

# Chemicals contained in products

## Package-type

Epson Package name; **VFBGA10H-180 / Halogen free**

JEITA Package name; **(P-VFBGA-180-1010-0.65)**

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

Weight; **0.16 [g]** \*Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application	
					[mg]	[ppm]		
IC Die	IC Die	6.7	Silicon	7440-21-3	6.7	999914	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	
			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	100000	Stress buffer coat *Note4	
			Substrate	40.83	Glass-cloth	-	7.20	132000
	Silica	-	1.70		66000	Filler		
	Epoxy resin	-	8.00		164300	Base material		
	Acrylate resin	-	2.40		85000	Base material		
	Pigment	-	1.00		49300	Additive		
	Organic filler	-	0.14		3400	Filler		
	Arsenic	7440-38-2	0.04		85	Burning resistance		
	Chromium compound	-	0.001		14	Burning resistance		
	Copper	7440-50-8	17.10		419901	Copper foil		
	Nickel	7440-02-0	2.60		64000	Plating		
	Gold	7440-57-5	0.65		16000	Plating		
	Die Bonding material	2.85	Epoxy resin		-	1.90	670000	Adhesive
			Acrylic resin		-	0.95	330000	Adhesive
	Solder ball	14.94	Tin		7440-31-5	14.30	957500	Solder ball
			Silver	7440-22-4	0.53	35000	Solder ball	
			Copper	7440-50-8	0.11	7500	Solder ball	
	Bonding Wire	3.00	Gold	-	3.00	1000000	Conductor	
	Mold resin	91.33	Epoxy resin	-	4.50	50000	Base material	
			Silica	60676-86-0/-	79.90	873000	Filler	
			Carbon black	1333-86-4	0.18	2000	Coloring agent	
			Hardening chemical(ex:Phenol resin)	-	4.50	50000	Base material	
			Organic phosphorous compound	-	0.45	5000	Hardening accelerator	
	Others	-	1.80	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.