ROGERS CORPORATION

Data Sheet

RO3003G2™ Circuit Materials

High Frequency Laminates

RO3003G2™ high-frequency ceramic-filled PTFE laminates are an extension of Rogers' industry leading RO3003™ solutions. RO3003G2 laminates are based on industry feedback to specially address the next generation needs for mm-wave automotive radar applications.

The combination of optimized resin and filler content along with the introduction of Very Low Profile ED copper translates to a Dk of 3.00 @ 10 GHz (clamped stripline method) & 3.07 @ 77 GHz (microstrip differential phase length method). These laminates also show very low insertion loss of 1.3dB/inch for 5 mil laminates as measured by the microstrip differential phase length method.

RO3003G2 laminates can be fabricated into printed circuit boards using standard PTFE circuit board processing techniques, with minor modifications as described in the application note "Fabrication Guidelines for RO3000® Series High Frequency Circuit Materials."

FEATURES AND BENEFITS:

Best in class performance for insertion loss
- Utilizing new Very Low Profile (VLP) ED copper

Minimize dielectric constant variation in finished PCB
- Homogeneous construction incorporating VLP ED copper and reduced dielectric porosity

Enable trend toward more small diameter vias
- Enhanced filler system using small rounded particles

Global manufacturing foot print
- Multiple high volume manufacturing plants

TYPICAL APPLICATIONS:

- Adaptive cruise control
- Forward collision warning
- Active brake assist
- Lane change assist
- Traffic jam pilot
- Parking pilot
- Blind spot detection

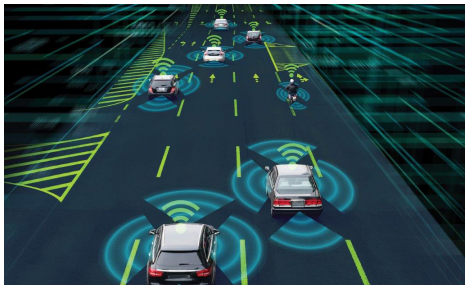


Chart 1:

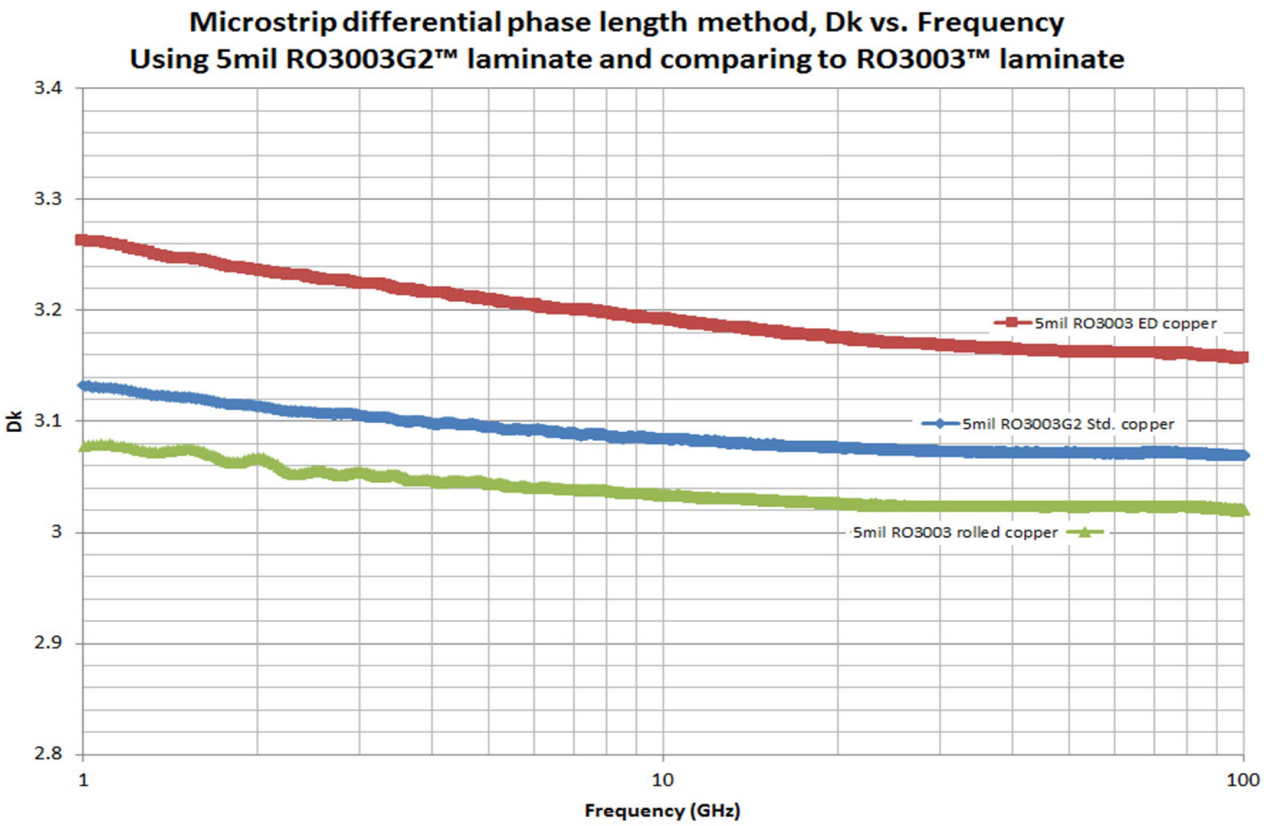
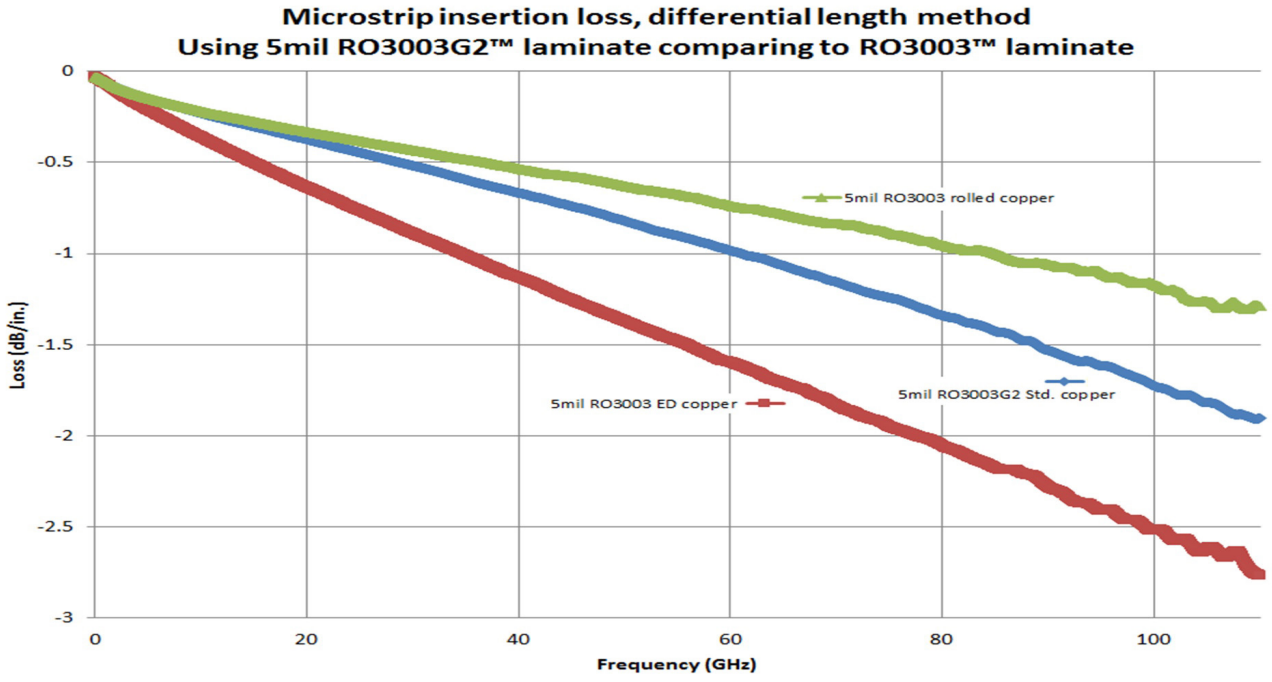


Chart 2:



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PROPERTY	TYPICAL VALUE[1] RO3003G2	Direction	Unit	Condition	Test Method
Dielectric Constant, e_r Process	3.00 ± 0.04	Z	-	10 GHz 23°C	IPC-TM-650 2.5.5.5 Clamped Stripline
[2,] Dielectric Constant, e_r Design	3.07	Z	-	77 GHZ	Differential Phase Length Method
Dissipation Factor, tan d	0.0011	Z	-	10 GHz 23°C	IPC-TM-650 2.5.5.5
Thermal Coefficient of e_r	-35	Z	ppm/°C	10 GHz -50 to 150°C	IPC-TM-650 2.5.5.5
Dimensional Stability	-0.16 -0.14	X Y	mm/m	Method C	IPC TM-650 2.2.4
Volume Resistivity	1.4 x 10^9	-	MΩ•cm	COND A	IPC 2.5.17.1
Surface Resistivity	2.6 x 10^8	-	MΩ	COND A	IPC 2.5.17.1
Tensile Modulus	378 396	X Y	ksi	23°C	ASTM D638
Moisture Absorption	0.06	-	%	D48/50	IPC-TM-650 2.6.2.1
Specific Heat	0.73 0.83	Z	J/g/K	0°C 50°C	ASTM E1269-11
Thermal Conductivity	0.43	Z	W/m/K	50°C	ASTM D5470
Coefficient of Thermal Expansion	16 17 18	X Y Z	ppm/°C	23°C/50% RH	IPC-TM-650 2.4.41
Td	500	-	°C TGA	-	ASTM D3850
Density	2.15	-	gm/ cm^3	23°C	ASTM D792
Copper Peel Strength	16.5	-	lb/in	1/2 oz. EDC After Solder Float	IPC-TM-2.4.8
Flammability	Pending	-	-	-	UL 94
Lead Free Process Compatible	YES	-	-	-	-

NOTES:

(1) Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corporation.
(2) The design Dk is an average number from several different tested lots of material and on the most common thicknesses. If more detailed information is

Surface Roughness (Sq)	Surface Area Index	Average Nodule Size
0.7 µm sq	2.77	0.2 µm

Standard Thickness	Standard Panel Size	Available Copper Cladding
0.005" (0.13mm) 0.010" (0.25mm)	24" X 18" (610 X 457mm) 24" X 21" (610 X 533mm)	½ oz. (18µm) electrodeposited copper foil
		1 oz. (35µm) electrodeposited copper foil