LATTICE SEMICONDUCTOR

Device Material Content

5555 NE Moore Ct.
Hillsboro OR 97124
custreq@lscc.com

December, 2017

Package: **48 TQFP (1.0mm)**
Total Device Weight **0.140** **Grams**

Package Code: **TN48**
Products: LC4kV/ZC

Assembly: ASEM
Size (mm): 7 x 7 x 1.0
Lead pitch (mm): 0.5
MSL: 3
Reflow max (ºC): 260

	% of Total Pkg. Wt.	**Weight (g)**	**% of Total Pkg. Wt.**	**Weight (g)**	**Substance**	**CAS #**	**% of Subst.**	**Notes / Assumptions:**
Die	2.12%	0.0030						Die size: 3.35 x 3.35 mm
			2.12%	0.0030	Silicon chip	7440-21-3	100.00%	
Mold Compound	70.17%	0.0982						Mold Compound: Hitachi CEL9220HF
			4.21%	0.0059	Epoxy Resin	-	6.00%	
			3.51%	0.0049	Phenol Resin	-	5.00%	
			0.14%	0.0002	Carbon Black	1333-86-4	0.20%	
			59.78%	0.0837	Silica	60676-86-0	85.20%	
			2.53%	0.0035	Others	-	3.60%	
D/A Epoxy	0.32%	0.0004						Die attach: Henkel (Ablebond) 3230
			0.26%	0.00036	Silver	7440-22-4	80.00%	
			0.06%	0.00009	Esters & resins	-	20.00%	
Wire	1.01%	0.0014						0.8 mil wire diameter; 1 wire for each package lead
			1.01%	0.0014	Gold (Au)	7440-57-5	100.00%	
Plating	4.06%	0.0057						Plating is 100% Matte Sn; thickness is >10.2µm
			4.06%	0.0057	Tin (Sn)	7440-31-5	100.00%	
Leadframe	22.32%	0.0312						C7025
			21.58%	0.0302	Copper (Cu)	7440-50-8	96.70%	
			0.67%	0.0009	Nickel (Ni)	7440-02-0	3.01%	
			0.04%	0.0001	Silicon (Si)	7440-21-3	0.17%	
			0.01%	0.0000	Magnesium (Mg)	7439-95-4	0.03%	
			0.02%	0.0000	Silver (Ag)	7440-22-4	0.09%	

Notes:

The values listed above are nominal values based on studies of representatives of this particular package type, and are believed to be as accurate as possible.

Constituent substances and proportions in epoxy materials are before curing.

The information provided above is representative of the package as of the date listed, and is subject to change at any time.

www.latticesemi.com

Br/Cl/Sb

Pb lead-free

RoHS

Rev. C

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Die	2.12%	0.0030	2.12%	0.0030	Silicon chip	7440-21-3	100.00%	Die size: 3.35 x 3.35 mm
Mold Compound	70.17%	0.0982	4.91%	0.0069	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G700 series
			3.51%	0.0049	Phenol Resin	-	5.00%	
			0.35%	0.0005	Carbon Black	1333-86-4	0.50%	
			61.40%	0.0860	Silica Fused	60676-86-0	87.50%	
D/A Epoxy	0.32%	0.0004	0.26%	0.00036	Silver	7440-22-4	80.00%	Die attach: Sumitomo CRM-1076NS
			0.03%	0.00004	Epoxy Resin	9003-36-5	10.00%	
			0.02%	0.00002	Diluent	26447-14-3	5.00%	
			0.00%	0.00000	Dicyandiamide	461-58-5	0.50%	
			0.01%	0.00002	Hardener	620-92-8	4.50%	
Wire	1.01%	0.0014	1.01%	0.0014	Gold (Au)	7440-57-5	100.00%	0.8 mil wire diameter; 1 wire for each package lead
Plating	4.06%	0.0057	4.06%	0.0057	Tin (Sn)	7440-31-5	100.00%	Plating is 100% Matte Sn; thickness is >10.2µm
Leadframe	22.32%	0.0312	21.58%	0.0302	Copper (Cu)	7440-50-8	96.70%	C7025
			0.67%	0.0009	Nickel (Ni)	7440-02-0	3.01%	
			0.04%	0.0001	Silicon (Si)	7440-21-3	0.17%	
			0.01%	0.0000	Magnesium (Mg)	7439-95-4	0.03%	
			0.02%	0.0000	Silver (Ag)	7440-22-4	0.09%	

Notes:

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