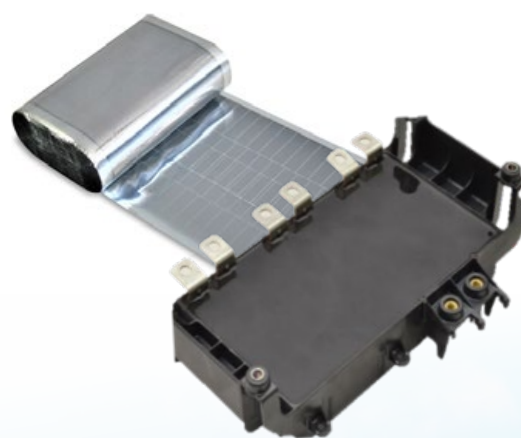


# HOTTER TEMPERATURES HIGHER EFFICIENCY LOWER LOSSES

## GET MORE WITH ELCRES™ HTV150A DIELECTRIC FILMS FOR CAPACITORS AT 150°C

SABIC's ELCRES™ HTV150 dielectric film offers high temperature solutions for professional grade DC-Link power capacitors, addressing future high voltage industry requirements. ELCRES™ HTV150 dielectric film exhibits stable performance at -40°C to +150°C and frequency up to 100 kHz, including stable capacitance, good insulation resistance, stable dielectric constant (Dk) and low dissipation factor (Df). SABIC's HTV150 dielectric film has been validated by customers with both film-foil and metalized electrodes, including flat aluminum, heavy edge/light body and fused/patterned electrode designs. ELCRES™ HTV150 dielectric film can be processed on existing metallization, slitting, capacitor winding and squashing/flattening equipment. Capacitors made with HTV150A films meet damp heat aging requirements (85°C & 85%RH for 1000 hours) with little or no change in dielectric performance.



### KEY FEATURES & BENEFITS

- High Dk and low Df up to 150°C and 100 kHz
- High breakdown strength from -40°C to 150°C
- Good self-healing up to 150°C
- Excellent metal adhesion (Al, Zn)
- Decreasing dielectric losses at higher temperatures
- 3 and 5 µm gauge (+/- 5% gauge uniformity)
- Empowers wide-band-gap (WBG) semiconductors

### POTENTIAL APPLICATIONS

- xEV traction inverter
- xEV on board charger
- xEV electrical compressor
- Renewable energy
- Mass transportation
- Motor drive and control
- Deep well drilling

MEETS 85°C  
AT 85% RH  
REQUIREMENT



## TYPICAL PROPERTIES\*

		Test method	Unit	Value (5µm)	Value (3µm)
Electrical	Breakdown Strength (BDS) 23°C	ASTM D149	V/µm	765	
	Breakdown Strength (BDS) 150°C	ASTM D149	V/µm	725	
	Dielectric Constant (Dk) at 27°C, 1 kHz (metallized film)	ASTM D150		2.9	
	Dissipation Factor (Df) at 27°C, 1 kHz (metallized film)	ASTM D150		0.0017	
	Clearing Counts @ 200 V/µm	Bosch Test	Counts/m <sup>2</sup>	1.5	--
	Clearing Counts @ 250 V/µm	Bosch Test	Counts/m <sup>2</sup>	2.5	--
Thermal	Clearing Counts @ 300 V/µm	Bosch Test	Counts/m <sup>2</sup>	5.5	--
	Shrinkage at 170°C/0.5 hours (MD/TD)	JIS K7133	%	-0.34 / -0.25	-0.50 / -0.24
	Glass Transition Temperature (Tg)	ASTM D3418	°C	206	206
	Density	ASTM D792	g/cm <sup>3</sup>	1.12	1.12
	Water Absorption, Equilibrium at 23°C, 24 hours	ASTM D570	%	0.30	0.30
Mechanical	Surface Roughness	JIS B0601	µm	0.24	0.22
	Coefficient of Friction (COF) -Dynamic - Metal/Bare film	JIS K7125		0.44	0.51
	Tensile Strength at Break (MD/TD)	JIS Z1702	MPa	66/64	65/60
	Tensile Elongation at Break (MD)	JIS Z1702	%	39	22
	Tear Strength (MD/TD)	JIS K6781	N/mm	100 / 97	83 / 83

\*These are typical properties and are not intended for specification purposes. BDS and COF values are based on 5 µm thickness.

## PROPERTY COMPARISON

	BOPP	PET	PEN	PPS	PC	ELCRESTM <sup>TM</sup> HTV150 Film
Intrinsic BDS 23°C (V/µm)	690	800	660	530	660	850
Intrinsic BDS 150°C (V/µm)	NA	NA	NA	465	NA	700
Dk at 1 kHz	2.2	3.3	3.0	3.0	2.7	2.9
Df at 1 kHz	0.0007	0.0040	0.0040	0.0005	0.0022	0.0017
Temperature Range (°C)	-40 to +105	-40 to +125	-40 to +140	-40 to +150	-40 to +125	-40 to +150
Self-Healing 23°C	...	•	•	•	••	••
Self-Healing 150°C	•	•	•	•	•	••
Metallization	REQUIRES PLASMA	••	••	•	••	••
Solder Reflow Capable	NO	NO	YES	YES	NO	Not Tested
Available Thickness* (µm)	>2.0	>0.5	>1.2	>1.2	>2.0	3 and 5
Cost	•••	••	•	•	•	•
Certainty of Supply	•••	•••	•	•	•	•••
Overall Performance at 150°C	•	•	•	•	•	••

••• Excellent •• Good • Moderate • Poor • None

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