

Chemicals contained in products

Package-type

Epson Package name; **QFP20-184PIN / Halogen free**

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	36.3	Silicon	7440-21-3	36.3	999894	Base material
			Boron	7440-42-8	0.000073	2	Dopant
			Phosphorus	7723-14-0	0.00018	5	Dopant
			Aluminum	7429-90-5	0.00073	20	Metalization
			Arsenic *Note3	7440-38-2	0.00018	5	Dopant
			Fluorine *Note3	7782-41-4	0.00007	2	Dopant
			Titanium *Note3	7440-32-6	0.00073	20	Metalization
			Molybdenum *Note3	7439-98-7	0.00073	20	Metalization
			Tungsten *Note3	7440-33-7	0.0011	30	Metalization
			Cobalt *Note3	7440-48-4	0.000073	2	Metalization
	Stress buffer coat	0.73	Polyimide	-	0.73	1000000	Stress buffer coat *Note4
Package	Die Bonding material	4.1	Silver	7440-22-4	2.6	640000	Base material
			Epoxy resin	-	0.84	205000	Adhesive
			Phenol resin	-	0.33	80000	Adhesive
			Inorganic powder	-	0.19	48000	Additive
			Bismuth compound	-	0.11	27000	Ion trap
	Lead Frame Plating	20.2	Tin	7440-31-5	20.2	1000000	Solder
	Lead Frame	314.7	Copper	7440-50-8	297.4	945000	Conductor
			Silver	7440-22-4	1.6	5000	Inner lead plating
			Others *Note5	-	15.7	50000	Additive
	Bonding Wire	3.8	Gold	7440-57-5	3.8	1000000	Conductor
	Mold resin	1000.2	Epoxy resin	-	50.0	50000	Base material
			Silica	60676-86-0/-	905.2	905000	Filler
			Carbon black	1333-86-4	5.0	5000	Coloring agent
Hardening chemical(ex:Phenol resin)			-	40.0	40000	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.

*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.