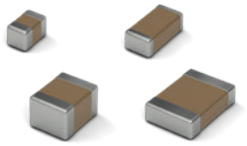
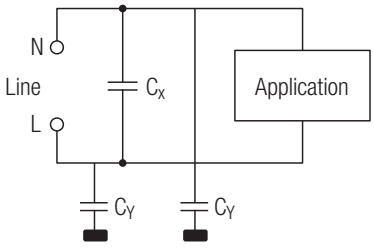
Capacitors for Interference Suppression X1/Y2, X2 MLCCs and X2 Film Capacitors

WCAP-FTX2 and WCAP-FTXX are X2 Film capacitors manufactured as metallized polypropylene (MKP) capacitors. WCAP-CSSA consists of X1/Y2 and X2 chip monolithic ceramic capacitors created with multilayer technology. All three series are used as filters in power supplies to suppress interferences.

	MLCCs – Ceramic Capacitors	Film Capacitors
		
Available series:	WCAP-CSSA	WCAP-FTX2 WCAP-FTXX
Safety class:	X1/Y2, X2	X2
Type:	SMT 1808, 1812, 2211, 2220	THT boxed
Rated Voltage:	250 V_{AC}	275 V_{AC}, 310 V_{AC}
Dielectric:	NP0, X7R	Polypropylene (PP)
Capacitance Range:	33 pF – 4.7 nF	5.6 nF – 6.8 µF
Approvals:	TUV (EN 60384-14), file numbers: R 50268363 & R 50376984 cULus, file numbers: E331896 & E345659	ENEC 10 by VDE, file number: 40038405 cULus, file number: E345659 CQC, file number: 13001104051

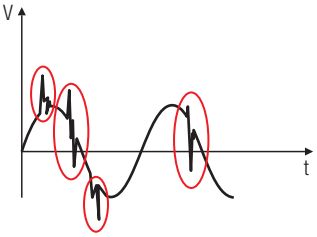
Application of X and Y Capacitors:

To filter possible spikes X capacitors (Cx) are used in parallel to the voltage source between the power lines whereas Y capacitors (Cy) are set between power line and ground.

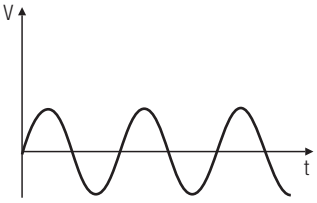


Function of X and Y Capacitors:

Voltage curve before filtering:
→ ripple on AC signal



Voltage curve after filtering:
→ grading of ripple on AC signal



Classification according to IEC 60384-14: 2013

Safety Class	Peak impulse voltage in use	Application	Peak impulse voltage applied before endurance test
X1	> 2.5 kV ≤ 4 kV	High pulse application	4 kV (C≤1 µF), $U_P = \frac{4\ kV}{\sqrt{\frac{C_N(C>1\ \mu F)}{10^{-6}\ F}}}$
X2	≤ 2.5 kV	General Purpose	2.5 kV (C≤1 µF), $U_P = \frac{2.5\ kV}{\sqrt{\frac{C_N(C>1\ \mu F)}{10^{-6}\ F}}}$

Safety Class	Type of bridged insulation	Range of rated voltages	Peak impulse voltage applied before endurance test
Y1	Double or reinforced	≤ 500 V	8 kV
Y2	Basic or supplemental	≥ 150 V ≤ 500 V	5 kV (C≤1 µF), $U_P = \frac{5\ kV}{\sqrt{\frac{C_N(C>1\ \mu F)}{10^{-6}\ F}}}$