

Technical Background Information



Europe Chemi-Con (Deutschland) GmbH
Nippon Chemi-Con Corp. Group

Subject: Superimposed alternating Voltage with max. DC Voltage

Customer: ECC customer

Ref. No.: ECC-EN-13-1236

Current Catalogue Explanation:

What's the correct meaning of:



"the peak voltage shall not exceed the rated voltage?"



KZH Series

- Newly innovative electrolyte is employed to minimize impedance
- Endurance with ripple current: 5,000 to 6,000 hours at 105°C
- Non solvent resistant type
- RoHS Compliant



SPECIFICATIONS

Items	Characteristics
Category	-40 to +105°C
Temperature Range	
Rated Voltage Range	6.3 to 35V _{dc}
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.01CV or 3 μ A, whichever is greater. (at 20°C after 2 minutes) Where: I: Max. leakage current (μ A), C: Nominal capacitance (μ F), V: Rated voltage (V)
Disipation Factor (tan δ)	Rated voltage (V _{dc}): 6.3V 10V 16V 25V 35V 0.22 0.19 0.16 0.14 0.12 When nominal capacitance exceeds 1,000 μ F, add 0.02 to the value above for each 1,000 μ F increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25°C) / Z (+20°C): 2max. Z (-40°C) / Z (+20°C): 3max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied. <u>the peak voltage shall not exceed the rated voltage</u> for the specified period of time at 105°C. Time: ϕ 5 & ϕ 6.3: 5,000hours; ϕ 8 to ϕ 16: 6,000hours Capacitance change: \leq ±25% of the initial value (6.3, 10V _{dc} : \leq ±30%) D.F. (tan δ): \leq 200% of the initial specified value Leakage current: \leq The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: \leq ±25% of the initial value (6.3, 10V _{dc} : \leq ±30%) D.F. (tan δ): \leq 200% of the initial specified value Leakage current: \leq The initial specified value

Total DC Voltage curve [not scaled]



Explanations:

Rated V_{DC}: max. Voltage (not surge voltage) which is specified in the catalogue

Ripple V_{pp}: superimposed alternating voltage

Total V_{DC+AC}: total applied Voltage

Calculation Example:



Please note:

The above mentioned Ripple V_{pp} is just only a theoretical value. Under normal conditions the Total V_{DC+AC} depends on the frequency and the ambient temperature.

Please consult us if you're using a Nippon Chemi-Con Capacitor in Range of his specified max. Rated Voltage.

→ The total V_{DC+AC} should be less than the rated voltage.