



## Material Content Data Sheet



Halogen-Free

|                           |              |                |                   |
|---------------------------|--------------|----------------|-------------------|
| <b>Sales Product Name</b> | IPP048N04N G | <b>Issued</b>  | 24. February 2022 |
| <b>MA#</b>                | MA005709226  |                |                   |
| <b>Package</b>            | PG-TO220-3-1 | <b>Weight*</b> | 2031.52 mg        |

| Construction Element | Material Group     | Substances     | CAS#<br>if applicable | Weight [mg] | Average<br>Mass [%] | Sum [%] | Average<br>Mass<br>[ppm] | Sum [ppm] |
|----------------------|--------------------|----------------|-----------------------|-------------|---------------------|---------|--------------------------|-----------|
| chip                 | inorganic material | silicon        | 7440-21-3             | 1.734       | 0.09                | 0.09    | 854                      | 854       |
| leadframe            | inorganic material | phosphorus     | 7723-14-0             | 0.245       | 0.01                |         | 121                      |           |
|                      | non noble metal    | iron           | 7439-89-6             | 0.816       | 0.04                |         | 402                      |           |
|                      | non noble metal    | copper         | 7440-50-8             | 815.335     | 40.13               | 40.18   | 401340                   | 401863    |
| wire                 | non noble metal    | aluminium      | 7429-90-5             | 6.387       | 0.31                | 0.31    | 3144                     | 3144      |
| encapsulation        | organic material   | carbon black   | 1333-86-4             | 5.938       | 0.29                |         | 2923                     |           |
|                      | plastics           | epoxy resin    | -                     | 112.825     | 5.55                |         | 55537                    |           |
|                      | inorganic material | silicondioxide | 60676-86-0            | 475.053     | 23.38               | 29.22   | 233841                   | 292301    |
| leadfinish           | non noble metal    | tin            | 7440-31-5             | 21.462      | 1.06                | 1.06    | 10565                    | 10565     |
| plating              | inorganic material | phosphorus     | 7723-14-0             | 0.001       |                     |         | 1                        |           |
|                      | non noble metal    | nickel         | 7440-02-0             | 0.244       | 0.01                | 0.01    | 120                      | 121       |
| solder               | non noble metal    | antimony       | 7440-36-0             | 0.125       | 0.01                |         | 61                       |           |
|                      | noble metal        | silver         | 7440-22-4             | 0.312       | 0.02                |         | 154                      |           |
|                      | non noble metal    | tin            | 7440-31-5             | 0.811       | 0.04                | 0.07    | 399                      | 614       |
| heatspreader         | inorganic material | phosphorus     | 7723-14-0             | 0.177       | 0.01                |         | 87                       |           |
|                      | non noble metal    | iron           | 7439-89-6             | 0.590       | 0.03                |         | 291                      |           |
|                      | non noble metal    | copper         | 7440-50-8             | 589.466     | 29.02               | 29.06   | 290160                   | 290538    |
| *deviation           | < 10%              |                |                       |             | Sum in total:       | 100.00  |                          | 1000000   |

### Important Remarks:

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This product is in compliance with EU Directive 2015/863/EU amending Annex II to EU Directive 2011/65/EU (RoHS) and does not use any exemption.

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