Mylar® Specialty Films

Kaladex® PEN HV

the High Temperature Dielectric Film for Power Capacitors

Kaladex® PEN HV

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

Kaladex® PEN HV

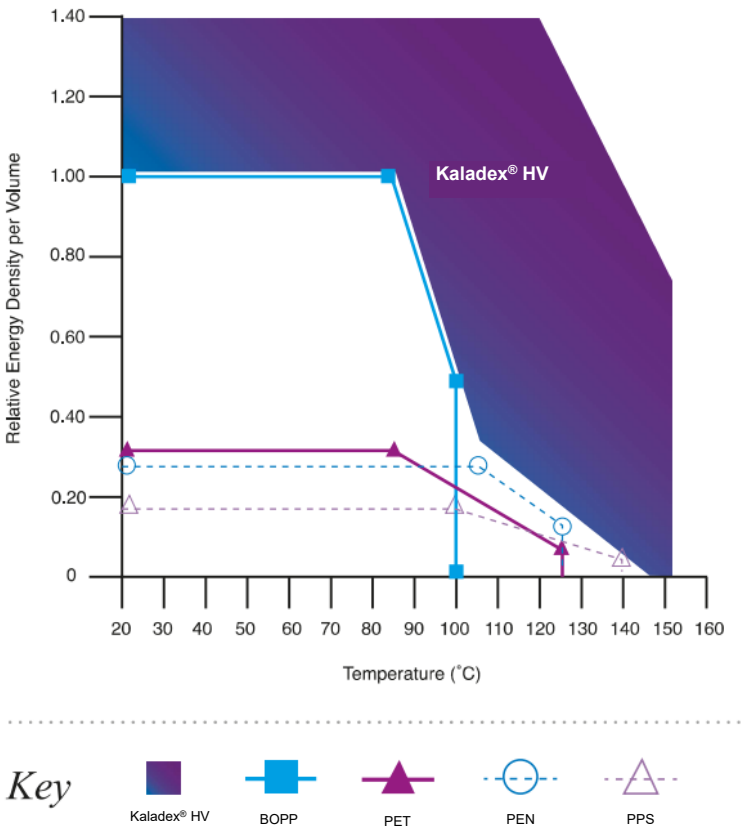
PEN HV offers the high temperature capability of Mylar Specialty Films existing PEN films range for capacitors but operates at significantly higher operating voltage. This makes it suitable for use in power capacitors in general and in particular those applications where a high temperature operating range of up to 150 ºC 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. Capactiors using PEN HV as dielectric have the highest energy density per volume and weight over the entire temperature range from -55 to 150 ºC.

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.



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

(1) Mylar Specialty Films method - metallised film sheet, typical average value
(2) Mylar Specialty Films method - alumnium sheet electrodes - $25mm^2$

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