



Kaladex[®] PEN HV

the High Temperature Dielectric Film for Power Capacitors



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The new high temperature film dielectric aimed at capacitors used in power conversion systems for transportation, automotive, industrial and lighting



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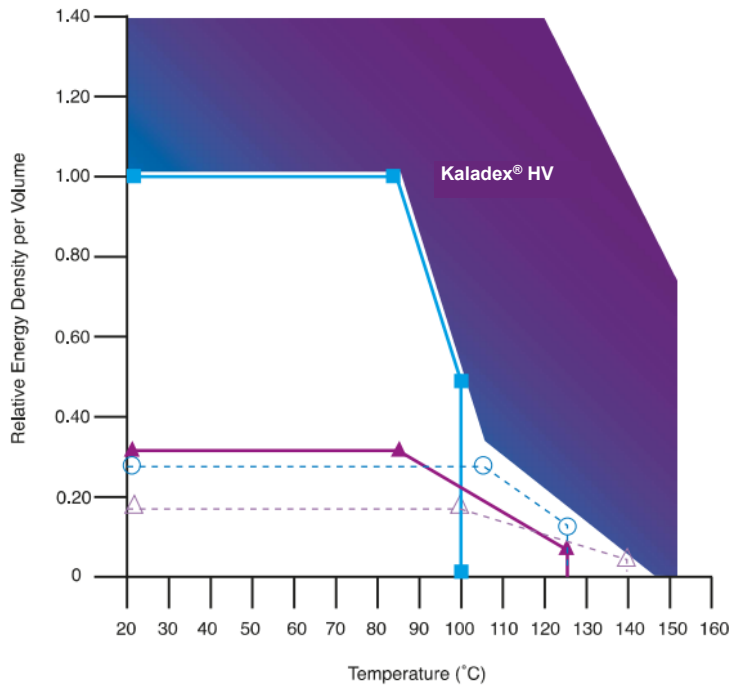
PEN HV offers the high temperature capability of Mylar Specialty Films existing PEN films range for capacitors but operates at significantly higher operating voltage. This makes it suitable for use in power capacitors in general and in particular those applications where a high temperature operating range of up to 150 °C is important.

The energy density of a dielectric indicates how much energy the capacitor dielectric can store within a defined volume (or weight) and is dependant on the film's physical parameters such as break-down voltage and dielectric constant. Capacitors using PEN HV as dielectric have the highest energy density per volume and weight over the entire temperature range from -55 to 150 °C.

The PEN HV characteristics will allow the most compact capacitor design in power applications, especially when they have to operate at highest temperatures. Metallised PEN HV fim capacitors exhibit self healing properties required in power applications.

Energy Density per Volume of Kaladex® HV

The graph shows typical relative energy density for capacitors made from different dielectric materials. Actual values may vary depending on the capacitor design and construction. Customers are advised to check actual values with the capacitor manufacturer before use.



Key



Property	Test Method	Units	4HV	3HV	2.8HV	2.5HV
Film Thickness	Unit weight	Micron	4	3	2.8	2.5
Modulus MD	ASTM D-882	N/mm ²	4400	4400	4400	4400
Modulus TD			5000	5000	5000	5000
Tensile Strength MD	ASTM D-882	N/mm ²	180	180	180	180
Tensile Strength TD			200	200	200	200
Elongation MD	ASTM D-882	%	85	85	85	85
Elongation TD			50	50	50	50
Shrinkage MD	150°C, 30 min	%	1.5	1.5	1.5	1.5
Shrinkage TD			0.5	0.5	0.5	0.5
Shrinkage MD	200°C, 30 min	%	4.5	4.5	4.5	4.5
Shrinkage TD			2.5	2.5	2.5	2.5
Surface Roughness Ra	Profilometer	nm	70	70	70	70
Surface Roughness Rt			750	750	750	750
Dielectric Constant, 1kHz	JIS C-2318, 1kHz, 25°C	(-)	2.95	2.95	2.95	2.95
Dissipation Factor, 1kHz		%	0.35	0.35	0.35	0.35
Dielectric Strength	25 mm ² electrode	V	1750	1200	1120	1000
		25°C ⁽²⁾	V/micron	450	400	400
Melting Point	DCS	°C	263	263	263	263

(1) Mylar Specialty Films method - metallised film sheet, typical average value

(2) Mylar Specialty Films method - aluminium sheet electrodes - 25mm²



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