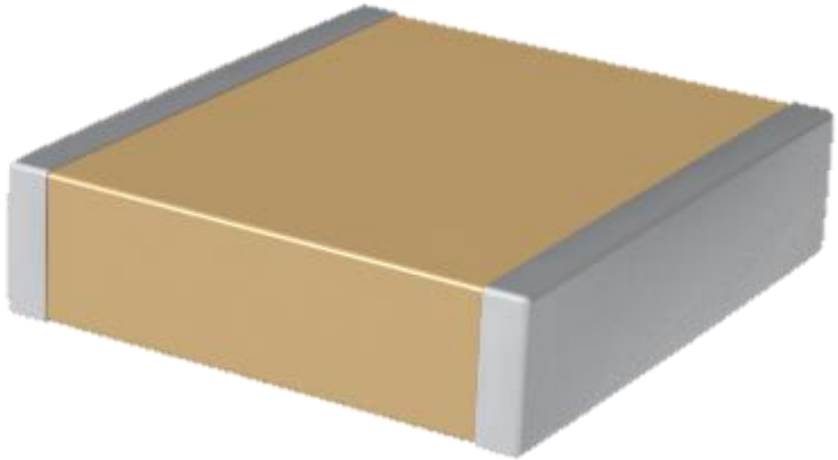
YAGEO Group

YAGEO MLCC

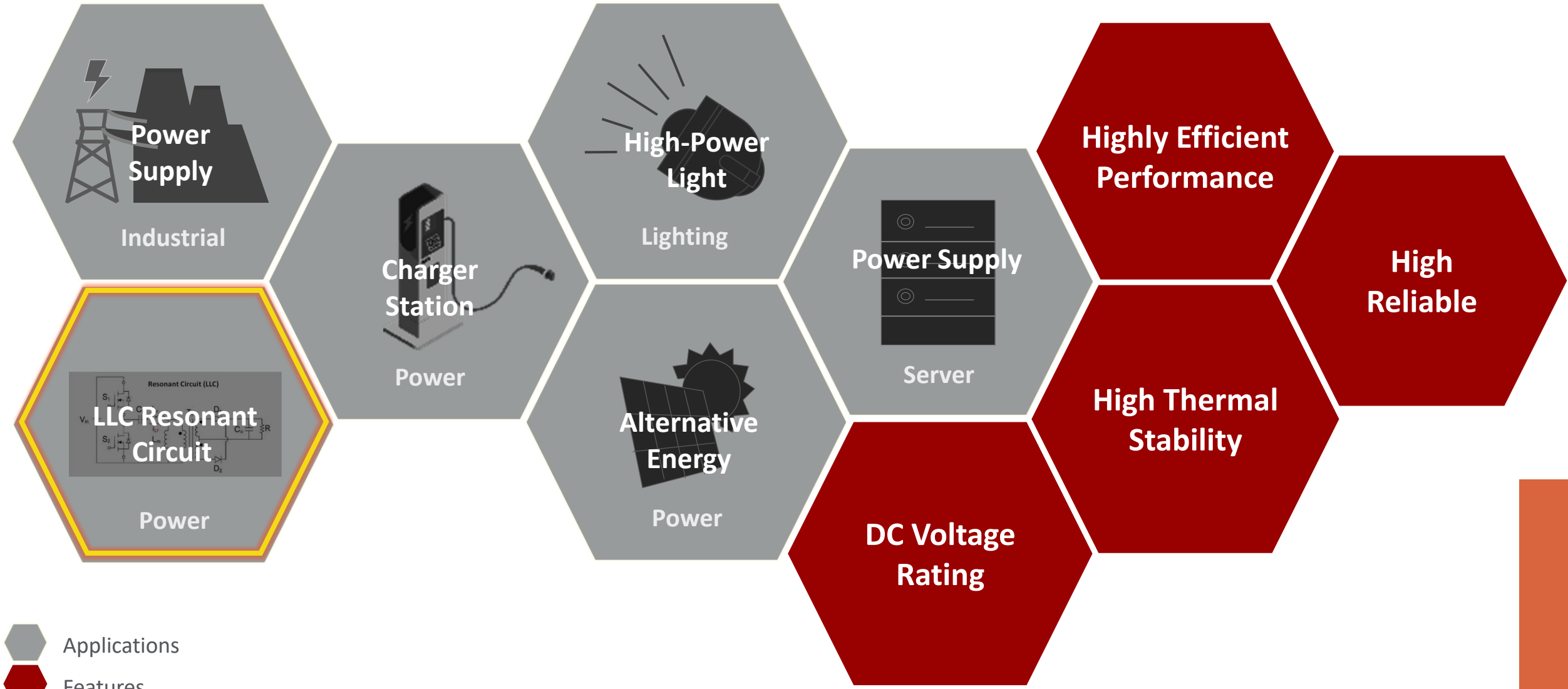
Product Marketing

March 18th, 2024

HV NPO Capacitors - CC Series



Why High Voltage NPO MLCC? - CC Series



Commercial Grade 1206, NPO Dielectric High Voltage 630V, 2.7nF ~ 10nF

Overview

Introducing our new MLCC designed for LLC Resonant Circuit used in industrial power management and EV fast charging stations. This advanced technology offers reliable and efficient performance, making it an ideal solution for high-power applications. Whether you need to manage power in an industrial setting or provide fast and reliable charging for electric vehicles, our MLCC guarantee to deliver exceptional results.

Benefits

- DC voltage rating of 630V
- High thermal stability
- Capacitance offerings ranging from 2.7 nF up to 10 nF
- Operating temperature range of −55°C to +155°C
- Halogen Free and RoHS compliant

Applications

- Power supply and transmission
- EV charger
- Industrial controls & drives
- Lighting
- Alternative energy

Commercial Grade 1206, NPO Dielectric High Voltage 630V, 2.7nF ~ 10nF

Ordering Information

Part Number	Recommended Stocking Quantity	Production Lead Time	Single Datasheet
CC1206JKNPOZBN272		90 Days	Link
CC1206JKNPOZBN392		90 Days	Link
CC1206JKNPOZBN472		90 Days	Link
CC1206JKNPOZBN103		90 Days	Link
CC1206JKNPOZBN682		90 Days	Link
CC1206JKNPOZBN562		90 Days	Link
CC1206JKNPOZBN822		90 Days	Link

Resources

Resource	Type	Link
YAGEO NPO High Voltage Landing Page	Web page	Link
Downloadable S-Parameters	Zip Files	
Launch Information (Product Brief, Sales Presentation, Disty Spreadsheet)	MLCC Product Marketing SharePoint Site	Link
FAQ	FAQ	Link

Distribution Inventory Available:

MOUSER ELECTRONICS

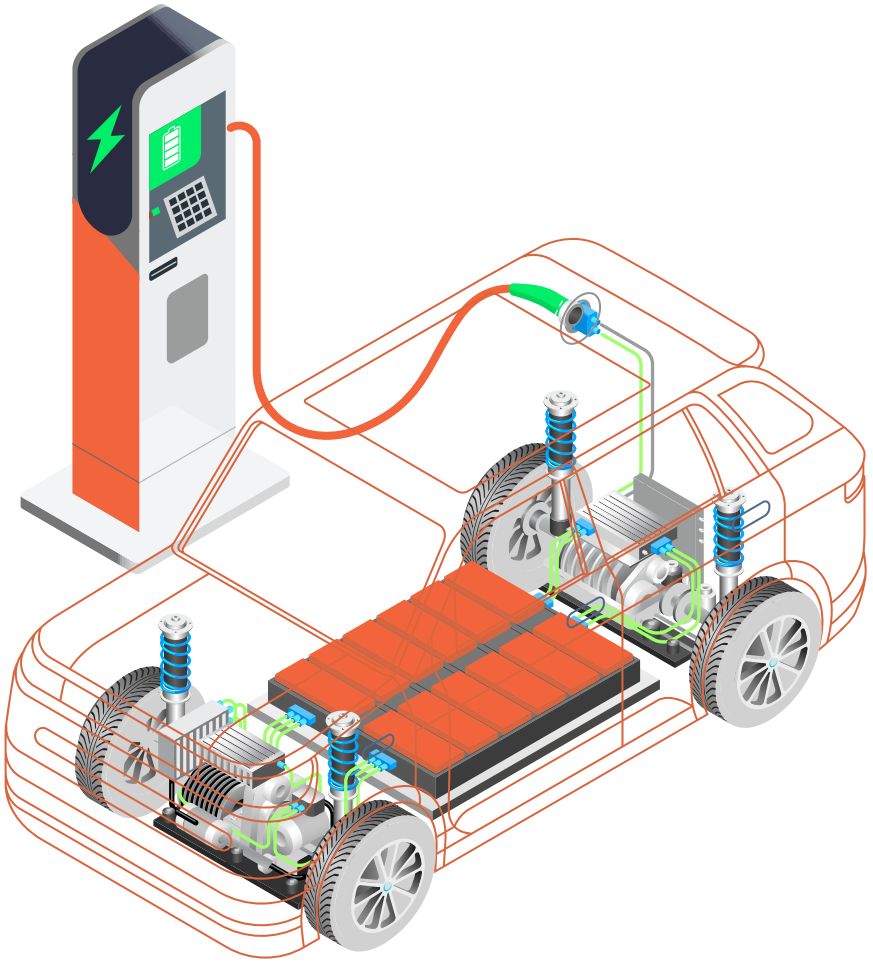
Digi-Key CORPORATION

Design Trends

- Energy efficiency
- Reliable and efficient performance in harsh environment
- Low dissipation for high power

High Cap NPO MLCC can

- ✓ DC voltage rating of 630V
- ✓ High thermal stability
- ✓ Capacitance offerings ranging from 2.7nF up to 33nF
- ✓ Operating temperature range of −55°C to +155°C



Commercial Grade 1206 / 1210 NPO Dielectric High Voltage 630V & 1KV, 2.7nF ~ 33nF

Competitors' Product Range (for reference)

- Sample is available
- Lead Time 90 days

Supplier	Series	Size = 1206 / Voltage = 630V					
		2.7nF 272	3.3nF 332	4.7nF 472	5.6nF 562	6.8nF 682	10nF 103
YAGEO	CC	**CC1206JKNPOZBN272**	**CC1206JKNPOZBN332**	**CC1206JKNPOZBN472**	**CC1206JKNPOZBN562**	**CC1206JKNPOZBN682**	**CC1206JKNPOZBN103**
Murata	GRM	GRM31B5C2J272JWA1	GRM31C5C2J332JWA3	GRM31C5C2J472JWA3	GRM31C5C2J562JWA3	GRM31C5C2J682JWA3	GRM31C5C2J103JWA3
TDK	C	C3216C0G2J272J160AA	C3216C0G2J332J160AA	C3216C0G2J472J085AA	C3216C0G2J562J115AA	C3216C0G2J682J115AA	C3216C0G2J103J160AA
Semco	CL	CL31C272JHHNNN	CL31C332JHHNFN / NN				
HEC	MVC	C1206N272J631T	C1206N332J631T	C1206N472J631T			

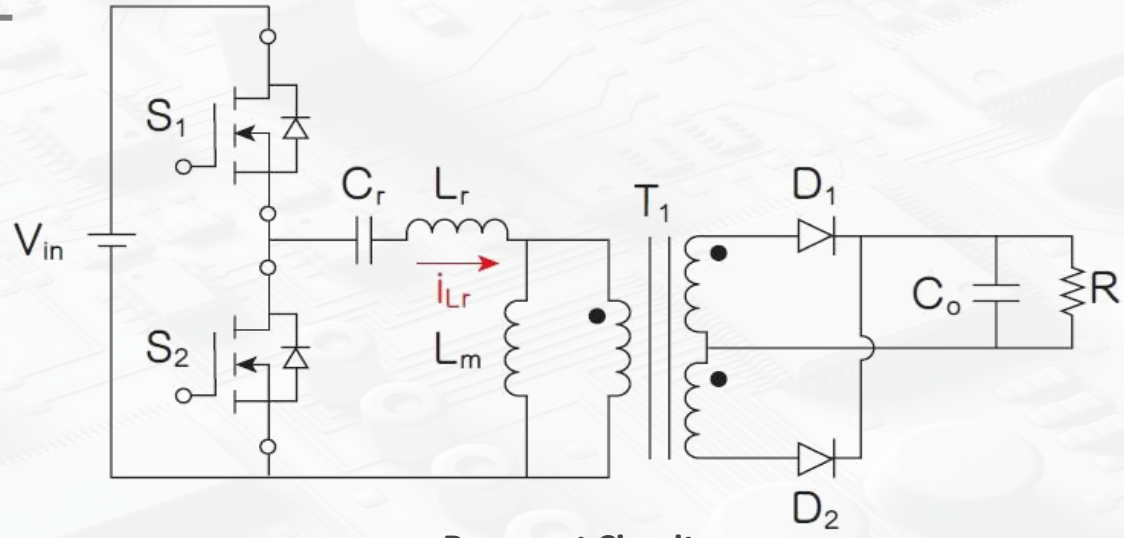
Supplier	Series	Size = 1210 / Voltage = 630V		
		10nF 103	22nF 223	33nF 333
YAGEO	CC	**CC1210JKNPOZBN103**	**CC1210JKNPOZBN223**	**CC1210JKNPOZBN333**
Murata	GRM	GRM31C5C2J103JWA3	GRM32E5C2J223JWA3	GRM32E5C2J333JWAA
TDK	C	C3225C0G2J103J125AA	C3225C0G2J223J230AA	C3225C0G2J333J250AA

Supplier	Series	Size = 1210 / Voltage = 1KV	
		10nF 103	22nF 223
YAGEO	CC	**CC1210JKNPOCBN103**	**CC1210JKNPOCBN223**
Murata	GRM	GRM32E5C3A103JWA1	GRM32E5C3A223JWAA
TDK	C	C3225C0G3A103J250AC	C3225C0G3A223J250AC

FAQ #1 What is LLC circuit doing?

LLC is a resonant circuit that achieves a stable output voltage by controlling the switching frequency (frequency regulation).

The LLC resonant converter provides good conversion efficiency and can successfully reduce the switching loss.



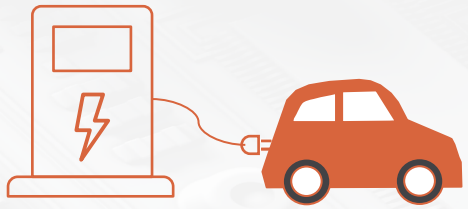
Resonant Circuit (LLC)

FAQ #2 Why 630V or even higher rated voltage MLCCs are needed for EV fast charging station?

When the LLC converter is for a power system with large electric power, it requires a characteristic of high withstand voltage (rated voltage).

EV fast charging station is applied with a larger voltage than ordinary electronic equipment. In order to shorten the charging time, the battery architecture voltage for charging station has reached 600V.

We may see more 800V architectures when the third-generation semiconductors are widely used, therefore, MLCCs with higher rated voltage are required.



FAQ #3 Why NPO ?

Good power efficiency, high precision, and high reliability!

Class I NPO, compared with Class II X5R/X6S/X7R, is a low loss MLCC with low ESR and high-quality Factor.

NPO also has good TCC (temperature coefficient of capacitance) and VCC (voltage coefficient of capacitance) characteristics which means the capacitance is stable with change of temperature and voltage during operation, this is very important in a resonant circuit.

Besides, NPO is a stronger material with higher material strength than Class II material, so NPO can sustain higher external mechanical stress like bending.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Thank you
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