

**LINEAR TECHNOLOGY MATERIALS DECLARATION**

1tc3220epf-1#trpbf

(Engineering Calculation)

UTQFN 4mm X 4mm Exposed Pad

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**TOTAL MASS (g) : 0.02918**

| 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  | 0.001794             | 1000000                       | 61480.078125                    |                |                      |
| Die Coat                       | Dow Corning                      | Silicone                       | 69430-27-9 | 0.000000             | 0                             | 0                               |                |                      |
| Lead Frame                     | Cu                               | Copper (Cu)                    | 7440-50-8  | 0.009974             | 975000                        | 341807.3125                     |                |                      |
|                                |                                  | Iron (Fe)                      | 7439-89-6  | 0.000246             | 24000                         | 8430.37988281                   |                |                      |
|                                |                                  | Phosphorus (P)                 | 7723-14-0  | 0.000003             | 300                           | 102.809501648                   |                |                      |
|                                |                                  | Zinc (Zn)                      | 7440-66-6  | 0.000007             | 700                           | 239.888824463                   |                |                      |
|                                |                                  | 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>0.010230</b>      | <b>1000000</b>                | <b>350580.40625</b>             |                |                      |
| Plating                        | PMI                              | Exter. Plating Pb              | 7439-92-1  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Exter. Plating Sn              | 7440-31-5  | 0.000707             | 1000000                       | 24235.1074219                   |                |                      |
|                                |                                  | <b>External Plating Total:</b> |            |                      |                               | <b>0.000707</b>                 | <b>1000000</b> | <b>24235.1074219</b> |
|                                |                                  | Inter. Plating Ni              | 7440-02-0  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Inter. Plating Ag              | 7440-22-4  | 0.000362             | 1000000                       | 12405.6787109                   |                |                      |
| <b>Internal Plating Total:</b> |                                  |                                |            | <b>0.000362</b>      | <b>1000000</b>                | <b>12405.6787109</b>            |                |                      |
| Die Attach                     | ELECTRICALLY CONDUCTIVE ADHESIVE | Silver (Ag)                    | 7440-22-4  | 0.000861             | 750000                        | 29506.3242188                   |                |                      |
|                                |                                  | 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)                     |            | 0.000287             | 250000                        | 9835.44140625                   |                |                      |
| <b>Die Attach Total:</b>       |                                  |                                |            | <b>0.001148</b>      | <b>1000000</b>                | <b>39341.765625</b>             |                |                      |
| Encapsulation                  | MULTI-AROMATIC RESIN Br/Sb FREE  | Resin (EP)                     |            | 0.001918             | 130000                        | 65729.5390625                   |                |                      |
|                                |                                  | Bromine (Br)                   | 40039-93-8 | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Silica (SiO2)                  | 60676-86-0 | 0.012685             | 860000                        | 434712.8125                     |                |                      |
|                                |                                  | Antimony Trioxide (Sb2O3)      | 1309-64-4  | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Metal Hydroxide                |            | 0.000000             | 0                             | 0                               |                |                      |
|                                |                                  | Carbon Black (C)               | 1333-86-4  | 0.000148             | 10000                         | 5071.93505859                   |                |                      |
|                                |                                  | <b>Encapsulation Total:</b>    |            |                      |                               | <b>0.014751</b>                 | <b>1000000</b> | <b>505514.3125</b>   |
| Bond Wire Estimated            | AFW/TANAKA/ Kn                   | Gold (Au)                      | 7440-57-5  | 0.000188             | 1000000                       | 6442.72851562                   |                |                      |
|                                |                                  |                                |            |                      | <b>TOTAL MASS (g) :</b>       | <b>0.02918</b>                  |                |                      |