AGC
Your Dreams, Our Challenge

TACONIC

NF-30L Ceramic Filled PTFE Composite

NF-30L copper clad, non-reinforced laminates are ceramic filled PTFE composites. The ceramic filled PTFE composite technology offers low dielectric loss and minimal signal distortion in microwave applications.

NF-30L laminates can be sheared, drilled, milled and plated using standard PTFE circuit board processing techniques. CO_2 laser ablation of NF-30L can make it possible to be used in precise microwave designs with dense PTH connection.

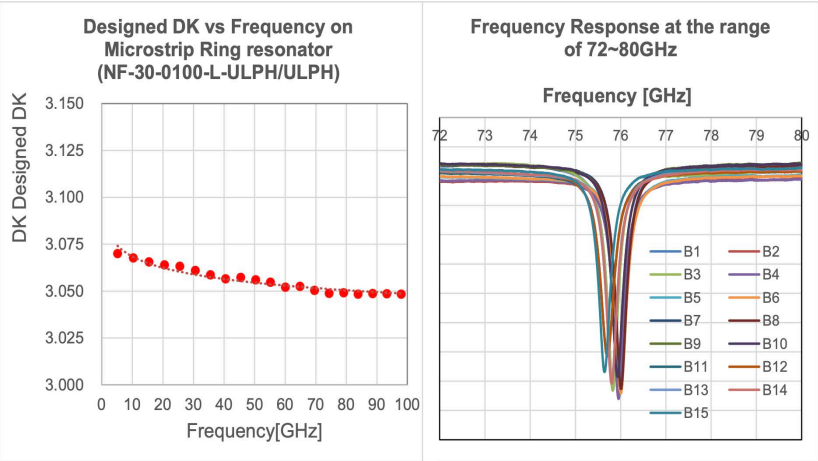
NF-30L offers very stable performance over a wide frequency range.

Benefits & Applications:

- Non-Reinforced Laminate
- Exceptional Low Electrical Loss for Microwave Applications
- Excellent Adhesion to Very Low Profile Copper Foils
- Stable Dielectric Properties vs. Temperature & Frequency
- Dimensionally Stable for Multilayer Applications
- Well Suited for Laser Based Microvia Formation

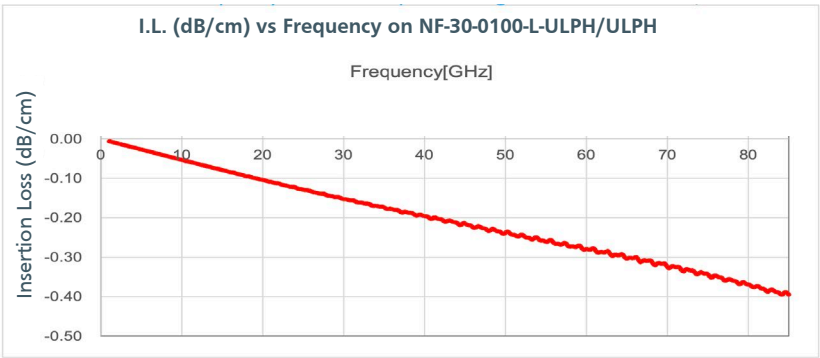
- Automotive Radar Sensors
- GPS Antennas
- Passive Components (Dividers, Filters & Couplers)
- Aerospace Components

Microstrip Ring Resonator Response of NF-30-0100-L-ULPH/ULPH



The designed DK can vary from the measured DK at 10 GHz by IPC-650 2.5.5.5.1 due to various factors: copper roughness, frequency, and dielectric thickness.

Insertion Loss vs Frequency on Microstrip Line Using NF-30-0100-L-ULPH/ULPH



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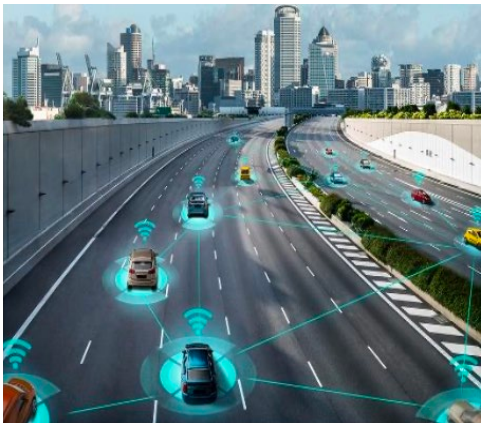
NF-30L Typical Values					
Property	Test Method	Unit	Value	Unit	Value
Dk @ 10 GHz	IPC-650 2.5.5.5.1 (Mod.)		3.00 ± .04		3.00 ± 0.04
Df @ 10 GHz	IPC-650 2.5.5.5.1 (Mod.)		0.0013		0.0013
Moisture Absorption	IPC-650 2.6.2.1	%	0.1	%	0.1
Peel Strength (½ oz. ULP Cu)	IPC-650 2.4.8 (Solder)	lbs/in	6	N/mm	1.1
Volume Resistivity	IPC-650 2.5.17.1	Mohms/cm	1.0×10^7	Mohms/cm	1.0×10^7
Surface Resistivity	IPC-650 2.5.17.1	Mohm	2.0×10^7	Mohm	2.0×10^7
Dimensional Stability	IPC-650 2.4.39 (Etch)	% (10 mil-MD)	0.027	% (10 mil-CD)	0.021
Dimensional Stability	IPC-650 2.4.39 (Bake)	% (10 mil-MD)	-0.006	% (10 mil-CD)	-0.023
Dimensional Stability	IPC-650 2.4.39 (Stress)	% (10 mil-MD)	-0.030	% (10 mil-CD)	-0.060
Flexural Strength (MD)	IPC-650 2.4.4	psi	2670	N/mm^2	18
Flexural Strength (CD)	IPC-650 2.4.4	psi	2380	N/mm^2	16
Tensile Strength (MD)	IPC-650 2.4.18.3	psi	940	N/mm^2	6.5
Tensile Strength (CD)	IPC-650 2.4.18.3	psi	890	N/mm^2	6.1
Elongation at Break (MD)	IPC-650 2.4.18.3	%	123	%	123
Elongation at Break (CD)	IPC-650 2.4.18.3	%	125	%	125
Density	IPC-650 2.3.5	g/cm^3	2.1	g/cm^3	2.1
Specific Heat	IPC-650 2.4.50	J/g °C	0.94	J/g °C	0.94
Thermal Conductivity (Unclad)	IPC-650 2.4.50	W/M*K	0.50	W/M*K	0.50
T_d (2% wt. loss)	IPC-650 2.4.24.6/TGA	°F	937	°C	503
T_d (5% wt. loss)	IPC-650 2.4.24.6/TGA	°F	960	°C	516
CTE (X-Y axis) (50-150 °C)	IPC-650 2.4.41	ppm/°C	9 - 13	ppm/°C	9 - 13
CTE (Z axis) (50-150 °C)	IPC-650 2.4.41	ppm/°C	35	ppm/°C	35
Flammability	Internal		V-0		V-0
Lead Free Process Compatible	Internal		Yes		Yes

All reported values are typical and should not be used for specification purposes. In all instances, the user shall determine suitability in any given application.



Standard cladding of NF-30L is ULP copper for best results at high frequency.
An example of 10 mil material with ½ oz. ULP Copper on both sides is part #:
NF-30-0100-L-ULPH/ULPH - 18" x 24" (457 mm x 610 mm)

Standard sheet size is 18" x 24" (457 mm x 610 mm).
Please contact AGC for availability of additional thicknesses of other types of cladding.