Reliability of eWLB (embedded wafer level BGA) for Automotive Radar Applications

by

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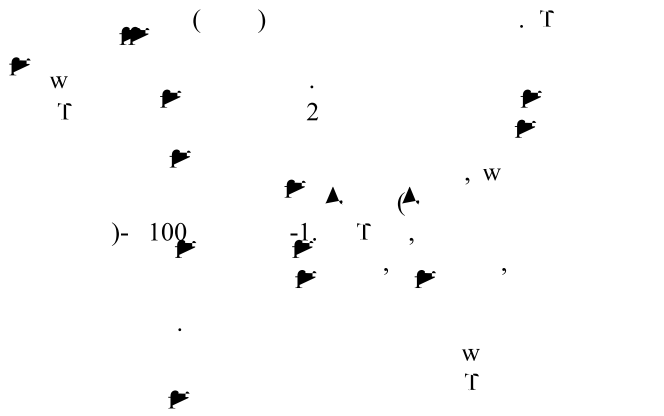

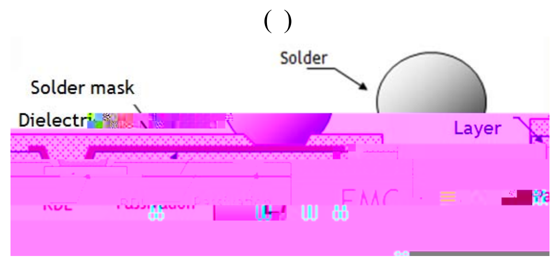

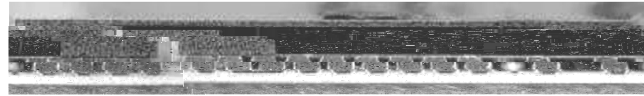

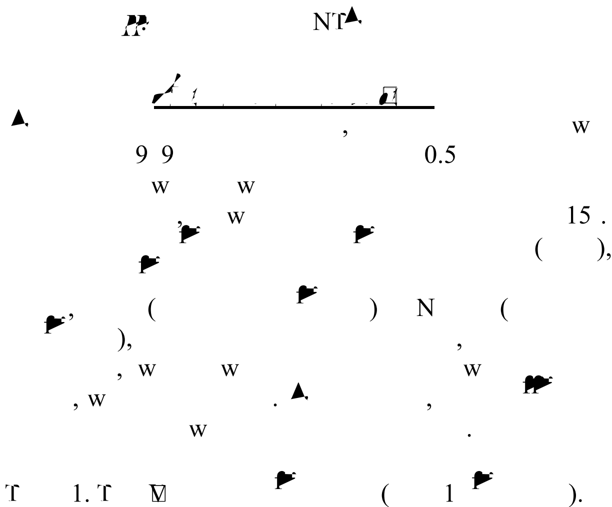

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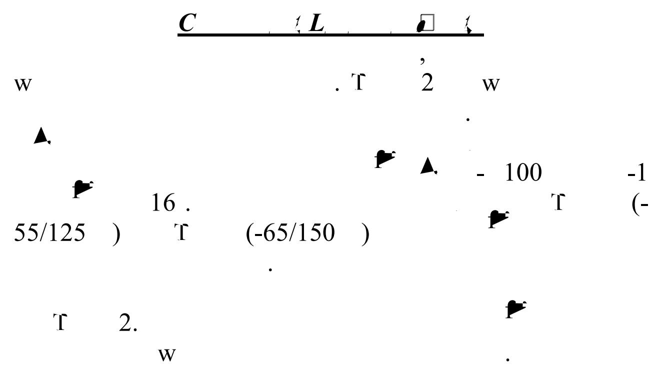

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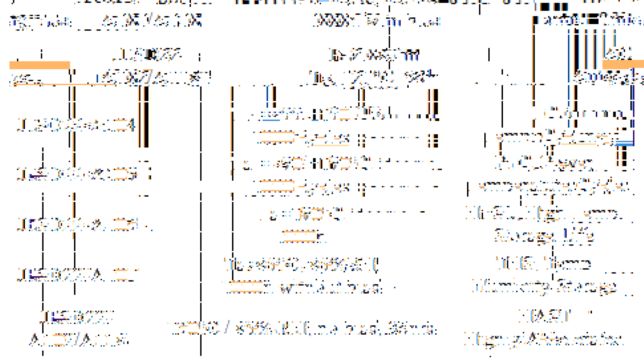
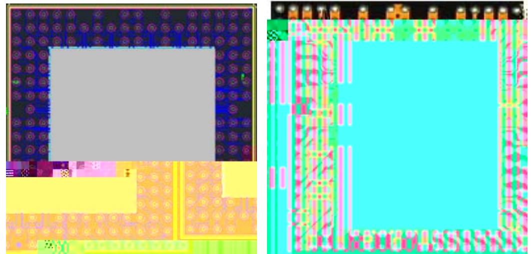
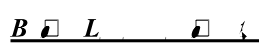
2.

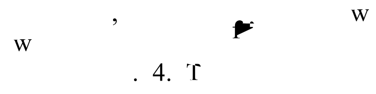
Items	Specification
PKG size	9x9mm
Die Size	6x6mm
Ball Pitch	0.5mm
Ball Dia	0.3mm
IO No.	230
UBM	No
Cu RDL No.	1 layer
Die Thickness	440µm
PKG Thickness	[illegible]

Test	Q100 Test Condition	Test Conditions
PC Pre-Cond	JEDEC J-STD-020	MSL1 24h bake @ 125°C 168h @ @ 85C/85%RH Reflow simulation (3times) with Lead free profile Tmax=260°C
THB [illegible]	JESD22- [illegible]	Ta=85°C, 85%RH [illegible]









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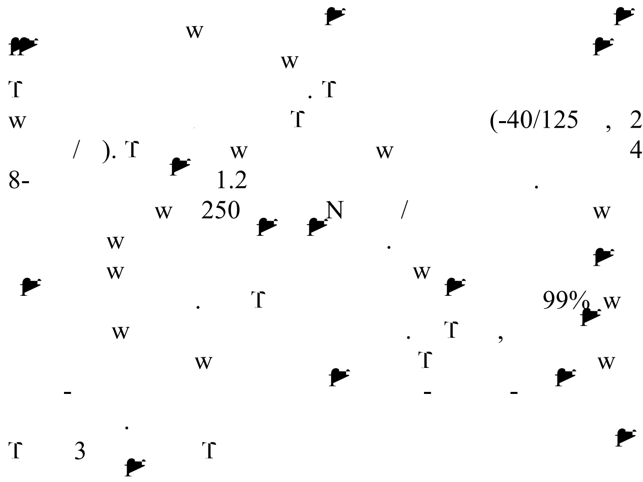

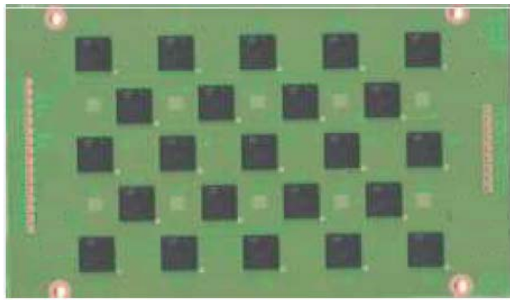

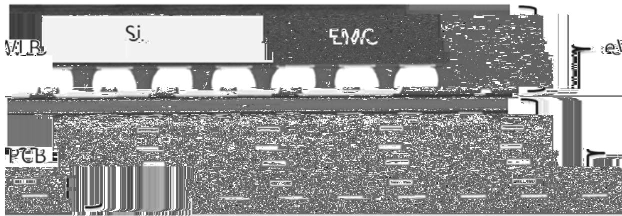

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1. NSMD board pads showed improved TCoB performance versus SMD ones in all DOE legs.
2. Larger solder mask opening was effective to improve results for the NSMD pad.
3. Thicker Cu RDL showed 15~20% improvement in

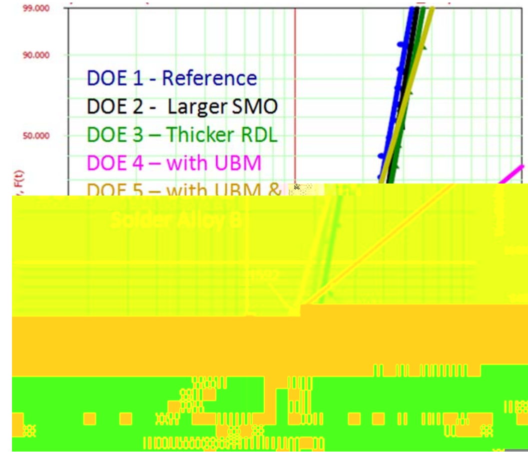
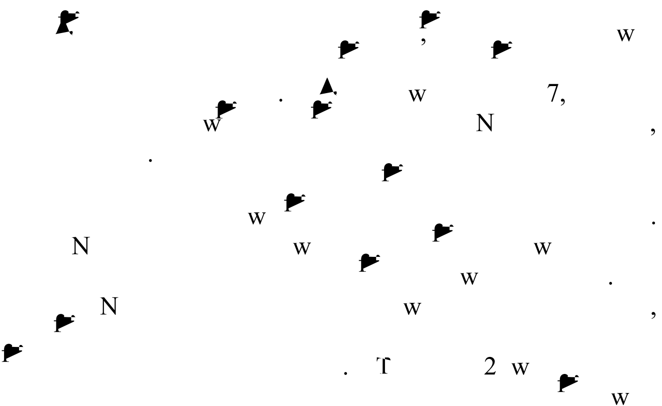


Table 3.

		First Failure Cycles	
		SMD	NSMD
DOE1	Reference	1452	1847
DOE2	Larger solder mask opening	1388	2245
DOE3	Thicker RDL	1763	2216
DOE4	With UBM+RDL	964	1005
[illegible]	With UBM and Solder [illegible]	[illegible]	[illegible]



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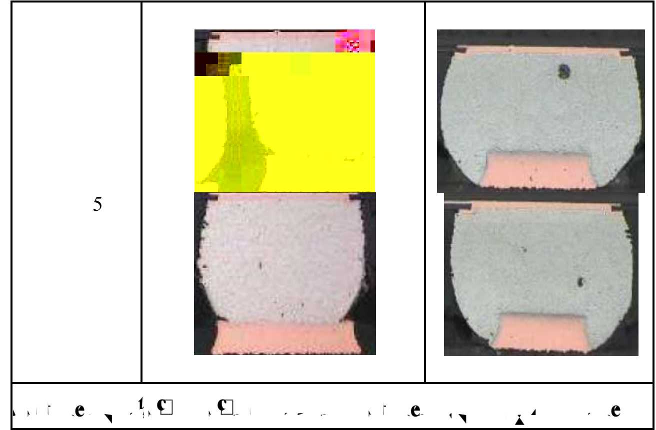
5		

17,18,19 .

, the reliability of WLCSP is dependant of a range of various design factors, for example:

- Dielectric materials property
- Dielectrics thickness
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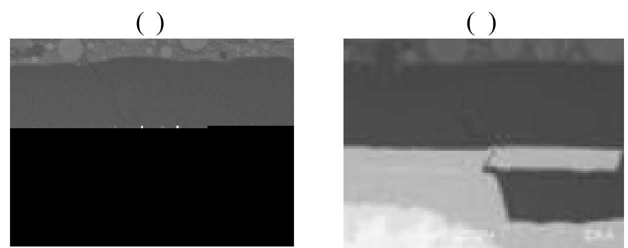

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