

# Chemicals contained in products

## Package-type

Epson Package name; **VFBGA6H-121 / Halogen free**

JEITA Package name; **(P-VFBGA-121-0606-0.50)**

Solder ball Type; **Lead(Pb) Free**

Weight; **0.06 [g]** \*Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application		
					[mg]	[ppm]			
IC Die	IC Die	6.6	Silicon	7440-21-3	6.6	999894	Base material		
			Boron	7440-42-8	0.00001	2	Dopant		
			Phosphorus	7723-14-0	0.00003	5	Dopant		
			Aluminum	7429-90-5	0.0001	20	Metalization		
			Arsenic *Note3	7440-38-2	0.00003	5	Dopant		
			Fluorine *Note3	7782-41-4	0.00001	2	Dopant		
			Titanium *Note3	7440-32-6	0.0001	20	Metalization		
			Molybdenum *Note3	7439-98-7	0.0001	20	Metalization		
			Tungsten *Note3	7440-33-7	0.0002	30	Metalization		
			Cobalt *Note3	7440-48-4	0.00001	2	Metalization		
Package	Stress buffer coat	0.13	Polyimide	-	0.13	1000000	Stress buffer coat *Note4		
	Substrate	14	Glass-cloth	-	1.8	132000	Reinforcement		
			Silica	-	0.92	66000	Filler		
			Epoxy resin	-	2.3	164300	Base material		
			Acrylate resin	-	1.2	85000	Base material		
			Pigment	-	0.69	49300	Additive		
			Organic filler	-	0.047	3400	Filler		
			Arsenic	7440-38-2	0.001	85	Burning resistance		
			Chromium compound	-	0.0002	14	Burning resistance		
			Copper	7440-50-8	5.8	419901	Copper foil		
			Nickel	7440-02-0	0.89	64000	Plating		
			Gold	7440-57-5	0.22	16000	Plating		
			Die Bonding material	1.0	Epoxy resin	-	0.66	670000	Adhesive
					Acrylic resin	-	0.32	330000	Adhesive
	Solder ball	10	Tin	7440-31-5	9.1	957500	Solder ball		
			Silver	7440-22-4	0.33	35000	Solder ball		
			Copper	7440-50-8	0.071	7500	Solder ball		
	Bonding Wire	0.5	Gold	-	0.53	1000000	Conductor		
	Mold resin	28	Epoxy resin	-	1.4	50000	Base material		
			Silica	60676-86-0/-	24.7	873000	Filler		
			Carbon black	1333-86-4	0.057	2000	Coloring agent		
			Hardening chemical(ex:Phenol resin)	-	1.4	50000	Base material		
			Organic phosphorous compound	-	0.14	5000	Hardening accelerator		
			Others	-	0.57	20000	Additive		

Regarding the information of chemical substances

\*Note1 The weight might be somewhat different depending on an individual built-in IC-chip specification like the size etc.

\*Note2 Content data are estimated values based on supplier information and intended levels of content in product.

Actual measurements may vary from these values somewhat.

\*Note3 Use or not-use of these substances depends on individual built-in IC-chip specification.

\*Note4 The stress buffer coat may not be used depending on the individual model.