



MLPQ 4X4

RoHS Compliance Document

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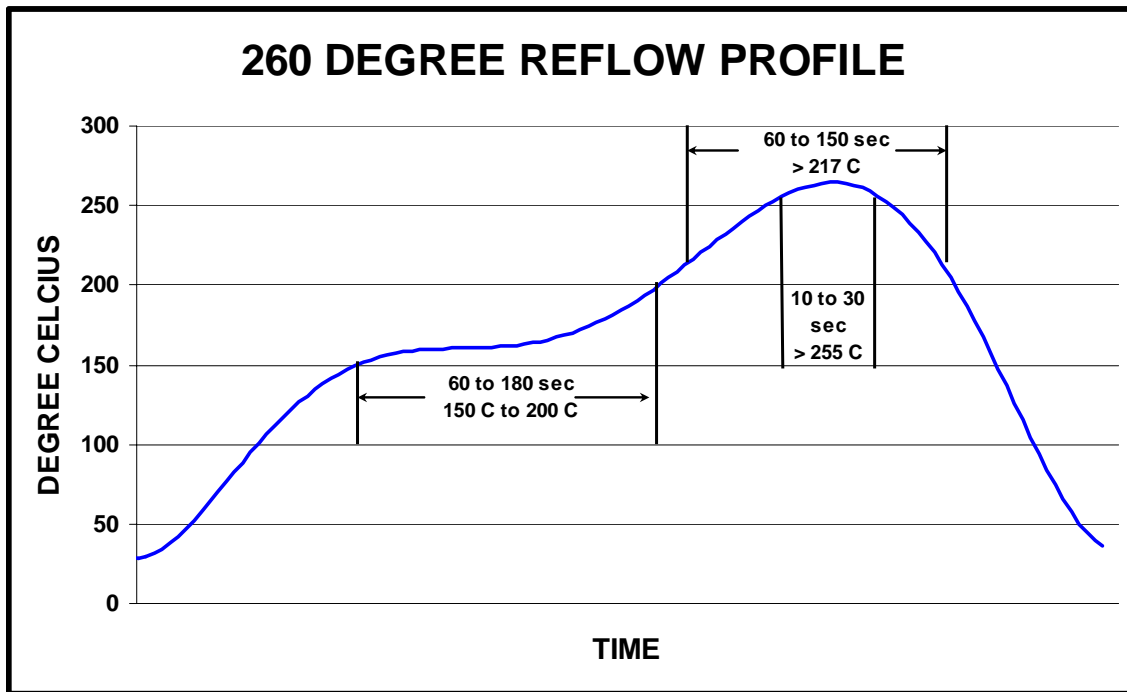
1. Composition
2. Solder Reflow
3. Tin Whisker Report



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Component	Material Name	Material Mass (g)	Element Name Composition	CAS #	Substance Mass (g)	Material Analysis Weight (%)	% of Total Weight
Chip	Silicon	0.00090	Si	7440-21-3	0.00090	100%	2.2%
Encapsulant	Epoxy Resin	0.02147	SiO2	7631-86-9	0.01396	65%	34.3%
			Epoxy Resin	90598-46-2	0.00751	35%	18.5%
Lead Frame	Copper	0.01770	Cu	7440-50-8	0.01721	97%	42.3%
			Fe	7439-89-6	0.00049	3%	1.2%
Die Attach	Silver Epoxy	0.00006	Ag	7440-22-4	0.00005	85%	0.1%
			Epoxy Resin	90958-46-2	0.00001	15%	0.0%
Wire bond	Gold	0.00035	Au	7440-57-5	0.00035	100%	0.9%
Lead Finish	Matte Tin	0.00022	Sn	7440-31-5	0.00022	100%	0.5%
Total Weight (g)					0.04070		

* Tin whisker mitigation strategy is 150 C, 1 hour anneal within 24 hours of tin plating.



This part is compliant with EU Directive 2002/95/EC (RoHS) and does not contain lead, mercury, cadmium (0.01%), hexavalent chromium, PBB or PBDE in concentrations greater than 0.1%, except as permitted by Annex (7).



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Test Definition	Test Conditions	Inspection Interval Class 1 and 2 Products	Total Duration Class 1 and 2 Products	Maximum Whisker Length (um)
Room Temperature Humidity Storage	30± 2°C/60± 3%RH	1000 hours	4000 hours	20
Temperature Humidity Unbiased	55± 3°C/85±3% RH	1000 hours	4000 hours	20
Temperature Cycling	-40 to 55°C to 80 to 95°C, air to air, 10 min soak, approx 3 cycles /hours	500 cycles	1500 cycles	45

Tin Whisker testing per JESD201, Environmental Acceptance Requirements for Tin Whisker Susceptibility of Tin and Tin Alloy Surface Finish

Tin Whisker Results (number of failing whiskers)

Test	1000 Hours	2000 Hours	3000 Hours	4000 Hours
Room Temperature Humidity Storage	0/24	0/24	0/24	0/24
Temperature Humidity Unbiased	0/24	0/24	0/24	0/24
Test	500 Cycles	1000 Cycles	1500 Cycles	
Temperature Cycling	0/24	0/24	0/24	