




Materials Declaration Form

| | | | |
|---------------------------|-------------------------------------|------------------------|-----|
| IPC Form Type * | 1752 Distribute | Version | 2 |
| Sectionals * | Material Info Manufacturing Info | Subsectionals * | A-D |
| <i>* : Required Field</i> | | | |

| Supplier Information | | | |
|------------------------------------|--|-------------------------------|-----------------------------------|
| Company Name * | STMicroelectronics | Response Date * | 2017-05-15 |
| Contact Name * | Refer to Supplier Comment section | | Refer to Supplier Comment section |
| Authorized Representative * | Rossana Bonaccorso | Representative Title | ADG MD CHAMPION |
| Representative Phone * | Refer to Supplier Comment section | Representative Email * | Refer to Supplier Comment section |
| Supplier Comment | Online Technical Support - STMicroelectronics : http://www.st.com/web/en/support/support.html | | |

| Uncertainty Statement | | | |
|---|--|----------------------------|----------|
| <p>While STMicroelectronics has endeavored to provide information which is accurate and up to date, this document and its contents are provided on a strict 'as is' and 'as available' basis. STMicroelectronics disclaims all warranties, express or implied related to this document and its contents, including but not limited to implied warranties of completeness, truth, accuracy, merchantability, fitness for a particular purpose and non-infringement. ST shall have no responsibility and assumes no liability for any cost, loss or damage of any kind which could arise, directly or indirectly, from the use or inability to use this document and/or its contents.</p> | | | |
| Legal Statement | | | |
| Supplier Acceptance * | true | Legal Declaration * | Standard |
| Legal Statement | <p>Supplier certifies that it gathered the provided information and such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part(s), and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part(s), the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form.</p> | | |

| Product | | | | |
|-----------------|---------------|---------|-----------|------------------|
| Mfr Item Number | Mfr Item Name | Version | Mfr Site | Date |
| VNN1NV04PTR-E | FLL*VNL6AAC | A | Z8GA | 2017-05-15 |
| | Amount | UoM | Unit type | ST ECOPACK Grade |
| | 110.00 | mg | Each | ECOPACK® 2 |

| Manufacturing information | | | | |
|---------------------------|---------------------|----------------------|---------|---|
| J-STD-020 MSL Rating | Classification Temp | Nbr of Reflow Cycles | |  life.augmented |
| 3 | 260 | 3 | | |
| bulk Solder Termination | Terminal Plating | Terminal Base Alloy | Comment | |
| NAC | Tin (Sn), matte | Copper Alloy | | |

| Package Designator | Size | Nbr of instances | Shape | |
|--------------------|---------------------|------------------|-------|--|
| SOT | 3.5x6.5x1.7 | 4 | flat | |
| Comment | Package: LL SOT 223 | | | |

| QueryList : RoHS Directive 2011/65/EU-July 2011 – Annex II amended by Directive 2015/863-April 2015 | |
|--|--|
| Query | Response |
| 1 - Product(s) meets EU RoHS requirement without any exemptions | false |
| 2 - Product(s) meets EU RoHS requirements except lead in solder and this usage may qualify under the lead in solder '7b' exemption (other selected exemptions may apply) | false |
| 3 - Product(s) meets EU RoHS requirements by application of the selected exemption(s) | true |
| 4 - Product(s) does not meet EU RoHS requirements and is not under exemptions | false |
| 5 - Product(s) is obsolete, no information is available | false |
| 6 - Product(s) is unknown, no information is available | false |
| Exemption Id. | Description |
| 7a | Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead) |

| Query : California Prop65 list, dated 27th January 2017 | | | |
|--|------------------------|--------------------|----------------|
| Query | | | Response |
| 1 - The product does not contain identified substance from California Prop 65 List, no exposure to consumers is foreseen | | | FALSE |
| 2 - The product is containing below substance(s) from California Prop 65 List, no exposure to consumers is foreseen | | | TRUE |
| Substance | amount in product (mg) | Application | ppm in product |
| Nickel | 0.01 | die backside metal | 109 |
| Lead | 1.43 | soft solder | 13018 |

| QueryList : REACH-12th January 2017 | | | | |
|--|-------------------------|------------------------|-------------|----------------|
| Query | | | | Response |
| 1 - Product(s) does not contain REACH Substances Of Very High Concern above the limits per the definition within REACH | | | | true |
| CategoryLevel_Name | CategoryLevel_Threshold | amount in product (mg) | Application | ppm in product |
| | | | | |

| Material Composition Declaration | | | | | | Mfr Item Name | FTLL*VNL6AAC | | | | | |
|----------------------------------|---------------------------|--------|-----|----------|-------------------------|--------------------------|--------------|--------------------|--------|-----|---|--------------------------------|
| Homogeneous Material | Material Group | Mass | UoM | Level | Substance Category | Substance | CAS | Exempt | Mass | UoM | Concentration in homogeneous material (ppm) | Concentration in product (ppm) |
| Die | Other inorganic materials | 1.765 | mg | supplier | die | Silicon (Si) | 7440-21-3 | | 1.696 | mg | 960907 | 15418 |
| | | | | supplier | metallization | Aluminium (Al) | 7429-90-5 | | 0.012 | mg | 6799 | 109 |
| | | | | supplier | Passivation | Silicon Nitride | 12033-89-5 | | 0.012 | mg | 6799 | 109 |
| | | | | supplier | Passivation | Silicon Oxide | 7631-86-9 | | 0.012 | mg | 6799 | 109 |
| | | | | supplier | back side metallization | Titanium (Ti) | 7440-32-6 | | 0.001 | mg | 566 | 8 |
| | | | | supplier | back side metallization | Gold (Au) | 7440-57-5 | | 0.002 | mg | 1133 | 18 |
| | | | | supplier | back side metallization | Nickel (Ni) | 7440-02-0 | | 0.012 | mg | 6799 | 109 |
| | | | | supplier | polymer die coating | PIX1 Gamma-butyrolactone | 96-48-0 | | 0.018 | mg | 10198 | 164 |
| Leadframe | Copper and its alloy | 57.743 | mg | supplier | Alloy | Copper(CU) | 7440-50-8 | | 56.966 | mg | 986544 | 517873 |
| | | | | supplier | Alloy | Iron(Fe) | 7439-89-6 | | 0.057 | mg | 987 | 518 |
| | | | | supplier | Alloy | Phosphorus(P) | 7723-14-0 | | 0.017 | mg | 294 | 155 |
| | | | | supplier | Alloy | Silver(Ag) | 7440-22-4 | | 0.703 | mg | 12175 | 6391 |
| Die Attach | Other Organic Material | 1.500 | mg | supplier | Soft Solder | Silver(Ag) | 7440-22-4 | | 0.038 | mg | 25333 | 345 |
| | | | | supplier | Soft Solder | Tin(Sn) | 7440-31-5 | | 0.030 | mg | 20000 | 273 |
| | | | | JIG - R | Soft Solder | Lead(Pb) | 7439-92-1 | 7a-Lead in high me | 1.432 | mg | 954667 | 13018 |
| Bonding wire | Other Inorganic Material | 0.298 | mg | supplier | Bonding wire | Gold(Au) | 7440-57-5 | | 0.298 | mg | 1000000 | 2709 |
| Encapsulation | Other Organic Material | 47.652 | mg | supplier | Molding compound | Silica Fused | 60676-86-0 | | 41.935 | mg | 880026 | 381227 |
| | | | | supplier | Molding compound | Epoxy,Cresol Novolac | 29690-82-2 | | 0.715 | mg | 15005 | 6500 |
| | | | | supplier | Molding compound | Phenol Resin | proprietary | | 2.382 | mg | 49987 | 21655 |
| | | | | supplier | Molding compound | Epoxy Resin | 25068-38-6 | | 2.382 | mg | 49987 | 21655 |
| | | | | supplier | Molding compound | Carbon Black | 1333-86-4 | | 0.238 | mg | 4995 | 2164 |
| Finishing | Other Inorganic Material | 1.042 | mg | supplier | Connection Coating | Tin(Sn) | 7440-31-5 | | 1.042 | mg | 1000000 | 9473 |