



Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com				Package Code: QN84 Products: ICE40LP		Assembly: ASEM Size (mm): 7 x 7 x 0.85 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 260		
July, 2019	Package: 84 QFN Total Device Weight 0.110 Grams							
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.08%	0.0012	1.08%	0.0012	Silicon chip	7440-21-3	100.00%	Die size: 1.47 x 1.40 mm
Mold Compound	45.69%	0.0503	40.21%	0.0442	Silica (fused)	60676-86-0	88.00%	Mold Compound: Sumitomo EME-G770
			2.28%	0.0025	Epoxy Resin	-	5.00%	
			2.28%	0.0025	Phenol Resin	-	5.00%	
			0.80%	0.0009	Metal Hydroxide	-	1.75%	
			0.11%	0.0001	Carbon Black	1333-86-4	0.25%	
D/A Tape	0.05%	0.0001	0.01%	0.00001	Epoxy Resin	-	15.00%	Die attach: TAPE FH-900T-25_HR9004
			0.01%	0.00001	Phenol Resin	-	15.00%	
			0.00%	0.00000	SiO2 Filler	99439-28-8	5.00%	
			0.03%	0.00004	(Meta)Acrylic Copolymer	-	65.00%	
Wire	0.68%	0.0007	0.66%	0.0007	Copper (Cu)	7440-50-8	97.30%	0.8 mil wire diameter; 1 wire for each package lead
			0.02%	0.0000	Palladium (Pd)	7440-05-3	2.70%	
Plating	4.50%	0.0050	4.50%	0.0050	Tin (Sn)	7440-31-5	100.00%	100% Matte Sn, annealed
Leadframe	48.00%	0.0528	46.70%	0.05137	Copper (Cu)	7440-50-8	97.29%	C194
			0.04%	0.00004	Phosphorus (P)	7223-14-0	0.08%	
			0.06%	0.00007	Zinc Oxide	7440-66-6	0.13%	
			1.13%	0.00124	Iron (Fe)	7439-89-6	2.35%	
			0.05%	0.00005	Silver (Ag)	7440-22-4	0.10%	
			0.02%	0.00003	Conducting salt	-	0.05%	

Notes:

Lattice regards this materials information to be correct but makes no guarantee as to its accuracy or completeness, including, but not limited to, with respect to its compliance with applicable environmental laws and regulations. Lattice subcontracts the production, test and assembly of hardware devices to independent third-party vendors and materials suppliers ("Contractors"). All data provided hereunder is based on information received from Contractors. Lattice has not independently verified the accuracy or completeness of this information which is provided solely for your reference in connection with the use of Lattice products.

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July, 2019	Package: 84 QFN		Total Device Weight 0.110 Grams		Products: XO2			
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.08%	0.0012	1.08%	0.0012	Silicon chip	7440-21-3	100.00%	Die size: 1.47 x 1.40 mm
Mold Compound	45.69%	0.0503	40.21%	0.0442	Silica (fused)	60676-86-0	88.00%	Mold Compound: Sumitomo EME-G770SFL (ULA)
			2.28%	0.0025	Epoxy Resin	-	5.00%	
			2.28%	0.0025	Phenol Resin	-	5.00%	
			0.80%	0.0009	Metal Hydroxide	-	1.75%	
			0.11%	0.0001	Carbon Black	1333-86-4	0.25%	
D/A Tape	0.05%	0.00006	0.004%	0.000004	Bisphenol A Liquid Epoxy Resin	25068-38-6	7.50%	Die attach: Furukawa NEX-130CTX
			0.008%	0.000009	Specific Epoxy Resin	-	15.00%	
			0.001%	0.000001	Hardener	-	2.00%	
			0.037%	0.000041	Silica	60676-86-0	70.50%	
			0.003%	0.000003	Additives	-	5.00%	
Wire	0.68%	0.00074	0.66%	0.00072	Copper (Cu)	7440-50-8	97.30%	0.8 mil wire diameter; 1 wire for each package lead
			0.02%	0.00002	Palladium (Pd)	7440-05-3	2.70%	
Plating	4.50%	0.0050	4.50%	0.0050	Tin (Sn)	7440-31-5	100.00%	100% Matte Sn, annealed
Leadframe	48.00%	0.0528	46.70%	0.05137	Copper (Cu)	7440-50-8	97.29%	C194
			0.04%	0.00004	Phosphorus (P)	7223-14-0	0.08%	
			0.06%	0.00007	Zinc Oxide	7440-66-6	0.13%	
			1.13%	0.00124	Iron (Fe)	7439-89-6	2.35%	
			0.05%	0.00005	Silver (Ag)	7440-22-4	0.10%	
			0.02%	0.00003	Conducting salt	-	0.05%	

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