

Gold Capacitor

NF Type

NF Type Gold Capacitor provides super large capacitance by unique electrode and miniaturization technology meeting the trend of compactness.

NF Type is suitable for a memory back-up for C MOS type RAM in microcomputers.



Features

- Line-up of 0.033 farad to 1.0 farad capacitance values at 5.5 volts to meet the requirements of extremely low current flow memory back-up applications.
- A long period memory back-up is available by excellent self-discharging characteristics.
- NF Type low profile design is 7.5 mm maximum ($\phi 13.5$) and 8.0mm maximum ($\phi 21.5$) in height and has a standardized 5mm terminal spacing.
- Superior to primary or secondary batteries in operating temperature range, charge/discharge characteristics, long time reliability and performance stability.

Specifications

- Operating temperature range: $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- Rated working voltage: 5.5 V DC
- Surge voltage: 6.3 V DC
- Rated capacitance: 0.033~1.0F
- Capacitance tolerance: $-20 \sim +80\%$
- Leakage current:
The capacitor shall be applied 5.5 V for 30 minutes at 20°C . (Refer to standard products table for each value)
- Internal resistance:
Impedance shall be specified at 1 kHz/ 20°C . (Refer to standard products table for each value)

Temperature characteristics:

Capacitance change	Within $\pm 30\%$ of the measured value at 20°C
Internal resistance at -25°C	Less than 5 times of the value at 20°C
Leakage current at 70°C	Less than 4 times of the value at 20°C

Load life characteristics:

The capacitor shall meet the following specification after 1,000 hours with the rated voltage applied at 70°C .

Capacitance change	Within $\pm 30\%$ of the initial measured value
Internal resistance	Less than 4 times of the initial specified value
Leakage current	Less than 2 times of the initial specified value

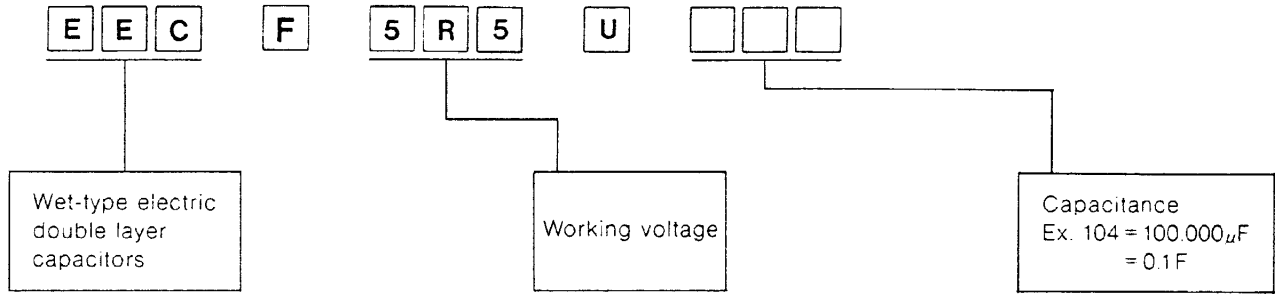
Shelf life characteristics:

The capacitor shall meet the same specification as "Load life characteristics" after 500 hours exposure at 70°C with no voltage applied.

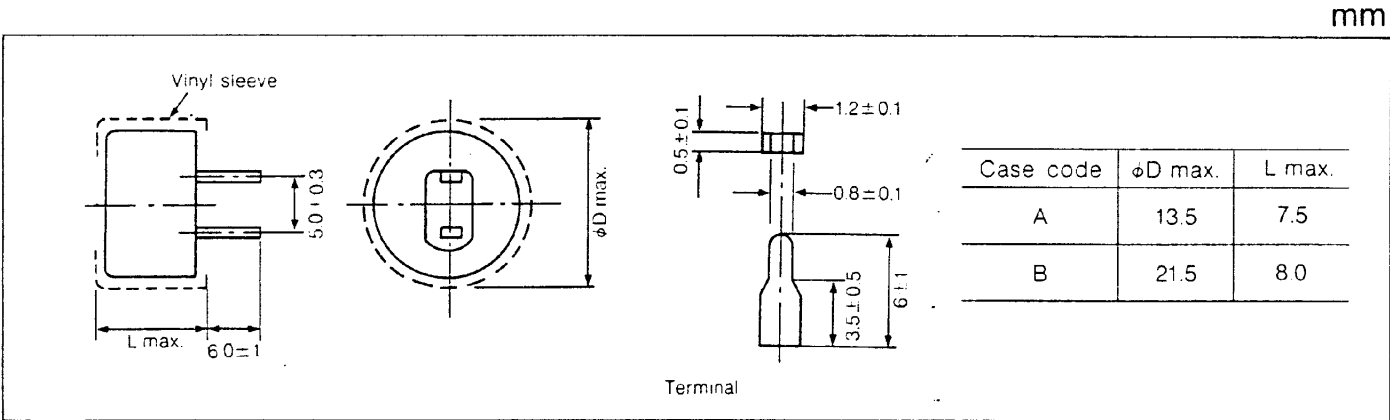
Humidity characteristics:

The capacitor shall meet the same specification as "Load life characteristics" after 500 hours charge of the rated working voltage at $50^{\circ}\text{C}/90 \sim 95\%$ R.H.

Part number system



Dimensions



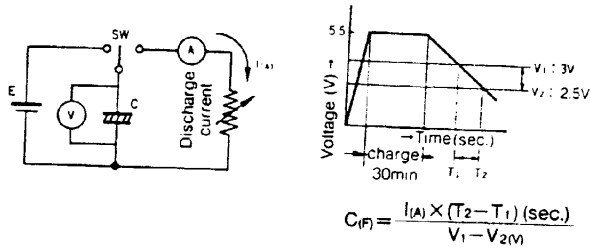
Standard products table

W.V. (V.DC)	Capacitance (F)	Part Number	Capacitance Range (F)	Leakage current* (μ A/30min)	Internal resistance (Ω /1 kHz)	Case code
5.5	0.033	EECF5R5U333	0.0264~0.0594	57	150	A
	0.047	EECF5R5U473	0.0376~0.0846	69	120	A
	0.1	EECF5R5U104	0.08 ~0.18	100	75	A
	0.33	EECF5R5U334	0.264 ~0.594	182	40	B
	0.47	EECF5R5U474	0.376 ~0.846	216	30	B
	1.0	EECF5R5U105	0.8 ~1.8	315	30	B

* Leakage current shown in table is measured after 30 minutes charge of rated working voltage. In the practical application circuit, it decreases to several μ A level after 10 hours.

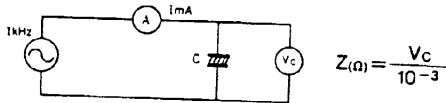
Measuring of characteristics

1) Capacitance

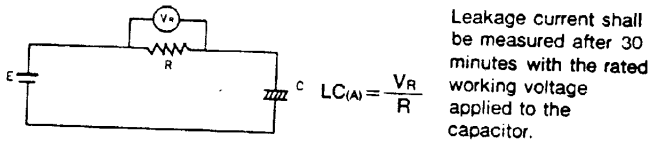


The discharge current shall be calculated by the capacitance value in a ratio of 1mA/fard.

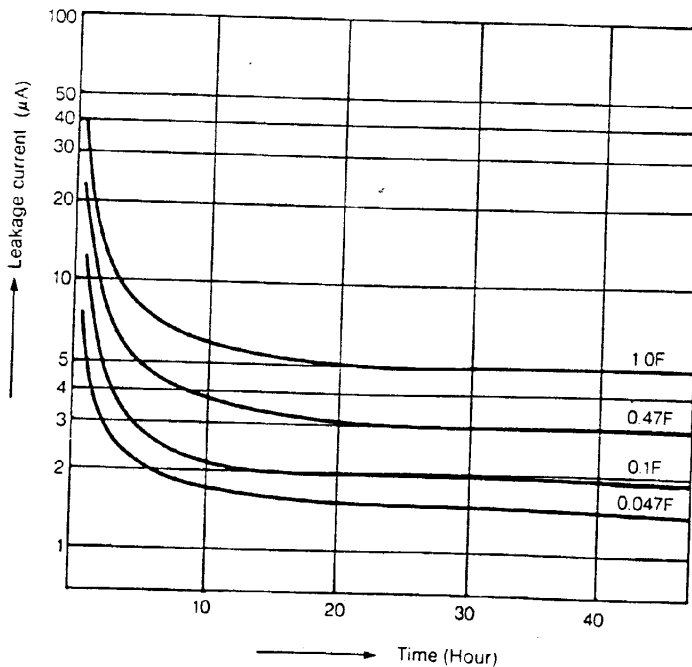
2) Internal resistance (Impedance at 1 kHz)



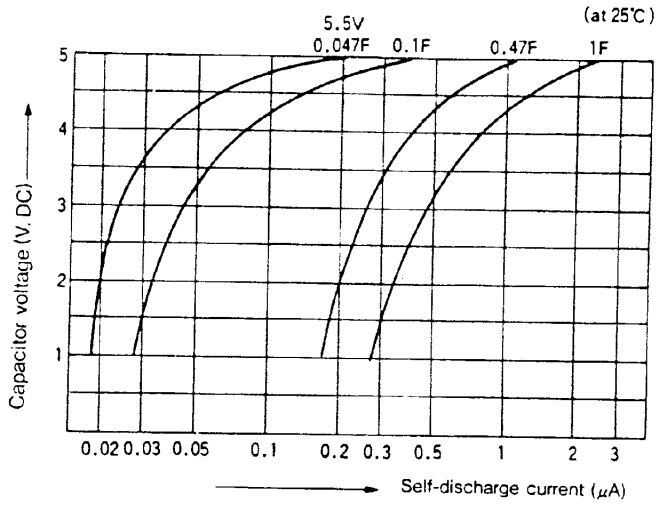
3) Leakage current



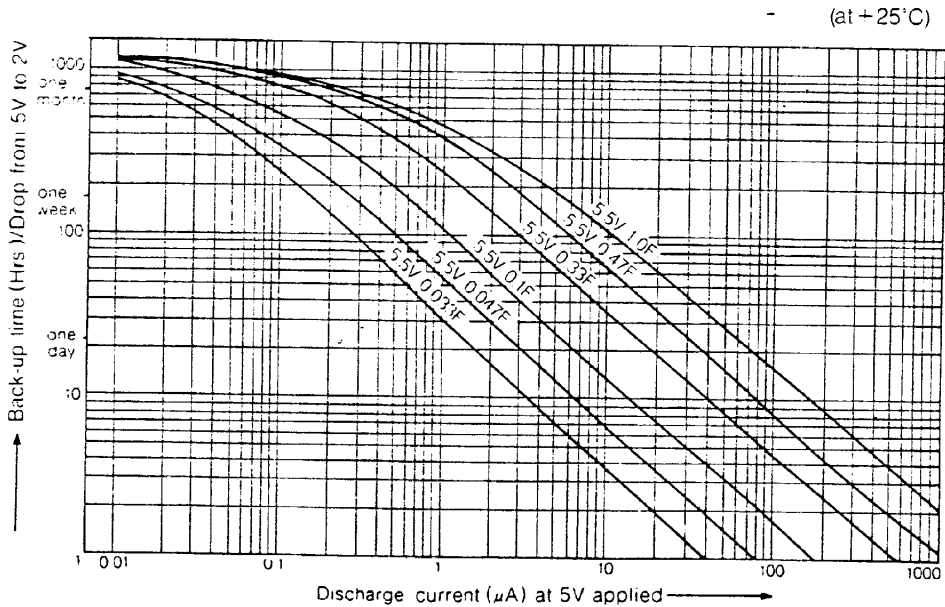
Leakage current change (at +25°C)



Capacitor voltage vs. self-discharge current

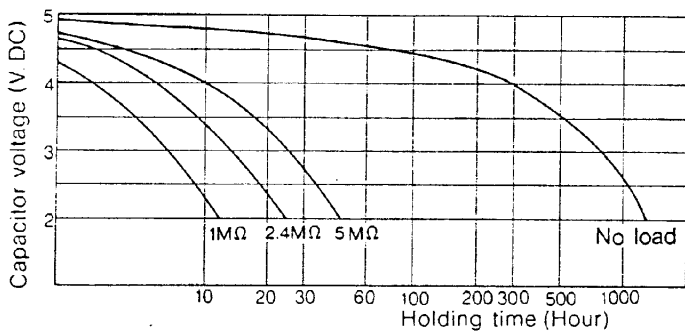
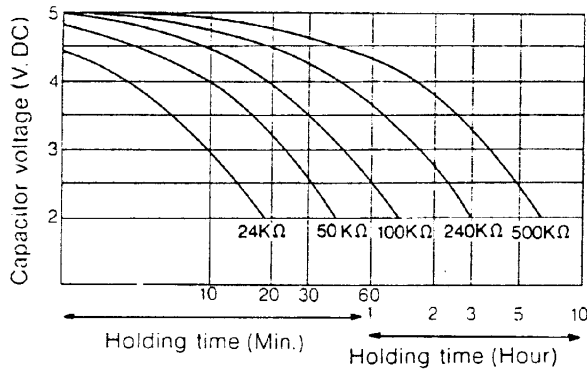


Discharge current vs. back-up time

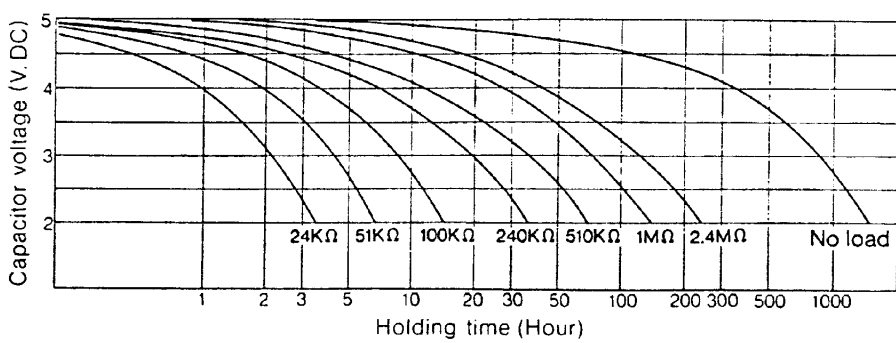
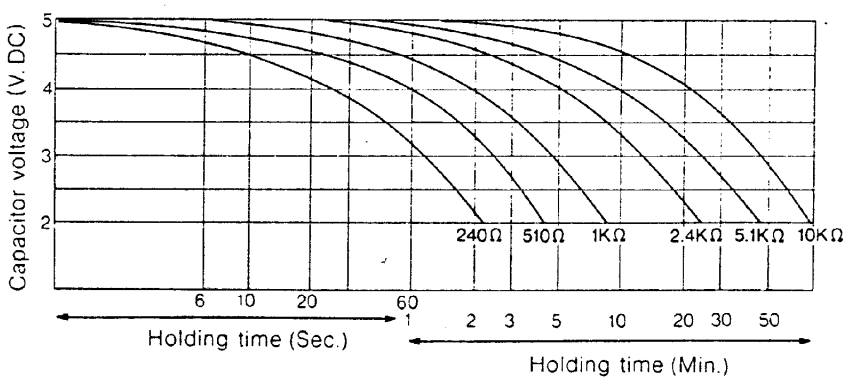


Resistance values vs. discharge characteristics (at +25°C)

● 5.5V, 0.047F

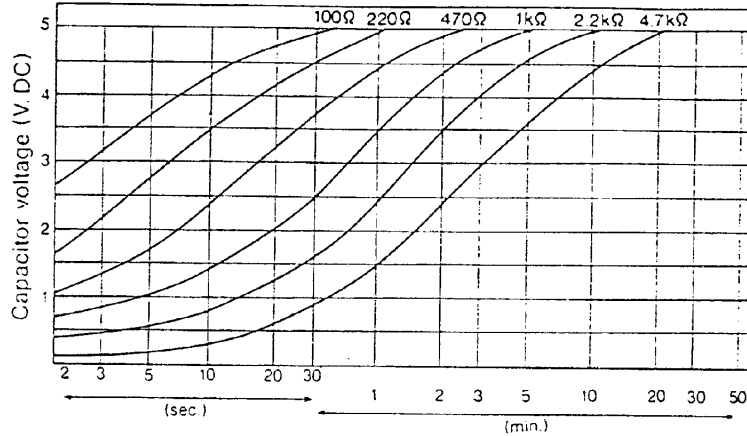


● 5.5V, 0.47F

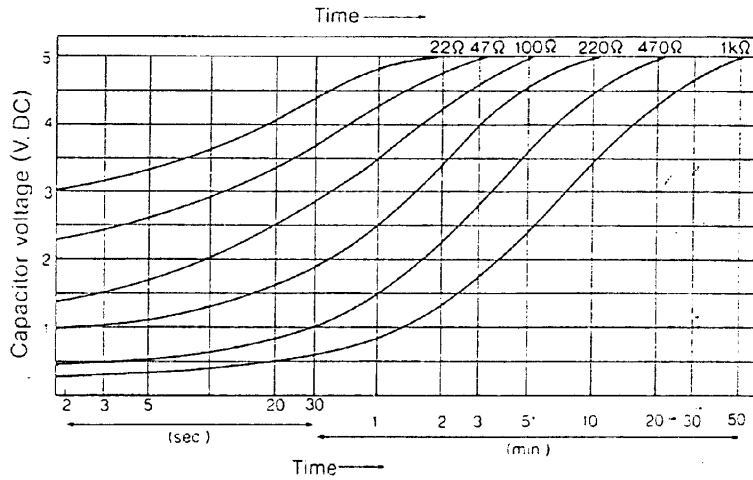


Resistance values vs. charge characteristics (at +25 °C)

● 5.5V, 0.047F

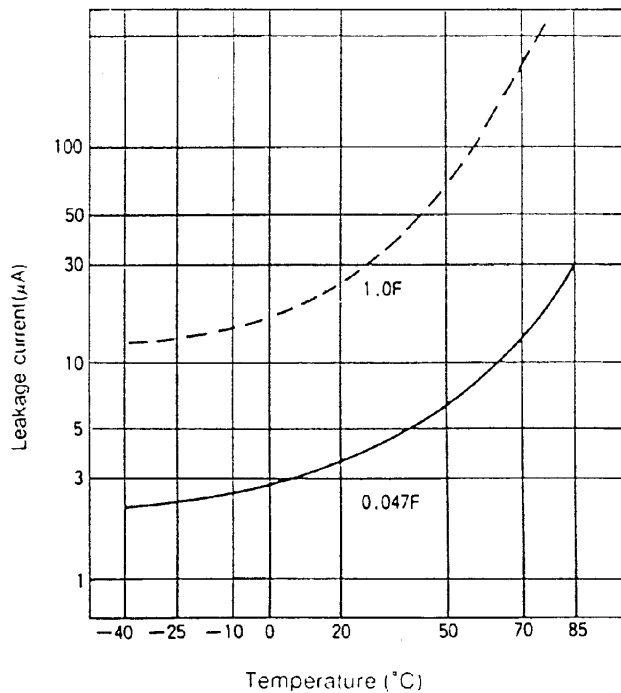


● 5.5V, 0.47F



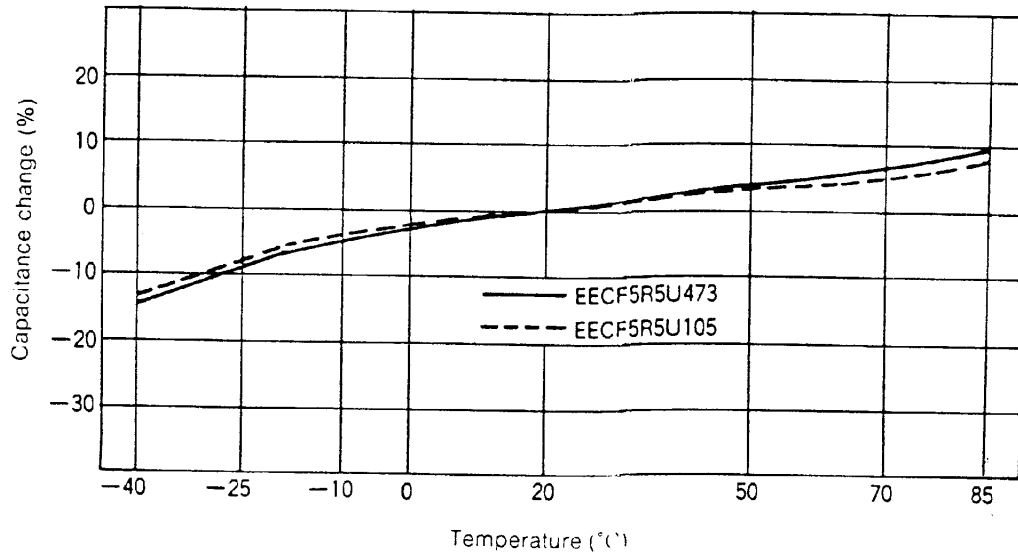
● Leakage current

(5.5V: 30 minutes)

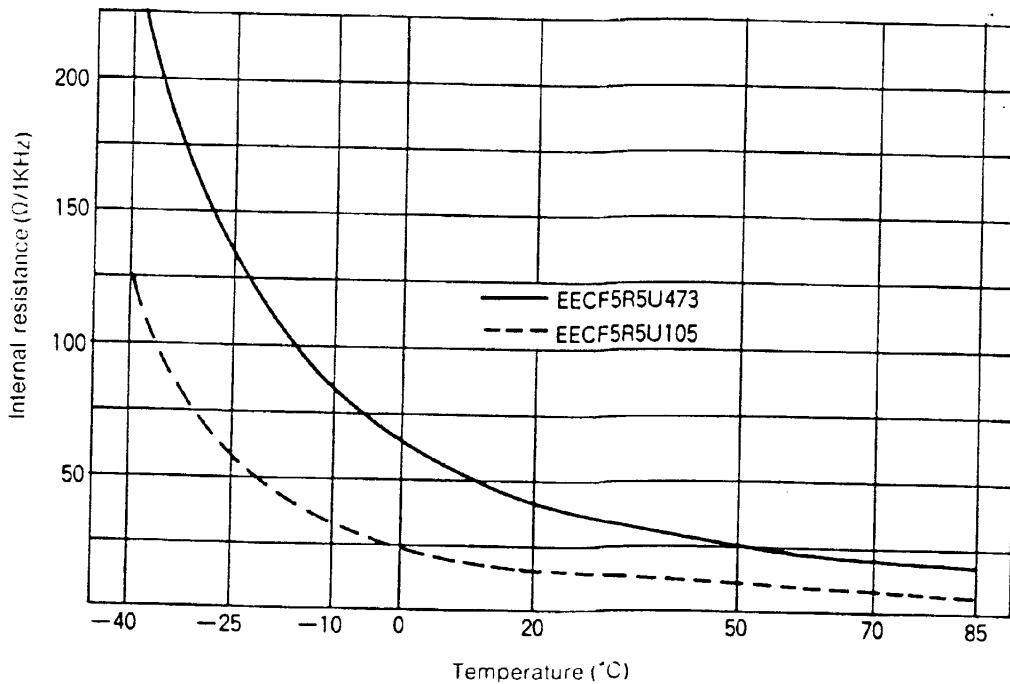


Temperature characteristics

● Capacitance



● Internal resistance



Load life characteristics (at + 70°C)

● 5.5V, 0.047F

● 5.5V, 0.47F

