Device Material Content

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

May, 2024

Package: **81 WLCSP**
Total Device Weight: **17.91**

Package Code:
UWG81
Products
XO3

Assembly : **ASEK**
Size(mm): **3.8x3.7**
Lead pitch(mm) : **0.4**
MSL : **1**
Reflow max (^{o}C) **260**

	% of Total Pkg. Wt.	**Weight (mg)**	**% of Total Pkg. Wt.**	**Weight (mg)**	**Material Substances**	**CAS #**	**Material % of Subst.**	**Notes / Assumptions:**
Die	57.220%	10.248	57.220%	10.2477	Silicon chip	7440-21-3	100.00%	Die size: 3.8 x 3.7 mm
Polyimide (Repassivation)	1.850%	0.331	1.85%	0.3312	PBO	-	100%	HD8820
RDL(1) metalization	0.040%	0.007	0.040%	0.0072	Titanium (Ti)	7440-32-6	100.00%	
RDL(2) metalization	3.300%	0.592	3.300%	0.5917	Copper (Cu)	7440-50-8	100.00%	
UBM (1)	0.040%	0.007	0.040%	0.0072	Titanium (Ti)	7440-32-6	100.00%	
UBM (2)	6.690%	1.198	6.690%	1.1976	Copper (Cu)	7440-50-8	100.00%	
Solder Balls SAC405	27.210%	4.871						SAC405
			25.980%	4.652	Tin (Sn)	7440-31-5	95.50%	
			1.090%	0.195	Silver (Ag)	7440-22-4	4.00%	
			0.140%	0.024	Copper (Cu)	7440-50-8	0.50%	
BSC **(coating film)**	3.650%	0.654						Adwill LC2850
			2.372%	0.4249	Polybutylene terephthalate (PBT)	25038-59-9	65.00%	
			0.712%	0.1275	Silica	60676-86-0	19.50%	
			0.274%	0.0490	Other Epoxy resins	-	7.50%	
			0.274%	0.0490	Other Acrylic resins	-	7.50%	
			0.018%	0.0033	Carbon black	1333-86-4	0.50%	
	100.000%	17.91	100.00%	17.91				

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.

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Br/Cl/Sb

lead-free RoHS

PCN#09A-19
Rev. F

Device Material Content

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

May, 2024

Package: 81 WLCSP
Total Device Weight: 30.587

Package Code:
UWG81
Products
XO3

Assembly : ATT
Size(mm): 3.8x3.7
Lead pitch(mm) : 0.4
MSL : 1
Reflow max (^{o}C) 260

	% of Total Pkg. Wt.	Weight (mg)	% of Total Pkg. Wt.	Weight (mg)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	79.84%	24.422	79.84%	24.422	Silicon chip	7440-21-3	100.00%	Die size: 3.8 x 3.7 mm
Sputter 1	0.063%	0.0192						
			0.005%	0.002	Titanium (Ti)	7440-32-6	7.74%	
			0.058%	0.018	Copper (Cu)	7440-50-8	92.26%	
Repassivation PBO 1	0.372%	0.1139	0.372%	0.114	PBO	-	100%	PBO HD8820
RDL metalization	0.772%	0.2360	0.772%	0.236	Copper (Cu)	7440-50-8	100.00%	
Sputter 2	0.044%	0.0133						
			0.022%	0.007	Titanium (Ti)	7440-32-6	49.82%	
			0.022%	0.007	Copper (Cu)	7440-50-8	50.18%	
Repassivation PBO 2	0.297%	0.0908	0.297%	0.0908	PBO	-	100%	PBO HD8820
UBM	0.939%	0.2872	0.939%	0.287	Copper (Cu)	7440-50-8	100.00%	
Solder Balls	16.113%	4.9285						SAC405
			15.388%	4.707	Tin (Sn)	7440-31-5	95.50%	
			0.645%	0.197	Silver (Ag)	7440-22-4	4.00%	
			0.081%	0.025	Copper (Cu)	7440-50-8	0.50%	
BSC Coating film	1.558%	0.4764						Adwill LC2850
			1.012%	0.310	Polybutylene terephthalate (PBT)	25038-59-9	65.00%	
			0.304%	0.093	Silica	60676-86-0	19.50%	
			0.117%	0.036	Other Epoxy resins	-	7.50%	
			0.117%	0.036	Other Acrylic resins	-	7.50%	
			0.008%	0.002	Carbon black	1333-86-4	0.50%	
	100.00%	30.587	100.00%	30.587				

Notes:
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Rev. F