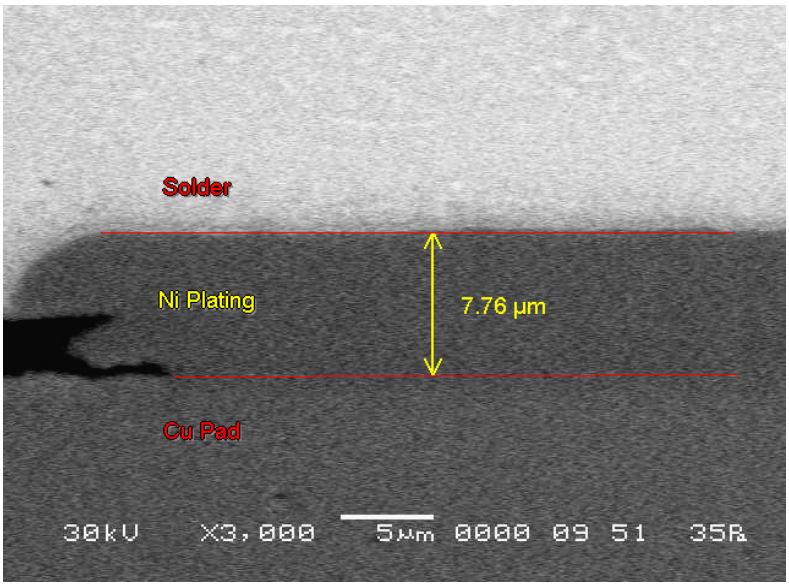


Fig No .10 PBGA-225 SAC 405, Cross section, Pad Plating Thickness M~3000X

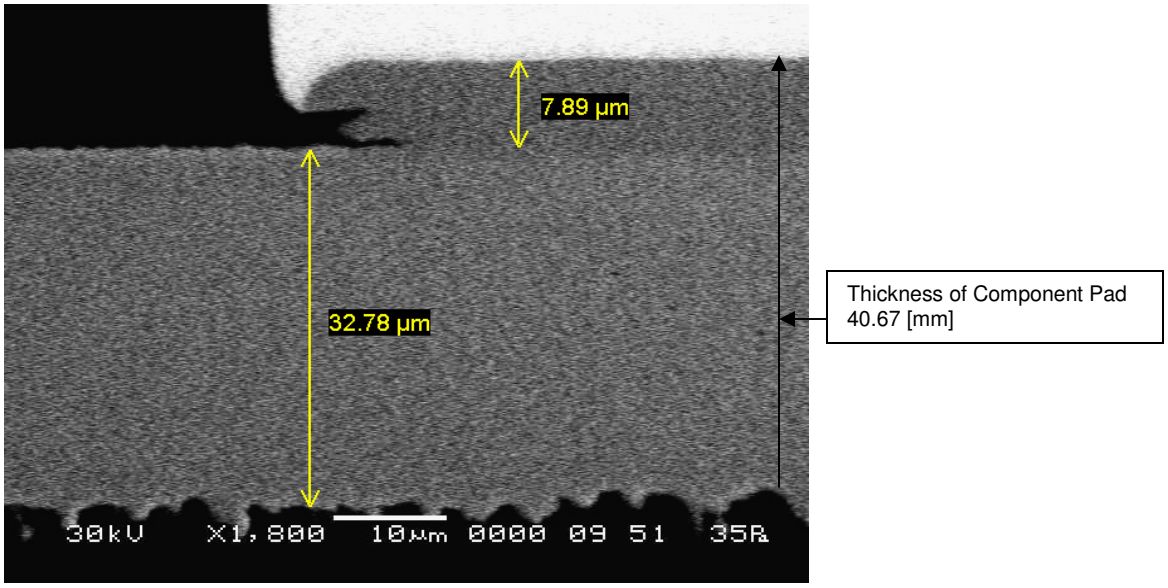
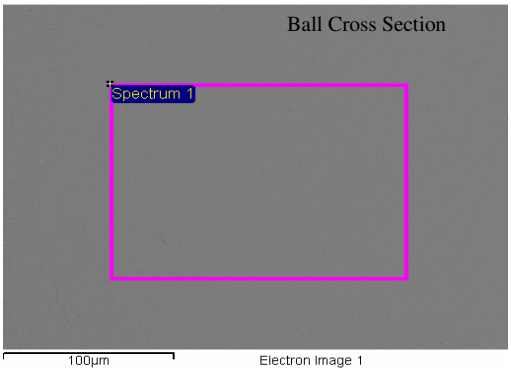
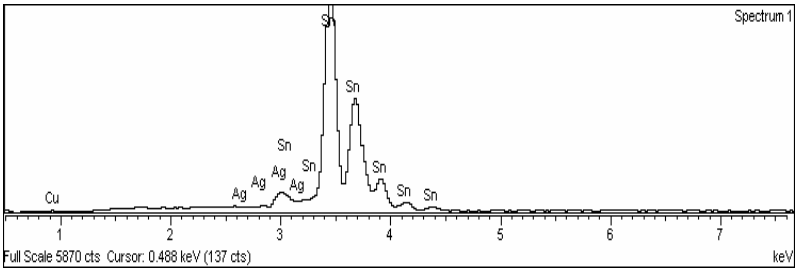


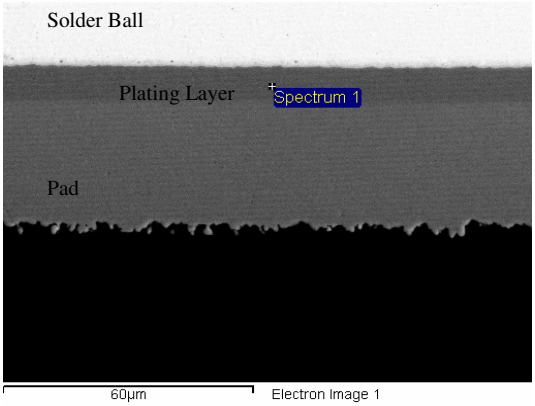
Fig No .11 PBGA-225 SAC 405, Cross section, Pad Thickness M~1800X

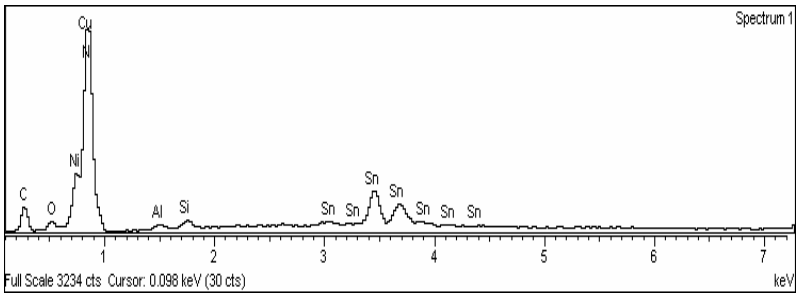




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
Cu K	0.68	0.9560	0.72	0.18	1.34
Ag L	3.63	0.9813	3.78	0.30	4.12
Sn L	91.15	0.9737	95.50	0.34	94.54
Totals			100.00		

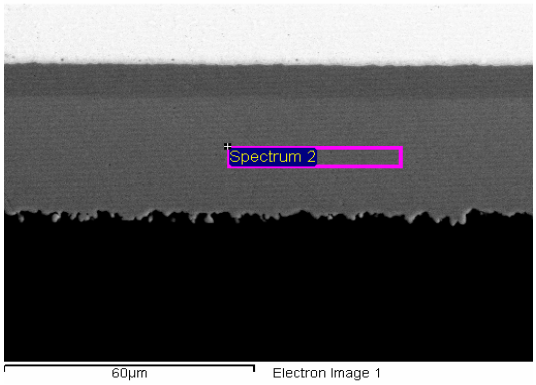
Fig No .12 PBGA-225 SAC 405, Boll Material Analysis

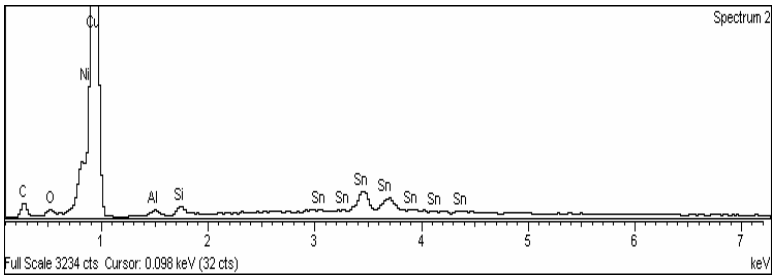




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	10.77	0.3548	21.70	0.98	55.72
O K	2.13	0.5054	3.00	0.46	5.79
Al K	0.23	0.3064	0.54	0.12	0.62
Si K	0.41	0.4085	0.71	0.11	0.78
Ni K	85.03	0.9470	64.14	0.89	33.69
Cu K	4.61	0.9072	3.63	0.21	1.76
Sn L	7.50	0.8554	6.27	0.23	1.63
Totals			100.00		

Fig No .13 PBGA-225 SAC 405, Boll Material Analysis





Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	6.73	0.3115	16.68	1.08	49.12
O K	1.77	0.5444	2.51	0.43	5.55
Al K	0.36	0.2808	0.99	0.15	1.30
Si K	0.50	0.3754	1.03	0.13	1.30
Ni K	1.08	0.9839	0.85	0.12	0.51
Cu K	89.72	0.9433	73.42	1.04	40.87
Sn L	4.96	0.8467	4.53	0.22	1.35
Totals			100.00		

Fig No .14 PBGA-225 SAC 405, Boll Material Analysis