

# ORCER CEr-10

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**Exceptional Interlaminar Bond**  
**Low Moisture Absorption**  
**Enhanced Dimensional Stability**  
**Low Z-Axis Expansion**  
**Stable DK over Frequency**  
**Circuit Miniaturization**  
**Increased Flexural Strength**

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**TACONIC**

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# APPLICATIONS

Power Amplifiers  
Filters and Couplers  
Passive Components

# ORCER CER-10

CER-10 is an organic-ceramic DK-10 laminate in the ORCER family of Taconic products. It is based on a woven glass reinforcement. CER-10 is a result of Taconic's expertise in both ceramic fill technology and in coated PTFE fiberglass.

CER-10 exhibits exceptional interlaminar bond strength and solder resistance. CER-10's proprietary composition results in low moisture absorption and uniform electrical properties.

CER-10's woven glass reinforcement ensures excellent dimensional stability and enhances flexural strength. This DK-10 laminate exhibits low Z-axis expansion (CTE 46 ppm/°C), allowing for plated-through-hole reliability in extreme thermal environments.

CER-10 laminates can be sheared, drilled, milled and plated, using standard methods for PTFE/woven fiberglass materials.

CER-10 laminates are generally ordered clad on both sides with 1/2, 1 or 2 oz. electrodeposited copper.

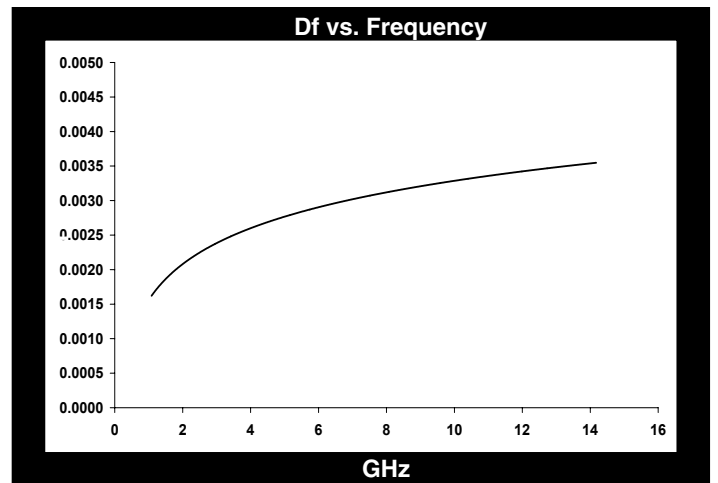
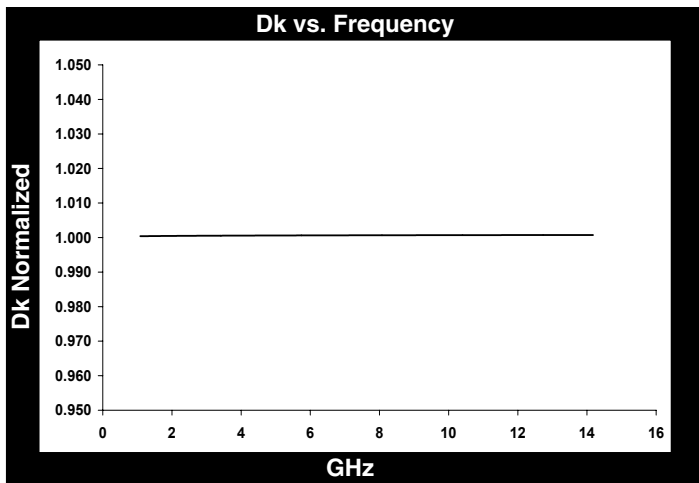
CER-10 laminates exhibit flammability of V-0 and are tested in accordance with IPC-TM 650. A certificate of conformance containing lot-specific data accompanies each shipment.

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

## Cεr-10 Typical Values

Property	Test Method	Unit	Value	Unit	Value
Dielectric Constant (Nominal)	IPC-TM-650 2.5.5.6		10.0		10.0
Dissipation Factor 10 GHz	IPC-TM-650 2.5.5.5.1		0.0035		0.0035
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.02	%	0.02
Dielectric Breakdown	IPC-TM-650 2.5.6	kV	44	kV	44
Volume Resistivity	IPC-TM-650 2.5.17.1	Mohm/cm	2.1 x 10 <sup>8</sup>	Mohm/cm	2.1 x 10 <sup>8</sup>
Surface Resistivity	IPC-TM-650 2.5.17.1	Mohm	1.1 x 10 <sup>9</sup>	Mohm	1.1 x 10 <sup>9</sup>
Arc Resistance	IPC-TM-650 2.5.1	Seconds	>180	Seconds	>180
Flexural Strength (MD)	ASTM D 790	psi	16,500	N/mm <sup>2</sup>	114
Flexural Strength (CD)	ASTM D 790	psi	15,500	N/mm <sup>2</sup>	107
Tensile Strength (MD)	ASTM D 638	psi	7,700	N/mm <sup>2</sup>	53
Tensile Strength (CD)	ASTM D 3039	psi	6,700	N/mm <sup>2</sup>	46
Peel Strength (1 oz. ED)	IPC-TM-650 2.4.8	lbs/linear inch	9	N/mm	1.61
Dimensional Stability (MD)	IPC-TM-650 2.4.39	in/in	-0.0002	mm/mm	-0.0002
Dimensional Stability (CD)	IPC-TM-650 2.4.39	in/in	-0.0003	mm/mm	-0.0003
Density (Specific Gravity)		g/cm <sup>3</sup>	3.05	g/cm <sup>3</sup>	3.05
Thermal Conductivity	ASTM F 433	W/m/K	0.63	W/m/K	0.63
CTE (x-y)	ASTM D 3386 (TMA)	ppm/°C	13-15	ppm/°C	13-15
CTE (z)	ASTM D 3386 (TMA)	ppm/°C	46	ppm/°C	46
Outgassing (% TML)*	ASTM E 595*	%	0.02	%	0.02
Outgassing (% CVCM)*	ASTM E 595*	%	0.01	%	0.01
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	Typical Thicknesses <sup>1</sup>		DK	Typical Thicknesses		DK
Cer-10	0.0250"	0.64 mm	9.50 +/- 0.50	0.0620"	1.58 mm	10.0 +/- 0.50
	0.0300"	0.76 mm	9.70 +/- 0.50	0.0750"	1.91 mm	10.0 +/- 0.50
	0.0470"	1.19 mm	9.80 +/- 0.50	0.1000"	2.54 mm	10.0 +/- 0.50
	0.0500"	1.27 mm	9.80 +/- 0.50	0.1250"	3.18 mm	10.2 +/- 0.50

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
CL1	1 oz / ft <sup>2</sup>	~0.0014	~35 μm	13 μin	0.3 μm	Reverse treated / Electrodeposited
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: **Cer-10-0500-CV1/CV1 - 18" x 24" (457 mm x 610 mm)**

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