

# Chemicals contained in products

## Package-type

Epson Package name; **QFP20-184PIN**

JEITA Package name; **P-LQFP184-2020-0.40**

Terminal plating; **Lead(Pb) Free**

Weight; **1.38 [g]\*Note1**

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application
					[mg]	[ppm]	
IC Die	IC Die	31.3	Silicon	7440-21-3	31.3	999894	Base material
			Boron	7440-42-8	0.00063	2	Dopant
			Phosphorus	7723-14-0	0.00016	5	Dopant
			Aluminum	7429-90-5	0.00063	20	Metalization
			Arsenic *Note3	7440-38-2	0.00016	5	Dopant
			Fluorine *Note3	7782-41-4	0.00063	2	Dopant
			Titanium *Note3	7440-32-6	0.00063	20	Metalization
			Molybdenum *Note3	7439-98-7	0.00063	20	Metalization
			Tungsten *Note3	7440-33-7	0.00094	30	Metalization
	Cobalt *Note3	7440-48-4	0.00063	2	Metalization		
	Stress buffer coat	0.63	Polyimide	-	0.63	1000000	Stress buffer coat *Note4
Package	Die Bonding material	2.6	Silver	7440-22-4	1.6	640000	Base material
			Epoxy resin	-	0.53	205000	Adhesive
			Phenol resin	-	0.21	80000	Adhesive
			Inorganic powder	-	0.13	48000	Additive
			Bismuth compound	-	0.070	27000	Ion trap
	Lead Frame Plating	19.9	Tin	7440-31-5	19.5	980000	Solder
			Bismuth	7440-69-9	0.39	20000	Solder
	Lead Frame	310.3	Copper	7440-50-8	293.2	945000	Conductor
			Silver	7440-22-4	1.6	5000	Inner Lead plating
			Others *Note5	-	15.5	50000	Additive
	Bonding Wire	4.4	Gold	7440-57-5	4.4	1000000	Conductor
	Mold resin	1010.8	Epoxy resin	-	50.5	50000	Base material
			Antimony trioxide	1309-64-4	4.0	4000	Flame retardant
			Halogenated compound(Brominations epoxy)	-	9.1	9000	Flame retardant
			Silica	60676-86-0/-	815.7	807000	Filler
			Carbon black	1333-86-4	15.2	15000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	60.6	60000	Base material
Organic phosphorous compound			-	5.1	5000	Hardening accelerator	
Others			-	50.5	50000	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.

\*Note5 The nickel, zinc, tin, silicon, iron, and the zinc oxide are included for the Cu type. And the carbon, silicon, and manganese are included for 42alloy type.