

FIGURE 1: Layout for side 1 (left) and side 2 (right) of the memory module.

Reference ID	Component ID	Pitch (mil)	Stencil Opening (mil)		Aperture Shape	Stencil Thick. (mil)	Pad area (sq. mil)	Wall area (sq. mil)	Theo. Vol (cu. mil)	Area Ratio	Aspect Ratio
			Width	Length							
U1	Controller (QFP)	20.9	9.0	39.9	Rect	5	359	489	1796	0.73	1.80
U2	Memory (TSOP)	20.0	9.0	30.8	Rect	5	277	398	1386	0.70	1.80
R5	Resistor	-	19.0	19.0	Square	5	361	380	1807	0.95	3.80
D1	LED	-	33.9	31.0	Rect	5	1052	649	5258	1.62	6.78
C5	Capacitor	-	39.0	49.1	Rect	5	1914	881	9570	2.17	7.79
Y1	Crystal	-	44.0	49.0	Rect	5	2156	930	10780	2.32	8.80
J1	USB Connector	-	78.1	46.0	Rect	5	3592	1241	17961	2.89	15.63

TABLE 2: Stencil design for the memory module.

FIGURE 2: Custom designed support tool for side 2 assembly.

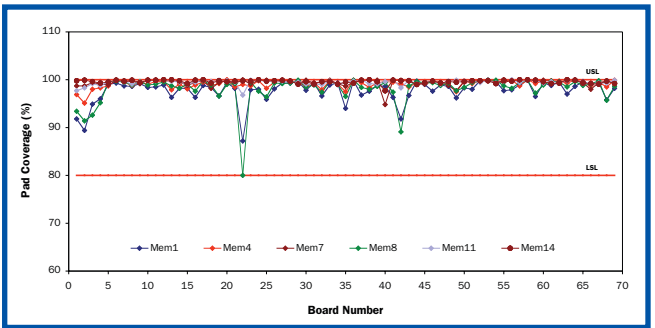
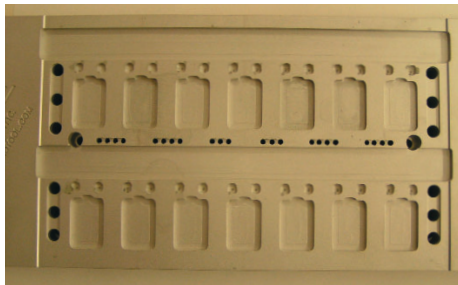


FIGURE 4: 2-D inspection results for side 1 build.

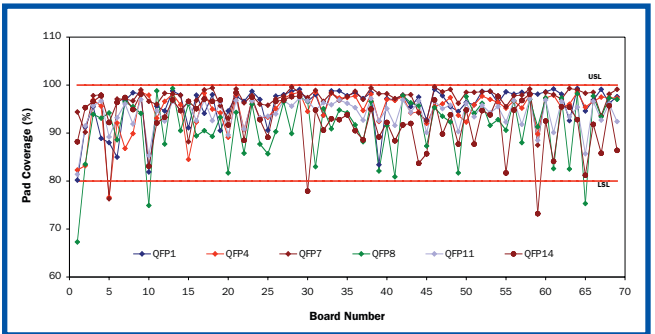


FIGURE 5: 2-D inspection results for side 2 build.

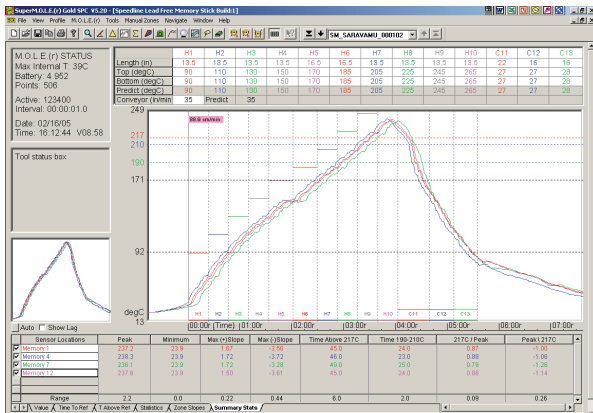


FIGURE 3: Reflow profile for memory module build.

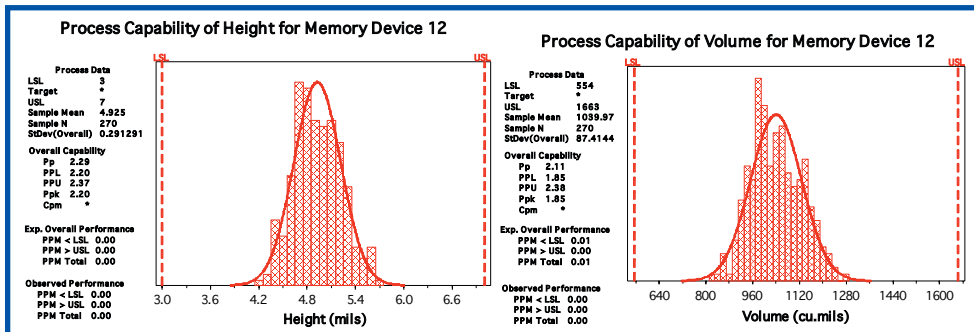
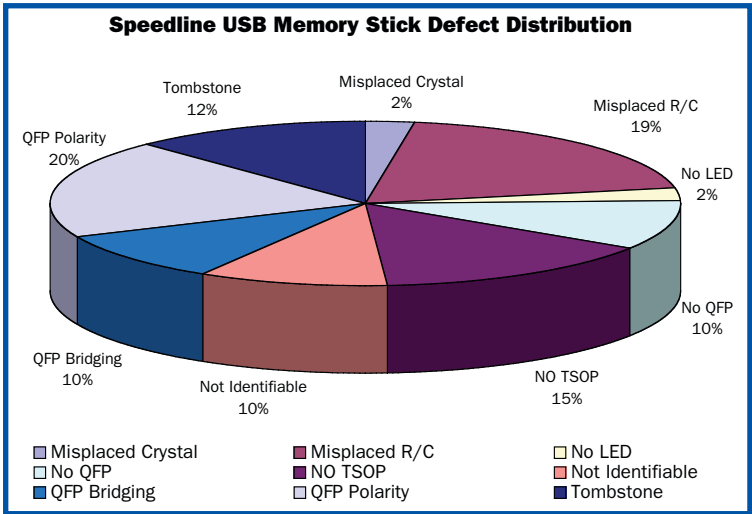
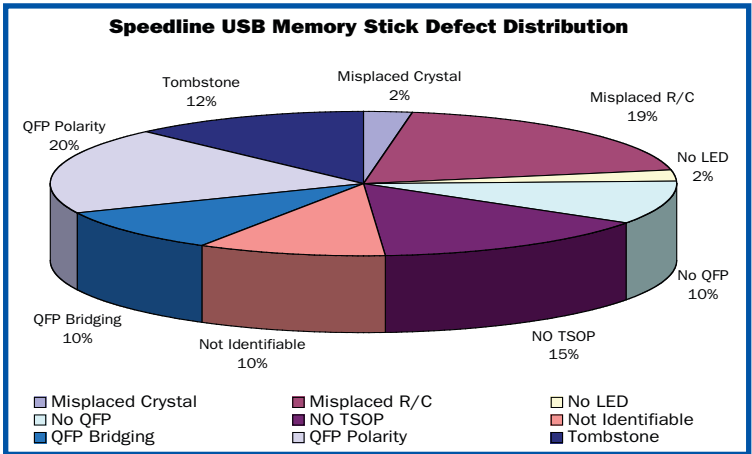


FIGURE 6: Height and volume distribution for memory module 12 in side 1 build.



**FIGURE 7:** USB memory stick defect distribution.



**FIGURE 8:** Defect cause distribution.

