Chemicals contained in products

Package-type

Epson Package name; **QFP20-176PIN / Halogen free**

JEITA Package name; **P-LQFP176-2020-0.40**

Lead frame 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	12.7	Silicon	7440-21-3	12.7	999914	Base material
			Boron	7440-42-8	0.000025	2	Dopant
			Phosphorus	7723-14-0	0.000064	5	Dopant
			Aluminum	7429-90-5	0.00025	20	Metalization
			Arsenic *Note3	7440-38-2	0.000064	5	Dopant
			Fluorine *Note3	7782-41-4	0.000025	2	Dopant
			Titanium *Note3	7440-32-6	0.00025	20	Metalization
			Tungsten *Note3	7440-33-7	0.00038	30	Metalization
			Cobalt *Note3	7440-48-4	0.000025	2	Metalization
	Stress buffer coat	0.25	Polyimide	-	0.25	1000000	Stress buffer coat *Note4
Package	Die Bonding material	2.2	Silver	7440-22-4	2.00	910000	Base material
			Acrylic resin	-	0.15	70000	Adhesive
			Epoxy resin	-	0.04	20000	Adhesive
	Lead Frame Plating	4.4	Tin	7440-31-5	4.40	1000000	Solder
	Lead Frame	372.8	Copper	7440-50-8	352.32	945000	Conductor
			Silver	7440-22-4	1.86	5000	Inner lead plating
			Others *Note5	-	18.6	50000	Additive
	Bonding Wire	3.7	Gold	7440-57-5	3.72	1000000	Conductor
	Mold resin	983.9	Epoxy resin	-	49.19	50000	Base material
			Phenol resin	-	49.19	50000	Base material
			Silica	60676-86-0	882.55	897000	Filler
			Carbon black	1333-86-4	2.95	3000	Coloring agent

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.