

High Voltage Ceramic Capacitors



HD/HE Types - Type II (N)

FEATURES

- Disc capacitor, type II
- Excellent capacitance vs voltage characteristic
- Low dissipation factor
- Good behavior on frequency
- Two available versions:
 - HD: Molded type with connections
 - HE: Uncoated type without connections (silvered ceramic)

APPLICATIONS

- AC voltage dividers at industrial frequency
- High frequency decoupling
- Other special applications

REFERENCES - VOLTAGE AND CAPACITANCE RANGE

Style	Reference	C _R (pF)	V _R (kVc-)	V _E (kVc-)	Dimensions millimeters (inches)						Torque S (m.daN)	Weight (g)	
					D	L	h	∅	d	p			e
	HD 30 0X 0251S--	250	15	20	26.5 (1.043)	33 (1.300)	16 (0.630)	8 (0.315)	5 (0.197)	9 (0.354)	7 (0.276)	0.3	30
	HD 30 0X 0501S--	500	15	20	26.5 (1.043)	33 (1.300)	16 (0.630)	8 (0.315)	5 (0.197)	9 (0.354)	7 (0.276)	0.3	30
	HD 40 0X 0102S--	1000	15	20	39.5 (1.555)	33 (1.300)	16 (0.630)	8 (0.315)	5 (0.197)	9 (0.354)	7 (0.276)	0.3	60
	HD 60 0Y 0202S--	2000	20	30	56.5 (2.224)	45 (1.772)	21 (0.827)	12 (0.472)	8 (0.315)	11 (0.433)	10 (0.394)	1	160
	HD 60 0X 0302S--	3000	15	20		40 (1.575)	19 (0.748)						135
Important: HD type In order to improve capacitor mounting, connections ends are designed with two flats. Thus, tightening torque is only applied on the screw (consult chart above for torque "S" value).		Hardware supplied for capacitor mounting 2 x screws TCB M5 L8 or TCB M8 L12 2 x washers according to ∅											
	HB 30 0X 0251S--	250	15	20	12 (0.472)	—	8 (0.315)						
	HB 30 0X 0501S--	500	15	20	17 (0.669)	—	9 (0.354)						
	HB 40 0X 0102S--	1000	15	20	26 (1.024)	—	9 (0.354)						
	HB 60 0Y 0202S--	2000	20	30	42 (1.654)	—	12 (0.472)						
	HB 60 0X 0302S--	3000	15	20	42 (1.654)	—	9 (0.354)						
Important: HE type Handling of uncoated types must be done under strict cleanliness conditions.													

MARKING

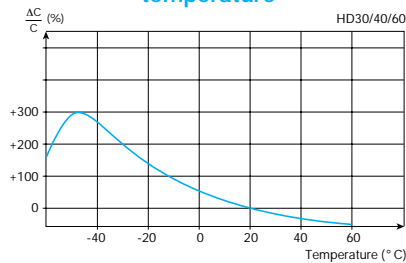
- TPC - Reference (HTD)
- Capacitance
- Rated voltage

ELECTRICAL CHARACTERISTICS

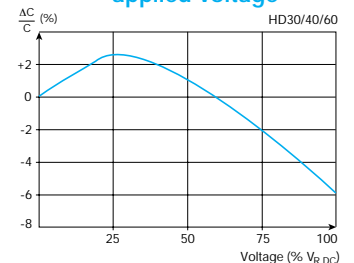
• Operating temperature range	-30 +85°C (+125°C: consult us)
• Rated voltage (V _{rms} /50 Hz)	15 kV or 20 kV
• Test voltage (V _{rms} /50 Hz)	20 kV or 30 kV
• Capacitance range	250 to 3000pF
• Capacitance tolerance	-20 +50% (S)
• Dissipation factor	tg δ ≤ 20.10 ⁻⁴
• Self-inductance	L ≤ 30 nH
• Main parameters change vs applied voltage, temperature and frequency	See typical curves

TYPICAL CURVES

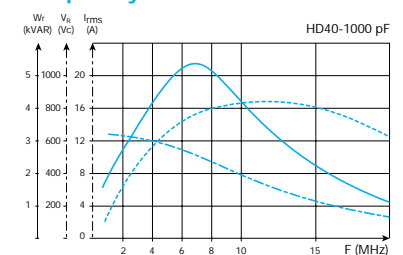
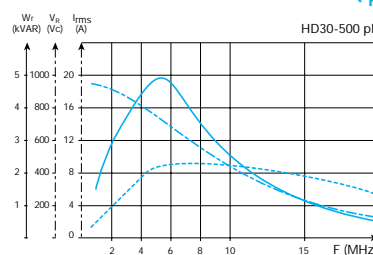
Capacitance change vs temperature



Capacitance change vs applied voltage



Maximum reactive power (W_R), voltage (V_R), current (I_{RMS}) vs frequency



High Voltage Ceramic Capacitors



Custom Designed Live-Line Dividers

APPLICATIONS

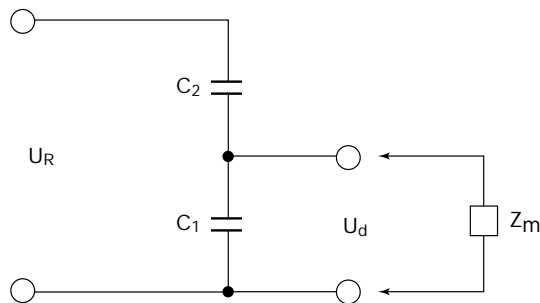
TPC is able to study and design live-line dividers to customers specifications, up to 150 KV_{rms}.

They can be used for:

- voltage presence indication
- voltage presence alarm
- voltage measurement

PRINCIPLE OF USE

- Using the following equivalent circuit



with:

- V_R : rated voltage of the line
- V_d : low voltage output
- C_1 : low voltage / high value capacitor
- C_2 : high voltage / low value capacitor
- Z_m : measuring impedance
- Z_t : impedance of C_1 at 50/60 Hz

the low voltage output is obtained by

$$V_d = \left(\frac{C_2}{C_1 + C_2} \right) V_R$$

the ratio $\frac{C_2}{C_1 + C_2}$ being adjusted to the expected value.

- For measurement application, the measurement impedance Z_m must be larger than at least 10 times Z_t in order not to affect the dividing ratio where:

$$Z_t = \frac{1}{\left(\frac{C_1 \cdot C_2}{C_1 + C_2} \right) \omega}$$

FEATURES

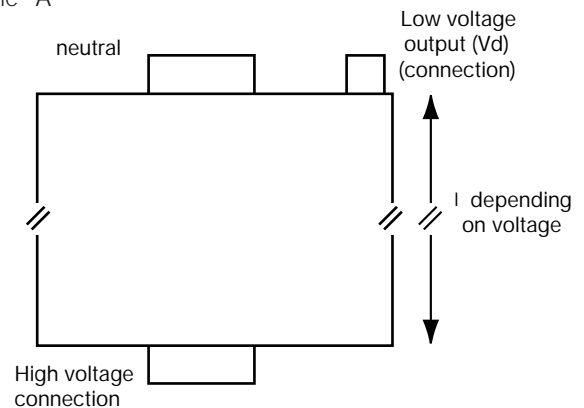
The high and low voltage elements can be supplied either separately or in the same molding.

The capacitor divider ratio can be adjusted between 1/200 and 1/10 together with a tolerance that can be as tight as 2%.

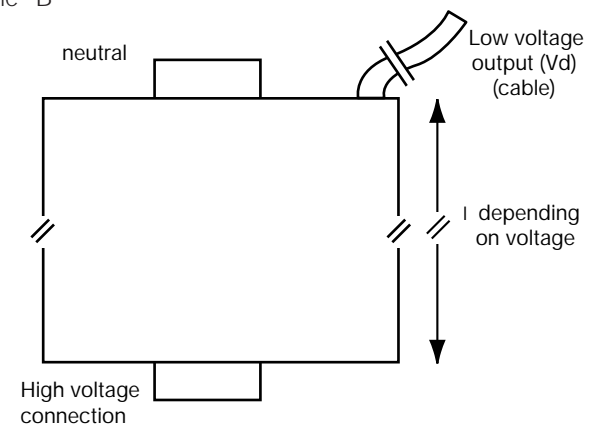
The products can be developed for rated line voltage from 10kV up to 150 KV_{rms}.

TYPICAL EXAMPLES

- Style "A"



- Style "B"



For dimensions, capacitances, voltages, ratio, please consult your local sales office.