

# ORCER RF-35P

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**Thicknesses Available  $\geq 0.002''$  (0.05 mm)**

**Low Cost**

**Excellent Peel Strength**

**Exceptionally Low Loss**

**Low Moisture Absorption**

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**TACONIC**

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## APPLICATIONS

Multi-layer  
Power Amplifiers  
Filters and Couplers  
Passive Components  
High Speed Digital

# ORCER RF-35P

RF-35P is an organic-ceramic laminate in the ORCER family of Taconic products. It is based on woven glass reinforcement. RF-35P is a result of Taconic's expertise in both ceramic fill technology and coated PTFE fiberglass.

RF-35P is the best choice for low cost, high volume, high frequency applications.

RF-35P has excellent peel strength for 1/2 oz. and 1 oz. copper (even in comparison to standard epoxy materials), a critical aspect whenever rework is required.

RF-35P's crystalline melt temperature is over 600°F (315°C).

RF-35P's ultra low moisture absorption rate and low dissipation factor minimize phase shift with frequency.

RF-35P is available in thicknesses  $\geq 0.002$ " (0.05 mm).

RF-35P is dimensionally stable due to the use of woven fabrics in its design. RF-35P yields exceptional electrical, mechanical and thermal performance for high density, multi-layer microwave and high speed digital circuits.

RF-35P is constructed with all fine weave glass, yielding exceptional machining quality.

RF-35P laminates are generally ordered clad on both sides with 1/2, 1 or 2 oz. electrodeposited copper.

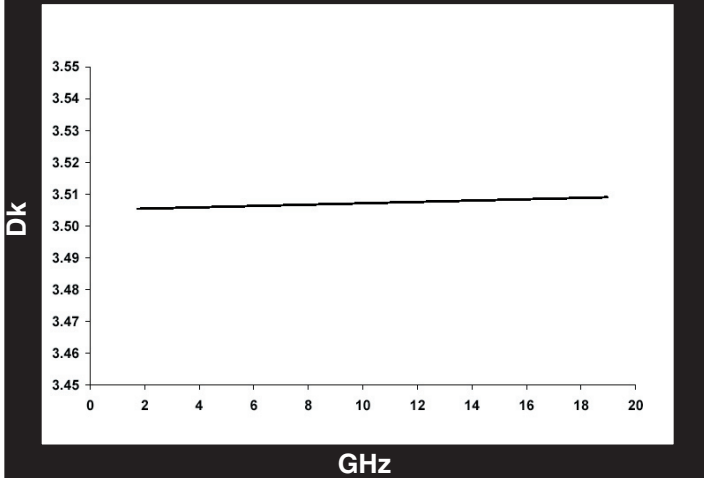
RF-35P laminates exhibit flammability of V-0, and are tested in accordance with IPC-TM 650. A certificate of compliance containing lot-specific data accompanies each shipment.

See "How to Order" on back page for a complete product listing.

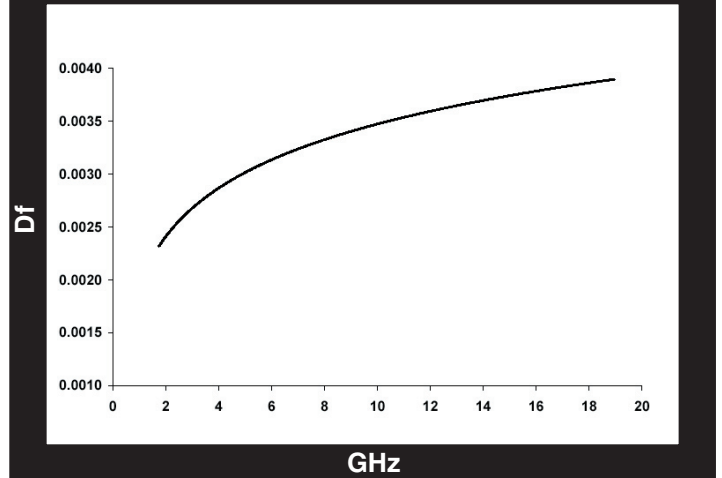
## RF-35P Typical Values

Property	Test Method	Unit	Value	Unit	Value
Dielectric Constant @ 1.9 GHz	IPC-TM-650 2.5.5.5.1 (Modified)		3.50		3.50
Dissipation Factor @ 1.9 GHz	IPC-TM-650 2.5.5.5.1 (Modified)		0.0025		0.0025
Dielectric Constant @ 10 GHz	IPC-TM-650 2.5.5.5.1 (Modified)		3.50		3.50
Dissipation Factor @ 10 GHz	IPC-TM-650 2.5.5.5.1 (Modified)		0.0034		0.0034
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.03	%	0.03
Dielectric Breakdown	IPC-TM-650 2.5.6	kV	41	kV	41
Volume Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm/cm	5 x 10 <sup>8</sup>	Mohm/cm	5 x 10 <sup>8</sup>
Surface Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm	3.5 x 10 <sup>7</sup>	Mohm	3.5 x 10 <sup>7</sup>
Arc Resistance	IPC-TM-650 2.5.1	Seconds	>180	Seconds	>180
Flexural Strength (MD)	ASTM D 790	psi	>28,000	N/mm <sup>2</sup>	>193
Flexural Strength (CD)	ASTM D 790	psi	>16,000	N/mm <sup>2</sup>	>110
Tensile Strength (MD)	ASTM D 882	psi	47,600	N/mm <sup>2</sup>	329
Tensile Strength (CD)	ASTM D 882	psi	26,400	N/mm <sup>2</sup>	182
Young's Modulus (MD)	ASTM D 3039	psi	2.26 x 10 <sup>6</sup>	bar	1.56 x 10 <sup>5</sup>
Poisson's Ratio	ASTM D 3039		0.042		0.042
Peel Strength (1/2 oz ED)	IPC-TM-650 2.4.8 (Thermal Stress)	lbs/linear inch	7	N/mm	1.23
Peel Strength (1 oz ED)	IPC-TM-650 2.4.8 (Thermal Stress)	lbs/linear inch	10	N/mm	1.75
Density (Specific Gravity)		g/cm <sup>3</sup>	2.34	g/cm <sup>3</sup>	2.34
Specific Heat	ASTM E 1461 (Laser Flash Method)	J/g/K	1.42	J/g/K	1.42
Thermal Conductivity	ASTM F 433	W/m/K	0.23	W/m/K	0.23
CTE (x-y)	ASTM D 3386 (>RT - 100°C)	ppm/°C	15	ppm/°C	15
CTE (z)	ASTM D 3386 (>RT - 100°C)	ppm/°C	110	ppm/°C	110
Outgassing (% TML)	ASTM E 595	%	0.049	%	0.049
Outgassing (% CVCM)	ASTM E 595	%	0.024	%	0.024
Outgassing (% WVR)	ASTM E 595	%	0.032	%	0.032
Flammability Rating	UL 94		V-0		V-0

**Dk vs. Frequency**



**Df vs. Frequency**



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. Test data obtained using a 0.0600" sample.

# How To Order

Designation	Dielectric Constant	Typical Thicknesses <sup>1</sup>				Available Sheet Sizes <sup>2</sup>	
RF-35P	3.5 +/- 0.1	0.0020"	0.05 mm	0.0100"	0.25 mm	12" x 18"	304 mm x 457 mm
		0.0040"	0.10 mm	0.0140"	0.36 mm	16" x 18"	406 mm x 457 mm
		0.0060"	0.15 mm	0.0200"	0.51 mm	18" x 24"	457 mm x 610 mm
		0.0080"	0.20 mm	0.0300"	0.76 mm	16" x 36"	406 mm x 914 mm
						24" x 36"	610 mm x 914 mm

<sup>1</sup>Other thicknesses may be available. Please call for information.

<sup>2</sup>Our standard sheet size is 36" x 48" (457 mm x 610 mm). Please contact our customer service department for availability of other sizes.

Available Copper Cladding						
Designation	Weight	Copper Thickness		R <sub>MS</sub> Treated Side		Description
RH	1/2 oz / ft <sup>2</sup>	~0.0007"	~18 µm	16 µin	0.4 µm	Rolled annealed
R1	1 oz / ft <sup>2</sup>	~0.0014"	~35 µm	11 µin	0.3 µm	Rolled annealed
CLH	1/2 oz / ft <sup>2</sup>	~0.0007"	~18 µm	13 µin	0.3 µm	Reverse treated / Electrodeposited
CL1	1 oz / ft <sup>2</sup>	~0.0014"	~35 µm	13 µin	0.3 µm	Reverse treated / Electrodeposited
CVH	1/2 oz / ft <sup>2</sup>	~0.0007"	~18 µm	27 µin	0.7 µm	Very low profile / Electrodeposited
CV1	1 oz / ft <sup>2</sup>	~0.0014"	~35 µm	25 µin	0.6 µm	Very low profile / Electrodeposited
C2	2 oz / ft <sup>2</sup>	~0.0028"	~70 µm	77 µin	2.0 µm	Electrodeposited

Heavy metal claddings (aluminum, brass & copper) may also be available upon request. Please call for information.

An example of our part number is: **RF-35P-0100-CV1/CV1 - 18" x 24" (457 mm x 610 mm)**

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