

# ORCER

# RF-30

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**Low Cost**  
**Excellent Peel Strength**  
**Exceptionally Low Dissipation Factor**  
**Excellent Intermodulation Performance**  
**Low Moisture Absorption**  
**Enhanced Surface Smoothness**

*RF-30 exceeds PIM requirements in PCBs of -153 dBc (measured between 880 and 960 MHz, between 1710 and 1880 MHz and between 1920 and 2170 MHz at 20 W power) with CL1/CL1 cladding when processed with today's state-of-the-art processes and process parameters.*

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## TACONIC

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# ORCER RF-30

RF-30 is an organic-ceramic laminate in the ORCER family of Taconic products. It combines the benefits of woven glass reinforced fluoropolymer chemistry with the thermal, mechanical and electrical enhancements of ceramic elements. RF-30 is the best value for the low cost, high performance demands of microwave and radio frequency antenna applications.

The low dissipation factor, thermal stability and smooth surface profile minimize phase shift with frequency and temperature, and yield exceptionally low intermodulation performance. RF-30 is ideally suited for long (up to 102") printed circuit base station antennas.

RF-30 has excellent peel strength for high temperature assembly and power handling requirements. RF-30 is dimensionally stable due to the use of woven fabrics in its design.

RF-30 laminates are generally ordered clad on both sides with 1 oz. electrodeposited copper.

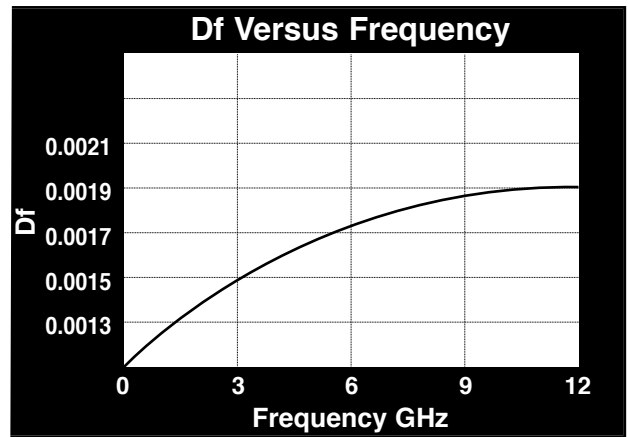
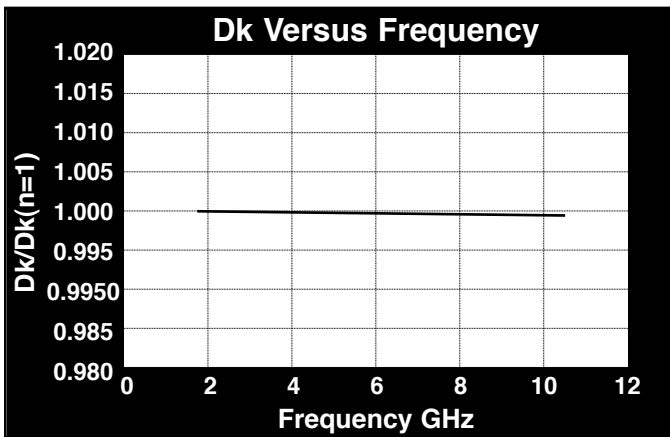
RF-30 laminates exhibit flammability of V-0 and are tested in accordance with IPC-TM 650. A certificate of conformance containing lot-specific data accompanies each shipment.

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

## RF-30 Typical Values

Property	Test Method	Unit	Value	Unit	Value
Dielectric Constant @ 1.9 GHz	IPC-TM-650 2.5.5		3.00		3.00
Dissipation Factor @ 1.9 GHz	IPC-TM-650 2.5.5		0.0014		0.0014
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.02	%	0.02
Dielectric Breakdown	IPC-TM-650 2.5.6	kV	>60	kV	>60
Volume Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm/cm	$1.26 \times 10^9$	Mohm/cm	$1.26 \times 10^9$
Surface Resistivity	IPC-TM-650 2.5.17.1 (Humidity Conditioning)	Mohm	$1.46 \times 10^8$	Mohm	$1.46 \times 10^8$
Arc Resistance	IPC-TM-650 2.5.1	Seconds	>180	Seconds	>180
Flexural Strength (MD)	ASTM D 790	psi	>13,000	N/mm <sup>2</sup>	>90
Flexural Strength (CD)	ASTM D 790	psi	>9,000	N/mm <sup>2</sup>	>62
Tensile Strength (MD)	ASTM D 638	psi	16,000	N/mm <sup>2</sup>	111
Tensile Strength (CD)	ASTM D 638	psi	8,000	N/mm <sup>2</sup>	55
Peel Strength (1 oz ED)	IPC-TM-650 2.4.8 (Thermal Stress)	lbs/linear inch	10.0	N/mm	1.8
Dimensional Stability (MD)	IPC-TM-650 2.4.39	in/in	0.00004	mm/mm	0.00004
Dimensional Stability (CD)	IPC-TM-650 2.4.39	in/in	-0.00010	mm/mm	-0.00010
Thermal Conductivity	ASTM F 433	W/m/K	0.23	W/m/K	0.23
CTE (x-y)	ASTM D 3386 (TMA)	ppm/°C	11-21	ppm/°C	11-21
CTE (z)	ASTM D 3386 (TMA, 25-100°C)	ppm/°C	125	ppm/°C	125
Outgassing (% TML)	ASTM E 595*	%	0.02	%	0.02
Outgassing (% CVCM)	ASTM E 595*	%	0.00	%	0.00
Outgassing (% WVR)	ASTM E 595*	%	0.02	%	0.02
Flammability Rating	UL 94		V-0		V-0
Hardness	Rockwell M Scale		34		34

\*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>		Available Sheet Sizes <sup>2</sup>	
RF-30	3.00 +/- 0.10	0.0100"	0.25 mm	12" x 18"	304 mm x 457 mm
		0.0200"	0.50 mm	16" x 18"	406 mm x 457 mm
		0.0300"	0.76 mm	18" x 24"	457 mm x 610 mm
		0.0600"	1.52 mm	16" x 36"	406 mm x 914 mm
				24" x 36"	610 mm x 914 mm
Long Laminates					
				36" x 60"	914 mm x 1526 mm
				36" x 76"	914 mm x 1930 mm
				36" x 102"	914 mm x 2590 mm

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

<sup>2</sup>Our standard sheet size is 36" x 48" (914 mm x 1220 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
CLH	1/2 oz / ft <sup>2</sup>	~0.0007"	~18 µm	18 µin	0.46 µm	Reverse treated / Electrodeposited
CL1	1 oz / ft <sup>2</sup>	~0.0014"	~35 µm	16 µin	0.41 µm	Reverse treated / Electrodeposited
CVH (CH)	1/2 oz / ft <sup>2</sup>	~0.0007"	~18 µm	19 µin	0.50 µm	Very low profile / Electrodeposited
CV1 (C1)	1 oz / ft <sup>2</sup>	~0.0014"	~35 µm	25 µin	0.64 µm	Very low profile / Electrodeposited
C2	2 oz / ft <sup>2</sup>	~0.0028"	~70 µm	27 µin	0.70 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-30-0600-CV1/CV1 - 18" x 24" (457 mm x 610 mm)**

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