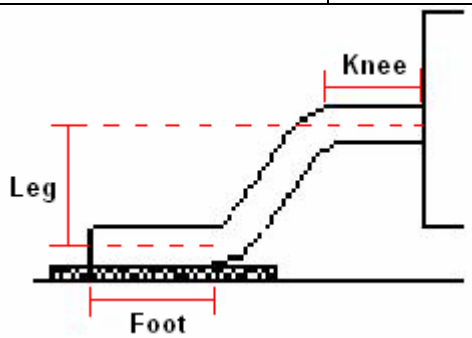
Package: PBGA-225 SnPb

Feature	Value [mm] (in)
Package length Fig 6	27.103 (1.067)
Package width Fig 6	27.103 (1.067)
Package thickness Fig 6	1.254 (0.0493)
Pitch Fig 5/Fig 8	1.604/1.50 (0.0631/0.0591)
Mass	2.4 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	24.056 (0.9471)
Die width Fig 6	24.056 (0.9471)
Die thickness Fig 6	1.254 (0.0493)
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/31.90 [µm] Fig 7,11 (0.000126)
Lead/Termination Metallization / thickness	Ni/6.381[µm] Fig 7,12 (0.000251)
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	0.83 Fig 9 (0.0327)
Solder ball alloy (SEM or XRF estimate)	SnPb Fig 10,13
Width of solder ball in contact w/component pad	0.63 Fig 9 (0.0248)
Width of component pad	2.35 Fig 8 (0.0925)
Thickness of component pad	38.201[µm] Fig 7 (0.001504)
Diameter of solder mask opening	0.63 Fig 9 (0.0248)

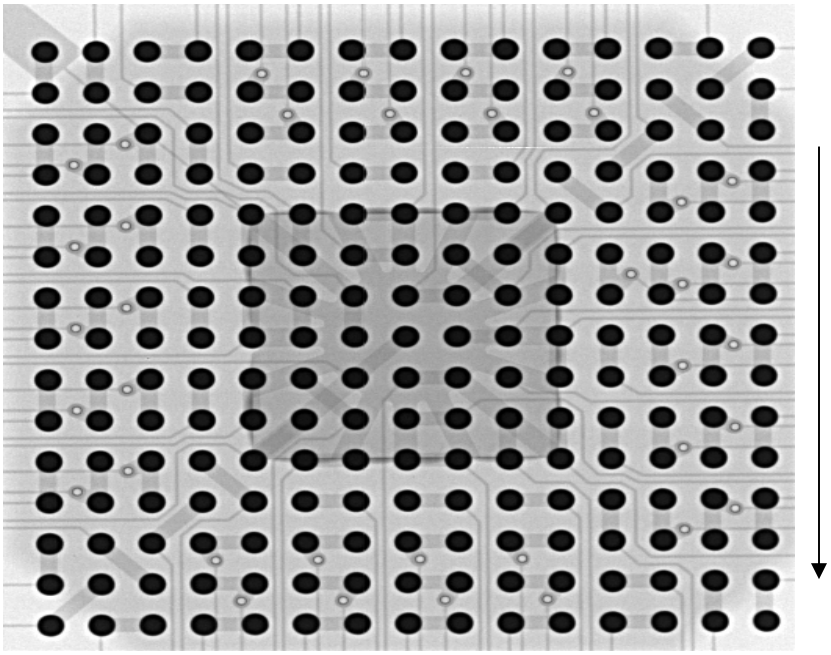


Fig.No.1 PBGA-225 SnPb, X-ray, View Z

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

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

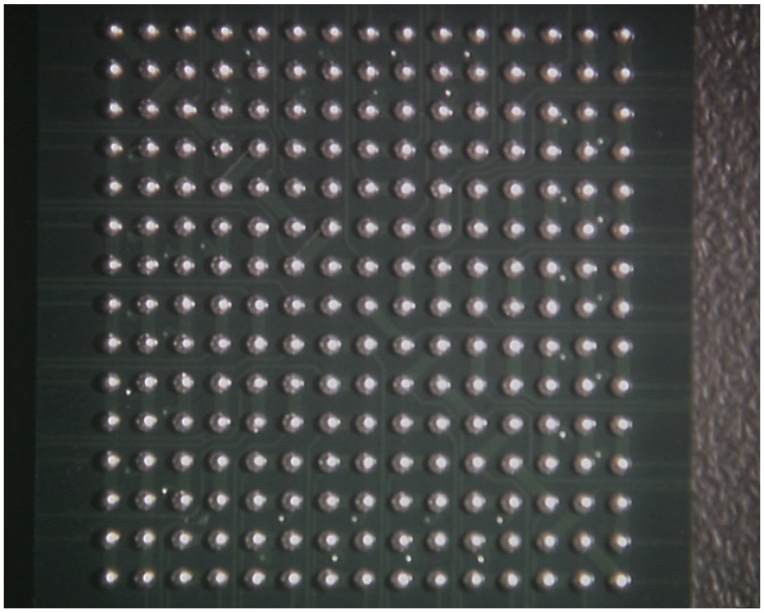


Fig No .4 PBGA-225 SnPb, Bottom View M~6X

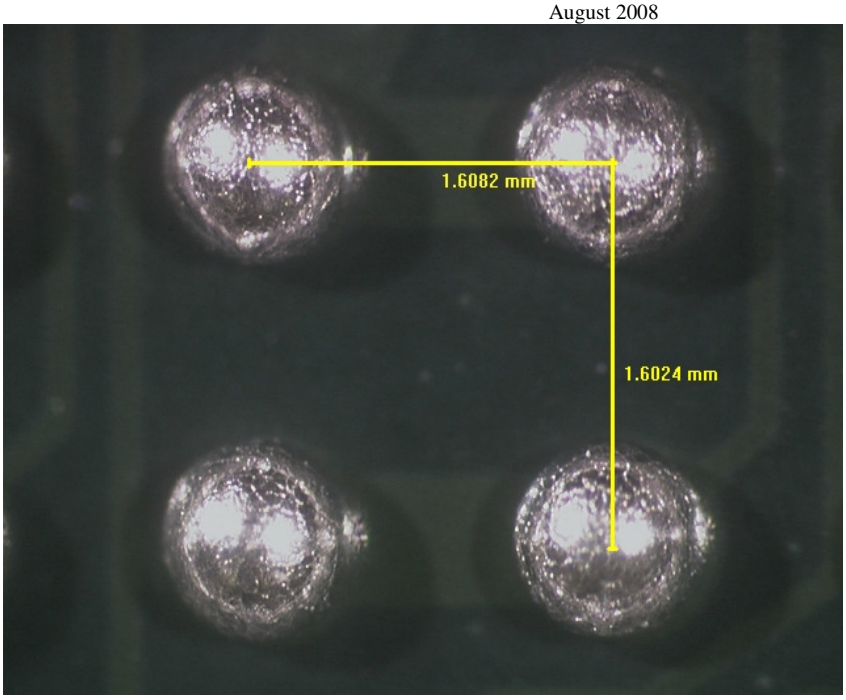


Fig No .5 PBGA-225 SnPb, Bottom View M~54X

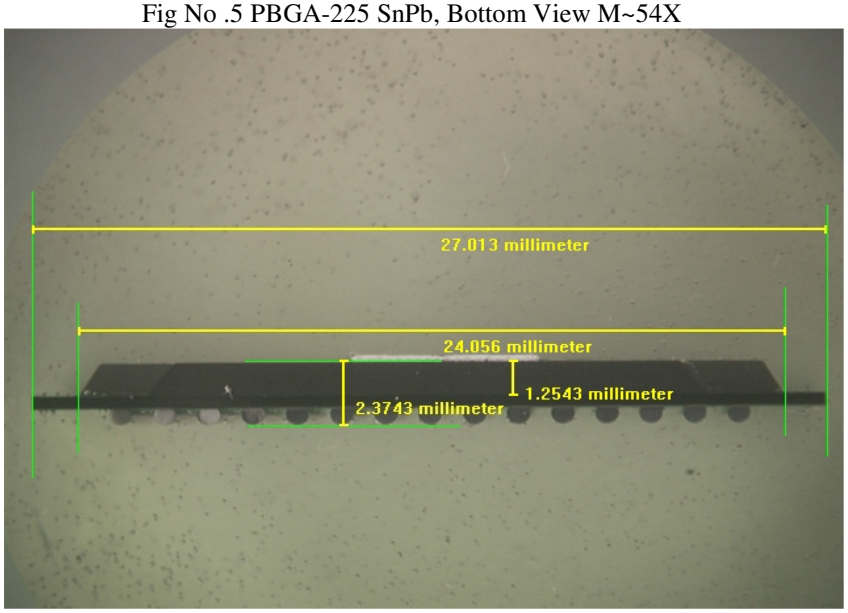


Fig No .6 PBGA-225 SnPb, Cross section, Overall M~6X

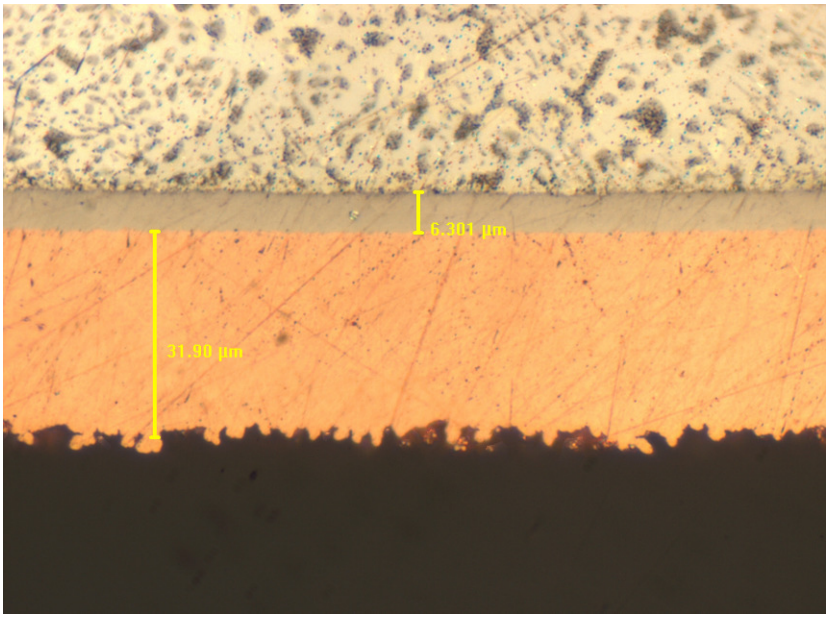


Fig No .7 PBGA-225 SnPb, Cross section, Pad/Plating/Solder M~1000X

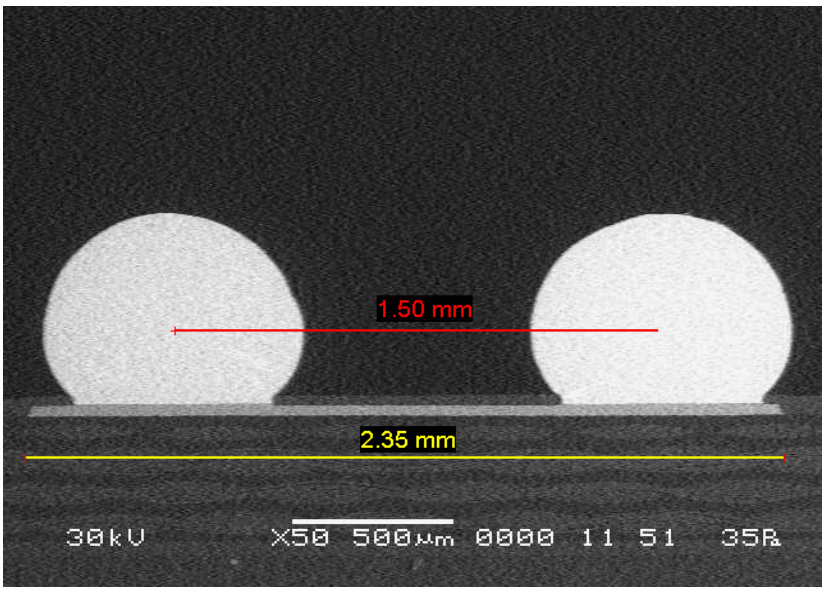


Fig No .8 PBGA-225 SnPb, Cross section, Ball to PCB Structure M~50X

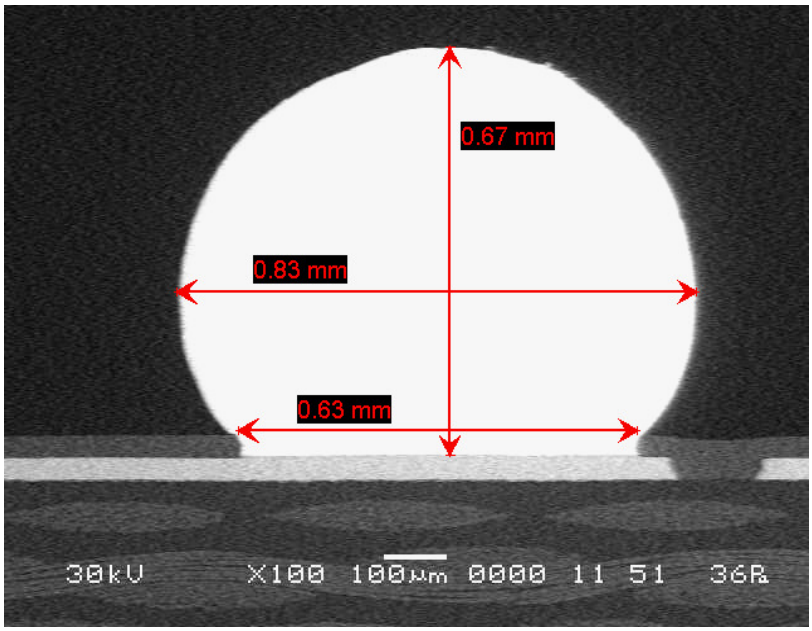
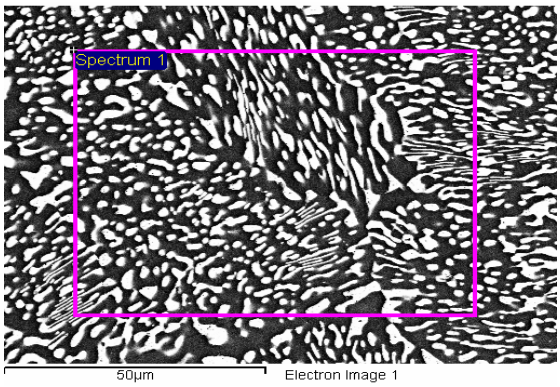
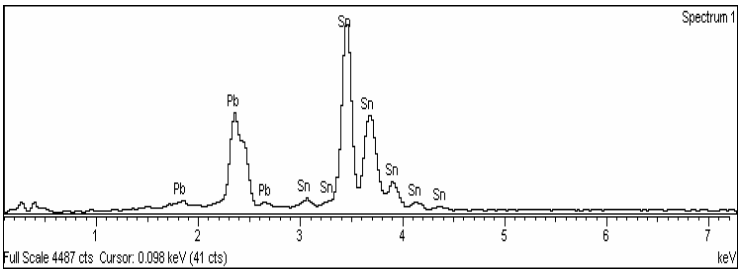


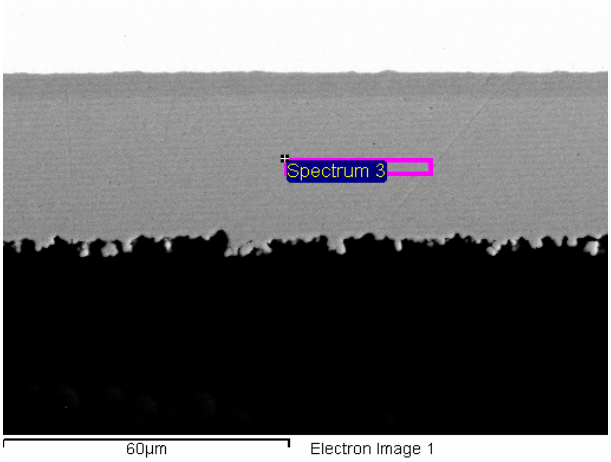
Fig No .9 PBGA-225 SnPb, Cross section, Ball, Pad, Solder Mask Opening Widths M~100X

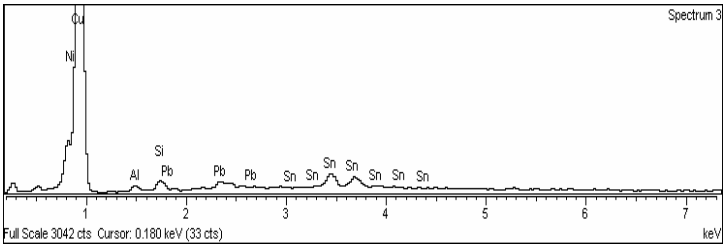




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
Sn L	199.60	0.7936	71.19	0.63	81.18
Pb L	102.42	1.0064	28.81	0.63	18.82
Totals			100.00		

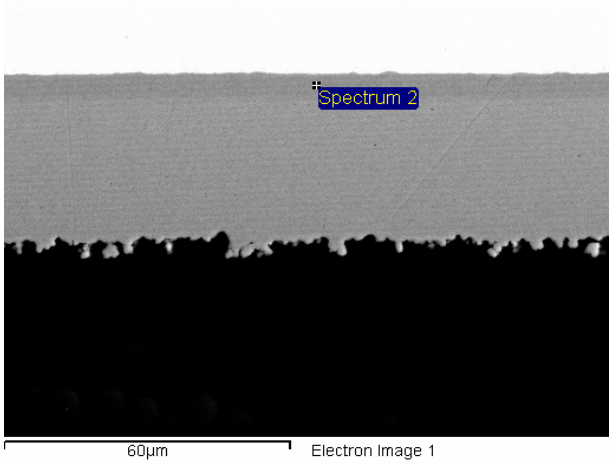
Fig No .10 PBGA-225 SnPb, Boll Material Analysis

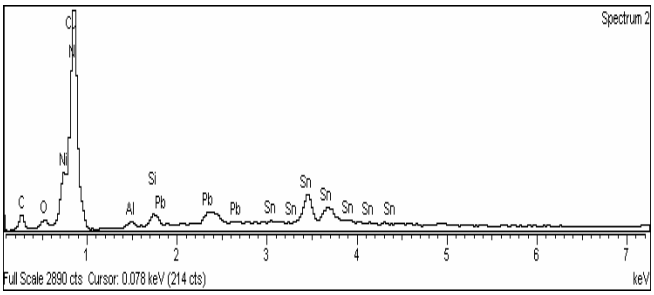




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
Al K	0.31	0.2515	1.23	0.21	2.87
Si K	0.66	0.3380	1.96	0.19	4.42
Ni K	0.67	1.0326	0.65	0.14	0.70
Cu K	88.41	0.9936	89.68	0.57	89.09
Sn L	3.39	0.8184	4.17	0.25	2.22
Pb L	1.85	0.8104	2.30	0.46	0.70
Totals			100.00		

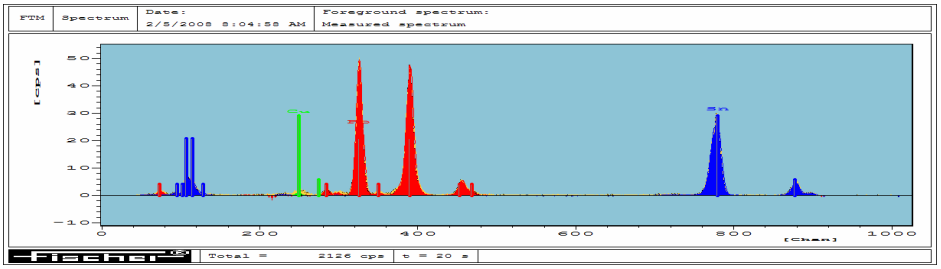
Fig No .11 PBGA-225 SnPb, Pad Material Analysis





Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	5.62	0.3325	13.54	1.02	42.48
O K	1.74	0.5690	2.45	0.44	5.76
Al K	0.28	0.2964	0.77	0.14	1.07
Si K	0.58	0.3947	1.18	0.14	1.59
Ni K	83.21	0.9666	68.93	0.97	44.23
Cu K	5.02	0.9286	4.33	0.23	2.57
Sn L	5.38	0.8245	5.22	0.24	1.66
Pb L	3.46	0.7741	3.58	0.42	0.65
Totals			100.00		

Fig No .12 PBGA-225 SnPb, Pad Plating Material Analysis



Foreground: Measured spectrum
Meas. para. (foreground spectrum):
High voltage = 50 kV (875) Prim. Filter = Ni
Collimator 2 = 0.30 Dm. Anode current 1000 uA
Meas. distance = 0.002 inch

Results of analysis: (%)

82	Pb	=	35.17
50	Sn	=	64.44
29	Cu	=	0.40

Fig No .13 PBGA-225 SnPb, Solder Ball XRF Material Analysis