



DDC Microelectronics Standard Product Flows – Multi-Chip Products

We offer four different self- defined product-testing flows: Self-defined DDC Microelectronics Space Grade, Military Grade, Industrial+ Grade, Industrial grade and Engineering grade. The table below exhibits the tests that will be performed to the RAD-PAK[®] products on a 100% basis. Qualification testing is available by purchase order.

Screening Test	MIL-STD-883 Method	Product Flows									
		Multi-chip Modules									
		Space Grade	Condition	Military Grade	Condition	Industrial+ Grade	Condition	Industrial	Condition	Engineering	Condition
Die Lot Acceptance	DDC SPEC	Yes		No		No		No		No	
Glassivation Thickness	5007	Yes		No		No		No		No	
Metallization Thickness	5007	Yes		No		No		No		No	
SEM Inspection	2018	Yes		No		No		No		No	
Element Evaluation		by P.O.		by P.O.		NA		NA		NA	
Wire Bond Monitor	2011	Yes		Yes		No		No		No	
100% Wire Bond Pull ⁷	2023	Yes		No		No		No		No	
Die Shear Monitor	2019 or 2027	Yes		Yes		No		No		No	
Pre-Cap Visual Inspection	2017	Yes		Yes		No		No		No	
QA Inspection	2017	Yes		Yes		No		No		No	
Temperature Cycling	1010	Yes	C	Yes	C	No		No		No	
Constant Acceleration or Mechanical Shock	2001 or 2002	Yes		Yes		No		No		No	
PIND Test	2020	Yes	A or B	Yes	A or B	No		No		No	
Serialization	NA	Yes		No		No		No		No	
Pre Burn-in Electrical Test	Detail DWG	Yes		Yes ¹		No		No		No	
Dynamic Burn-in I	1015	Yes	D, 160 hrs	Yes	D, 160 hrs	No		No		No	
Interim Electrical Test	Detail DWG	Yes		No		No		No		No	
Deltas ⁴		Yes		No		No		No		No	
Dynamic Burn-in II	1015	Yes	D, 160hrs	No		No		No		No	
Final Electrical Test	Detail DWG	Yes		Yes ¹		Yes ¹		Yes ¹		Yes ¹	
Deltas ⁴		Yes		No		No		No		No	
PDA		2% ³		10%		No		No		No	
Data Retention Test	DDC Spec.	Yes ⁵		Yes ⁵		Yes ⁵		No		No	
High Temp Electrical Test		Yes ¹		Yes ¹		Yes ¹		Yes ¹		No	
Low Temp Electrical Test		Yes ¹		Yes ¹		Yes ¹		Yes ¹		No	
Fine Leak Test	1014.13	Yes ⁶	A2	Yes	A2	Yes	A2	No		No	
Gross Leak Test	1014.13	Yes ⁶	C1	Yes	C1	Yes	C1	No		No	
Radiographic Inspection	2012	Yes ²	2 views	No		No		No		No	
External Visual	2009	Yes		Yes		Yes		No		No	
Final QA Review	NA	Yes		Yes		Yes		Yes		Yes	
Groups A, B, C, D and E QCI		by P.O.		by P.O.		NA		NA		NA	

1. GO / NO-GO (Read and record by P.O.).
2. Radiograph not performed on RAD-PAK[®] products (shield x-rays).
3. PDA based on quantity into second burn-in and Delta failures from second burn-in only.
4. Delta parameter values measured after burn-in will be compared with the Delta parameter values measured prior to that burn-in.
5. Data Retention Testing is only performed on Flash and EEPROM based memory products.
6. Leak testing is done per Class H requirements of MIL-STD-883 TM 1014. A quotation can be provided for the subcontracting of Kr-85 leak testing to Class K levels using a DLA certified test facility.
7. For the 97D2xxxx DDR2 product family, wires are too close to together to place a hook between them. Therefore NDBP cannot be performed.

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