



Exar Shelf Life Extension to 5 Years

FOREWORD

Extending shelf-life beyond the generally accepted standard of 2 year is the current trend in the semiconductor industry. The initial practice of a 2 year shelf-life was implemented to protect customers from products with the potential for degraded reliability as a result of moisture absorption into the plastic molded package and possibly, the IC itself. Moisture can create unwanted, corrosive compounds affecting the long term reliability of the IC. For this reason, hermetically sealed packages historically have had a much longer shelf life.

Enhancements in plastic package molding compounds in terms of resistance to moisture absorption and retention as well as semiconductor passivation schemes has improved product quality for safe use beyond the standard 2 year shelf-life with no degradation in long term reliability. Empirical data has shown these products to be reliable in the field.

STUDY

Before announcing the implementation of an extended shelf life policy, Exar collected package reliability data on aged finished good products ranging from 2.5 to 6 year shelf-life. The affected packages in this evaluation included SOICs, QFPs, QFNs, DFNs, SOT23s, SSOPs and BGAs. Study was conducted in accordance to JEDEC J-STD-020 for evaluating Moisture Sensitivity Level (MSL) of packages. All handling of Moisture Sensitive SMDs should continue to follow J-STD-033. Additionally, the aged components were evaluated for solderability per *JESD22-B102E. Results of the study are summarized in the attached table.

*JESD22-B102E was rescinded in 2014 and has since been replaced by J-STD-002D

Package Type	Part number	MSL	Datecodes Evaluated YYWW	Approx Years in Inventory	Acoustic Microscopy Inspection	ATE Test Results SS=45	Confirmation of MSL Rating	Confirmation of Solderability SS=45
8L SOICN	CLC2011ISO8X	MSL1	1132	3.5	Passed	Passed	Passed	Passed
8L SOICN	CLC2011ISO8X	MSL1	1008	4.75	Passed	Passed	Passed	Passed
8L SOICN	LP2951CS	MSL 1	1021	4.5	Passed	Passed	Passed	Passed
14L SOICN	SP491EEN	MSL 2	1203	2.75	Passed	Passed	Passed	Passed
14L SOICN	SP3080EEN	MSL 2	1021	4.5	Passed	Passed	Passed	Passed
16 SOICN	CLC3605	MSL1	0842	6	Passed	Passed	Passed	Passed
18LSOICW	SP3222EUET	MSL 3	1221	2.5	Passed	Passed	Passed	Passed
18LSOICW	SP3222EUET	MSL 3	1135	3.25	Passed	Passed	Passed	Passed
18LSOICW	SP385EET	MSL 3	1036	4.25	Passed	Passed	Passed	Passed
28L SOICW	SP3243EHCT	MSL3	1052	4	Passed	Passed	Passed	Passed
28L SOICW	SP3243EHCT	MSL3	0843	6	Passed	Passed	Passed	Passed
16L SSOP	SP3220EBCA	MSL 2	1224	2.5	Passed	Passed	Passed	Passed
16L SSOP	SP3232EUCA	MSL 2	1129	3.25	Passed	Passed	Passed	Passed
16L SSOP	SP3232EBEA	MSL 2	1010	4.75	Passed	Passed	Passed	Passed
20L SSOP	SP3223EBCA	MSL 2	1226	2.5	Passed	Passed	Passed	Passed
20L SSOP	SP3223EBEA	MSL 2	1144	3	Passed	Passed	Passed	Passed
20L SSOP	SP3223EBEA	MSL 2	1011	4.75	Passed	Passed	Passed	Passed
28L SSOP	SP3238EEA	MSL 2	1221	2.5	Passed	Passed	Passed	Passed
28L SSOP	SP3245ECA	MSL 2	1134	3.25	Passed	Passed	Passed	Passed
3L SOT23	SPX385AM	MSL 1	1225	2.5	Passed	Passed	Passed	Passed
3L SOT23	SPX2431AM	MSL 1	1011	4.75	Passed	Passed	Passed	Passed
3L SOT23	SPX385AM	MSL 1	0831	6	Passed	Passed	Passed	Passed
5L SOT23	SP6201EM5	MSL 1	1226	2.5	Passed	Passed	Passed	Passed
5L SOT23	SP6205EM5	MSL 1	1033	4.25	Passed	Passed	Passed	Passed
5L SOT23	SP6201EM5	MSL 1	0826	6.5	Passed	Passed	Passed	Passed
6L SOT23	SP619EK	MSL 1	0833	5.25	Passed	Passed	Passed	Passed
6L SOT23	SP7121EK	MSL 1	1214	2.75	Passed	Passed	Passed	Passed
6L SOT23	SP619EK	MSL 1	1119	3.5	Passed	Passed	Passed	Passed
8L DFN 2x3	SP6205ER	MSL 1	1221	2.5	Passed	Passed	Passed	Passed
8L DFN 2x3	SPX3819R2	MSL 1	1006	4.75	Passed	Passed	Passed	Passed
8L DFN 2x3	SP6201ER	MSL 1	0846	6	Passed	Passed	Passed	Passed
24L QFN 4x4	XR20M1170IL24	MSL 2	1125	3.5	Passed	Passed	Passed	Passed
24L QFN 4x4	XR20M1170IL24TR	MSL 2	0945	5	Passed	Passed	Passed	Passed
24L QFN 4x4	XR16L580IL24	MSL 2	1103	3.75	Passed	Passed	Passed	Passed
40L QFN 6x6	XRP7704ILB	MSL 3	1145	3	Passed	Passed	Passed	Passed
40L QFN 6x6	XRP7704ILB	MSL 3	1104	3.75	Passed	Passed	Passed	Passed
40L QFN 6x6	XRP7704ILB	MSL 3	1006	4.75	Passed	Passed	Passed	Passed
48L QFP 7x7	XR16L2750IM	MSL 3	1203	2.75	Passed	Passed	Passed	Passed
48L QFP 7x7	ST16C450IQ48	MSL 3	1132	3.25	Passed	Passed	Passed	Passed
48L QFP 7x7	XR16M752IM48	MSL 3	0819	6.5	Passed	Passed	Passed	Passed
48L TQFP 7x7	CDK3405ATQ48	MSL3	0943	5	Passed	Passed	Passed	Passed
516L BGA 35x35	XRT94L43IB-F	MSL 4 @ 245C	1013/1150/1334	4.75 -1.5	Passed	Passed	Passed	Passed

TEST PROGRAM CONTROL

To ensure electrical quality, all components are screened to the most updated, production electrical test program to ensure products receive the latest test improvements before shipment to customers.

EXAR WARRANTY

There is no change to EXAR's warranty policy. All products sold by EXAR under this 5 year extension policy will receive the same current warranty coverage provided on all EXAR products.