



## Material Content Data Sheet



Halogen-Free

|                           |                |                |                |
|---------------------------|----------------|----------------|----------------|
| <b>Sales Product Name</b> | IPP023N04N G   | <b>Issued</b>  | 14. April 2021 |
| <b>MA#</b>                | MA005403202    |                |                |
| <b>Package</b>            | PG-TO220-3-123 | <b>Weight*</b> | 2037.40 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             | 4.425       | 0.22                | 0.22    | 2172                     | 2172      |
| leadframe            | inorganic material | phosphorus                | 7723-14-0             | 0.245       | 0.01                |         | 120                      |           |
|                      | non noble metal    | iron                      | 7439-89-6             | 0.816       | 0.04                |         | 401                      |           |
|                      | non noble metal    | copper                    | 7440-50-8             | 815.335     | 40.00               | 40.05   | 400184                   | 400705    |
| wire                 | non noble metal    | aluminium                 | 7429-90-5             | 7.288       | 0.36                | 0.36    | 3577                     | 3577      |
| encapsulation        | organic material   | carbon black              | 1333-86-4             | 2.967       | 0.15                |         | 1456                     |           |
|                      | miscellaneous      | miscellaneous             | -                     | 2.967       | 0.15                |         | 1456                     |           |
|                      | organic material   | phenol formaldehyde resin | 9003-35-4             | 35.605      | 1.75                |         | 17476                    |           |
|                      | inorganic material | silicondioxide            | 14808-60-7            | 47.473      | 2.33                |         | 23301                    |           |
|                      | non noble metal    | metal hydroxide           | -                     | 47.473      | 2.33                |         | 23301                    |           |
|                      | plastics           | epoxy resin               | 29690-82-2            | 71.210      | 3.50                |         | 34951                    |           |
|                      | inorganic material | silicondioxide            | 60676-86-0            | 385.719     | 18.93               | 29.14   | 189319                   | 291260    |
| leadfinish           | non noble metal    | tin                       | 7440-31-5             | 21.462      | 1.05                | 1.05    | 10534                    | 10534     |
| plating              | non noble metal    | nickel                    | 7440-02-0             | 1.764       | 0.09                | 0.09    | 866                      | 866       |
| solder               | non noble metal    | antimony                  | 7440-36-0             | 0.242       | 0.01                |         | 119                      |           |
|                      | noble metal        | silver                    | 7440-22-4             | 0.604       | 0.03                |         | 296                      |           |
|                      | non noble metal    | tin                       | 7440-31-5             | 1.571       | 0.08                | 0.12    | 771                      | 1186      |
| heatspreader         | inorganic material | phosphorus                | 7723-14-0             | 0.177       | 0.01                |         | 87                       |           |
|                      | non noble metal    | iron                      | 7439-89-6             | 0.590       | 0.03                |         | 290                      |           |
|                      | non noble metal    | copper                    | 7440-50-8             | 589.466     | 28.93               | 28.97   | 289323                   | 289700    |
| *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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