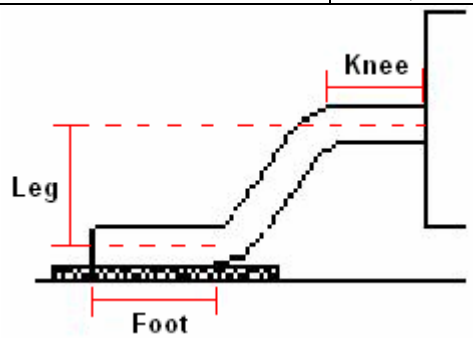
Package: TQFP-144 SnPb

Feature	Value [mm] (in)
Package length	19.88 (0.7830)
Package width	19.88 (0.7830)
Package thickness	1.005 (0.0339)
Pitch Fig 3	0.5050 (0.0199)
Mass	1.0 g
CTE Strain Gauge Technique Temp range -50°C to 100°C Linear Correlation	6.957 ppm/°C (X - axis) 6.412 ppm/°C (Y- axis)
Die length	N/A
Die width	N/A
Die thickness	N/A
Lead width Fig 3	0.2012 (0.00079)
Lead thickness Fig 3	0.130 (0.0051)
Minimum Termination gap Fig 3	0.3038 (0.0119)
	
Lead foot length Fig 6	0.4714 (0.0186)
Lead leg length Fig 6	0.5608 (0.0221)
Lead knee length Fig 6	0.4165 (0.0164)

Feature	Value
Lead/Termination Base Metal Alloy	Cu Base Fig 4
Lead/Termination Metallization / thickness	SnPb App 20 [µm] Fig 5 (0.000787)
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	N/A
Solder ball alloy (SEM or XRF estimate)	N/A
Width of solder ball in contact w/ component pad	N/A
Width of component pad	N/A
Thickness of component pad	N/A
Diameter of solder mask opening	N/A

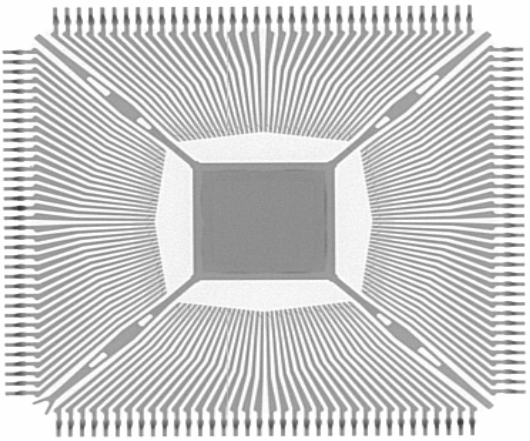


Fig.No.1 TQFP-144SnPb, X-ray, View Z

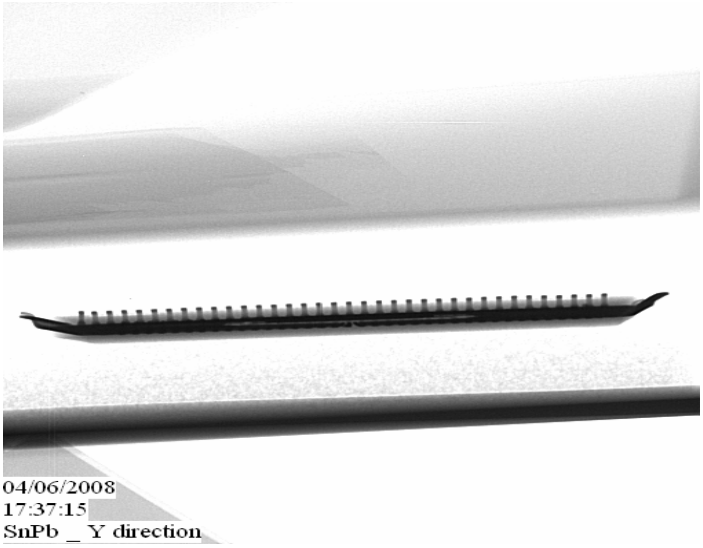


Fig.No.2 TQFP-144 SnPb, X-ray, X-axis View

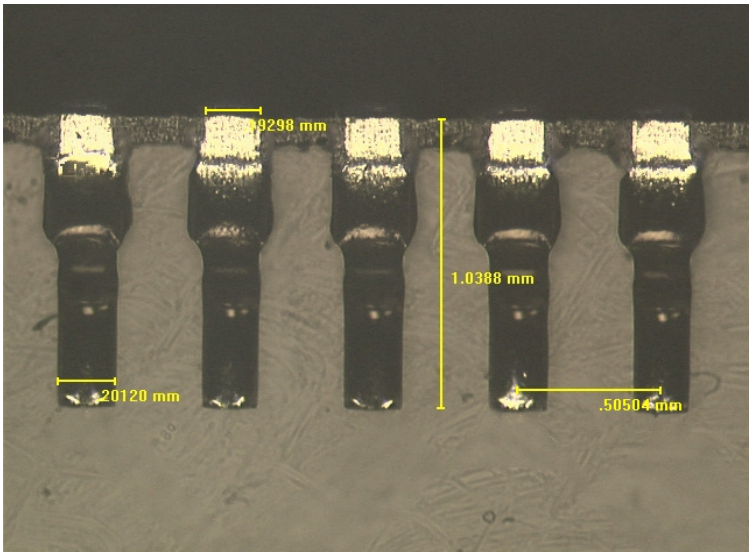
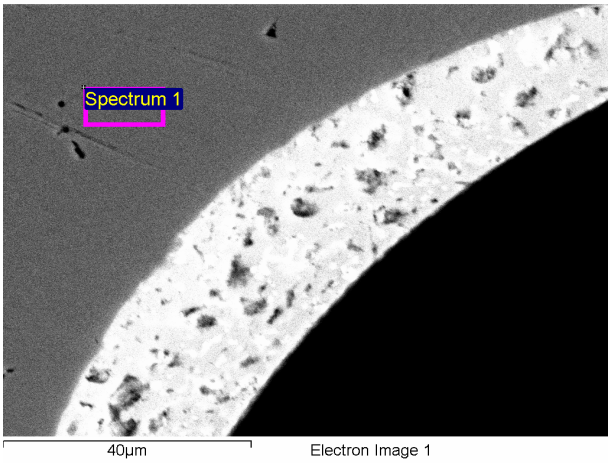
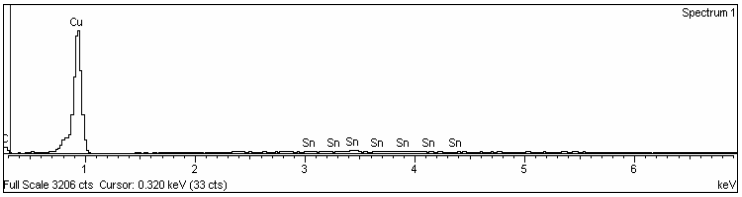


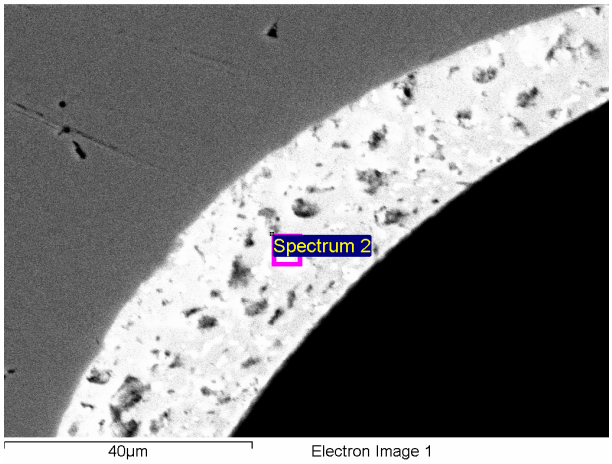
Fig No. 3 TQFP-144 SnPb Leads Dimensions

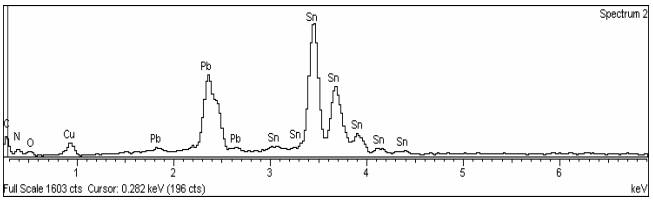




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	22.23	0.3196	24.11	1.57	62.82
Cu K	202.42	0.9358	74.99	1.56	36.94
Sn L	2.20	0.8499	0.90	0.23	0.24
Totals			100.00		

Fig No. 4 TQFP-144 SnPb Leads Base Material





Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	29.42	0.7382	14.25	1.27	51.71
N K	1.31	0.2029	2.31	4.51	7.19
O K	4.05	0.2633	5.49	1.36	14.97
Cu K	13.54	0.9498	5.09	0.40	3.50
Sn L	100.93	0.7755	46.52	2.42	17.09
Pb L	66.71	0.9057	26.33	1.56	5.54
Totals			100.00		

Fig No. 5 TQFP-144 SnPb Leads Top Plating Material

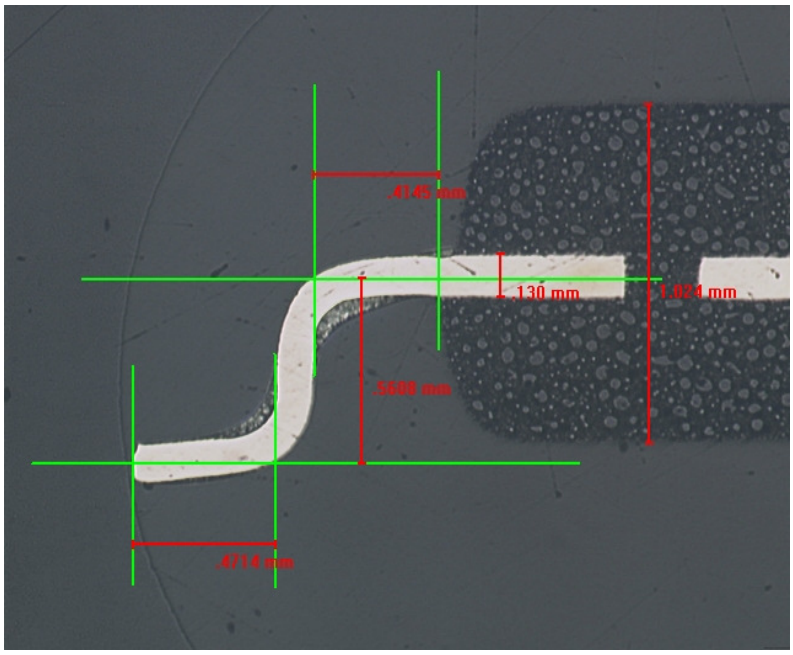
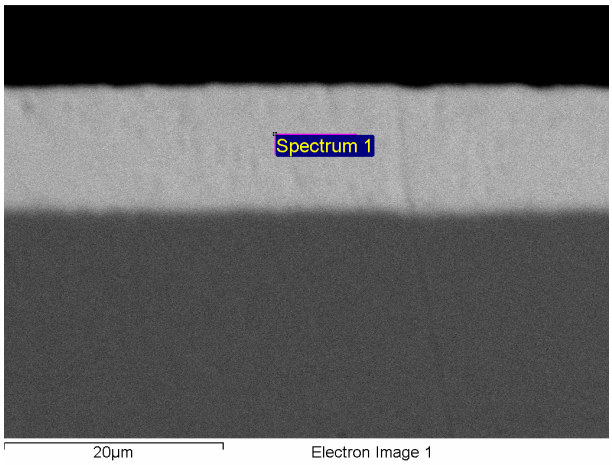
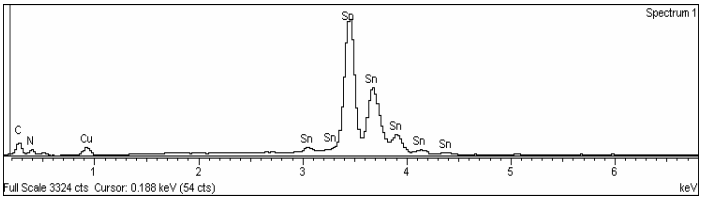


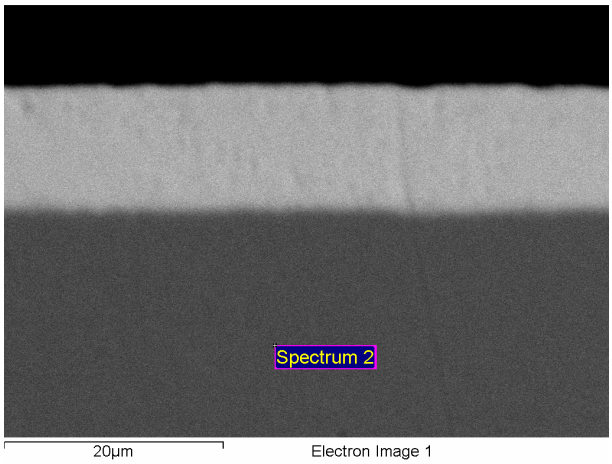
Fig No. 6 TQFP-144 SnPb Lead Cross Section Knee, Foot,Leg M~60X

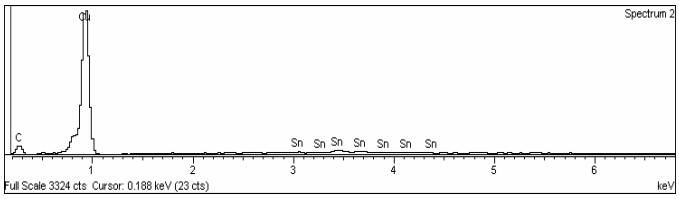




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	37.31	0.9831	13.43	1.03	53.42
N K	2.59	0.2798	3.27	3.49	11.15
Cu K	14.11	0.9168	5.45	0.38	4.10
Sn L	212.89	0.9679	77.85	2.94	31.33
Totals			100.00		

Fig No. 9 Lead Top Metallization ,SnPb





	Conc.	Corrn.		Sigma		
C K	29.20	0.3273	26.37	1.49	65.63	
Cu K	227.81	0.9300	72.41	1.48	34.06	
Sn L	3.51	0.8520	1.22	0.23	0.31	
Totals			100.00			

Fig No. 10 Lead Metal substrate ,Cu base Alloy

Fig No .11 TQFP-144SnPb, Termination Metallization Top Layer SnPb