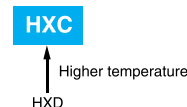


# HXC Series

Upgrade!

- High reliability and high voltage are realized by hybrid electrolyte
- Endurance with ripple current : 4,000 hours at 125°C
- Rated voltage range : 16 to 63V<sub>dc</sub>, Capacitance range : 6.8 to 560μF
- For high temperature and high reliability applications.  
(Automotive equipment, Base station equipment, etc.)
- RoHS2 Compliant
- Halogen Free
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.

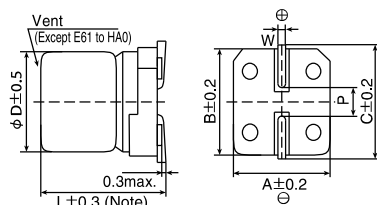


## SPECIFICATIONS

| Items                                                  | Characteristics                                                                                                                                                                                                                                                                         |                                       |      |      |      |      |                  |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------|------|------|------|------------------|
| Category                                               |                                                                                                                                                                                                                                                                                         |                                       |      |      |      |      |                  |
| Temperature Range                                      | -55 to +125°C                                                                                                                                                                                                                                                                           |                                       |      |      |      |      |                  |
| Rated Voltage Range                                    | 16 to 63V <sub>dc</sub>                                                                                                                                                                                                                                                                 |                                       |      |      |      |      |                  |
| Capacitance Tolerance                                  | ±20% (M) (at 20°C, 120Hz)                                                                                                                                                                                                                                                               |                                       |      |      |      |      |                  |
| Leakage Current                                        | I=0.01CV or 3 μA, whichever is greater<br>Where, I : Max. leakage current (μA), C: Nominal capacitance(μF), V : Rated voltage(V) (at 20°C after 2 minutes)                                                                                                                              |                                       |      |      |      |      |                  |
| Dissipation Factor (tan δ)                             | Rated voltage(V <sub>dc</sub> )                                                                                                                                                                                                                                                         | 16V                                   | 25V  | 35V  | 50V  | 63V  | (at 20°C, 120Hz) |
|                                                        | tan δ (Max.)                                                                                                                                                                                                                                                                            | 0.16                                  | 0.14 | 0.12 | 0.10 | 0.08 |                  |
| Low Temperature Characteristics (Max. Impedance Ratio) | Z(-25°C)/Z(+20°C)≤1.5<br>Z(-55°C)/Z(+20°C)≤2.0 (at 100kHz)                                                                                                                                                                                                                              |                                       |      |      |      |      |                  |
| 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 (the peak voltage shall not exceed the rated voltage) for 4,000 hours at 125°C.                                         |                                       |      |      |      |      |                  |
|                                                        | Capacitance change                                                                                                                                                                                                                                                                      | ≤ ±30% of the initial value           |      |      |      |      |                  |
|                                                        | D.F. (tan δ)                                                                                                                                                                                                                                                                            | ≤ 200% of the initial specified value |      |      |      |      |                  |
|                                                        | ESR                                                                                                                                                                                                                                                                                     | ≤ 200% of the initial specified value |      |      |      |      |                  |
|                                                        | Leakage current                                                                                                                                                                                                                                                                         | ≤ The initial specified value         |      |      |      |      |                  |
| Shelf Life                                             | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 125°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                                                                                                                                                                                                                                                                      | ≤ ±30% of the initial value           |      |      |      |      |                  |
|                                                        | D.F. (tan δ)                                                                                                                                                                                                                                                                            | ≤ 200% of the initial specified value |      |      |      |      |                  |
|                                                        | ESR                                                                                                                                                                                                                                                                                     | ≤ 200% of the initial specified value |      |      |      |      |                  |
|                                                        | Leakage current                                                                                                                                                                                                                                                                         | ≤ The initial specified value         |      |      |      |      |                  |
| Bias Humidity Test                                     | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to the DC rated voltage at 85°C, 85% RH for 2,000 hours.                                                                                                                 |                                       |      |      |      |      |                  |
|                                                        | Appearance                                                                                                                                                                                                                                                                              | No significant damage                 |      |      |      |      |                  |
|                                                        | Capacitance change                                                                                                                                                                                                                                                                      | ≤ ±30% of the initial value           |      |      |      |      |                  |
|                                                        | D.F. (tan δ)                                                                                                                                                                                                                                                                            | ≤ 200% of the initial specified value |      |      |      |      |                  |
|                                                        | ESR                                                                                                                                                                                                                                                                                     | ≤ 200% of the initial specified value |      |      |      |      |                  |
|                                                        | Leakage current                                                                                                                                                                                                                                                                         | ≤ The initial specified value         |      |      |      |      |                  |

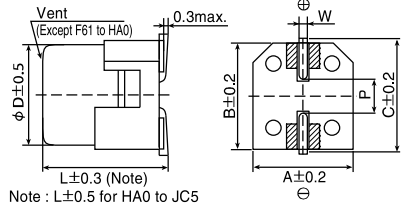
## DIMENSIONS [mm]

- Terminal Code : A
- Size code : E61 to JC5



Note : L±0.5 for HA0 to JC5

- Terminal Code : G(Vibration resistant structure)
- Size code : F61 to JC5

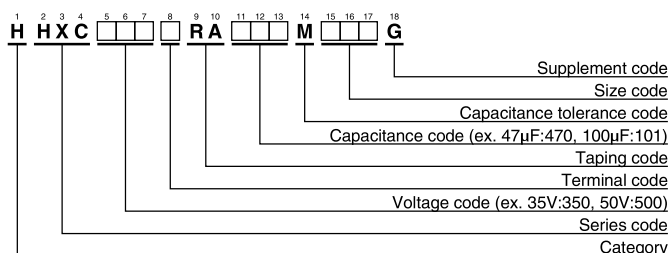


Note : L±0.5 for HA0 to JC5

□ : Dummy terminals

| Size Code | φD  | L    | A    | B    | C    | W          | P   |
|-----------|-----|------|------|------|------|------------|-----|
| E61       | 5   | 5.8  | 5.3  | 5.3  | 5.9  | 0.5 to 0.8 | 1.4 |
| F61       | 6.3 | 5.8  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| F80       | 6.3 | 7.7  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| HA0       | 8   | 10.0 | 8.3  | 8.3  | 9.0  | 0.7 to 1.1 | 3.1 |
| JA0       | 10  | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| JC5       | 10  | 12.5 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer hybrid type)"

## MARKING

EX) 35V270μF



- Rated voltage symbol

| Rated voltage (V <sub>dc</sub> ) | Symbol |
|----------------------------------|--------|
| 16                               | C      |
| 25                               | E      |
| 35                               | V      |
| 50                               | H      |
| 63                               | J      |

◆STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size code | ESR<br>(mΩ max./20°C, 100kHz) | Rated ripple current<br>(mA rms/125°C, 100kHz) | Part No.           |
|--------------------------|-------------|-----------|-------------------------------|------------------------------------------------|--------------------|
| 16                       | 47          | E61       | 80                            | 550                                            | HHXC160ARA470ME61G |
|                          | 82          | F61       | 45                            | 950                                            | HHXC160□RA820MF61G |
|                          | 150         | F80       | 27                            | 1,450                                          | HHXC160□RA151MF80G |
|                          | 270         | HA0       | 22                            | 1,700                                          | HHXC160□RA271MHA0G |
|                          | 470         | JA0       | 18                            | 2,100                                          | HHXC160□RA471MJA0G |
|                          | 560         | JC5       | 15                            | 2,320                                          | HHXC160□RA561MJC5G |
| 25                       | 33          | E61       | 80                            | 550                                            | HHXC250ARA330ME61G |
|                          | 47          | F61       | 50                            | 900                                            | HHXC250□RA470MF61G |
|                          | 56          | F61       | 50                            | 900                                            | HHXC250□RA560MF61G |
|                          | 68          | F80       | 30                            | 1,400                                          | HHXC250□RA680MF80G |
|                          | 100         | F80       | 30                            | 1,400                                          | HHXC250□RA101MF80G |
|                          | 150         | HA0       | 27                            | 1,600                                          | HHXC250□RA151MHA0G |
|                          | 220         | HA0       | 27                            | 1,600                                          | HHXC250□RA221MHA0G |
|                          | 270         | JA0       | 20                            | 2,000                                          | HHXC250□RA271MJA0G |
|                          | 330         | JA0       | 20                            | 2,000                                          | HHXC250□RA331MJA0G |
| 35                       | 470         | JC5       | 16                            | 2,300                                          | HHXC250□RA471MJC5G |
|                          | 22          | E61       | 100                           | 550                                            | HHXC350ARA220ME61G |
|                          | 27          | F61       | 60                            | 900                                            | HHXC350□RA270MF61G |
|                          | 47          | F61       | 60                            | 900                                            | HHXC350□RA470MF61G |
|                          | 47          | F80       | 35                            | 1,400                                          | HHXC350□RA470MF80G |
|                          | 68          | F80       | 35                            | 1,400                                          | HHXC350□RA680MF80G |
|                          | 100         | HA0       | 27                            | 1,600                                          | HHXC350□RA101MHA0G |
|                          | 150         | HA0       | 27                            | 1,600                                          | HHXC350□RA151MHA0G |
|                          | 150         | JA0       | 20                            | 2,000                                          | HHXC350□RA151MJA0G |
| 50                       | 270         | JA0       | 20                            | 2,000                                          | HHXC350□RA271MJA0G |
|                          | 330         | JC5       | 17                            | 2,200                                          | HHXC350□RA331MJC5G |
|                          | 10          | F61       | 80                            | 750                                            | HHXC500□RA100MF61G |
|                          | 15          | F80       | 40                            | 1,100                                          | HHXC500□RA150MF80G |
|                          | 22          | F61       | 80                            | 750                                            | HHXC500□RA220MF61G |
|                          | 33          | F80       | 40                            | 1,100                                          | HHXC500□RA330MF80G |
|                          | 33          | HA0       | 30                            | 1,250                                          | HHXC500□RA330MHA0G |
|                          | 47          | HA0       | 30                            | 1,250                                          | HHXC500□RA470MHA0G |
|                          | 56          | JA0       | 25                            | 1,600                                          | HHXC500□RA560MJA0G |
| 63                       | 68          | HA0       | 30                            | 1,250                                          | HHXC500□RA680MHA0G |
|                          | 100         | JA0       | 25                            | 1,600                                          | HHXC500□RA101MJA0G |
|                          | 120         | JA0       | 25                            | 1,600                                          | HHXC500□RA121MJA0G |
|                          | 150         | JC5       | 19                            | 2,000                                          | HHXC500□RA151MJC5G |
|                          | 6.8         | F61       | 120                           | 700                                            | HHXC630□RA6R8MF61G |
|                          | 10          | F61       | 120                           | 700                                            | HHXC630□RA100MF61G |
|                          | 10          | F80       | 80                            | 900                                            | HHXC630□RA100MF80G |
|                          | 22          | F80       | 80                            | 900                                            | HHXC630□RA220MF80G |
|                          | 22          | HA0       | 40                            | 1,100                                          | HHXC630□RA220MHA0G |
|                          | 33          | HA0       | 40                            | 1,100                                          | HHXC630□RA330MHA0G |
|                          | 33          | JA0       | 30                            | 1,400                                          | HHXC630□RA330MJA0G |
|                          | 47          | HA0       | 40                            | 1,100                                          | HHXC630□RA470MHA0G |
|                          | 56          | JA0       | 30                            | 1,400                                          | HHXC630□RA560MJA0G |
|                          | 82          | JA0       | 30                            | 1,400                                          | HHXC630□RA820MJA0G |
|                          | 100         | JC5       | 22                            | 1,900                                          | HHXC630□RA101MJC5G |

□ : Enter the appropriate terminal code.

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

| Capacitance(μF) | Frequency(Hz) | 120  | 1k   | 5k   | 10k  | 20k  | 30k  | 100k to 500k |
|-----------------|---------------|------|------|------|------|------|------|--------------|
| to 10           |               | 0.03 | 0.30 | 0.50 | 0.60 | 0.70 | 0.75 | 1.00         |
| 15 to 33        |               | 0.07 | 0.30 | 0.50 | 0.60 | 0.70 | 0.75 | 1.00         |
| 47 to 150       |               | 0.10 | 0.40 | 0.60 | 0.70 | 0.80 | 0.80 | 1.00         |
| 220 to 560      |               | 0.13 | 0.45 | 0.65 | 0.75 | 0.85 | 0.85 | 1.00         |