

Chemicals contained in products

Package-type

Epson Package name; **SQFN4-16PIN / Halogen free**

JEITA Package name; **P-VQFN016-0404-0.65**

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

Weight; **0.04 [g]** *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2		Application
					[mg]	[ppm]	
IC Die	IC Die	0.1	Silicon	7440-21-3	0.1	999914	Base material
			Boron	7440-42-8	0.000003	2	Dopant
			Phosphorus	7723-14-0	0.000001	5	Dopant
			Aluminum	7429-90-5	0.000003	20	Metalization
			Arsenic *Note3	7440-38-2	0.000001	5	Dopant
			Fluorine *Note3	7782-41-4	0.000003	2	Dopant
			Titanium *Note3	7440-32-6	0.000003	20	Metalization
			Tungsten *Note3	7440-33-7	0.000004	30	Metalization
	Cobalt *Note3		7440-48-4	0.000000	2	Metalization	
	Stress buffer coat	0.003	Polyimide	-	0.003	1000000	Stress buffer coat *Note4
Package	Die Bonding material	0.26	Silver	7440-22-4	0.24	910000	Base material
			Acrylic resin	-	0.02	70000	Adhesive
			Epoxy resin	-	0.01	20000	Adhesive
	Lead Frame Plating	0.78	Tin	7440-31-5	0.78	1000000	Solder
	Lead Frame	11.39	Copper	7440-50-8	10.76	945000	Conductor
			Silver	7440-22-4	0.06	5000	Inner lead plating
			Others *Note5	-	0.57	50000	Additive
	Bonding Wire	0.13	Gold	7440-57-5	0.13	1000000	Conductor
	Mold resin	27.30	Epoxy resin	-	1.72	63000	Base material
			Silica	60676-86-0/-	1.09	880000	Filler
			Carbon black	1333-86-4	24.03	2000	Coloring agent
Hardening chemical(ex:Phenol resin)			-	0.05	40000	Base material	
Organic phosphorous compound			-	0.14	5000	Hardening accelerator	
	others		-	0.27	10000	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.