

# Chemicals contained in products

## Package-type

Epson Package name; **TQFP24-144PIN / Halogen free**

JEITA Package name; **P-TQFP144-1616-0.40**

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

Weight; **0.67 [g]** \*Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application	
					[mg]	[ppm]		
IC Die	IC Die	11.3	Silicon	7440-21-3	11.3	999914	Base material	
			Boron	7440-42-8	0.00002	2	Dopant	
			Phosphorus	7723-14-0	0.00006	5	Dopant	
			Aluminum	7429-90-5	0.00023	20	Metalization	
			Arsenic *Note3	7440-38-2	0.00006	5	Dopant	
			Fluorine *Note3	7782-41-4	0.00002	2	Dopant	
			Titanium *Note3	7440-32-6	0.00023	20	Metalization	
			Tungsten *Note3	7440-33-7	0.00034	30	Metalization	
			Cobalt *Note3	7440-48-4	0.00002	2	Metalization	
	Stress buffer coat	0.2	Polyimide	-	0.2	1000000	Stress buffer coat *Note4	
Package	Die Bonding material	2.0	Silver	7440-22-4	1.81	910000	Base material	
			Acrylic resin	-	0.14	70000	Adhesive	
			Epoxy resin	-	0.04	20000	Adhesive	
	Lead Frame Plating	6.8	Tin	7440-31-5	6.8	1000000	Solder	
	Lead Frame	223.3	Nickel	7440-02-0	0.23	30000	Conductor	
			Silver	7440-22-4	0.23	1000	Inner lead plating	
			Magnesium	7439-95-4	219.1	1000	Characteristic preserve	
			Copper	7440-50-8	0.5	966000	Base material	
				Silicon	7440-21-3	3.2	2000	Characteristic preserve
	Bonding Wire	0.9	Copper	7440-50-8	0.9	1000000	Conductor	
	Mold resin	425.5	Epoxy resin	-	21.27	50000	Base material	
			Phenol resin	-	21.27	50000	Base material	
			Silica	60676-86-0	381.6	897000	Filler	
Carbon black			1333-86-4	1.28	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.