AEROWAVE 300

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HIGH FREQUENCY LOW LOSS MATERIALS

AeroWave 300 PPE woven glass-reinforced filled UL 94 V-0 circuit materials present a strong value proposition for today's designer where cost, performance and manufacturability are paramount. AeroWave 300 materials can be fabricated using standard FR-4 printed circuitry fabrication processes. The AeroWave 300 materials well suited for use in hybrid multilayer printed circuit configurations and are compatible for use in lead free assembly processes.

AeroWave 300 materials exhibit excellent electrical and mechanical properties with a consistent and stable dielectric constant and dissipation factor over a wide range of frequencies (1 GHz to 20 GHz) and temperatures (-40 ºC to +12 ºC).

AeroWave 300 low loss, (Df 0.0031 @ 10 GHz) controlled dielectric materials (Dk 3.0 +/- 0.05) are available in a broad range of nominal cores and pre-pregs. These products have been developed to provide unique material solutions for base station antennas and base station power amplifiers and other current and emerging RF/Microwave design requirements.

AeroWave 300 RF/Microwave low loss, controlled dielectric materials exhibit exceptional dimensional stability, chemical resistance, low moisture absorption, and copper peel strength. Passive Inter-modulation (PIM) performance values exceeding -158 dBc are typical (HVLP type of copper foil).

APPLICATIONS

- Stable Dk/Df over frequency and temperature
- Tight Dk tolerance control +/-0.05
- Excellent copper peel strength
- UL 94 V-0 flame rating
- Thermal setting resin system with good PCB processibility and available for hybrid or multilayer design

FEATURES

- Cellular base station antennas
- Antenna feed networks
- Telemetry
- DAS & CPE antenna
- Massive MIMO antenna

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AeroWave 300

GENERAL PROPERTIES

PROPERTY	TYPICAL VALUE	DIRECTION	UNITS	CONDITION	TEST METHOD
Dielectric Constant (Process Dk)	3.0±0.05	Z	-	10GHz/23℃	IPC-TM-650 2.5.5.5 Clamped Stripline
Dielectric Constant (Design Dk)	2.98	Z	-	1.5 GHz -6GHz/23℃	Differential Phase Length Method
Dissipation Factor, Df	0.0031	Z	-	10GHz/23℃	IPC-TM-650 2.5.5.5 Clamped Stripline
Thermal Coefficient of Dk	50	Z	-	-40~+120℃	IEC 61189-2-721 (10GHz)
Tg	200	-	℃	DMA	IPC-TM-650 2.4.24.4
Td	400	-	℃	TGA	ASTM D3850
Coefficient of Thermal Expansion	15 15 50	X Y Z	ppm/℃	TMA	IPC-TM-650 2.4.41
Volume Resistivity	2.21×10^{8}	-	MΩ-cm	A	IPC-TM-650 2.5.17.1
Surface Resistivity	6.84×10^{7}	-	MΩ	A	IPC-TM-650 2.5.17.1
Peel Strength	0.85	-	N/mm	after solder float 1 oz. HVLP foil	IPC-TM-650 2.4.8
Electrical Strength	60	Z	kV/mm	0.508mm(0.020")	IPC-TM-650 2.5.6.2
Flexural Strength	232/216	LW/CW	MPa	A	IPC-TM-650 2.4.4
Water Absorption	0.15	-	%	-	IPC-TM-650 2.6.2.1
Thermal Conductivity	0.46	-	W/m•K	100℃	ASTM D5470
Flammability	V-0	-	Rating	-	UL94

PRODUCT SPECIFICATION

PRODUCT	STANDARD THICKNESS	STANDARD PANEL SIZE	COPPER FOIL
AeroWave 300	0.005" (0.127mm) 0.010" (0.254mm) 0.020" (0.508mm) 0.030" (0.762mm) 0.060" (1.524mm)	36"×48",40"×48",42"×48", Additional panel sizes may be available upon request	HVLP type low profile copper foil

SYTECH

(1)Clamped strip line method can potentially lower the actual dielectric constant due to presence of air gap. Dielectric constant in practice may be higher than the values listed.

(2)Typical values are a representation of an average value for the population of the property. For specification values contact SYTECH Corporation. The information in this data sheet is intended to assist you in designing with SYTECH's circuit materials. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose or that any results shown in this data sheet will be achieved by a user for a particular purpose. The user is responsible for determining the suitability of SYTECH's circuit materials for each application.