Device Material Content

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

April, 2020

Package: 81 WLCSP
Total Device Weight 17.910 **Milligrams**

Package Code: UWG81
Products: XO3

Assembly: ASEK
Size (mm): 3.8 x 3.7
Lead pitch (mm): 0.4
MSL: 1
Reflow max (°C): 260

	% of Total Pkg. Wt.	Weight (mg)	% of Total Pkg. Wt.	Weight (mg)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	57.21%	10.246	57.21%	10.246	Silicon chip	7440-21-3	100.00%	Die size: 3.8 x 3.7 mm
Polyimide (Repassivation)	1.85%	0.3312	0.925%	0.1656	4-Butyrolactone	96-48-0	50.00%	PBO HD8820
			0.647%	0.1159	Polyamide	-	35.00%	
			0.092%	0.0166	1-Methoxy-2-propyl acetate	108-65-6	5.00%	
			0.092%	0.0166	Photo Active Compound	-	5.00%	
			0.092%	0.0166	Proprietary Additives	-	5.00%	
RDL(1) metalization	0.04%	0.0072	0.040%	0.0072	Titanium (Ti)	7440-32-6	100.00%	
RDL(2) metalization	3.30%	0.5910	3.300%	0.0072	Copper (Cu)	7440-50-8	100.00%	
UBM (1)	0.04%	0.0072	0.040%	0.0072	Titanium (Ti)	7440-32-6	100.00%	
UBM (2)	6.69%	1.1982	6.690%	0.0072	Copper (Cu)	7440-50-8	100.00%	
Solder Balls	27.22%	4.8748	25.993%	4.6554	Tin (Sn)	7440-31-5	95.50%	SAC405
			1.089%	0.1950	Silver (Ag)	7440-22-4	4.00%	
			0.136%	0.0244	Copper (Cu)	7440-50-8	0.50%	
BSC (coating film)	3.65%	0.6537	2.372%	0.4249	Polybutylene terephthalate (PBT)	25038-59-9	65.00%	Adwill LC 2850
			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%	

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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PCN#09A-19
Rev. E

Device Material Content

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

May, 2019

Package: 81 WLCSP
Total Device Weight 30.587 **Milligrams**

Package Code: UWG81
Products: XO3

Assembly: ATT
Size (mm): 3.8 x 3.7
Lead pitch (mm): 0.4
MSL: 1
Reflow max (ºC): 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%	0.019	0.005%	0.001	Titanium (Ti)	7440-32-6	7.74%	
			0.058%	0.018	Copper (Cu)	7440-50-8	92.26%	
Repassivation PBO 1	0.372%	0.114	0.186%	0.057	4-Butyrolactone	96-48-0	50.00%	PBO HD8820
			0.130%	0.040	Polyamide	-	35.00%	
			0.019%	0.006	1-Methoxy-2-propyl acetate	108-65-6	5.00%	
			0.019%	0.006	Photo Active Compound	-	5.00%	
			0.019%	0.006	Proprietary Additives	-	5.00%	
RDL metalization	0.772%	0.236	0.772%	0.236	Copper (Cu)	7440-50-8	100.00%	
Sputter 2	0.044%	0.013	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%	0.091	0.148%	0.045	4-Butyrolactone	96-48-0	50.00%	PBO HD8820
			0.104%	0.032	Polyamide	-	35.00%	
			0.015%	0.005	1-Methoxy-2-propyl acetate	108-65-6	5.00%	
			0.015%	0.005	Photo Active Compound	-	5.00%	
			0.015%	0.005	Proprietary Additives	-	5.00%	
UBM	0.939%	0.287	0.939%	0.287	Copper (Cu)	7440-50-8	100.00%	
Solder Balls	16.113%	4.928	15.388%	4.707	Tin (Sn)	7440-31-5	95.50%	SAC405
			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%	0.476	1.012%	0.310	Polybutylene terephthalate (PBT)	25038-59-9	65.00%	Adwill LC2850
			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%	

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Rev. E