



# ALLIANCE MEMORY MDS REPORT

| Part Number: |               | AS4C64M16D3-12BCN/AS4C64M16D3-12BIN/AS4C64M16D3-12BAN |                   |                                       |              |                |                 |                       |         |
|--------------|---------------|-------------------------------------------------------|-------------------|---------------------------------------|--------------|----------------|-----------------|-----------------------|---------|
| Part Weight: |               | 229.006mg                                             |                   |                                       |              |                |                 |                       |         |
| No.          | Part Name     | Material Name                                         | Component wt (mg) | Material Content (Element)            | CAS Number   | Element wt (%) | Element wt (mg) | wt % of Total unit wt | PPM     |
| 1            | Substrate     | NPG-200 / AUS 308                                     | 54.01             | E-Glass fabric                        | 65997-17-3   | 21.00%         | 11.3421         | 4.95%                 | 210000  |
|              |               |                                                       |                   | Epoxy resin                           | 29690-82-2   | 21.00%         | 11.3421         | 4.95%                 | 210000  |
|              |               |                                                       |                   | Fillers                               | 21645-51-2   | 7.00%          | 3.7807          | 1.65%                 | 70000   |
|              |               |                                                       |                   | DOPO                                  | 35948-25-5   | 7.00%          | 3.7807          | 1.65%                 | 70000   |
|              |               |                                                       |                   | Copper                                | 7440-50-8    | 14.00%         | 7.5614          | 3.30%                 | 140000  |
|              |               |                                                       |                   | Talc containing no asbestiform fibers | 14807-96-6   | 0.47%          | 0.2527668       | 0.11%                 | 4680    |
|              |               |                                                       |                   | Morpholine derivative                 | Trade secret | 0.47%          | 0.2527668       | 0.11%                 | 4680    |
|              |               |                                                       |                   | Barium sulfate                        | 7727-43-7    | 5.48%          | 2.9619084       | 1.29%                 | 54840   |
|              |               |                                                       |                   | Silica, amorphous                     | 7631-86-9    | 0.11%          | 0.0583308       | 0.03%                 | 1080    |
|              |               |                                                       |                   | Dipropylene glycol monomethyl ether   | 34590-94-8   | 0.95%          | 0.5120148       | 0.22%                 | 9480    |
|              |               |                                                       |                   | Epoxy resin A                         | Trade secret | 3.46%          | 1.8665856       | 0.82%                 | 34560   |
|              |               |                                                       |                   | Epoxy resin B                         | 85954-11-6   | 1.07%          | 0.5768268       | 0.25%                 | 10680   |
| 2            | Mold compound | CEL-9750ZHF                                           | 120.143           | Nickel                                | 7440-02-0    | 15.00%         | 8.1015          | 3.54%                 | 150000  |
|              |               |                                                       |                   | Gold                                  | 7440-57-5    | 3.00%          | 1.6203          | 0.71%                 | 30000   |
|              |               |                                                       |                   | Epoxy resin 1                         | Trade secret | 3.00%          | 3.60429         | 1.57%                 | 30000   |
|              |               |                                                       |                   | Epoxy resin 2                         | Trade secret | 1.50%          | 1.802145        | 0.79%                 | 15000   |
|              |               |                                                       |                   | Hardener 1                            | Trade secret | 2.00%          | 2.40286         | 1.05%                 | 20000   |
|              |               |                                                       |                   | Hardener 2                            | Trade secret | 2.00%          | 2.40286         | 1.05%                 | 20000   |
|              |               |                                                       |                   | Carbon black                          | 1333-86-4    | 0.20%          | 0.240286        | 0.10%                 | 2000    |
| 3            | Epoxy         | 6202C                                                 | 0.29              | Silica                                | 60676-86-0   | 91.30%         | 109.690559      | 47.90%                | 913000  |
|              |               |                                                       |                   | Polymeric material                    | Trade secret | 20.00%         | 0.058           | 0.03%                 | 200000  |
|              |               |                                                       |                   | Epoxy resin                           | Trade secret | 7.50%          | 0.02175         | 0.01%                 | 75000   |
|              |               |                                                       |                   | Di-ester resin                        | Trade secret | 3.00%          | 0.0087          | 0.00%                 | 30000   |
|              |               |                                                       |                   | Functionalized urethane resin         | Trade secret | 3.00%          | 0.0087          | 0.00%                 | 30000   |
|              |               |                                                       |                   | Siloxane polymer                      | Trade secret | 20.00%         | 0.058           | 0.03%                 | 200000  |
|              |               |                                                       |                   | Mixture of synthetic and fused silica | Trade secret | 20.00%         | 0.058           | 0.03%                 | 200000  |
| 4            | Solder ball   | M705                                                  | 39.04             | Carbitol acetate                      | 112-15-2     | 26.50%         | 0.07685         | 0.03%                 | 265000  |
|              |               |                                                       |                   | Tin                                   | 7440-31-5    | 96.50%         | 37.6736         | 16.45%                | 965000  |
|              |               |                                                       |                   | Silver                                | 7440-22-4    | 3.00%          | 1.1712          | 0.51%                 | 30000   |
|              |               |                                                       |                   | Copper                                | 7440-50-8    | 0.50%          | 0.1952          | 0.09%                 | 5000    |
| 5            | Gold wire     | Au                                                    | 2.53              | Gold                                  | 7440-57-5    | 99.99%         | 2.529747        | 1.10%                 | 999900  |
|              |               |                                                       |                   | Impurity                              | Trade secret | 0.01%          | 0.000253        | 0.00%                 | 100     |
| 6            | Die           | Chip                                                  | 12.993            | Silicon                               | 7440-21-3    | 100.00%        | 12.993          | 5.67%                 | 1000000 |
| 229.006      |               |                                                       |                   | 600.00%                               |              | 229.006        | 100.00%         | 6000000               |         |