

# ORCER RF-60A

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**RoHS and WEEE Compliant**  
**Exceptional Interlaminar Bonds**  
**Low Moisture Absorption**  
**Enhanced Dimensional Stability**  
**Low Z-Axis Expansion**  
**Stable Dk Over Frequency**  
**Increased Flexural Strength**

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**TACONIC**

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# APPLICATIONS

Power Amplifiers  
Filters and Couplers  
Passive Components  
Antennas

# RF-60A

RF-60A is an organic-ceramic laminate in the ORCER family of Taconic products. It is based on woven glass reinforcement. RF-60A is a result of Taconic's expertise in both ceramic fill technology and in coated PTFE fiberglass.

RF-60A exhibits exceptional interlaminar bond strength and solder resistance. RF-60A's proprietary composition results in low moisture absorption and uniform electrical properties.

RF-60A's woven glass reinforcement ensures excellent dimensional stability and enhances flexural strength. The RF-60A laminate exhibits low Z-axis expansion allowing for plated-through-hole reliability in extreme thermal environments.

RF-60A laminates are in complete compliance with RoHS and WEEE directives and are compatible with the temperatures required for the new lead free solders.

RF-60A laminates can be sheared, drilled, milled and plated using standard methods for PTFE-woven fiberglass materials.

RF-60A laminates are generally ordered clad on both sides. Various panel sizes are available. Contact our customer service department for more information.

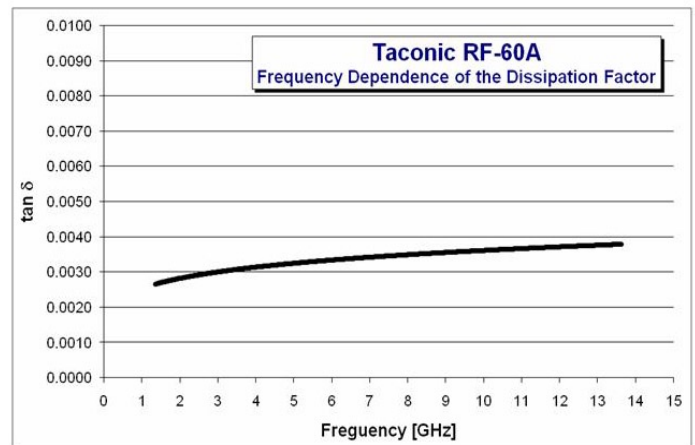
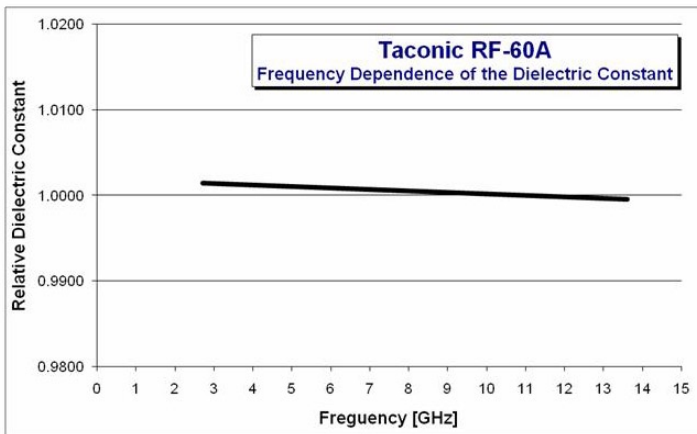
RF-60A laminates meet the requirements of IPC-4103 and are tested in accordance with IPC-TM 650. A certificate of compliance containing lot-specific test data accompanies each shipment.

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

## RF-60A Typical Values

Property	Test Method	Unit	Value	Unit	Value
Dielectric Constant	IPC-TM-650 2.5.5.6		6.15		6.15
Dissipation Factor @ 10 GHz	IPC-TM-650 2.5.5.5.1		0.0038		0.0038
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.02	%	0.02
Dielectric Breakdown	IPC-TM-650 2.5.6	kV	53	kV	53
Dielectric Strength	ASTM D 149	V/mil	880	V/mm	34,600
Volume Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm/cm	9.0 x 10 <sup>8</sup>	Mohm/cm	9.0 x 10 <sup>8</sup>
Surface Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm	2.28 x 10 <sup>8</sup>	Mohm	2.28 x 10 <sup>8</sup>
Arc Resistance	IPC-TM-650 2.5.1	Seconds	193	Seconds	193
Flexural Strength (MD)	ASTM D 790	kpsi	18.3	N/mm <sup>2</sup>	126
Flexural Strength (CD)	ASTM D 790	kpsi	14.6	N/mm <sup>2</sup>	101
Tensile Strength (MD)	ASTM D 3039	kpsi	19.5	N/mm <sup>2</sup>	134
Tensile Strength (CD)	ASTM D 3039	kpsi	16.3	N/mm <sup>2</sup>	112
Young's Modulus	ASTM D 3039	kpsi	1590	N/mm <sup>2</sup>	11,000
Poisson's Ratio	ASTM D 3039		0.068		0.068
Compressive Modulus	ASTM D 695 (23°C)	kpsi	338	N/mm <sup>2</sup>	2,330
Peel Strength (1 oz ED)	IPC-TM-650 2.4.8 Sec. 5.2.2 (Thermal Stress)	lbs/linear inch	8	N/mm	1.4
Dimensional Stability (MD)	IPC-TM-650 2.4.39 Sec. 5.4 (After Bake)	mils/in	0.68	mm/M	0.68
Dimensional Stability (CD)	IPC-TM-650 2.4.39 Sec. 5.4 (After Bake)	mils/in	1.05	mm/M	1.05
Density (Specific Gravity)		g/cm <sup>3</sup>	2.79	g/cm <sup>3</sup>	2.79
Thermal Conductivity	ASTM F 433	W/m/K	0.40	W/m/K	0.40
CTE (x)	ASTM D 3386 (-30°C - 125°C)	ppm/°C	9	ppm/°C	9
CTE (y)	ASTM D 3386 (-30°C - 125°C)	ppm/°C	8	ppm/°C	8
CTE (z)	ASTM D 3386 (-30°C - 125°C)	ppm/°C	69	ppm/°C	69
Outgassing (% TML)	ASTM E 595*	%	0.02	%	0.02
Outgassing (% CVCM)	ASTM E 595*	%	0.00	%	0.00
Outgassing (% WVR)	ASTM E 595*	%	0.01	%	0.01
Flammability Rating	UL 94		V-0		V-0

\*As reported by NASA. See [http://outgassing.nasa.gov/og\\_disclaimer.html](http://outgassing.nasa.gov/og_disclaimer.html).



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.

# How To Order

Designation	Dielectric Constant	Typical Thicknesses <sup>1</sup>	
RF-60A	6.15 +/- 0.25	0.0100"	0.25 mm
		0.0250"	0.64 mm
		0.0310"	0.79 mm
		0.0500"	1.27 mm
		0.0600"	1.52 mm
		0.1250"	3.18 mm

Available Sheet Sizes <sup>2</sup>	
12" x 18"	304 mm x 457 mm
16" x 18"	406 mm x 457 mm
18" x 24"	457 mm x 610 mm

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

<sup>2</sup>Our standard sheet size is 18" x 24" (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
CVH (CH)	1/2 oz / ft <sup>2</sup>	~0.0007"	~18 µm	27 µin	0.7 µm	Very low profile / Electrodeposited
CV1 (C1)	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-60A-0600-CV1/CV1 - 18" x 24" (457 mm x 610 mm)**

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