

Chemicals contained in products

Package-type

Epson Package name; **VFBGA10H-180 / Halogen free**

JEITA Package name; **(P-VFBGA-180-1010-0.65)**

Solder ball Type; **Lead(Pb) Free**

Weight; **0.16 [g] *Note1**

| Part | Subpart | Subpart weight [mg] | Substance name | CAS No. | Content *Note2 | | Application | | |
|---------|--------------------|---------------------|-------------------------------------|--------------|----------------|---------|---------------------------|--------|----------|
| | | | | | [mg] | [ppm] | | | |
| IC Die | IC Die | 6.7 | Silicon | 7440-21-3 | 6.7 | 999894 | Base material | | |
| | | | Boron | 7440-42-8 | 0.00001 | 2 | Dopant | | |
| | | | Phosphorus | 7723-14-0 | 0.00003 | 5 | Dopant | | |
| | | | Aluminum | 7429-90-5 | 0.0001 | 20 | Metalization | | |
| | | | Arsenic *Note3 | 7440-38-2 | 0.00003 | 5 | Dopant | | |
| | | | Fluorine *Note3 | 7782-41-4 | 0.00001 | 2 | Dopant | | |
| | | | Titanium *Note3 | 7440-32-6 | 0.0001 | 20 | Metalization | | |
| | | | Molybdenum *Note3 | 7439-98-7 | 0.0001 | 20 | Metalization | | |
| | | | Tungsten *Note3 | 7440-33-7 | 0.0002 | 30 | Metalization | | |
| | | | Cobalt *Note3 | 7440-48-4 | 0.00001 | 2 | Metalization | | |
| | Stress buffer coat | 0.13 | Polyimide | - | 0.13 | 1000000 | Stress buffer coat *Note4 | | |
| Package | Substrate | 40.83 | Glass-cloth | - | 7.20 | 132000 | Reinforcement | | |
| | | | Silica | - | 1.70 | 66000 | Filler | | |
| | | | Epoxy resin | - | 8.00 | 164300 | Base material | | |
| | | | Acrylate resin | - | 2.40 | 85000 | Base material | | |
| | | | Pigment | - | 1.00 | 49300 | Additive | | |
| | | | Organic filler | - | 0.14 | 3400 | Filler | | |
| | | | Arsenic | 7440-38-2 | 0.04 | 85 | Burning resistance | | |
| | | | Chromium compound | - | 0.001 | 14 | Burning resistance | | |
| | | | Copper | 7440-50-8 | 17.10 | 419901 | Copper foil | | |
| | | | Nickel | 7440-02-0 | 2.60 | 64000 | Plating | | |
| | | | Gold | 7440-57-5 | 0.65 | 16000 | Plating | | |
| | | | Die Bonding material | 2.85 | Epoxy resin | - | 1.90 | 670000 | Adhesive |
| | | | | | Acrylic resin | - | 0.95 | 330000 | Adhesive |
| | Solder ball | 14.94 | Tin | 7440-31-5 | 14.30 | 957500 | Solder ball | | |
| | | | Silver | 7440-22-4 | 0.53 | 35000 | Solder ball | | |
| | | | Copper | 7440-50-8 | 0.11 | 7500 | Solder ball | | |
| | Bonding Wire | 3.00 | Gold | - | 3.00 | 1000000 | Conductor | | |
| | Mold resin | 91.33 | Epoxy resin | - | 4.50 | 50000 | Base material | | |
| | | | Silica | 60676-86-0/- | 79.90 | 873000 | Filler | | |
| | | | Carbon black | 1333-86-4 | 0.18 | 2000 | Coloring agent | | |
| | | | Hardening chemical(ex:Phenol resin) | - | 4.50 | 50000 | Base material | | |
| | | | Organic phosphorous compound | - | 0.45 | 5000 | Hardening accelerator | | |
| | | | Others | - | 1.80 | 20000 | 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.