

# Manual of Capacitor Selection Tool Ver6.3

## コンデンサ選定ツール取扱い説明書

P2~4 --- English

P5~7 --- 日本語

Panasonic Corporation

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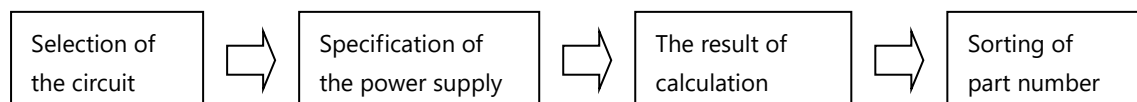


# Manual of Capacitor Selection Tool

## 1. In general

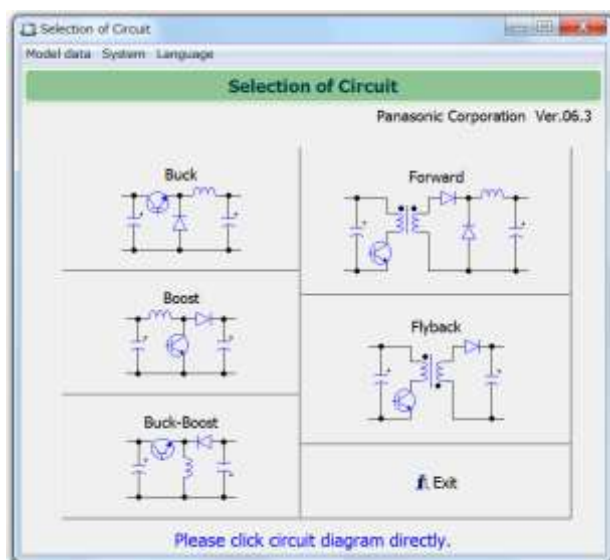
This tool displays the characteristic (ESR, ripple current, capacitance etc.) needed for a capacitor and automate the selection of a proper capacitor. We explain the operation method, point below.

## 2. Operation flowchart



### 1) Selection of the circuit

Please select the circuit where becomes a target, because a representative circuit is displayed in the screen after the tool is triggered. Also, the circuit is the following 5 kinds.



- 1) Buck
- 2) Boost
- 3) Buck-Boost
- 4) Forward
- 5) Flyback

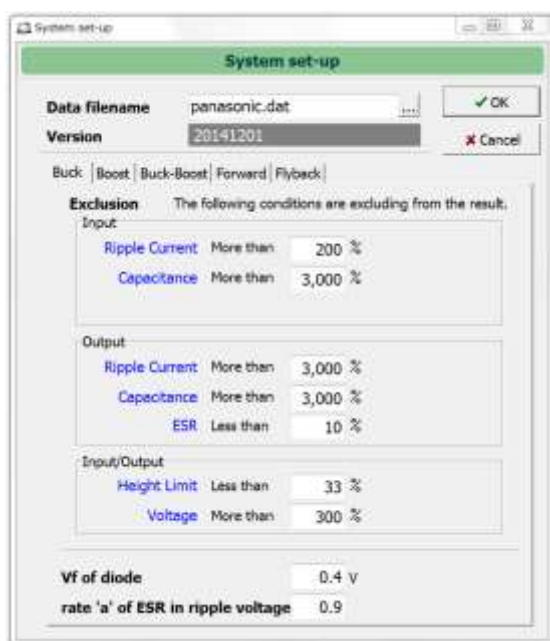
[Image]

[The menu of the screen left upper part]

**Model data** : The model of the capacitor that is able to search with this tool is displayed.

| Maker     | Products | Part No.     | Cap (µF) | Vol (V)       | ESR (mΩ) | Ripple Current (mA) | Mount. Inc. | Release date |
|-----------|----------|--------------|----------|---------------|----------|---------------------|-------------|--------------|
| Panasonic | SP-Cap   | EEFC0G121R   | 1.2      | 4.0           | 120.0    | 15                  | 5100 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G160R   | 1.2      | 6.3           | 60.0     | 15                  | 5100 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G14470R | 1.2      | 10.0          | 47.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 16.0          | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 16.0          | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 16.0          | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 20.0          | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 20.0          | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 20.0          | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 20.0          | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 25.0          | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 25.0          | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 35.0          | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 35.0          | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 35.0          | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 35.0          | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 50.0          | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 50.0          | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 50.0          | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 50.0          | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 100.0         | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 100.0         | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 100.0         | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 100.0         | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 220.0         | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 220.0         | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 220.0         | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 220.0         | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 470.0         | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 470.0         | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 470.0         | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 470.0         | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 1000.0        | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 1000.0        | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 1000.0        | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 1000.0        | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 2200.0        | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 2200.0        | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 2200.0        | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 2200.0        | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 4700.0        | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 4700.0        | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 4700.0        | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 4700.0        | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 10000.0       | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 10000.0       | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 10000.0       | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 10000.0       | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 22000.0       | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 22000.0       | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 22000.0       | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 22000.0       | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 47000.0       | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 47000.0       | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 47000.0       | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 47000.0       | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 100000.0      | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 100000.0      | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 100000.0      | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 100000.0      | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 220000.0      | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 220000.0      | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 220000.0      | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 220000.0      | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 470000.0      | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 470000.0      | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 470000.0      | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 470000.0      | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 1000000.0     | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 1000000.0     | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 1000000.0     | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 1000000.0     | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 2200000.0     | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 2200000.0     | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 2200000.0     | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 2200000.0     | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 4700000.0     | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 4700000.0     | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 4700000.0     | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 4700000.0     | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 10000000.0    | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 10000000.0    | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 10000000.0    | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 10000000.0    | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 22000000.0    | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 22000000.0    | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 22000000.0    | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 22000000.0    | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 47000000.0    | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 47000000.0    | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 47000000.0    | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 47000000.0    | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 100000000.0   | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 100000000.0   | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 100000000.0   | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 100000000.0   | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 220000000.0   | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 220000000.0   | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 220000000.0   | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 220000000.0   | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 470000000.0   | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 470000000.0   | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 470000000.0   | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 470000000.0   | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 1000000000.0  | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 1000000000.0  | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 1000000000.0  | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 1000000000.0  | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 2200000000.0  | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 2200000000.0  | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 2200000000.0  | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 2200000000.0  | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 4700000000.0  | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 4700000000.0  | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 4700000000.0  | 22.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10330R | 1.2      | 4700000000.0  | 33.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10100R | 1.2      | 10000000000.0 | 10.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10150R | 1.2      | 10000000000.0 | 15.0     | 40                  | 3200 DMD    | 00/01/01     |
| Panasonic | SP-Cap   | EEFC0G10220R | 1.2      | 10000000000.0 | 22.0     | 40                  | 3200 DMD    | 00/0         |

**System** : This tool searches a model, the upper bound (the minimum bound) of the model selection width to the calculation value can be set up every each circuit, so that an optimal model is able to select it on the basis of the calculation result.



[Image]

Notes:

- 1) As for extreme range setting, it may happen that you cannot get the correct value.
- 2) There is the possibility that the error becomes big when the output voltage is low, in the case that you do not input the proper value of  $V_f$  of a diode.

## 2) Specification of the power supply

If you input each parameter of the specification of the power supply and then click the button of "Result", the specification of the capacitor of the input-output are displayed.



[Image]

Notes:

- 1) Please pay attention, because the unit differs with each parameter.
- 2) "Current change" and "Voltage drop" is optional. These are parameters only when a load transient occurs.

[Setting value of the input-output voltage to the circuit]

The relation of the input/output voltage of power supply specification differs by the circuit. Please pay attention because it becomes an error when you input the wrong value. (A list shown below reference)

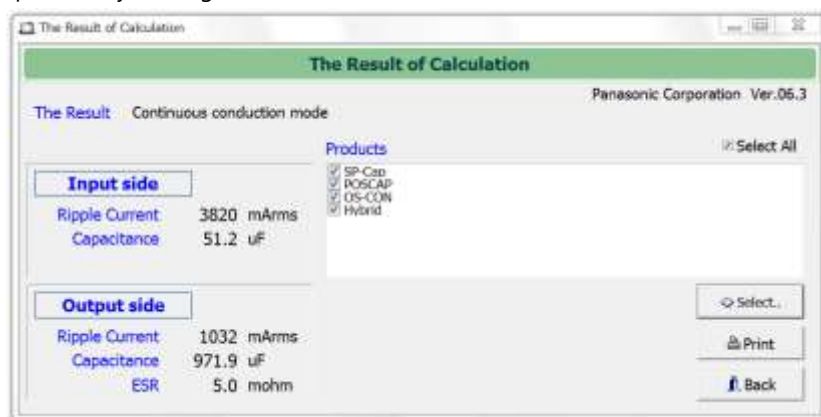
| Circuit    | Error condition                    |
|------------|------------------------------------|
| Buck       | $V_{in} < V_{out}$ or $V_{in} < 0$ |
| Boost      | $V_{in} > V_{out}$ or $V_{in} < 0$ |
| Buck-Boost | $V_{out} > 0$ or $V_{in} < 0$      |
| Forward    | $V_{in} < 0$                       |
| Flyback    | $V_{in} < 0$                       |

[About the option setting in the time that selected the Buck circuit]

"Current change" "Voltage drop" in the Buck circuit selection are optional parameters. These are for the cases when load transients occur. By inputting these 2 items the capacitor that even the specification considered is selected. Yet this supposes that it is able to respond a high speed and is calculating (It responds with 1 pulse of power supply switching Current mode or CPU power supply etc.). Please pay attention because it may not possible to meet specification in the power supply that is not able to respond a high speed.

### 3) The result of calculation

This calculates the specification needed for the capacitor from the circuit and the input-output specification of the power supply and then displays the calculation result. Also the power supply specification and the result of calculation are printed, by clicking the button "Print".



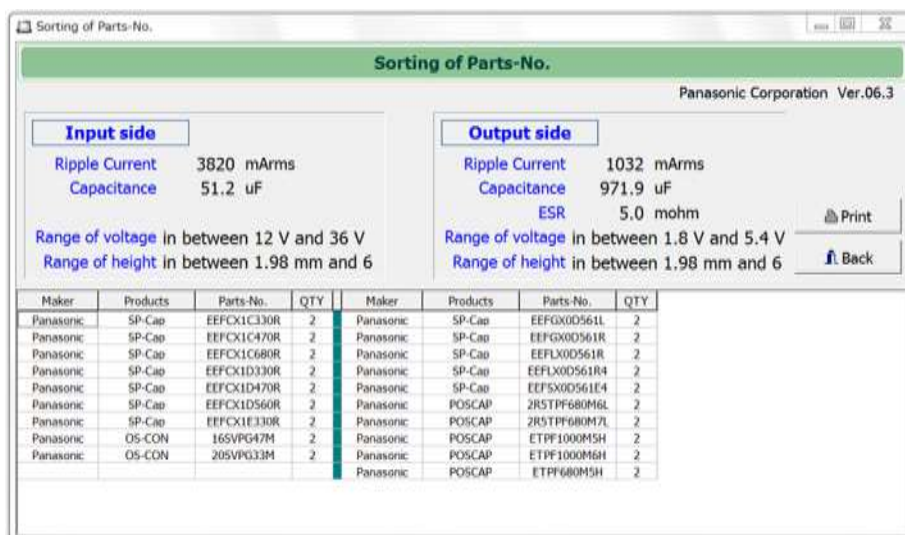
Note:

- 1) In the case that you designated the "Products", this tool selects the capacitor in the range.

[Image]

### 4) Sorting of Part-No.

The capacitor that fulfills specification from a calculation result is searched, and it displays on a screen. Also sorting of part number is printed, by clicking the button "Print".



[Image]

Note:

- 1) In the case that you input the item of "Current change"/"Voltage drop" in the Buck circuit, the capacitance and ESR value of the output side selected does not link with the performance of Part-No. that selected it. So the voltage drop value (Vdrop) that calculated by side the right of "QTY" of each "Parts-No." is displayed instead.

Note:

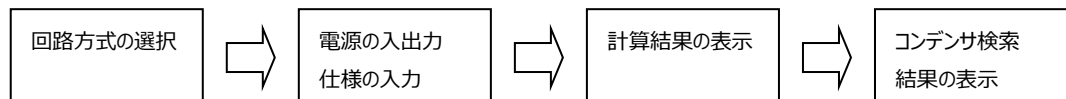
- 1) Less QTY (capacitor count) results are shown earlier.

# コンデンサ選定ツール取扱い説明書

## 1. 概要

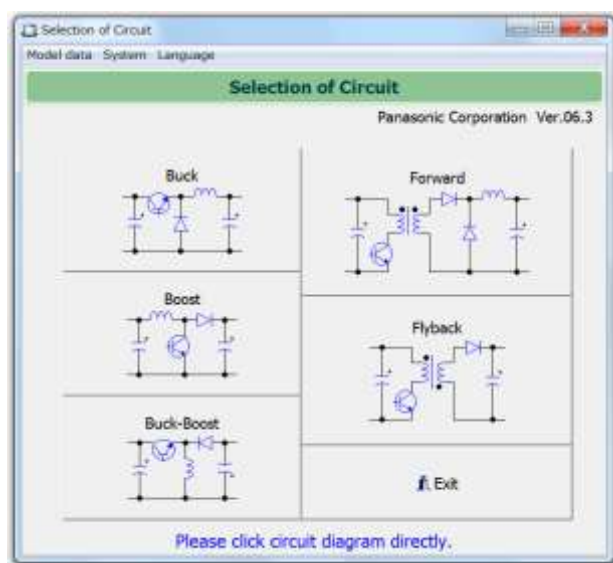
本ツールは、電源のパラメータを入力することにより、コンデンサに必要な性能（ESR, リプル電流, 静電容量等）の表示、及び適正コンデンサ機種の選定を自動化するツールであり、以下に操作方法、ポイントを解説致します。

## 2. 操作フロー



### 1) 回路方式の選択の画面

ツール起動直後に代表的な回路方式を画面上に表示しますので、ターゲットとなる回路方式を画面上より選択してください。  
尚、回路方式は以下の5種類です。



〔画面イメージ〕

- 1) Buck [降圧型]
- 2) Boost [昇圧型]
- 3) Buck-Boost [反転型]
- 4) Forward [トランス型]
- 5) Flyback [簡易トランス型]

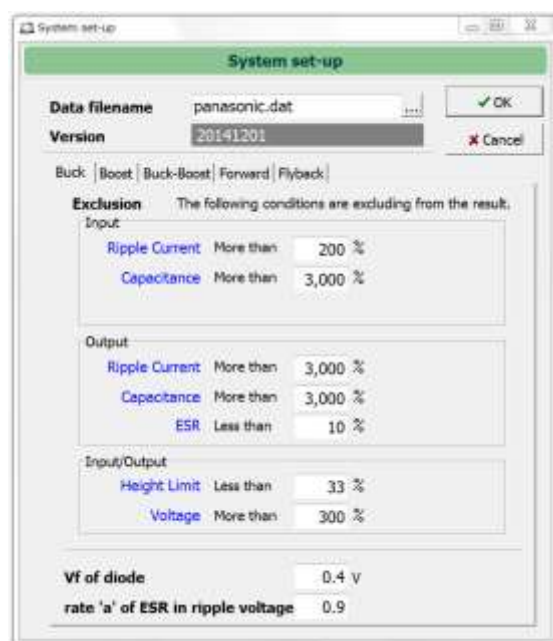
〔画面左上部のメニュー〕

①機種データ：本ツールで検索できるコンデンサの機種を表示します。

| Maker     | Products | Part No.     | Cap (μF) | Voltage (V) | ESR (mΩ) | Ripple Current (mA) | Mounting | Release date |
|-----------|----------|--------------|----------|-------------|----------|---------------------|----------|--------------|
| Panasonic | SP-Cap   | EEFC00G121R  | 1.2      | 4.0         | 120.0    | 15                  | 5100 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC00J600R  | 1.2      | 6.3         | 60.0     | 15                  | 5100 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01A470R  | 1.2      | 10.0        | 47.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01C1050R | 1.2      | 16.0        | 15.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01C220R  | 1.2      | 16.0        | 22.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01C330R  | 1.2      | 16.0        | 33.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01D100R  | 1.2      | 20.0        | 10.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01D150R  | 1.2      | 20.0        | 15.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01D220R  | 1.2      | 20.0        | 22.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01E100R  | 1.2      | 25.0        | 10.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01E150R  | 1.2      | 25.0        | 15.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01V100R  | 1.2      | 35.0        | 10.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC00G181R  | 1.5      | 4.0         | 180.0    | 15                  | 5100 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC00J101R  | 1.5      | 6.3         | 100.0    | 15                  | 5100 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01A800R  | 1.5      | 10.0        | 80.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01C470R  | 1.5      | 16.0        | 47.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01C100R  | 1.5      | 20.0        | 33.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01C470R  | 1.5      | 20.0        | 47.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01E220R  | 1.5      | 25.0        | 22.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC01V150R  | 1.5      | 35.0        | 15.0     | 40                  | 3200 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC00D221R  | 2.1      | 2.0         | 220.0    | 15                  | 5100 SMD | 00/01/01     |
| Panasonic | SP-Cap   | EEFC00D271R  | 2.1      | 2.0         | 270.0    | 12                  | 5900 SMD | 00/01/01     |

〔画面イメージ〕

②システム設定：本ツールは計算結果を基に適正機種が検索されますが、機種の絞り込み（最適機種の選択）ができるよう、回路方式毎に計算値に対する機種選択幅の上限値（下限値）を設定できます。



〔画面イメージ〕

注1) 極端な範囲設定は、エラーや選択できる機種がなくなる可能性があります。

注2) 適正なダイオードの  $V_f$  値を入力しない場合、出力電圧が低いときに誤差が大きくなる可能性があります。

## 2) 電源の入出力仕様の入力画面

回路方式を選択後に表示される画面の各パラメータを入力し“Result”ボタンをクリックすることにより、入出力に使用可能なコンデンサの仕様が表示されます。



〔画面イメージ〕

注1) 各パラメータで単位が異なるので、注意してください。

注2) Current changeとVoltage drop は、Buckで負荷変動がある場合のパラメータで、任意入力です。

### 〔回路方式に対する入出力電圧の設定値〕

上記パラメータ中の入力電圧／出力電圧の関係は回路方式により異なり、誤った値を入力するとエラーとなりますので注意してください。  
(下表参照)

| 回路方式       | エラー条件                              |
|------------|------------------------------------|
| Buck       | $V_{in} < V_{out}$ or $V_{in} < 0$ |
| Boost      | $V_{in} > V_{out}$ or $V_{in} < 0$ |
| Buck-Boost | $V_{out} > 0$ or $V_{in} < 0$      |
| Forward    | $V_{in} < 0$                       |
| Flyback    | $V_{in} < 0$                       |



[Buck 回路選択時のオプション設定について]

Buck 回路選択時にオプション（未入力可）として、負荷変動時の電流変化／電圧降下の項目が表示されます。

この 2 つの項目を入力することにより、出力コンデンサの ESR／出力静電容量からコンデンサを検索する

際の閾値をより厳しくすることになり、結果的に最適なコンデンサを選択することが可能となります。

ただし本計算は高速応答(スイッチングの 1 パルスで応答。カレント電源や CPU 電源等)できるものと

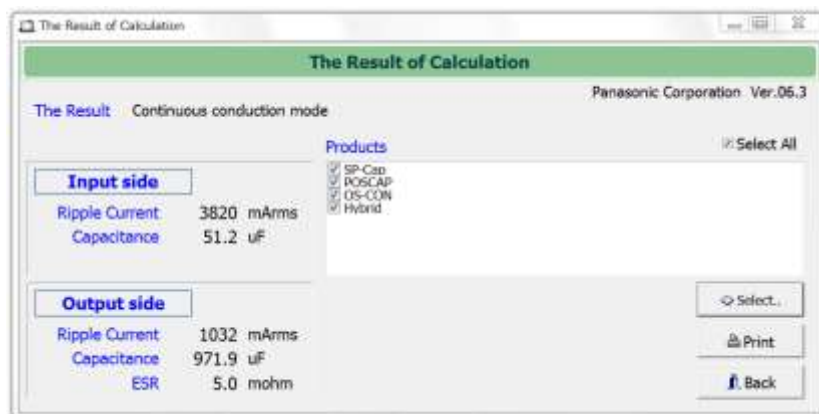
して計算しています。高速応答できない電源では仕様を満足できない可能性がありますので注意してください。

### 3) 計算結果の表示

回路方式の入力、電源の入出力仕様を基に計算した値が、入力側／出力側コンデンサの必要スペックとして表示されます。

“Select”ボタンをクリックすると、コンデンサ検索結果の表示へ進みます。→ 4)

また“Print”ボタンをクリックすることにより、入力した電源仕様と計算結果が印刷できます。

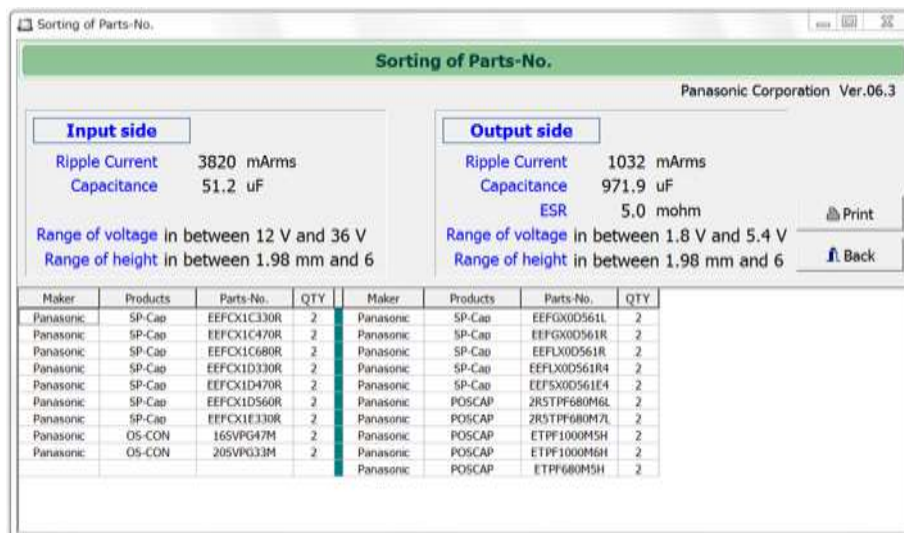


注1) 製品を指定すると、その範囲でコンデンサを選定することとなります。

[画面イメージ]

### 4) コンデンサ検索結果の表示

計算結果から仕様を満足するコンデンサが画面上に表示されます。また“Print”ボタンをクリックすることにより、この結果を印刷できます。



注1) 結果は QTY(員数)の少ない順に表示されます。

[画面イメージ]

注1) Buck 回路で電流変化／電圧降下の項目を入力した場合は、出力側コンデンサの静電容量値と ESR 値は選択機種との性能とはリンクしくなくなり、代わりに各機種の個数表示の右横に電圧降下値を表示しています。