# Environmental Management and Materials Information

## Product Content Information for: DS1819AR-10/T&amp/R

## Links

Qualifications

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## Qualifications Top

| | |
|---|---|
| **Lead-Free Qualified** | No |
| **REACH** | Under Assessment |
| **RoHS Qualified** | No |
| **Green** | No |
| **Moisture Sensitivity Level** | Not Available - Contact Us |
| **Flammability Meets UL-94 (V-0 Rating)** | No |

## Package Description Top

| | |
|---|---|
| **Package Code** | |
| **Package Type** | |
| **Package Option** | |
| **Footprint Area ($mm^2$)** | |
| **Pin Count** | |
| **Unit Weight in Grams** | |

## Chemical Composition Summary Top

**Maxim NIA/NIU Substance List (PDF, 24k)**

| Substance | CAS Number | Amount (grams) | % of Unit Weight |
|---|---|---|---|
| Aluminum (Al) | 7429-90-5 | | |
| Antimony ($Sb_2O_3$) | 1309-64-4 | | |

| | |
|---|---|
| BCB Resin | |
| Bromine (Br) | 7726-95-6 |
| Carbon (C) | 7440-44-0 |
| Carbon Black | 1333-86-4 |
| Ceramic ($BaTiO_3$) | 12047-27-7 |
| Chromium (Cr) | 7440-47-3 |
| Cobalt (Co) | 7440-48-4 |
| Copper (Cu) | 7440-50-8 |
| Gold (Au) | 7440-57-5 |
| Indium (In) | 7440-74-6 |
| Insulator (Polyimide) | |
| Insulator Film | |
| Iron (Fe) | 7439-89-6 |
| $FeO_2$ | 12411-15-36 |
| Lead (Pb) | 7439-92-1 |
| Magnesium (Mg) | 7439-95-4 |
| Manganese (Mn) | 7439-96-5 |
| $MnO_3$ | |
| Nickel (Ni) | 7440-02-0 |
| NiPdAu | |
| Nickel-V (NiV) | |
| Palladium (Pd) | 7440-05-3 |
| Phosphorus (P) | 7723-14-0 |
| Silica ($SiO_2$) | 11126-22-0 |
| Silicon (Si) | 7440-21-3 |
| Silver (Ag) | 7440-22-4 |
| Solder Mask | |
| Solder Paste | |
| Spheron Polymer Passivation | |
| Sulfur (S) | 7704-34-9 |
| Tin (Sn) | 7440-31-5 |
| Titanium (Ti) | 7440-32-6 |
| Titanium-W (TiW) | |
| Tungsten (W) | 7440-33-7 |
| Vanadium (V) | 7440-62-2 |
| Zinc (Zn) | 7440-66-6 |
| ZnO | 1314-13-2 |

| | |
|---|---|
| Zirconium (Zr) | 7440-67-7 |

## Detailed Package Component Data

Top

### Backside Laminate

**Summary**

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Epoxy/Acrylic Resin | | | |

### Base/Lid Components

**Summary**

Base Material

Lid/Cap Material

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Base Weight | | | |
| Lid Weight | | | |

### Bond Wire Components

**Summary**

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Gold (Au) | | | |
| Aluminum (Al) | | | |

### Bump Components

**Summary**

Bump Assembler

Bump Material

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Lead (Pb) | | | |
| Tin (Sn) | | | |
| Copper (Cu) | | | |

| | | | |
|---|---|---|---|
| Insulator (Polyimide) | | | |
| Silver (Ag) | | | |
| UBM (Ti) | | | |
| RDL (Cu) | | | |
| Nickel (Ni) | | | |

**Copper Post**

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---:|---:|---:|
| Copper | | | |

**Die Attach Epoxy Components**

| Summary |
|---|
| Die Attach Material |
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---:|---:|---:|
| Aromatic Amine | | | |
| Copper (Cu) | | | |
| Diester | | | |
| Epoxy | | | |
| Functionalized Ester | | | |
| Functionalized Urethane | | | |
| Indium (In) | | | |
| Lactone | | | |
| Lead (Pb) | | | |
| Polymeric | | | |
| Polyoxypropylenediamine | | | |
| Resin | | | |
| Silver Filler (Ag) | | | |
| Tin (Sn) | | | |
| Other | | | |

**Die Coat Components**

| Summary |
|---|

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| BCB Resin | | | |

**Heat Slug Components**

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Heat Slug | | | |
| Epoxy | | | |
| Copper (Cu) | | | |
| Other | | | |

**Laminate Components**

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Copper (Cu) | | | |
| Gold (Au) | | | |
| Nickel (Ni) | | | |
| Solder Mask | | | |

**Lead Finish/Plating Components**

| Summary |
|---|
| Lead Finish Plating |
| Assembly Lead Finish Process |
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Lead (Pb) | | | |
| Tin (Sn) | | | |
| NiPdAu | | | |
| Gold (Au) | | | |
| Nickel (Ni) | | | |

### Lead Frame Components

| Summary |
|---|
| Lead Frame Material |
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Aluminum (Al) | | | |
| Carbon (C) | | | |
| Chromium (Cr) | | | |
| Cobalt (Co) | | | |
| Copper (Cu) | | | |
| Gold (Au) | | | |
| Iron (Fe) | | | |
| Lead (Pb) | | | |
| Magnesium (Mg) | | | |
| Manganese (Mn) | | | |
| Nickel (Ni) | | | |
| Palladium (Pd) | | | |
| Phosphorus (P) | | | |
| Silicon (Si) | | | |
| Silver (Ag) | | | |
| Sulfur (S) | | | |
| Tin (Sn) | | | |
| Zinc (Zn) | | | |
| Zirconium (Zr) | | | |

### Maxfilm

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Maxfilm | | | |

### Mold Compound Components

| Summary |
|---|
| Mold Material |
| Resin Type |

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Antimony ($Sb_2O_3$) | | | |
| Bromine (Br) | | | |
| Carbon Black | | | |
| Epoxy | | | |
| Epoxy Cresol Novolac | | | |
| Metal Hydroxide | | | |
| Phenol Novolac | | | |
| Silica ($SiO_2$) | | | |
| Resin | | | |
| Other | | | |

**Silicon Chip Components**

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Silicon Chip | | 100 | |

**Spheron Polymer Passivation Components**

**Summary**

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Spheron Polymer Passivation | | 100 | |

**Insulator Film Components**

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Insulator Film | | | |

**Solder Ball Components**

**Summary**

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Copper (Cu) | | | |
| Lead (Pb) | | | |
| Nickel (Ni) | | | |

| | | | |
|---|---|---|---|
| Silver (Ag) | | | |
| Tin (Sn) | | | |

### Solder Paste Components

| Summary | |
|---|---|
| Component Weight | |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---:|---:|---:|
| Antimony ($Sb_2O_3$) | | | |
| Copper (Cu) | | | |
| Indium (In) | | | |
| Lead (Pb) | | | |
| Silver (Ag) | | | |
| Tin (Sn) | | | |

### Substrate Components

| Summary | |
|---|---|
| Substrate Weight | |
| Substrate Material | |
| Substrate Core Material | |
| Bromine-Free | |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---:|---:|---:|
| Copper | | | |
| Gold | | | |
| Nickel | | | |
| Substrate Core Material | | | |
| Solder Mask | | | |
| Triazol | | | |
| Other | | | |

### UBM Components

| Summary | |
|---|---|
| Component Weight | |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---:|---:|---:|
| Chromium (Cr) | | | |
| Copper (Cu) | | | |

Nickel (Ni)

Nickel-V (NiV)

Titanium (Ti)

Titanium-W (TiW)

Tungsten (W)

Vanadium (V)

## Other Component Data Top

**Passive Component 1**

**Summary**

Material Type / PN Codes

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Passive Component 1 | | | |

**Passive Component 2**

**Summary**

Material Type / PN Codes

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Passive Component 2 | | | |

**Passive Component 3**

**Summary**

Material Type / PN Codes

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Passive Component 3 | | | |

**Passive Component 4**

**Summary**

Material Type / PN Codes

Component Weight

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|

Passive Component 4

### Capacitor Components

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Ceramic ($BaTiO_3$) | | | |
| Copper (Electrode) | | | |

### Crystal Components

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Silver (Ag) | | | |
| Aluminum (Al) | | | |
| Gold (Au) | | | |
| Chromium (Cr) | | | |
| Lead (Pb) | | | |
| Manganese (Mn) | | | |
| Nickel (Ni) | | | |
| Cobalt (Co) | | | |
| Copper (Cu) | | | |
| Iron (Fe) | | | |
| Silicon (Si) | | | |
| Tin (Sn) | | | |
| Zinc (Zn) | | | |
| Silica ($SiO_2$) | | | |

### Diode Components

| Summary |
|---|
| Component Weight |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Encapsulant (Phenolic Resin) | | | |
| Gold Wire | | | |
| Leadframe (Copper 194) | | | |

| | | | |
|---|---|---|---|
| Pellet (Chip) | | | |
| Terminal (SnAgCu) | | | |

**Optocoupler Components**

| Summary | |
|---|---|
| Component Weight | |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Die (Chip) | | | |
| Encapsulant (Phenolic Resin) | | | |
| Epoxy (Ag) | | | |
| Gold Wire | | | |
| Leadframe (Alloy 42) | | | |
| Potting Resin (Silicone) | | | |
| Terminal Plating (Sn) | | | |

**Resistor Components**

| Summary | |
|---|---|
| Component Weight | |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Component Weight | | | |

**Transformer Components**

| Summary | |
|---|---|
| Component Weight | |

| Substance | Amount (grams) | % of Component Weight | % of Unit Weight |
|---|---|---|---|
| Copper | | | |
| $FeO_2$ | | | |
| $MnO_3$ | | | |
| ZnO | | | |

Notes:

1. Lead Form: GW - Gull Wing, TH - Through Hole.
2. Refer to product data sheet to confirm actual wire diameter.
3. 'ND' means None Detected, negligible amount present.

This part is qualified as lead-free.

Parts qualified as lead-free can be manufactured and supplied as lead-free, if and only if, the customer makes such requests to the Maxim Business Units for approval. The navigation bar on the EMMI website contains information regarding the lead-free process (e.g. MSL's, Peak reflow Temperatures, JEDEC methods, frequently asked questions and answers, lead-free package tables, and status/qualification plans for particular package types qualified as lead-free or in the qualification process).

This report was generated on 2023-06-06. For additional information, please visit the Maxim/Dallas Environmental Management and Materials Information website located at:

**https://www.maximintegrated.com/en/emmi**