

# Full Material Declaration for PZU4.7B2L

|                      |   |
|----------------------|---|
| Date                 | 2025-04-07 17:44:08 CEST+0200   |
| Package              | SOD882 (DFN1006-2): 0.48 mm × 0.6 mm × 1.0 mm   |
| Description          | Single Zener diodes   |
| Datasheet            | <a href="https://assets.nexperia.com/documents/data-sheet/PZUXBL_SER.pdf">https://assets.nexperia.com/documents/data-sheet/PZUXBL_SER.pdf</a> |
| OPNs                 | 934061664315: PZU4.7B2L,315 (RFS), MSL 1  |
| Automotive-qualified | Yes   |
| UL-94                | <a href="https://iq.ulprospector.com/en/profile?e=594631">https://iq.ulprospector.com/en/profile?e=594631</a>                                 |



|                   |   |
|-------------------|---|
| REACH             | Compliant with Regulation 1907/2006/EC (REACH). Does not contain REACH SVHC substances exceeding 1000 ppm of the article.   |
| EU RoHS           | Compliant with Directive 2011/65/EU, amended by Directive 2015/863/EU, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ('RoHS 2 amended') without exemptions.  |
| CN RoHS           | Compliant with Chinese Administration on the Control of Pollution Caused by Electronic Information Products (ACPEIP; CN RoHS).  |
| ELV               | Compliant with Directive 2000/53/EC, amended by Directive 2023/533, on end of life vehicles (ELV) without exemptions.   |
| PFAS              | Does not contain any intentionally added per- and polyfluoroalkyl substances (PFAS).  |
| CA Proposition 65 | Contains California Proposition 65 substance(s) [at the article level]: substance 7440-02-0: 19600 ppm; substance 1333-86-4: 2433 ppm; substance 7439-92-1: 1 ppm;  |
| IEC 62474         | Contains IEC 62474 substance(s) [at the article level]: substance 7440-02-0: 19600 ppm; substance 1333-86-4: 2433 ppm; substance 7439-92-1: 1 ppm;  |
| Precious Metals   | Contains precious metals [Ag, Au, Pd, Pt; at the article level]: substance 7440-22-4: 8220 ppm; substance 7440-05-3: 754 ppm; substance 7440-57-5: 5065 ppm;  |
| GADSL             | Contains 'Global Automotive Declarable Substances List' (GADSL) substances: substance 7440-22-4: 8220 ppm; substance 7440-50-8: 419020 ppm; substance 7440-02-0: 19601 ppm; substance 7439-95-4: 887 ppm; substance 7440-05-3: 754 ppm; substance 7439-92-1: 1 ppm; |
| RHF Indicator     | D: Lead-free and halogen-free according to Nexperia's halogen-free definition.  |

| Material            | Mat. Group       | Substance   | CAS No.    | Mass / mg | Mass-% of Material | Mass-% of Part |
|---------------------|------------------|---|------------|-----------|--------------------|----------------|
| Adhesive            | Filler           | Silver (Ag)   | 7440-22-4  | 0.007600  | 76.000000          | 0.822012       |
| Adhesive            | Polymer          | Phenolic resin  |            | 0.001353  | 13.530000          | 0.146340       |
| Adhesive            | Polymer          | Formaldehyde, polymer with (chloromethyl)oxirane and phenol | 9003-36-5  | 0.001047  | 10.470000          | 0.113243       |
| Adhesive Total      |                  |   |            | 0.010000  | 100.000000         | 1.081595       |
| Die                 | Doped silicon    | Silicon (Si)  | 7440-21-3  | 0.030000  | 100.000000         | 3.244787       |
| Die Total           |                  |   |            | 0.030000  | 100.000000         | 3.244787       |
| Lead Frame          | Copper alloy     | Copper (Cu)   | 7440-50-8  | 0.387409  | 94.490000          | 41.901986      |
| Lead Frame          | Copper alloy     | Nickel (Ni)   | 7440-02-0  | 0.012915  | 3.150000           | 1.396881       |
| Lead Frame          | Copper alloy     | Silicon (Si)  | 7440-21-3  | 0.002829  | 0.690000           | 0.305983       |
| Lead Frame          | Copper alloy     | Magnesium (Mg)  | 7439-95-4  | 0.000820  | 0.200000           | 0.088691       |
| Base Alloy Total    |                  |   |            | 0.403973  | 98.530000          | 43.693541      |
| Lead Frame          | Pure metal layer | Nickel (Ni)   | 7440-02-0  | 0.005207  | 1.270000           | 0.563187       |
| Pre-Plating 1 Total |                  |   |            | 0.005207  | 1.270000           | 0.563187       |
| Lead Frame          | Pure metal layer | Palladium (Pd)  | 7440-05-3  | 0.000697  | 0.170000           | 0.075387       |
| Pre-Plating 2 Total |                  |   |            | 0.000697  | 0.170000           | 0.075387       |
| Lead Frame          | Pure metal layer | Gold (Au)   | 7440-57-5  | 0.000123  | 0.030000           | 0.013303       |
| Pre-Plating 3 Total |                  |   |            | 0.000123  | 0.030000           | 0.013303       |
| Lead Frame Total    |                  |   |            | 0.410000  | 100.000000         | 44.345418      |
| Mould Compound      | Filler           | Silica fused  | 60676-86-0 | 0.270000  | 60.000000          | 29.203081      |

| Material             | Mat. Group         | Substance                     | CAS No.    | Mass / mg | Mass-% of Material | Mass-% of Part |
|----------------------|--------------------|-------------------------------|------------|-----------|--------------------|----------------|
| Mould Compound       | Filler             | Silica                        | 7631-86-9  | 0.103500  | 23.000000          | 11.194514      |
| Mould Compound       | Polymer            | Epoxy resin system            |            | 0.031500  | 7.000000           | 3.407026       |
| Mould Compound       | Polymer            | Phenolic resin                |            | 0.027000  | 6.000000           | 2.920308       |
| Mould Compound       | Flame retardant    | Aluminium hydroxide (Al(OH)3) | 21645-51-2 | 0.013500  | 3.000000           | 1.460154       |
| Mould Compound       | Ion trapping agent | Bismuth (Bi)                  | 7440-69-9  | 0.002250  | 0.500000           | 0.243359       |
| Mould Compound       | Pigment            | Carbon black                  | 1333-86-4  | 0.002250  | 0.500000           | 0.243359       |
| Mould Compound Total |                    |                               |            | 0.450000  | 100.000000         | 48.671801      |
| Post-Plating         | Tin solder         | Tin (Sn)                      | 7440-31-5  | 0.019988  | 99.940000          | 2.161893       |
| Post-Plating         | Impurity           | Non-declarable                |            | 0.000011  | 0.055500           | 0.001190       |
| Post-Plating         | Impurity           | Lead (Pb)                     | 7439-92-1  | 0.000001  | 0.004500           | 0.000108       |
| Post-Plating Total   |                    |                               |            | 0.020000  | 100.000000         | 2.163191       |
| Wire                 | Pure metal         | Gold (Au)                     | 7440-57-5  | 0.004560  | 99.990000          | 0.493208       |
| Wire                 | Impurity           | Non-declarable                |            | 0.000000  | 0.010000           | 0.000000       |
| Wire Total           |                    |                               |            | 0.004560  | 100.000000         | 0.493208       |
| PZU4.7B2L Total      |                    |                               |            | 0.924560  | 100.000000         | 100.000000     |

| 部件名称<br>Material     | 有毒或有害物质和元素 (Toxic or hazardous substances and elements) |        |        |                         |            |              |
|----------------------|---|--------|--------|-------------------------|------------|--------------|
|                      | 铅 (Pb)  | 镉 (Cd) | 汞 (Hg) | 六价铬 (Cr <sup>6+</sup> ) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 胶黏剂 (Adhesive)       | ○   | ○      | ○      | ○                       | ○          | ○            |
| 半导体芯片 (Die)          | ○   | ○      | ○      | ○                       | ○          | ○            |
| 基底合金 (Base Alloy)    | ○   | ○      | ○      | ○                       | ○          | ○            |
| 预镀层1 (Pre-Plating 1) | ○   | ○      | ○      | ○                       | ○          | ○            |
| 预镀层2 (Pre-Plating 2) | ○   | ○      | ○      | ○                       | ○          | ○            |
| 预镀层3 (Pre-Plating 3) | ○   | ○      | ○      | ○                       | ○          | ○            |
| 模封料 (Mould Compound) | ○   | ○      | ○      | ○                       | ○          | ○            |
| 后镀层 (Post-Plating)   | ○   | ○      | ○      | ○                       | ○          | ○            |
| 导线 (Wire)            | ○   | ○      | ○      | ○                       | ○          | ○            |

表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下

○ Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求

× Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

该半导体产品具有无限期的环保使用期限 (EFUP) 。

This semiconductor product has an indefinite environmental friendly use period (EFUP).

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