Device Material Content

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

December, 2017

Package: **48 TQFP (1.4mm)**
Total Device Weight **0.180** **Grams**

Package Code: **TN48, VN48**
Products: PAC, M4A

Assembly: ASEM
Size (mm): 7 x 7 x 1.4
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	2.05%	0.0037	2.0500%	0.0037	Silicon chip	7440-21-3	100.00%	Die size: 2.00 x 2.20 mm
Mold Compound	76.58%	0.1378	65.25%	0.1174	Silica Fused	60676-86-0	85.20%	Mold Compound: Hitachi CEL9220HF
			4.59%	0.0083	Epoxy Resin	-	6.00%	
			3.83%	0.0069	Phenol Resin	-	5.00%	
			0.15%	0.0003	Carbon black	1333-86-4	0.20%	
			2.76%	0.0050	Other (trade secret)	-	3.60%	
D/A Epoxy	0.25%	0.0005	0.20%	0.00036	Silver (Ag)	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 3230
			0.05%	0.00009	other	-	20.00%	
Wire	0.78%	0.0014	0.78%	0.0014	Gold (Au)	7440-57-5	100.00%	0.8 to1.0 mil diameter; 1 wire per package lead
Plating	2.98%	0.0054	2.98%	0.0054	Tin (Sn)	7440-31-5	100.00%	Plating is 100% Matte Sn; thickness is >10.2µm
Leadframe	17.36%	0.0312	16.79%	0.0302	Copper (Cu)	7440-50-8	96.70%	C7025
			0.52%	0.0009	Nickel (Ni)	7440-02-0	3.01%	
			0.03%	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. B

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December, 2017

Package: **48 TQFP (1.4mm)**
Total Device Weight **0.180** **Grams**

Package Code:
TN48, VN48
Products:
PAC, M4A

Assembly: Unisem
Size (mm): 7 x 7 x 1.4
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	2.05%	0.0037	2.0500%	0.0037	Silicon chip	7440-21-3	100.00%	Die size: 2.00 x 2.20 mm
Mold Compound	76.58%	0.1378	5.36%	0.0096	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G700 series
			3.83%	0.0069	Phenol Resin	-	5.00%	
			0.38%	0.0007	Carbon Black	1333-86-4	0.50%	
			67.01%	0.1206	Silica Fused	60676-86-0	87.50%	
D/A Epoxy	0.25%	0.0005	0.20%	0.00036	Silver	7440-22-4	80.00%	Die attach epoxy: Sumitomo CRM1076NS
			0.03%	0.00005	Epoxy Resin	9003-36-5	10.00%	
			0.01%	0.00002	Diluent	26447-14-3	5.00%	
			0.00%	0.000002	Dicyandiamide	461-58-5	0.50%	
			0.01%	0.00002	Hardener	620-92-8	4.50%	
Wire	0.78%	0.0014	0.78%	0.0014	Gold (Au)	7440-57-5	100.00%	0.8 to1.0 mil diameter; 1 wire per package lead
Plating	2.98%	0.0054	2.98%	0.0054	Tin (Sn)	7440-31-5	100.00%	Plating is 100% Matte Sn; thickness is >10.2µm
Leadframe	17.36%	0.0312	16.79%	0.0302	Copper (Cu)	7440-50-8	96.70%	C7025
			0.52%	0.0009	Nickel (Ni)	7440-02-0	3.01%	
			0.03%	0.00005	Silicon (Si)	7440-21-3	0.17%	
			0.01%	0.00001	Magnesium (Mg)	7439-95-4	0.03%	
			0.02%	0.00003	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.

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