

Chemicals contained in products

Package-type

Epson Package name; **PFBGA10U-160 / Halogen free**

JEITA Package name; **(P-TFBGA-160-1010-0.65)**

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

Weight; **0.19 [g]** *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2		Application			
					[mg]	[ppm]				
IC Die	IC Die	21.90	Silicon	7440-21-3	21.9	999914	Base material			
			Boron	7440-42-8	0.00004	2	Dopant			
			Phosphorus	7723-14-0	0.00011	5	Dopant			
			Aluminum	7429-90-5	0.0004	20	Metalization			
			Arsenic *Note3	7440-38-2	0.00011	5	Dopant			
			Fluorine *Note3	7782-41-4	0.00004	2	Dopant			
			Titanium *Note3	7440-32-6	0.0004	20	Metalization			
			Tungsten *Note3	7440-33-7	0.0007	30	Metalization			
			Cobalt *Note3	7440-48-4	0.00004	2	Metalization			
	Stress buffer coat	0.44	Polyimide	-	0.44	1000000	Stress buffer coat *Note4			
Package	Substrate	23.03	Glass-cloth	-	4.04	175310	Reinforcement			
			Barium Sulfate	7727-43-7	0.94	40790	Additive			
			Epoxy resin	-	4.54	197180	Base material			
			Acrylate resin	-	1.33	57800	Base material			
			Pigment	-	0.59	25520	Additive			
			Organic filler	-	0.078	3400	Filler			
			Zinc	7440-66-6	0.021	920	Characteristic preserve			
			Chromium	7440-47-3	0.0007	30	Characteristic preserve			
			Copper	7440-50-8	9.65	419050	Copper foil			
			Nickel	7440-02-0	1.47	64000	Plating			
			Gold	7440-57-5	0.37	16000	Plating			
				Die Bonding material	0.98	Ester resin	-	0.10	100000	Adhesive
			Epoxy resin			-	0.76	770000	Adhesive	
			Silica			15468-32-3	0.13	130000	Filler	
		Solder ball	26.76	Tin	7440-31-5	25.82	964900	Solder ball		
	Silver			7440-22-4	0.80	30000	Solder ball			
	Copper			7440-50-8	0.13	5000	Solder ball			
	Nickel			7440-02-0	0.00	100	Solder ball			
		Bonding Wire	0.96	Copper	7440-50-8	0.96	1000000	Conductor		
		Mold resin	115.93	Silica	60676-86-0	104.17	898500	Filler		
	Epoxy resin			-	6.38	55000	Base material			
	Carbon black			1333-86-4	0.17	1500	Coloring agent			
	Phenol resin			-	5.22	45000	Base material			

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.