

# Chemicals contained in products

## Package-type

Epson Package name; **QFP5-128PIN-S2/ Halogen free**

JEITA Package name; **P-QFP128-1420-0.50**

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

Weight; **1.76 [g]\*Note1**

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application
					[mg]	[ppm]	
IC Die	IC Die	26.7	Silicon	7440-21-3	26.7	999894	Base material
			Boron	7440-42-8	0.00005	2	Dopant
			Phosphorus	7723-14-0	0.00013	5	Dopant
			Aluminum	7429-90-5	0.00053	20	Metalization
			Arsenic *Note3	7440-38-2	0.00013	5	Dopant
			Fluorine *Note3	7782-41-4	0.000053	2	Dopant
			Titanium *Note3	7440-32-6	0.00053	20	Metalization
			Molybdenum *Note3	7439-98-7	0.00053	20	Metalization
			Tungsten *Note3	7440-33-7	0.0008	30	Metalization
			Cobalt *Note3	7440-48-4	0.000053	2	Metalization
	Stress buffer coat	0.53	Polyimide	-	0.53	1000000	Stress buffer coat *Note4
Package	Die Bonding material	3.8	Silver	7440-22-4	2.4	640000	Base material
			Epoxy resin	-	0.77	205000	Adhesive
			Phenol resin	-	0.30	80000	Adhesive
			Inorganic powder	-	0.18	48000	Additive
			Bismuth compound	-	0.10	27000	Ion trap
	Lead Frame Plating	30.8	Tin	7440-31-5	30.8	1000000	Solder
	Lead Frame	328.1	Copper	7440-50-8	310.1	945000	Conductor
			Silver	7440-22-4	1.64	5000	Inner lead plating
			Others *Note5	-	16.4	50000	Additive
	Bonding Wire	3.0	Gold	7440-57-5	3.0	1000000	Conductor
	Mold resin	1367.2	Epoxy resin	-	68.4	50000	Base material
			Silica	60676-86-0/-	1237.3	905000	Filler
			Carbon black	1333-86-4	6.8	5000	Coloring agent
Hardening chemical(ex:Phenol resin)			-	54.7	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.