

**ON Semiconductor** 10/15/2019

<b>Base Part</b>		<b>STK681-332-E</b>		
<b>Orderable Part</b>		<b>STK681-332-E</b>	<b>Total weight (mg)</b>	<b>3400</b>
Homogenous Material	Weight (mg)	Substance in Mat.	CAS #	% Avg. Weight
<b>Ceramic Substrate</b>	1143.2	Bisphenol A_Epichlorohydrin polymer	25068-38-6	0.57
		Aluminum Trioxide (Al2O3)	1344-28-1	3.8
		Nickel (Ni)	7440-02-0	0.18
		Acrylic resins	n/a	0.07
		Copper (Cu)	7440-50-8	3.55
		Barium Sulfate (BaSO4)	7727-43-7	0.06
		Aluminum (Al)	7429-90-5	91.77
<b>Chip Parts</b>	9.46	Silver (Ag)	7440-22-4	5.06
		Epoxy resins	129915-35-1	2.57
		Tin (Sn)	7440-31-5	4.14
		Silica Amorphous (SiO2)	7631-86-9	2.62
		Ceramic	12013-47-7, 12047-27-7	26.23
		Aluminum Trioxide (Al2O3)	1344-28-1	48.86
		Nickel (Ni)	7440-02-0	5.12
		Lead Oxide (PbO)	1317-36-8	0.32
<b>Die</b>	8.22	Copper (Cu)	7440-50-8	5.08
		Silicon (Si)	7440-21-3	99.84
<b>Die Attach</b>	0.28	Polyimide	n/a	0.16
		Silver (Ag)	7440-22-4	77
		Other Epoxy resins	n/a	17
		Other Metal Oxide	n/a	4.3
<b>Lead Frame</b>	474.08	Antimony Pentoxide (Sb2O5)	1314-60-9	1.7
		Tin (Sn)	7440-31-5	0.06
		Copper (Cu)	7440-50-8	99.94
<b>Mold Compound-Black</b>	1757.27	Brominated epoxy resin	n/a	2
		Phenolic Resin	n/a	7
		Antimony Trioxide (Sb2O3)	1309-64-4	2
		Fused Silica (SiO2)	60676-86-0	70
		Ortho Cresol Novolac Resin	29690-82-2	19
<b>Plating</b>	0.95	Tin (Sn)	7440-31-5	61.91
		Nickel (Ni)	7440-02-0	38.09
<b>Solder Ball</b>	3.96	Silver (Ag)	7440-22-4	2.79
		Tin (Sn)	7440-31-5	96.64
		Antimony (Sb)	7440-36-0	0.08
		Copper (Cu)	7440-50-8	0.49
<b>Wire Bond</b>	2.58	Silicon (Si)	7440-21-3	0.32
		Aluminum (Al)	7429-90-5	99.68

**Materials Disclosure Disclaimer:** Even though all possible efforts have been made to provide you with the most accurate information, we cannot guarantee to its accuracy since the data has been compiled based on the ranges provided, and some information provided by the subcontractors and raw material suppliers may have been withheld to protect their business proprietary information. Thus this information is provided only as estimates, and do not include trace levels fo dopants and metal materials contained within silicon devices in the finished products. There is no intentional use of Mercury, Hexavalent Chromium, Cadmium, PBB or PBDE (5 of the 6 RoHS banned substances) in this or any of our other products. For further explanation on material composition calculations, please view our Product Chemical Content Brochure at:

<http://www.onsemi.com/pub/Collateral/BRD8022-D.PDF>