

NANOPLEX LDF



DATA SHEET | 

PEAK NANOPLEX™
LDF HIGH-TEMPERATURE
CAPACITOR FILMS



UP
TO **5x**
LONGER
CAPACITOR
LIFECYCLES

NANOPLEX LDF FACTS

- UP TO 5X LONGER CAPACITOR LIFECYCLES
- RATED UP TO 135 CELCIUS
- U.S. MANUFACTURING
- OVER 20 GLOBAL PATENTS



NANOPLEX™ LDF X-3000 CAPACITOR FILM

Superior High Temperature Performance

NanoPlex LDF X-3000 is an experimental development grade capacitor film designed to offer low dissipation factor performance similar to Biaxially Oriented Polypropylene (BOPP), but with an operational temperature rating 25 to 35 degrees Celcius higher. LDF X-3000 is designed with facile film handling in mind, resulting in a product that can be metallized and wound in an equivalent manner to BOPP. The higher temperature stability projects to longer operational lifetime devices than BOPP-based capacitors.

Peak Nano is currently scaling LDF X-3000 film production and processing to afford large volume production in 2025. Customer samples will be available in Q4 2024.

Peak is the Global Leader in Nanolayered Metamaterials

Peak is a leading provider of nanolayered metamaterials. Our patented NanoPlex metamaterials are engineered and manufactured in the United States. NanoPlex enables researchers and engineers to reimagine how we solve some of the biggest problems in the world. NanoPlex has been tested up to 4096 layers, allowing us to create new science and invent new solutions with our researchers, engineers, and partners.

NanoPlex LDF X-3000 Specifications

PROPERTY	METHOD	UNITS	VALUE
Dielectric Constant @ 25°C	ASTM D150	1 kHz, 25°C	2.5
Dissipation Factor @ 25°C	ASTM D150	in % at 1 kHz	0.04
Dissipation Factor @ 135°C	ASTM D150	in % at 1 kHz	0.07
Breakdown Strength @ 25°C	ASTM D149	kV/mm	700
Breakdown Strength @ 135°C	ASTM D149	kV/mm	670
Shrinkage MD/TD	JIS K7133	% at 130°C	<0.1/<0.1
Shrinkage MD/TD	JIS K7133	% at 150°C	0.11/0.06
Tensile Strength, MD/TD	ASTM D638	MPa	63/33
Young's Modulus MD/TD	ASTM D638	MPa	2300/2100
Elongation at Break MD/TD	ASTM D638	%	530/250
Coefficient of Friction (Static)	JIS K7125	roll face to air face	0.47
Coefficient of Friction (Dynamic)	JIS K7125	roll face to air face	0.38