

# Chemicals contained in products

## Package-type

Epson Package name; **QFP22-256PIN / Halogen free**

JEITA Package name; **P-LQFP256-2828-0.40**

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

Weight; **2.64 [g]** \*Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application
					[mg]	[ppm]	
IC Die	IC Die	52	Silicon	7440-21-3	51.9	999894	Base material
			Boron	7440-42-8	0.0001	2	Dopant
			Phosphorus	7723-14-0	0.0003	5	Dopant
			Aluminum	7429-90-5	0.001	20	Metalization
			Arsenic *Note3	7440-38-2	0.0003	5	Dopant
			Fluorine *Note3	7782-41-4	0.0001	2	Dopant
			Titanium *Note3	7440-32-6	0.001	20	Metalization
			Molybdenum *Note3	7439-98-7	0.001	20	Metalization
			Tungsten *Note3	7440-33-7	0.002	30	Metalization
			Cobalt *Note3	7440-48-4	0.0001	2	Metalization
	Stress buffer coat	1.00	Polyimide	-	1.00	1000000	Stress buffer coat *Note4
Package	Die Bonding material	8.8	Silver	7440-22-4	5.6	640000	Base material
			Epoxy resin	-	1.8	205000	Adhesive
			Phenol resin	-	0.7	80000	Adhesive
			Inorganic powder	-	0.4	48000	Additive
			Bismuth compound	-	0.24	27000	Ion trap
	Lead Frame Plating	28	Tin	7440-31-5	27.2	980000	Solder
			Bismuth	7440-69-9	0.56	20000	Solder
	Lead Frame	575	Copper	7440-50-8	544	945000	Conductor
			Silver	7440-22-4	2.90	5000	Inner lead plating
			Others *Note5	-	28.7	50000	Additive
	Bonding Wire	14.2	Gold	7440-57-5	14.2	1000000	Conductor
	Mold resin	1961	Epoxy resin	-	98.1	50000	Base material
			Silica	60676-86-0/-	1775	905000	Filler
			Carbon black	1333-86-4	9.8	5000	Coloring agent
Hardening chemical(ex:Phenol resin)			-	78.4	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.