

# NEXCW Series

## V-Chip Memory Back-up Capacitors

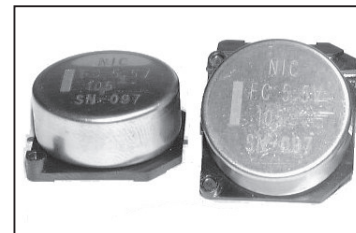


### FEATURES

- DOUBLE LAYER CONSTRUCTION
- POWER BACK-UP FOR CMOS DEVICES
- SURFACE MOUNTABLE V-CHIP STYLE
- LEAD-FREE FINISH

**High Temperature Reflow  
+260°C**

Super Capacitor  
Application Guide



### CHARACTERISTICS

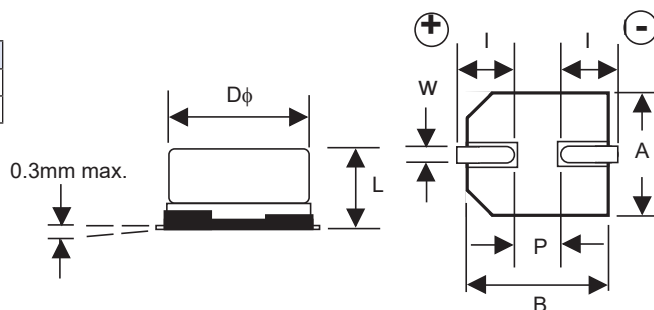
|                                                        |                                       |                                               |
|--------------------------------------------------------|---------------------------------------|-----------------------------------------------|
| Rated Voltage Range                                    | 3.5 & 5.5VDC                          |                                               |
| Rated Capacitance Range                                | 0.047F ~ 0.47F (47,000μF ~ 470,000μF) |                                               |
| Operating Temp. Range                                  | -40°C ~ +85°C                         |                                               |
| Capacitance Tolerance                                  | +80%/-20% (Z)                         |                                               |
| Load Life Test<br>+70°C 1,000 hours<br>+85°C 240 hours | Δ Capacitance Change                  | Within ±30% of initial measured value         |
|                                                        | Maximum ESR                           | Less than 200% of the specified maximum value |
|                                                        | Current at 30 minutes                 | Less than 200% of the specified maximum value |
|                                                        | Δ Capacitance Change                  | Within +80%/-20% of specified value           |
| Temperature Cycling<br>(5 cycles, -25 ~ +70°C)         | Maximum ESR                           | Less than specified maximum value             |
|                                                        | Current at 30 minutes                 | Less than specified maximum value             |
|                                                        | Δ Capacitance Change                  | Within ±20% of initial measured value         |
|                                                        | Maximum ESR                           | Less than 120% of the specified maximum value |
| Humidity Resistance<br>(240 hours @ 40°C/90% RH)       | Current at 30 minutes                 | Less than 120% of the specified maximum value |
|                                                        |                                       |                                               |

### STANDARD VALUES AND SPECIFICATIONS

| NIC P/N                  | Capacitance Value (F) Discharge | Working Voltage (VDC) | Max. Current @ 30 minutes (mA) | Max. ESR @ 1KHz (Ω) |
|--------------------------|---------------------------------|-----------------------|--------------------------------|---------------------|
| NEXCW104Z3.5V10.7X5.5TRF | 0.10                            | 3.5                   | 0.090                          | 100                 |
| NEXCW224Z3.5V10.7X5.5TRF | 0.22                            | 3.5                   | 0.200                          | 50                  |
| NEXCW474Z3.5V10.7X8.5TRF | 0.47                            | 3.5                   | 0.420                          | 50                  |
| NEXCW473Z5.5V10.7X5.5TRF | 0.047                           | 5.5                   | 0.071                          | 100                 |
| NEXCW104Z5.5V10.7X5.5TRF | 0.10                            | 5.5                   | 0.150                          | 50                  |
| NEXCW224Z5.5V10.7X8.5TRF | 0.22                            | 5.5                   | 0.330                          | 50                  |

### CASE DIMENSIONS (mm)

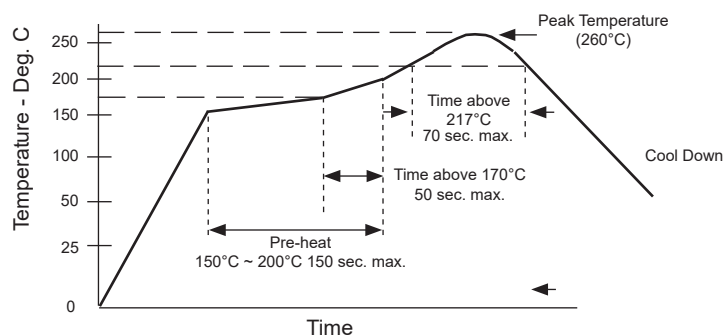
| Case Size  | Dφ ± | L max. | A/B ±0.2 | I        | W        | P   |
|------------|------|--------|----------|----------|----------|-----|
| 10.7 x 5.5 | 10.7 | 5.5    | 10.8     | 3.9 ±0.5 | 1.2 ±0.1 | 5.0 |
| 10.7 x 8.5 | 10.7 | 8.5    | 10.8     | 3.9 ±0.5 | 1.2 ±0.1 | 5.0 |



### PRECAUTIONS

Please review the notes on correct use, safety and precautions found at [https://www.niccomp.com/wp-content/uploads/files/double/Doube\\_Layer\\_Capacitor\\_Guide\\_0810-RevBrA7.pdf](https://www.niccomp.com/wp-content/uploads/files/double/Doube_Layer_Capacitor_Guide_0810-RevBrA7.pdf)  
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)

### HIGH TEMPERATURE REFLOW PROFILE

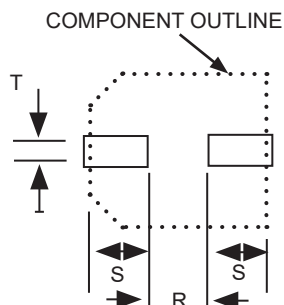


|                                                            |               |
|------------------------------------------------------------|---------------|
| Peak Temperature                                           | +260°C        |
| Time above +255°C                                          | 10 sec. max.  |
| Time above +230°C                                          | 45 sec. max.  |
| Time above +220°C                                          | 60 sec. max.  |
| Time above +217°C                                          | 70 sec. max.  |
| 150°C ~ +200°C<br>(with time above +170°C<br>50 sec. max.) | 150 sec. max. |

1. The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.
2. 2x reflow process maximum. Capacitor should be allowed to return to room temperature before second reflow process.

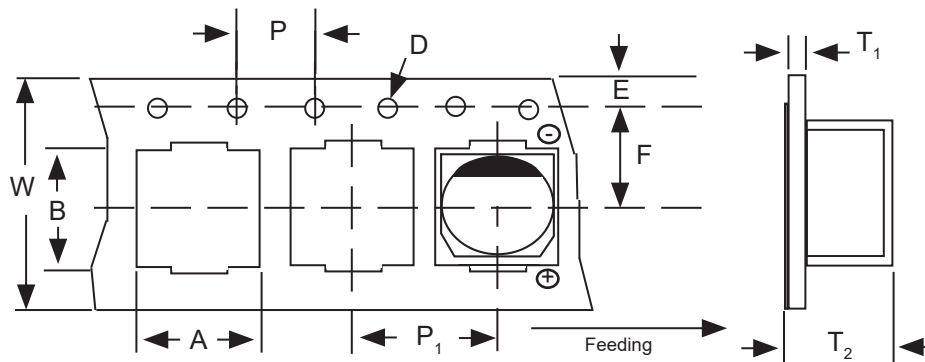
### LAND PATTERN DIMENSIONS (mm)

| Case Diameter | R   | S   | T   |
|---------------|-----|-----|-----|
| 10.7          | 5.0 | 4.9 | 2.5 |



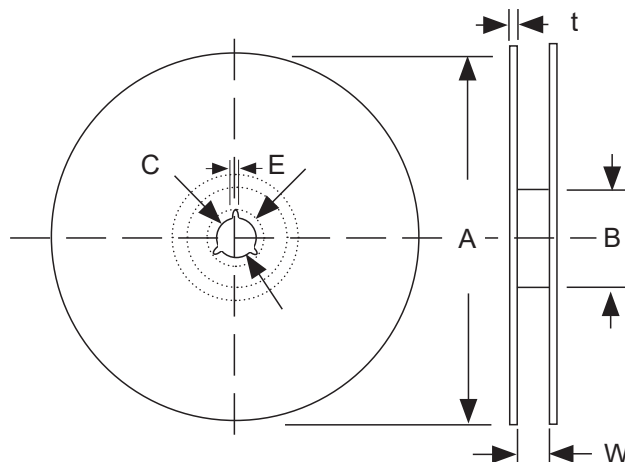
### CARRIER TAPE DIMENSIONS (mm)

| Case Size  | A    | B    | D    | E    | F    | P   | P <sub>1</sub> | T <sub>1</sub> | T <sub>2</sub> | W    | Quantity/Reel |
|------------|------|------|------|------|------|-----|----------------|----------------|----------------|------|---------------|
| 10.7 x 5.5 | 11.4 | 13.0 | 1.55 | 1.75 | 11.5 | 4.0 | 16.0           | 0.4            | 6.0            | 24.0 | 1,000         |
| 10.7 x 8.5 | 11.4 | 13.0 | 1.55 | 1.75 | 11.5 | 4.0 | 16.0           | 0.4            | 8.4            | 24.0 | 500           |



### REEL DIMENSIONS (mm)

| Case Size  | A ± 2.0 | B ± 1.0 | C ± 0.5 | D ± 0.8 | E ± 0.5 | W          | t   |
|------------|---------|---------|---------|---------|---------|------------|-----|
| 10.7 x 5.5 | 380     | 80.0    | 13.0    | 21.0    | 2.0     | 25.5 ± 0.5 | 2.0 |
| 10.7 x 8.5 | 380     | 100.0   | 13.0    | 21.0    | 2.0     | 25.5 ± 1.0 | 2.0 |



### RELIABILITY TEST

| Item                                      | Specification            |                          |                                   | Test Method<br>JIS C 5260-1                              |
|-------------------------------------------|--------------------------|--------------------------|-----------------------------------|----------------------------------------------------------|
| Temperature Characteristics               | Step 2                   | Capacitance              | >50% of initial measured value    | Section 4.17                                             |
|                                           |                          | ESR                      | <400% of initial measured value   |                                                          |
|                                           | Step 3                   | Capacitance              | >30% of initial measured value    | Phase 1: +25°C ± 2°C                                     |
|                                           |                          | ESR                      | <700% of initial measured value   | Phase 2: -25°C ± 2°C                                     |
|                                           | Step 5                   | Capacitance              | >200% of initial measured value   | Phase 3: -40°C ± 2°C                                     |
|                                           |                          | ESR                      | Meets initial specification       | Phase 4: +25°C ± 2°C                                     |
|                                           |                          | Current @ 30 minutes     | 1.5CV (mA) or less                | Phase 5: +85°C ± 2°C                                     |
|                                           | Step 6                   | Capacitance              | ±20% of initial measured value*   | Phase 6: +25°C ± 2°C                                     |
|                                           |                          | ESR                      | Meets initial specification*      |                                                          |
|                                           |                          | Current after 30 minutes | Meets initial specification*      |                                                          |
| Vibration                                 | Capacitance              |                          | Meets initial specifications      | Section 4.13                                             |
|                                           | ESR                      |                          |                                   | Frequency: 10 ~ 55Hz                                     |
|                                           | Current after 30 minutes |                          |                                   | Duration: 6 hours                                        |
|                                           | Appearance               |                          | No obvious abnormalities          |                                                          |
| Resistance to Soldering Heat              | Capacitance              |                          | Meets initial specifications*     | See NEXCW datasheet for reflow soldering conditions      |
|                                           | ESR                      |                          |                                   |                                                          |
|                                           | Current after 30 minutes |                          |                                   |                                                          |
|                                           | Appearance               |                          | No obvious abnormalities          |                                                          |
| Temperature Cycling                       | Capacitance              |                          | Meets initial specifications*     | Section 4.12                                             |
|                                           | ESR                      |                          |                                   | Temp.: -40°C > +25°C > +85°C                             |
|                                           | Current after 30 minutes |                          |                                   | Number of cycles: 5                                      |
|                                           | Appearance               |                          | No obvious abnormalities          |                                                          |
| Resistance to High Temperature & Humidity | Capacitance              |                          | ±20% of initial measured value*   | Section 4.14                                             |
|                                           | ESR                      |                          | <120% of initial specified value* | Temperature: +40°C ± 2°C                                 |
|                                           | Current after 30 minutes |                          | <120% of initial specified value* | Relative Humidity: 90% ~ 95%                             |
|                                           | Appearance               |                          | No obvious abnormalities          | Duration: 240 hours ± 8 hours                            |
| High Temperature Load Life                | Capacitance              |                          | ±30% of initial measured value*   | Section 4.15                                             |
|                                           | ESR                      |                          | <200% of initial specified value* | Temperature: +85°C ± 2°C                                 |
|                                           | Current after 30 minutes |                          | <200% of initial specified value* | Voltage: 5.5Vdc                                          |
|                                           | Appearance               |                          | No obvious abnormalities          | Series resistance: 0Ω<br>Duration: 240 hours +8/-0 hours |

\* Stabilize component at +25°C prior to making measurements of characteristics.