



SIP Module

RoHS Compliance Document

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SIP Module

Component	Material Name	Material Mass (g)	Element Name Composition	CAS #	Substance Mass (g)	Material Analysis Weight (%)	% of Total Weight
Substrate	Aluminum	4.5274	Epoxy	90598-46-2	0.0795	1.8%	0.5%
			Al	7429-90-5	4.0695	89.8%	25.4%
			Cu	7440-50-8	0.3784	8.4%	2.4%
Chip	Silicon	0.0405	Si	7440-21-3	0.0405	100.0%	0.3%
Encapsulant	Epoxy Resin	9.3693	SiO2	7631-86-9	7.4017	79.0%	46.3%
			Epoxy	90598-46-2	1.7803	19.0%	11.1%
			Sb2O3	1309-64-4	0.1873	2.0%	1.2%
Lead Frame	Copper Alloy	0.8556	Cu	7440-50-8	0.8364	97.8%	5.2%
			Sn	7440-31-5	0.0095	1.1%	0.1%
			Ni	7440-02-0	0.0097	1.1%	0.1%
Die Attach 1	Silver Epoxy	0.0016	Ag	7440-22-4	0.0012	75%	0.0%
			Epoxy	90598-46-2	0.0004	25%	0.0%
Wire	Aluminum	0.0603	Al	7429-90-5	0.0603	100%	0.4%
Lead Finish	Tin Alloy	0.2614	Sn	7440-31-5	0.2511	96.0%	1.6%
			Ag	7440-22-4	0.0083	3.2%	0.1%
			Cu	7440-50-8	0.0020	0.8%	0.0%
Heatsink	Copper Alloy	0.8503	Ag	7440-22-4	0.1360	16.0%	0.9%
			Cu	7440-50-8	0.7143	84.0%	4.5%
Die Attach 2	Solder	0.0002	Sn	7440-31-5	0.0002	91.4%	0.0%
			Sb	7440-36-0	0.0000	8.6%	0.0%
Other Parts	Various	0.0334	Various	-	0.0334	100.0%	0.2%
			Total Weight (g)		16.0000		0.5%

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	25°C/50± 3%RH	1000 hours	4000 hours	50
Temperature Humidity Unbiased	60± 3°C/93±3% RH	1000 hours	2000 hours	50
Temperature Cycling	-40 to 55°C to 80 to 95°C, air to air, 10 min soak, approx 3 cycles /hours	500 cycles	2000 cycles	50

Tin Whisker testing more stringent than 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
Temperature Humidity Unbiased	0/24	0/24		
Test	500 Cycles	1000 Cycles	2000 Cycles	
Temperature Cycling	0/24	0/24	0/24	