

DK 3.06 Df 0.002 @14GHz

Tg (DMA) 200°C

Reduce PCB process cost (vs. PTFE material)

Applications
Wireless / Automotive
 Antenna (Automotive Millimeter-Wave Radar, Base Station)



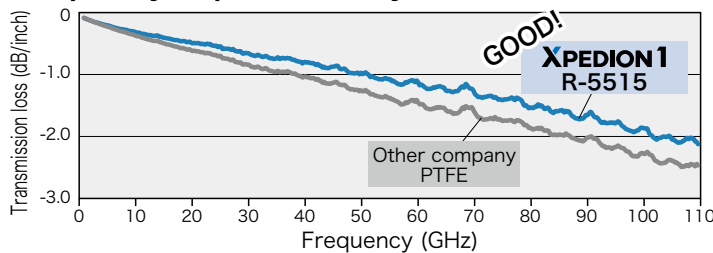
XPEDION 1

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

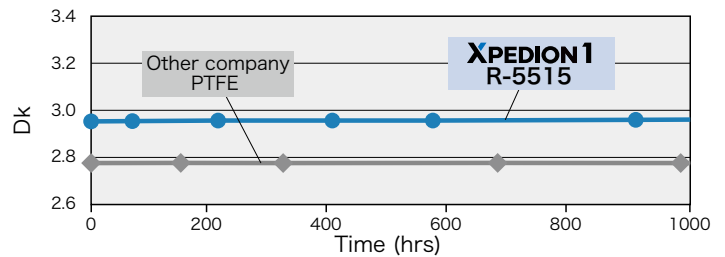
Halogen-free ultra-low transmission loss multi-layer circuit board materials

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.

Frequency dependence by transmission loss



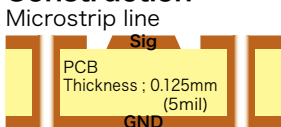
Long-term stability under high temperature (Dk, Df)



Transmission loss at 77GHz

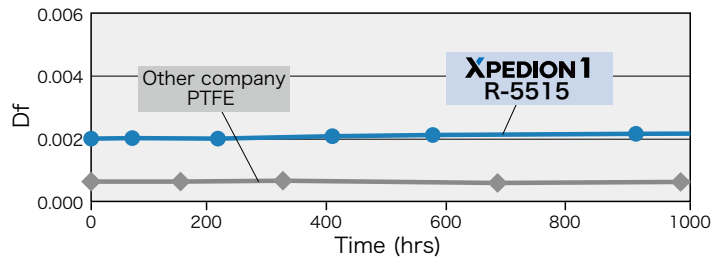
Material	Transmission loss (dB/inch)	Modeling Dk
XPEDION 1 R-5515	-1.4	3.14
Other company PTFE	-1.8	3.13

Construction



Measurement	2 port S-Parameter
Frequency	10MHz-110GHz
De-embedded	Multiline TRL method
Measurement line	adjust to 50Ω(Zo)
Cu foil type	H-VLP2 (R-5515)

Layer1: Signal line (line width: 300μm, Cu thickness: 24μm)
 Layer2: GND plane (Cu thickness: 24μm)



- Measurement method : Cavity resonance method
- Aging temperature : 125°C (without humidity control)
- Measurement frequency : 10GHz

General properties

Item	Test method	Condition	Unit	XPEDION 1 R-5515
Tg	DMA	A	°C	200*1
CTE z-axis	IPC-TM-650 2.4.24	A	α1	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
Dk	Balanced-type circular disk resonator method	C-24/23/50	-	3.06*1
Df				0.002*1
Peel strength*2	1/2oz(18μm)	IPC-TM-650 2.4.8	A	0.6*1

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

Please contact us about the thickness specification.
 Our Halogen-free materials are based on JPCA-ES-01-2003 standard and others.
 The above data are typical values and not guaranteed values.