Halogen
-free

Halogen-free Ultra-low transmission loss Multi-layer circuit board materials
ハロゲンフリー超低伝送損失多層基板材料

XPEDION 1

Laminate **R-5515**
Prepreg **R-5410**

Applications 用途

Antenna(Automotive millimeter-wave radar, Base station), Etc.
アンテナ (車載ミリ波レーダ、基地局) など

Automotive
オートモーティブ

Wireless
ワイヤレス通信

Prepreg R-5410 enables multi-layer antenna constructions and improves the design flexibility of high-frequency circuit boards; especially suitable for millimeter-wave antennas.
This material achieves higher efficiency and lower loss, with the added benefit of reduced processing costs.
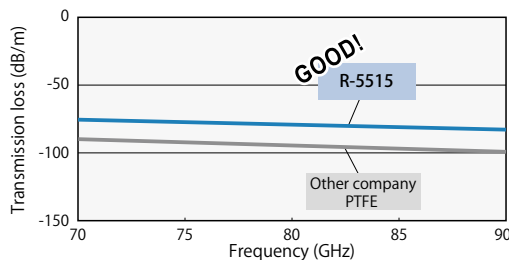プリプレグ R-5410 は、アンテナ層の多層化、高周波基板の設計自由度向上に寄与します。
高周波アンテナの信号の高利得化と基板の加工コスト低減に貢献。

Dk 3.0 Df 0.002 @10GHz	Tg (DMA) 200℃	Reduce PCB process cost (vs. PTFE material)

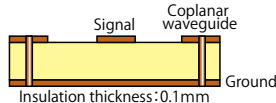## ■ Frequency dependence by Transmission loss (70-90GHz) 伝送損失比較 (70-90GHz)
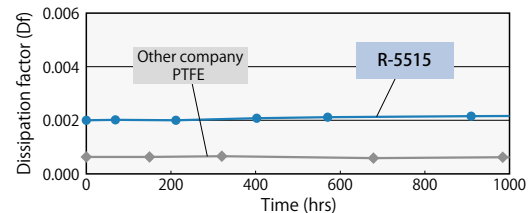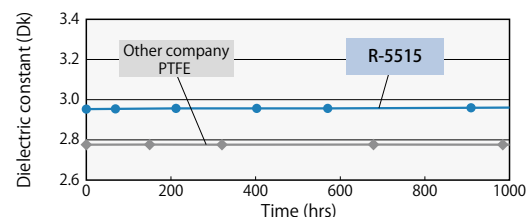

● Transmission loss at 79GHz

Material	Transmission loss (dB/m)	Dk (Design)
R-5515	79	3.09
Other company PTFE	96	3.01

● Construction

Microstrip line / Signal / Coplanar waveguide / Ground
Insulation thickness：0.1mm

■ Long-term stability under High temperature (Dk, Df) 高温環境下における長期安定性 (Dk, Df)

● Measurement method : Cavity resonance method
● Aging Temperature : 125℃(without humidity control)
● Measurement frequency : 10GHz

■ General properties　一般特性

Item		Test method	Condition	Unit	Halogen-free R-5515
Glass transition temp.(Tg)		DMA	A	℃	200[*1]
CTE z-axis	α1	IPC-TM-650 2.4.24	A	ppm/℃	50
	α2				300
T288(with copper)		IPC-TM-650 2.4.24.1	A	min	>120
Thermal conductivity		Laser flash	A	W/m・K	0.35
Dielectric constant(Dk)	10GHz	Cavity resonance	C-24/23/50	—	3.0
Dissipation factor(Df)					0.002
Peel strength[*2]	1/2oz(18μm)	IPC-TM-650 2.4.8	A	kN/m	0.6[*1]

The sample thickness is 0.5mm.
*1 The sample thickness is 0.13mm.
*2 H-VLP2 Copper

Please contact us about the thickness specification. 板厚仕様については、別途ご相談ください。
Our Halogen-free materials are based on JPCA-ES-01-2003 standard and others. 当社ハロゲンフリー材料は、JPCA-ES-01-2003などの定義によるものです。
The above data are typical values and not guaranteed values. 上記データは当社測定による代表値であり、保証値ではありません。
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