



## **QFN 4X5**

# **RoHS Compliance Document**

Contents:

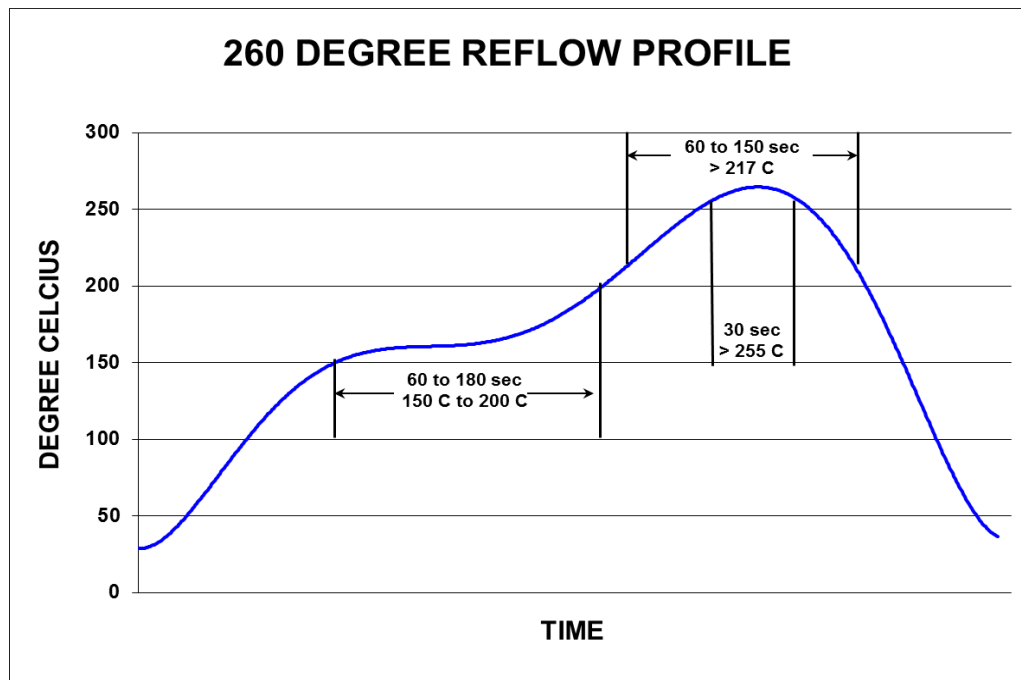
1. Composition
2. Solder Reflow
3. Tin Whisker Report



**QFN 4X5 BOM 1**

Component	Material Name	Material Mass (g)	Element Name Composition	CAS #	Substance Mass (g)	Material Analysis Weight (%)	% of Total Weight
Chip	Silicon	0.00244	Si	7440-21-3	0.00244	100%	4.4%
Encapsulant	Epoxy Resin	0.02552	SiO <sub>2</sub>	7631-86-9	0.02271	89%	40.9%
			Epoxy	90598-46-2	0.00230	9%	4.1%
			Other	-	0.00051	2%	0.9%
Lead Frame	Copper	0.01875	Cu	7440-50-8	0.01838	98%	33.1%
			Fe	7439-89-6	0.00037	2%	0.7%
Die Attach	Silver Epoxy	0.00176	Ag	7440-22-4	0.00127	72%	2.3%
			Epoxy	90958-46-2	0.00037	21%	0.7%
			Other	-	0.00012	7%	0.2%
Wire Bond	Copper	0.00015	Cu	7440-50-8	0.00015	100%	0.2%
Lead Finish	Ni/Pd/Au	0.00697	Ni	7440-02-0	0.00644	92.4%	11.5%
			Pd	7440-05-3	0.00044	6.3%	0.8%
			Au	7440-57-5	0.00009	1.3%	0.2%

Total Weight (g) **0.05559**



This part is compliant with EU Directive 2011/65/EU (RoHS Directive) 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 III. Further part complies with 3 reflow cycles per JEDEC J-STD-020.

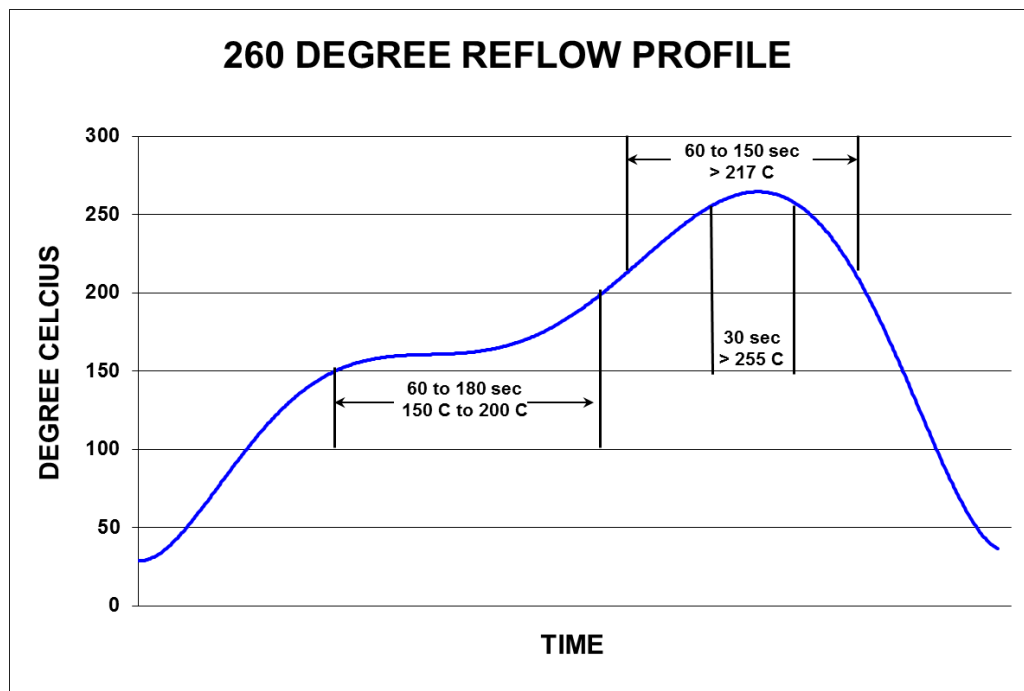


**QFN 4X5 BOM 2**

Component	Material Name	Material Mass (g)	Element Name Composition	CAS #	Substance Mass (g)	Material Analysis Weight (%)	% of Total Weight
Chip	Silicon	0.00244	Si	7440-21-3	0.00244	100%	4.4%
Encapsulant	Epoxy Resin	0.02552	SiO <sub>2</sub>	7631-86-9	0.02271	89%	40.9%
			Epoxy	90598-46-2	0.00230	9%	4.1%
			Other	-	0.00051	2%	0.9%
Lead Frame	Copper	0.01875	Cu	7440-50-8	0.01838	98%	33.1%
			Fe	7439-89-6	0.00037	2%	0.7%
Die Attach	Silver Epoxy	0.00176	Ag	7440-22-4	0.00127	72%	2.3%
			Epoxy	90958-46-2	0.00037	21%	0.7%
			Other	-	0.00012	7%	0.2%
Wire	Copper	0.00002	Cu	7440-50-8	0.00002	100%	0.0%
Wire	Gold	0.00013	Au	7440-57-5	0.00013	100%	0.2%
Lead Finish	Matte Tin*	0.00697	Sn	7440-31-5	0.00697	100%	12.5%

Total Weight  
(g)

**0.05559**



This part is compliant with EU Directive 2011/65/EU (RoHS Directive) 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 III. Further part complies with 3 reflow cycles per JEDEC J-STD-020



**PQFN 4X5 Copper Clip**

Test Definition	Test Conditions	Inspection Interval Class 1 and 2 Products	Total Duration Class 1 and 2 Products	Maximum Whisker Length (µm)
Room Temperature Humidity	30± 2°C/60± 3% RH	1000 hours	4000 hours	20
Temperature Humidity Unbiase	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	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	0/24	0/24	0/24	0/24
Test	500 Cycles	1000 Cycles	1500 Cycles	
Temperature Cycling	0/24	0/24	0/24	