

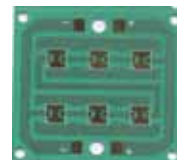
**EM-M1**

Idea product for LED applications

**Metal-based CCL****Introduction*****High Thermal Resistant for Lead-free Processing***

EM-M1 is special designed for current popular LED with lighting and backlight model of LCD applications: thermal conductivity (2.0 W/m-k), high thermal resistant and easy to use that you do not need to process pressing in your plant.

For current LED application, single side printed circuit could match the requirement. EM-M1 aims at the point and offers the pressed metal-based CCL for saving pressing processing in PCB plant. Besides, the insulation can meet lead-free processing of high thermal resistant requirement, and it could be applied in high temperature (~100°C) environment with long time using.



EM-M1 are applied in different type of high brightness LED application

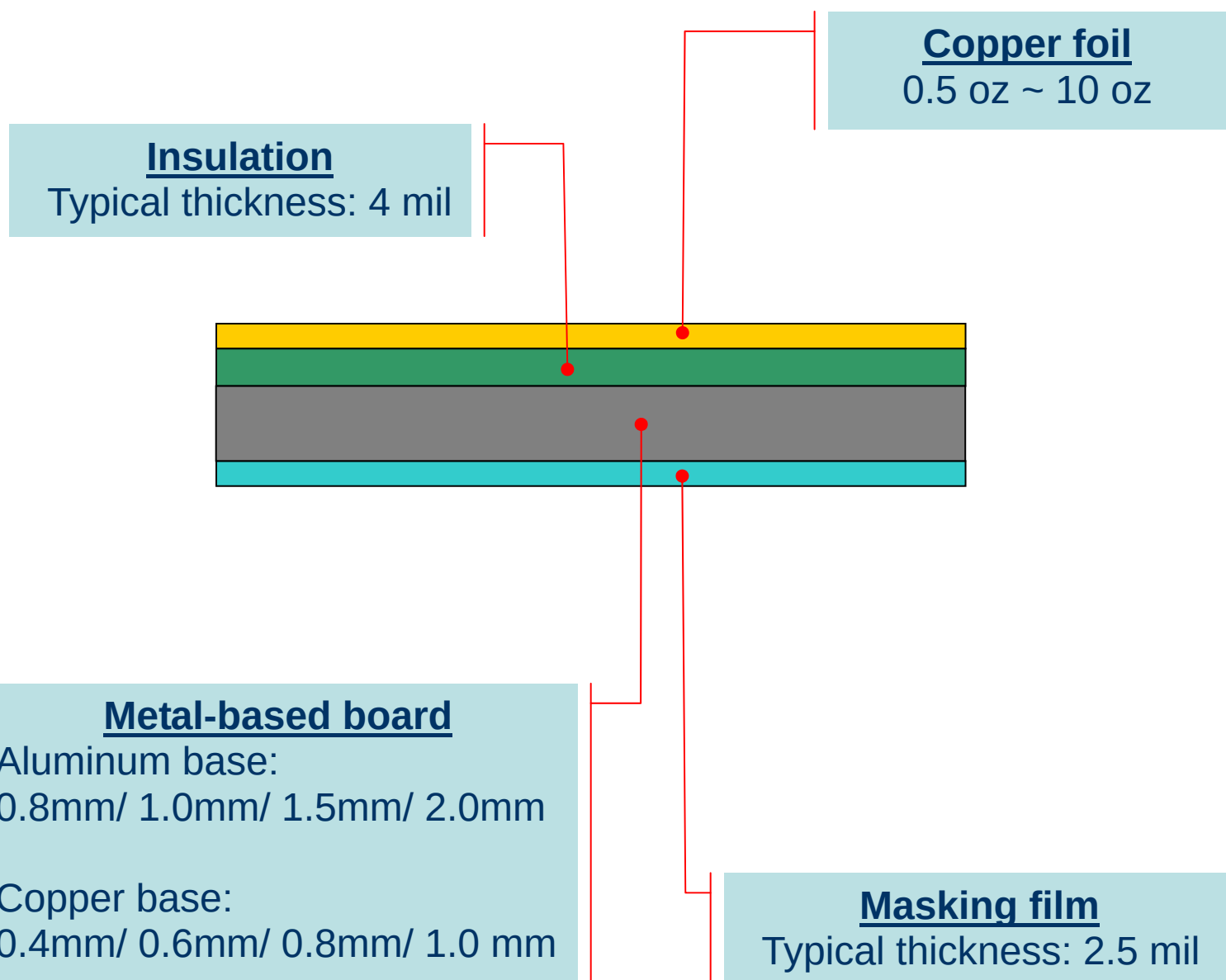
**Typical Property of EM-M1**

| Basic                                                | Value | Reference Doc.      |
|------------------------------------------------------|-------|---------------------|
| Dielectric substrate thickness (mil)                 | 4     |                     |
| Tg (°C)                                              | 145   | IPC-TM-650 2.4.25   |
| Thermal conductivity (W/m-k)                         | 2.3   | ASTM D 5470         |
| Modulus (Mpa@100°C)                                  | 7000  | IPC-TM-650 2.4.24.4 |
| Peel strength (lb/in, 1oz)                           | ≥ 6.0 | IPC-TM-650 2.4.8    |
| <b>Thermal</b>                                       |       |                     |
| Td (°C)                                              | 340   | IPC-TM-650 2.4.24.6 |
| Thermal solder resistant -                           |       | IPC-TM-650 2.4.13.1 |
| Solder dip with 288°C x 10s (cycle)                  | 15    |                     |
| Time to de-lamination by solder dip with 288°C (sec) | 400   |                     |
| <b>Electrical</b>                                    |       |                     |
| Dielectric breakdown strength (kV)                   | 6.0   | IPC-TM-650 2.5.6    |
| High pot withstand (kV)                              | 3.0   | IPC-TM-650 2.5.7    |
| Dielectric constant                                  | 4.6   | IPC-TM-650 2.5.9    |
| Dissipation factor                                   | 0.017 | IPC-TM-650 2.5.9    |

**Current offering panel size:**

**Al-based: 18" x 24", 20" x 24"**

**Cu-based: 20" x 24"**



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