

Standard Electrolytic Capacitor Bank Solutions

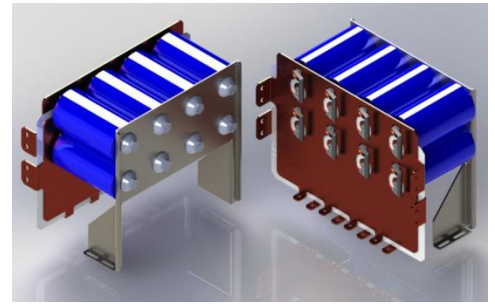
Key Data

Standard Capacitor Banks

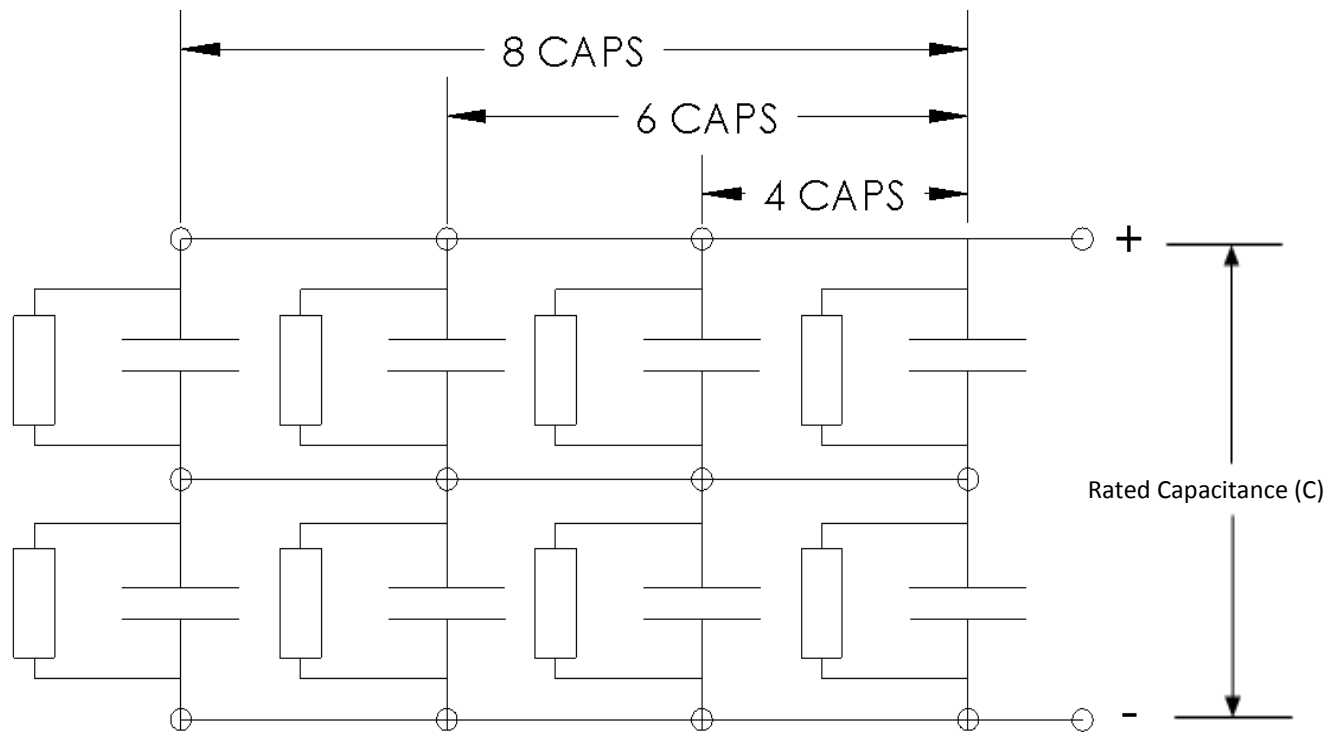
General Information

The standard Methode capacitor subsystems integrate capacitors assembled on a sheet metal support plate and balancing resistors with a precision engineered laminated bus bar structure. The low stray inductance capacitor banks are intended for direct mounting on the SmartPower Stack™ power inverter/converter. The capacitor bank has an option for snubber capacitors to be ordered with the assembly.

Application	SmartPower Stack
Load Type	Resistive, Inductive
Markets	Solar, Wind, UPS, Battery Storage, Motor Control, Power Conversion Applications.

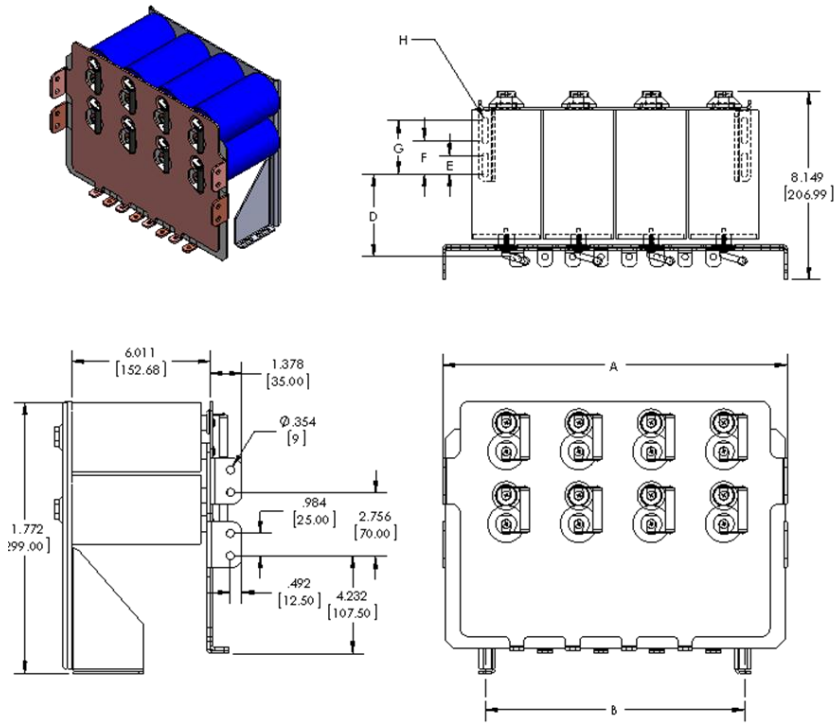


Capacitor Bank Topology



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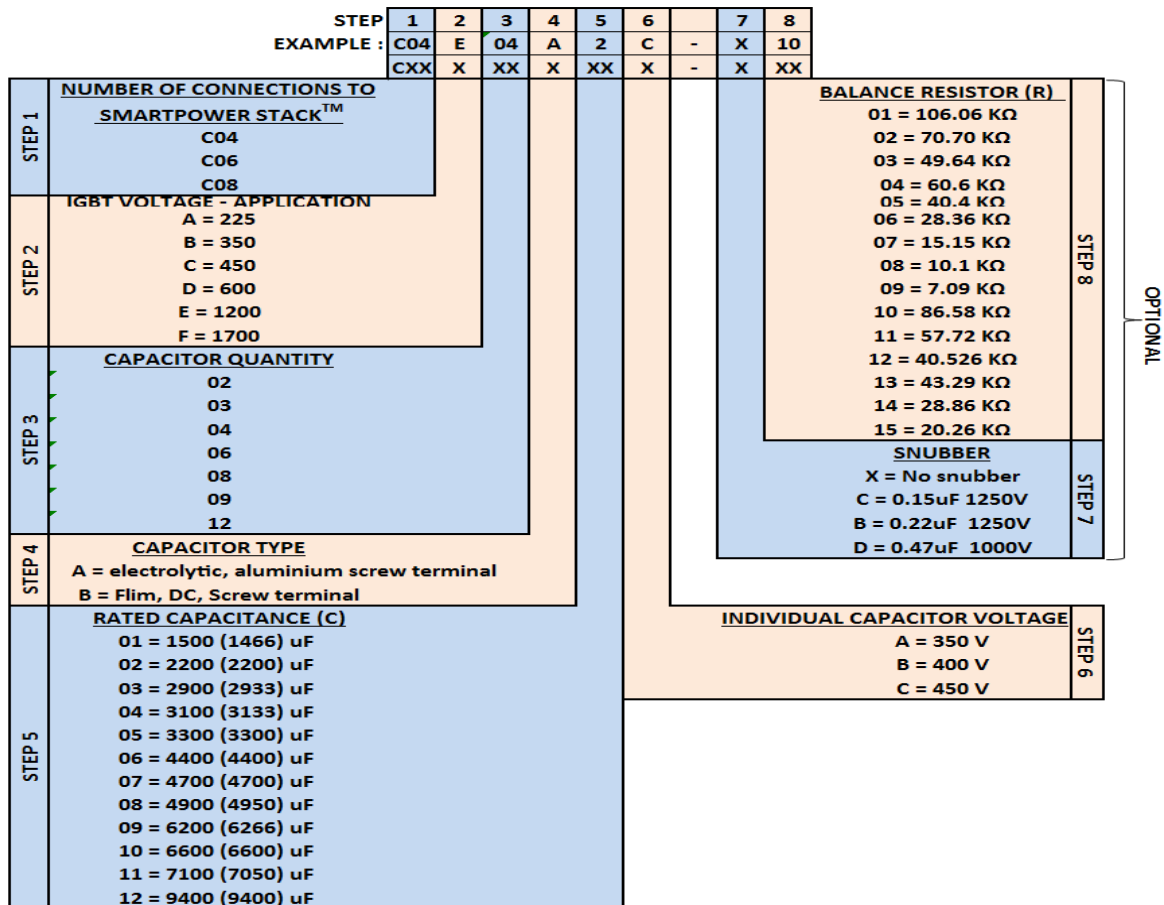
Mechanical Dimensions



PART NUMBERS	CAPCITOR BANK DIMENSION (mm)						
	A	B	D	E	F	G	H
C04E04A02C-XXX	200	158	115.3	18	29	43	R2.75
C04E04A05C-XXX							
C04E04A07C-XXX							
C06E06A05C-XXX	280	226	91.3	20	37	59	R3.5
C06E06A08C-XXX							
C06E06A11C-XXX							
C08E08A06C-XXX	380	286	91.3	20	37	59	R3.5
C08E08A10C-XXX							
C08E08A12C-XXX							
C04F04A01C-XXX	200	158	115.3	18	29	43	R2.75
C04F04A02C-XXX							
C04F04A04C-XXX							
C06F06A02C-XXX	280	226	91.3	20	37	59	R3.5
C06F06A05C-XXX							
C06F06A07C-XXX							
C08F08A03C-XXX	360	286	91.3	20	37	59	R3.5
C08F08A06C-XXX							
C08F08A09C-XXX							

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Capacitor Bank Nomenclature



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Selecting the Capacitor

The capacitor banks are selected based on the rated voltage and ripple current at 120Hz @85°C. The Following table is a guideline for selecting the capacitor for a SmartPower Stack™. It is a customer choice to select the capacitor bank best suited to the application.

Rated Capacitance (C) in MF	Capacitor string voltage (V _s)	Capacitor Value in Micro Farads	Capacitor Rated Voltage in Volts	Max Ripple Current At 85°C at 120HZ in Amperes
2200 (2200)	900	2200	450	14.2
3300 (3300)	900	3300	450	18.4
4700 (4700)	900	4700	450	24
3300 (3300)	900	2200	450	21.3
4900 (4950)	900	3300	450	27.6
7100 (7050)	900	4700	450	36
4400 (4400)	900	2200	450	28.4
6600 (6600)	900	3300	450	36.8
9400 (9400)	900	4700	450	48
2200 (2200)	900	2200	450	17.6
3300 (3300)	900	3300	450	22.4
4700 (4700)	900	4700	450	28.2
3300 (3300)	900	2200	450	26.4
4900 (4950)	900	3300	450	33.6
7100 (7050)	900	4700	450	42.3
4400 (4400)	900	2200	450	35.2
6600 (6600)	900	3300	450	44.8
9400 (9400)	900	4700	450	56.4
2200 (2200)	800	2200	400	14.2
4700 (4700)	800	4700	400	23
3300 (3300)	800	2200	400	21.3
7100 (7050)	800	4700	400	34.5
4400 (4400)	800	2200	400	28.4
9400 (9400)	800	4700	400	46
2200 (2200)	800	2200	400	17.6
3300 (3300)	800	3300	400	22
4700 (4700)	800	4700	400	29.6
3300 (3300)	800	2200	400	26.4
4900 (4950)	800	3300	400	33
7100 (7050)	800	4700	400	44.4
4400 (4400)	800	2200	400	35.2
6600 (6600)	800	3300	400	44
9400 (9400)	800	4700	400	59.2

Selecting the Balancing Resistors

The leakage current of series connected capacitors can be calculated by the formula $0.0015CV_b$, Where C in μF is rated capacitance of each capacitor and V_b is the bus voltage across the capacitor string. The balancing resistance value can be found using this formula:

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$$R = (nV_m - V_b) / (0.0015 * C * V_b)$$

Where R is the balancing resistance value in MΩ,
V_m is the maximum permissible voltage of individual capacitor,
n is the number of capacitors connected in series.

For the SmartPower Stack™, where the bus voltage is 700V-Typ, the balancing resistor is calculated by using formula $R = (2V_m - V_b) / (0.0015CV_b)$. The following table can be used to help select the balancing resistor for this application.

Capacitor value (C) in MF	V _m	V _b	Balancing Resistor (R) in KΩ
2200	450	700	86.58
3300	450	700	57.72
4700	450	700	40.52
2200	400	700	43.29
3300	400	700	28.86
4700	400	700	20.26

Note: the balance resistors come assembled on the capacitor bank and can be damaged if not handled properly.



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