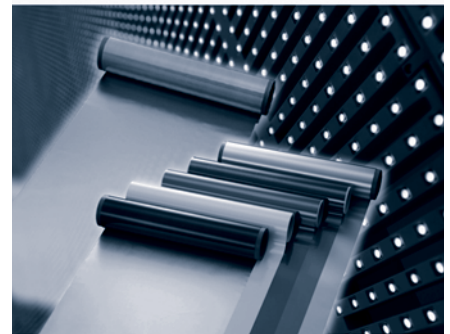


高熱伝導性フレキシブル基板材料
High Thermal Conductive Flexible Circuit Board Materials

EcooL-F R-F775

高熱放散性・高耐電圧を実現し、LEDなどの発熱デバイスの放熱に貢献
Realize high levels of heat dissipation and dielectric strength, contributing to heat dissipation in heat generating devices such as LEDs.



■ 特長 / Features

- ① 金属基板並みの放熱性を実現
機器の薄型化と軽量化を実現
両面板設計が可能なため、高密度実装化にも対応
- ② 低 CTE 基板により、実装接続信頼性の向上に貢献
- ③ ハロゲンフリー

- 1. Contributing electronic equipment to thinner and lighter by very thin circuit board materials which has an excellent heat emission performance equivalent to metal substrate
- 2. Contributing to improvement of surface mounting connective reliability by low CTE performance
- 3. Halogen-free

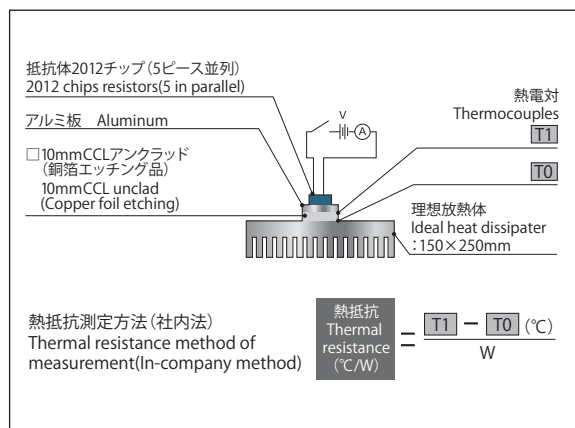
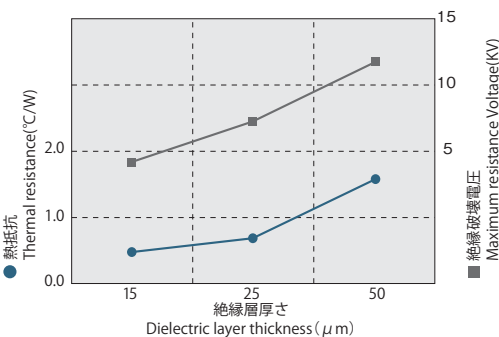
■ 用途 / Applications

LED バックライト、車載照明、LED 照明、NFC、ワイヤレスチャージャー など

LED back lights, Automotive lightings, LED lightings, NFC, Wireless charger, etc.

● 熱抵抗と耐電圧性能 Heat resistance and dielectric strength performance

- ポリイミドフィルム絶縁層の熱抵抗と絶縁破壊電圧
Heat resistance and dielectric breakdown voltage of polyimide film insulating layer



● 一般特性 General properties

評価項目 Item	試験条件 Test method	単位 Unit	EcooL-F Flexible type	Conventional FR-4 R-1705	アルミ金属基板 Aluminum plate
構成 Construction	—	—	片面 / 両面 Single/Double	片面 Single	片面 Single
熱抵抗 Thermal resistance	A	°C/W	0.6	17.5	0.6
絶縁層厚さ Dielectric layer thickness	A	mm	0.025	1.000	0.080
熱伝導率 Thermal conductivity	A	W/m·K	0.3	0.4	1.2
表面層の絶縁抵抗 Insulation resistance of surface layer	A	Ω	1.0 x 10 ¹⁵	1.0 x 10 ¹⁴	1.0 x 10 ⁸
絶縁破壊電圧 Maximum resistance voltage	A	kV	6.9/0.025mm	49/1.0mm	4.0/0.080mm
銅箔ピール強度 Peel strength	A	N/mm	1.50	1.96	1.50
はんだ耐熱性 (はんだフロート) Solder heat resistance (solder float)	A 288°C/60sec	—	OK	OK	OK
吸湿はんだ耐熱性 Water absorption solder heat resistance	C-96/40/90 288°C/60sec	—	OK	OK	OK
熱膨張係数 CTE	—	ppm/°C	18	16	33
比誘電率 (Dk) Dielectric constance (Dk)	A	1GHz	3.2	4.8	4.2
誘電正接 (Df) Dissipation factor (Df)	A	1GHz	0.002	0.016	0.028
比較基板構成 Comparison board composition	断面構成 Cross section				
	板厚 Thickness (mm)		0.130	1.035	1.115
	重量 Weight (g/m ²) [*]		970	2200	3100

* (g/cm³) 銅箔 Copper: 8.92, アルミ Aluminum: 2.68, FR-4(R-1705): 1.9, フィラーエポキシ Filler epoxy: 2.0, ポリイミド Polyimide: 1.43