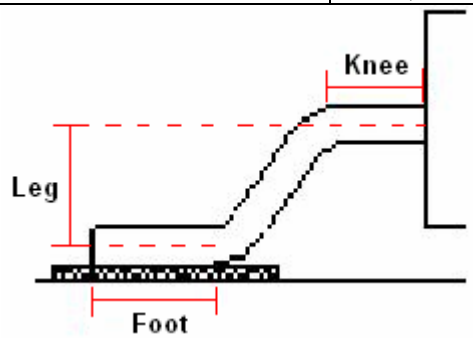
Package: TQFP-144 NiPdAu

Feature	Value [mm] (in)
Package length	19.88 (0.7830)
Package width	19.88 (0.7830)
Package thickness Fig 7	0.993 (0.0391)
Pitch Fig 6	0.5092 (0.0200)
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 6	0.2053 (0.0081)
Lead thickness Fig 7	0.129 (0.0051)
Minimum Termination gap Fig 6	0.3038 (0.0119)
	
Lead foot length Fig 7	0.235 (0.0093)
Lead leg length Fig 7	0.546 (0.0215)
Lead knee length Fig 7	0.184 (0.0072)

Feature	Value
Lead/Termination Base Metal Alloy	Cu/Ni/Fe Fig 10
Lead/Termination Metallization / thickness	NiPdAu App 1.03 [µm] Fig 8,9 (0.000041)
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

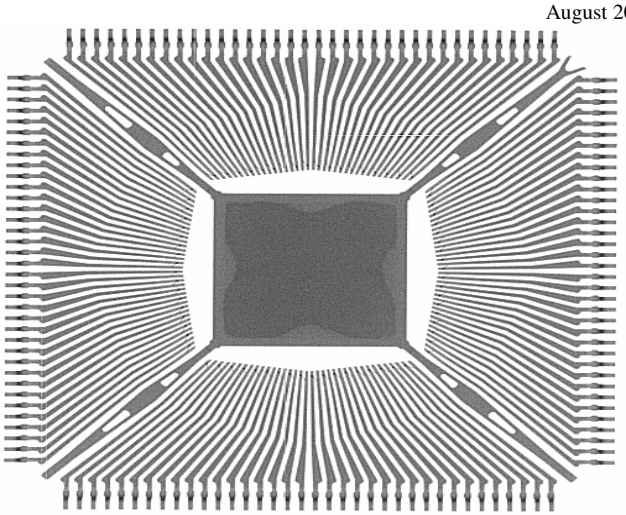


Fig.No.1 TQFP-144NiPdAu, X-ray, View Z

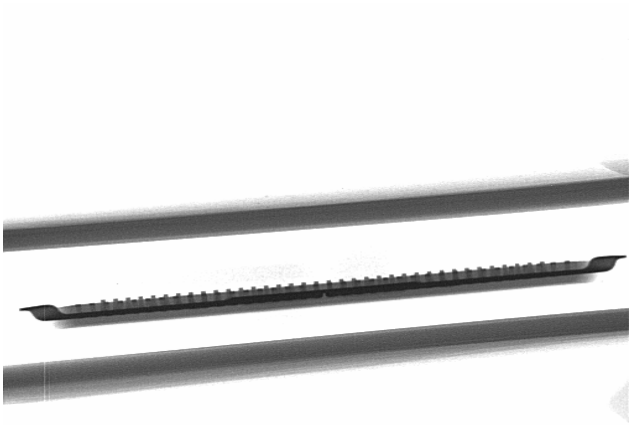


Fig.No.2 TQFP-144 NiPdAu, X-ray, X-axis View

Fig.No. 3 TQFP-144 NiPdAu, Front View M~4X

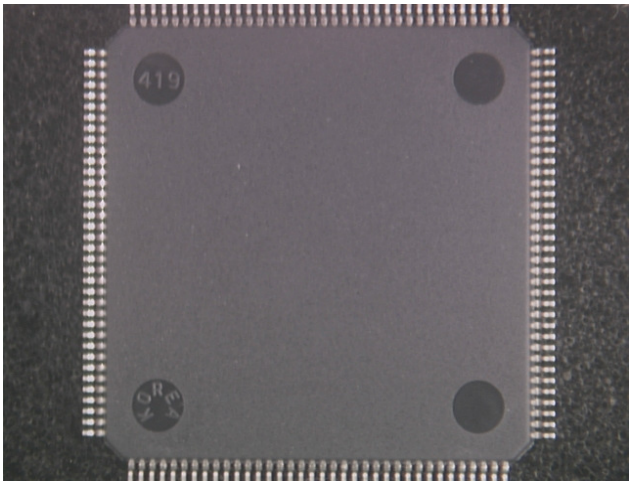


Fig.No. 4 TQFP-144 NiPdAu, Back View M~4X

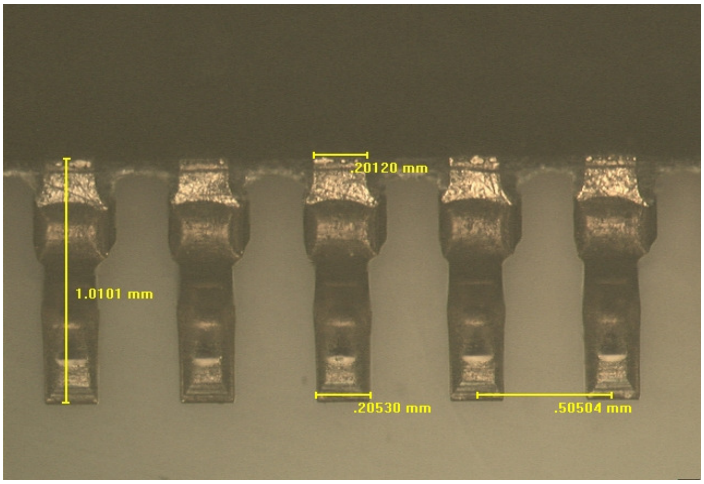


Fig No. 5 TQFP-144 NiPdAu Leads Dimensions M~64X

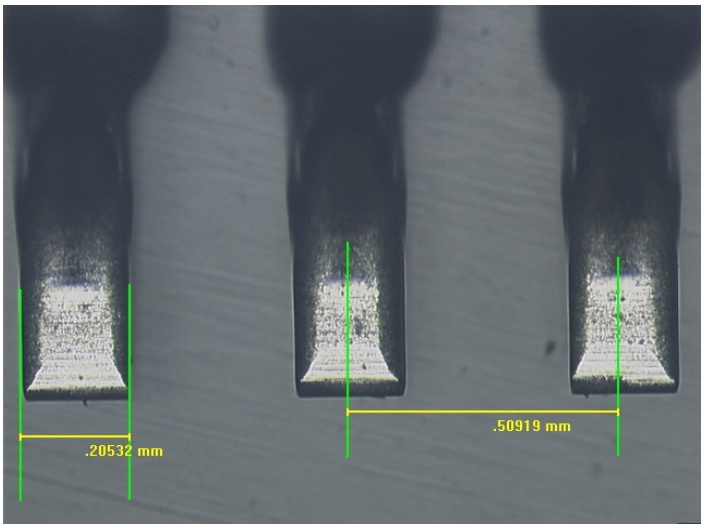


Fig No. 6 TQFP-144 NiPdAu Leads Dimensions M~128X

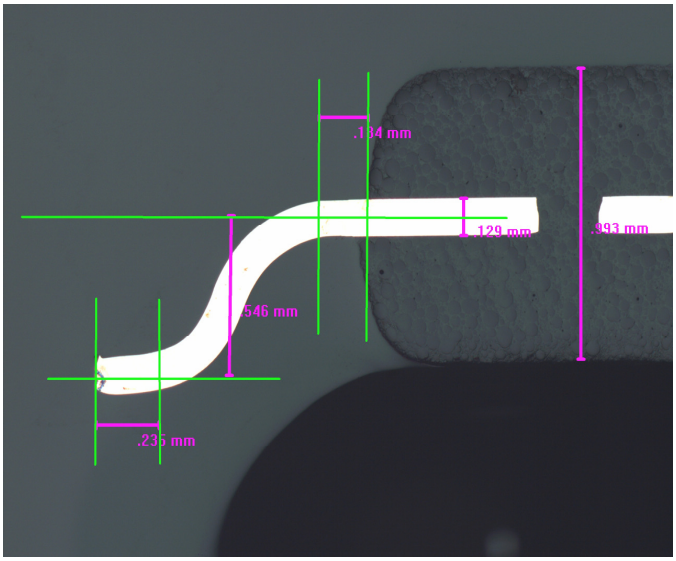
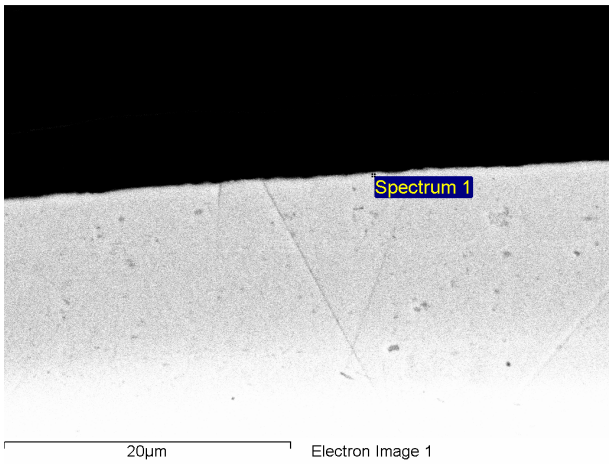
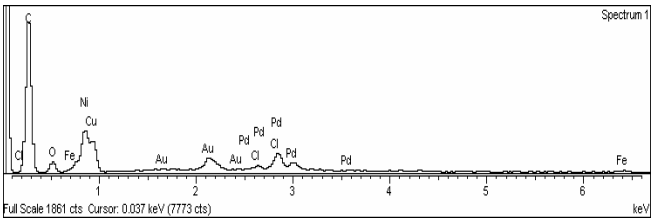


Fig No. 7 TQFP-144 NiPdAu Lead Cross Section Knee, Foot, Leg M~67X





Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	211.05	0.6729	65.07	2.10	86.76
O K	8.99	0.2960	6.30	1.08	6.31
Cl K	0.78	0.7462	0.22	0.07	0.10
Fe K	0.94	0.9928	0.20	0.07	0.06
Ni K	66.21	0.8700	15.79	0.93	4.31
Cu K	29.91	0.8298	7.48	0.49	1.88
Pd L	11.24	0.8596	2.71	0.26	0.41
Au L	7.27	0.6744	2.24	0.43	0.18
Totals			100.00		

Fig No. 8 TQFP-144 NiPdAu Leads Plating and Base Material

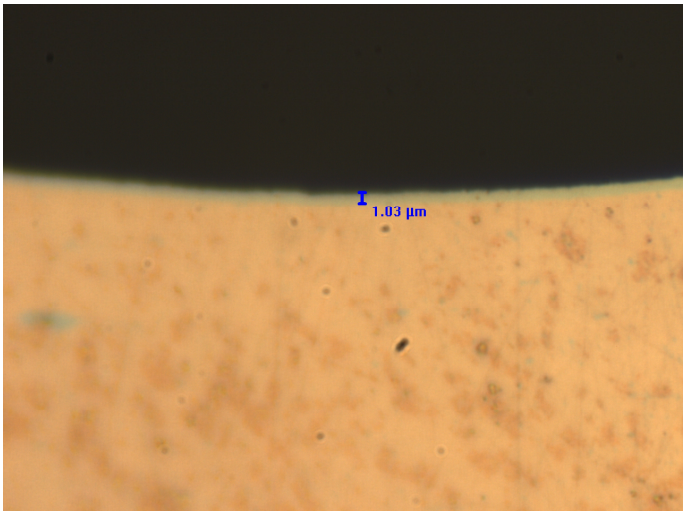
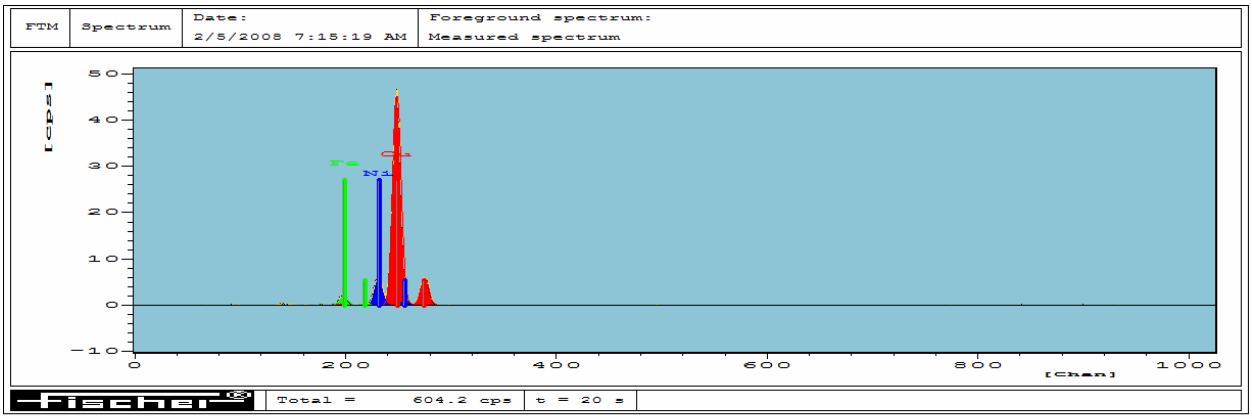


Fig No. 9 TQFP-144 NiPdAu Leads Plating Material Thickness. M~2700X



Foreground: Measured spectrum
Meas. para. (foreground spectrum):
High voltage = 50 kV (875) Prim. Filter = Ni
Collimator 1 = 0.10 Dm. Anode current 1000 uA
Meas. distance = 0.002 inch

Results of analysis: (%)

29	Cu	=	87.79
28	Ni	=	10.17
26	Fe	=	2.04

Fig No. 10 TQFP-144 NiPdAu Leads Material by XRF