

# Surface Mount Aluminum Electrolytic Capacitors NATU Series

## FEATURES

- **EXTENDED TEMPERATURE +125°C & LONG LIFE (4,000 HOURS)**
- **CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING**
- **DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING**
- **MEETS THE REQUIREMENTS OF AEC-Q200\***

\*Contact NIC for supporting test data

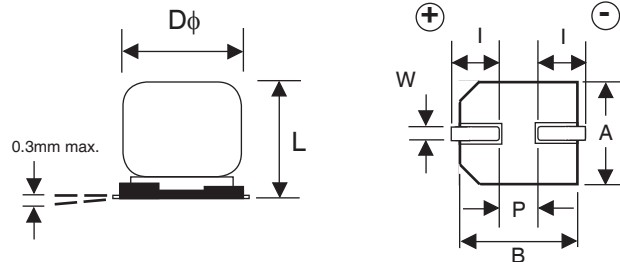


## CHARACTERISTICS

|   |                           |  |      |
|---|---------------------------|--|------|
| Rated Voltage Range   | 25 ~ 35VDC                |  |      |
| Rated Capacitance Range                                       | 100 ~ 330 $\mu$ F         |  |      |
| Operating Temp. Range   | -40 ~ +125°C              |  |      |
| Capacitance Tolerance   | $\pm$ 20% (M)             |  |      |
| Max. Leakage Current After 2 Minutes @ 20°C                   | 0.01CV                    |  |      |
| Tan $\delta$ @ 120Hz/20°C                                     | W.V. (Vdc)                | 25   | 35   |
|   | S.V. (Vdc)                | 32   | 44   |
|   | Tan $\delta$ @ 120Hz/20°C | 0.16                                       | 0.14 |
| Low Temperature Stability Impedance Ratio @ 120Hz             | W.V. (Vdc)                | 25   | 35   |
|   | Z -25°C/Z +20°C           | 22   |      |
|   | Z -40°C/Z +20°C           | 3  | 3    |
| Load Life Test at W.V. @ 125°C<br>All Case Sizes: 4,000 Hours | Capacitance Change        | Within $\pm$ 30% of initial measured value |      |
|   | Tan $\delta$              | Less than 300% of specified max. value     |      |
|   | Leakage Current           | Less than specified max. value             |      |

## STANDARD PRODUCT AND CASE SIZE D $\phi$ xL (mm)

| Cap. ( $\mu$ F) | Code | Working Voltage (Vdc) |         |
|-----------------|------|-----------------------|---------|
|                 |      | 25                    | 35      |
| 100             | 101  | -                     | 8X10.8  |
| 150             | 151  | 8X10.8                | -       |
| 220             | 221  | -                     | 10X10.8 |
| 330             | 331  | 10X10.8               | -       |



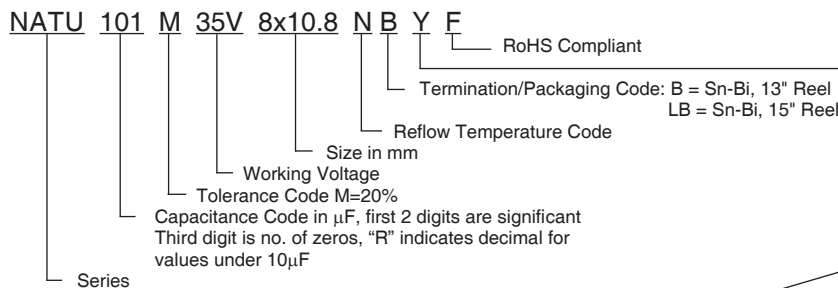
## DIMENSIONS (mm)

| Case Size | D $\phi$ $\pm$ 0.5 | L max. | A, B $\pm$ 0.2 | l $\pm$ 0.3 | P $\pm$ 0.3 | W         |
|-----------|--------------------|--------|----------------|-------------|-------------|-----------|
| 8 x 10.8  | 8.0                | 10.8   | 8.3            | 2.9         | 3.2         | 0.7 ~ 1.0 |
| 10 x 10.8 | 10.0               | 10.8   | 10.3           | 3.2         | 4.6         | 1.0 ~ 1.4 |

| Reflow Code |
|-------------|
| L = +250°C  |
| N = +260°C  |

| Termination / Packaging Code |
|------------------------------|
| B = Sn-Bi / 13" reel         |
| LB = Sn-Bi / 15" reel        |

## PART NUMBER SYSTEM



Suitable for automotive equipment, sourced to special production and inspection at TS-16949 certified production site

## PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.  
Also found at [www.niccomp.com/precautions](http://www.niccomp.com/precautions)  
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)



# Surface Mount Aluminum Electrolytic Capacitors NATU Series

## STANDARD VALUES, CASE SIZES & SPECIFICATIONS

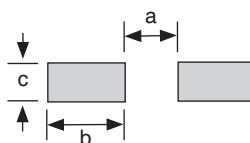
| Part Number            | Cap. (μF) | Working Voltage | Dissipation Factor @ 120Hz/20°C | Max. ESR (Ω) AT 100KHz/20°C | Max. Ripple Current (mA rms) AT 100KHz/125°C | Load Life Hours @ +125°C |
|------------------------|-----------|-----------------|---------------------------------|-----------------------------|--|--------------------------|
| NATU151M25V8X10.8NBYP  | 150       | 25              | 0.16                            | 0.30                        | 300  | 4,000                    |
| NATU331M25V10X10.8LBYP | 330       |                 | 0.16                            | 0.20                        | 500  | 4,000                    |
| NATU101M35V8X10.8NBYP  | 100       | 35              | 0.14                            | 0.30                        | 300  | 4,000                    |
| NATU221M35V10X10.8LBYP | 220       |                 | 0.14                            | 0.20                        | 500  | 4,000                    |

## RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

| Frequency (Hz) | 100 ≤ f < 1K | 1K ≤ f < 10K | 10K ≤ f < 100K | 100K ≤ f |
|----------------|--------------|--------------|----------------|----------|
| 100μF ~ 330μF  | 0.6          | 0.85         | 0.93           | 1.00     |

## LAND PATTERN DIMENSIONS (mm)

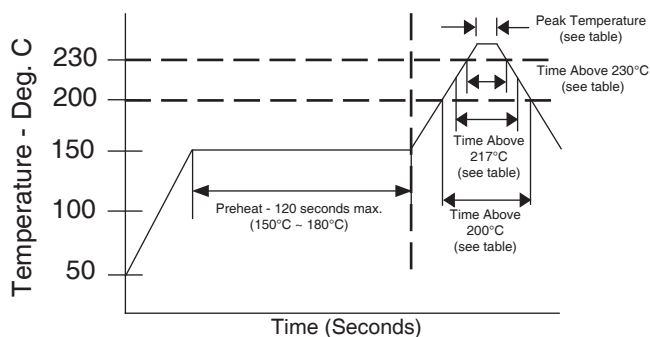
| Case Size | a   | b   | c   |
|-----------|-----|-----|-----|
| 8x10.8    | 2.8 | 4.1 | 2.1 |
| 10x10.8   | 4.3 | 4.4 | 2.5 |



## PEAK REFLOW TEMPERATURES AND DURATION

| Diameter | Time above 200°C | Time above 217°C | Time above 230°C | Peak Temperature 5 seconds |
|----------|------------------|------------------|------------------|----------------------------|
| 8mm φ    | 80 sec. max.     | 70 sec. max.     | 40 sec. max.     | 260°C                      |
| 10mm φ   | 70 sec. max.     | 60 sec. max.     | 40 sec. max.     | 250°C                      |

Capacitors can withstand two reflow passes under the specified conditions. Capacitors must be allowed to cool to room temperature before the second reflow pass.



Review & Compare Reflow Soldering Heat Limits  
V-chip SMT Aluminum Electrolytic Capacitors  
[www.niccomp.com/RSL](http://www.niccomp.com/RSL)



# Surface Mount Aluminum Electrolytic Capacitors NATU Series

## CARRIER TAPE

| Case Size | A<br>±0.2 | B<br>±0.2 | C<br>±0.3 | D<br>±0.1 | P<br>±0.1 | T<br>±0.2 | t<br>max. |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 8x10.8    | 8.7       | 8.7       | 24.0      | 11.5      | 16.0      | 11.1      | 0.6       |
| 10x10.8   | 10.7      | 10.7      | 24.0      | 11.5      | 16.0      | 11.2      | 0.6       |

## TR13 330mm (13") REEL

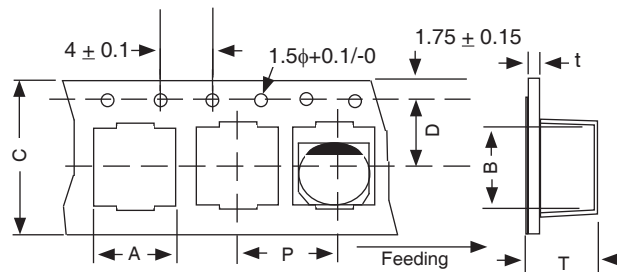
## TR15 380mm (15") REEL

| Case Size | W<br>±1.0 | Qty per Reel |             |
|-----------|-----------|--------------|-------------|
|           |           | 13" (330mm)  | 15" (380mm) |
| 8x10.8    | 26        | 300          | 500         |
| 10x10.8   | 26        | 300          | 500         |

## TAPING SPECIFICATIONS (mm)

- Both Leader and Trailer tape: Minimum 10 empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

### CARRIER



### REEL

