

**LINEAR TECHNOLOGY MATERIALS DECLARATION**

ltc2299iup#trpbf

(Engineering Calculation)

QFN 9mm X 9mm Exp. Pad

(printed on: 2020-07-11 17:39:50)

**TOTAL MASS (g) : 0.224304**

| COMPONENT MATERIAL             | VENDOR/ INDUSTRY NAMES           | CONSTITUENT NAME               | CAS NUMBER | CONSTITUENT MASS (g) | CONSTITUENT (PPM) OF MATERIAL | CONSTITUENT (PPM) OF TOTAL PKG. |                |                      |
|--------------------------------|----------------------------------|--------------------------------|------------|----------------------|-------------------------------|---------------------------------|----------------|----------------------|
| Active Device                  | Linear Technology                | Silicon (Si)                   | 7440-21-3  | 0.005263             | 1000000                       | 23463.6621094                   |                |                      |
| Die Coat                       | Dow Corning                      | Silicone                       | 69430-27-9 | 0.000000             | 0                             | 0                               |                |                      |
| Lead Frame                     | Cu                               | Copper (Cu)                    | 7440-50-8  | 0.104491             | 975000                        | 465844.90625                    |                |                      |
|                                |                                  | Iron (Fe)                      | 7439-89-6  | 0.002572             | 24000                         | 11466.5673828                   |                |                      |
|                                |                                  | Phosphorus (P)                 | 7723-14-0  | 0.000032             | 300                           | 142.663360596                   |                |                      |
|                                |                                  | Zinc (Zn)                      | 7440-66-6  | 0.000075             | 700                           | 334.367248535                   |                |                      |
|                                |                                  | Nickel (Ni)                    | 7440-02-0  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Silicon (Si)                   | 7440-21-3  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Magnesium (Mg)                 | 7439-95-4  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Tin (Sn)                       | 7440-31-5  | 0.000000             | 0                             | 0                               |                |                      |
| <b>Lead Frame Total:</b>       |                                  |                                |            | <b>0.107170</b>      | <b>1000000</b>                | <b>477788.46875</b>             |                |                      |
| Plating                        | PMI                              | Exter. Plating Pb              | 7439-92-1  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Exter. Plating Sn              | 7440-31-5  | 0.003192             | 1000000                       | 14231.8828125                   |                |                      |
|                                |                                  | <b>External Plating Total:</b> |            |                      |                               | <b>0.003192</b>                 | <b>1000000</b> | <b>14231.8828125</b> |
|                                |                                  | Inter. Plating Ni              | 7440-02-0  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Inter. Plating Ag              | 7440-22-4  | 0.002279             | 1000000                       | 10160.3056641                   |                |                      |
| <b>Internal Plating Total:</b> |                                  |                                |            | <b>0.002279</b>      | <b>1000000</b>                | <b>10160.3056641</b>            |                |                      |
| Die Attach                     | ELECTRICALLY CONDUCTIVE ADHESIVE | Silver (Ag)                    | 7440-22-4  | 0.001823             | 750000                        | 8127.35302734                   |                |                      |
|                                |                                  | Tin (Sn)                       | 7440-31-5  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Lead (Pb)                      | 7439-92-1  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Silica (SiO2)                  | 60676-86-0 | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Indium (In)                    | 7440-74-6  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Metal Oxide                    |            | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Antimony (Sb)                  | 7440-36-0  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Resin (EP)                     |            | 0.000608             | 250000                        | 2710.60375977                   |                |                      |
| <b>Die Attach Total:</b>       |                                  |                                |            | <b>0.002431</b>      | <b>1000000</b>                | <b>10837.9560547</b>            |                |                      |
| Encapsulation                  | MULTI-AROMATIC RESIN Br/Sb FREE  | Resin (EP)                     |            | 0.013460             | 130000                        | 60007.7734375                   |                |                      |
|                                |                                  | Bromine (Br)                   | 40039-93-8 | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Silica (SiO2)                  | 60676-86-0 | 0.089044             | 860000                        | 396978.625                      |                |                      |
|                                |                                  | Antimony Trioxide (Sb2O3)      | 1309-64-4  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Metal Hydroxide                |            | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Carbon Black (C)               | 1333-86-4  | 0.001035             | 10000                         | 4614.26757812                   |                |                      |
|                                |                                  | <b>Encapsulation Total:</b>    |            |                      |                               | <b>0.103539</b>                 | <b>1000000</b> | <b>461600.625</b>    |
| Bond Wire Estimated            | AFW/TANAKA/ Kn                   | Gold (Au)                      | 7440-57-5  | 0.000430             | 1000000                       | 1917.03881836                   |                |                      |
|                                |                                  |                                |            |                      | <b>TOTAL MASS (g) :</b>       | <b>0.224304</b>                 |                |                      |