

125°C LONG LIFE SURFACE MOUNT TYPE
ALUMINUM ELECTROLYTIC CAPACITOR, POLARIZED

FEATURES

G RoHS COMPLIANT

- EXTENDED TEMPERATURE +125°C
- NATQ SERIES IS HIGH TEMPERATURE, LONG LIFE PRODUCTS (3000 ~ 4000 HOURS @125°C)
- CYLINDRIAL LEADLESS TYPE FOR SURFACE MOUNTING
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING
- SOLVENT PROOF (WITHIN 2 MINUTES)

CHARACTERISTICS

| | | | |
|--|--|--|------|
| Rated Voltage Range | 25 ~ 35 Vdc | | |
| Capacitance Range | 1300 ~ 3300 μ F | | |
| Operating Temperature Range | -40 ~ +125 °C | | |
| Capacitance Tolerance | \pm 20%(M) | | |
| Max. Leakage Current After 2 minutes @20°C | 0.01CV | | |
| Max. Tan δ at 120Hz & 20°C | R.V. (Vdc) | 25 | 35 |
| | S.V. (Vdc) | 32 | 44 |
| | Tan δ @120Hz/20°C | 0.18 | 0.16 |
| | When rated capacitance exceeds 1000 μ F, add 0.02 to the value above for each 1000 μ F increase. | | |
| Low Temperature Stability Impedance Ratio @ 120Hz | R.V.(Vdc) | 25 | 35 |
| | Z-25°C/Z+20°C | 2 | 2 |
| | Z-40°C/Z+20°C | 4 | 3 |
| Load Life Test 125°C With Rated Voltage | Test | Φ 16:3000hrs, Φ 18:4000hrs | |
| | Capacitance Change | Within \pm 35% of initial measured value | |
| | Tan δ | Less than 300% of specified value | |
| | Leakage Current | Less than specified value | |

STANDARD PRODUCT TABLE (Φ D X L mm)

| R.V.(Vdc) Cap.(μ F) | 25 | 35 |
|-----------------------------|-------|-------|
| 1300 | | 16X17 |
| 1800 | 16X17 | |
| 2400 | | 18X22 |
| 3300 | 18X22 | |

MAXIMUM ESR (Ω at 100kHz & 20°C)

| R.V.(Vdc) Cap.(μ F) | 25 | 35 |
|-----------------------------|-------|-------|
| 1300 | | 0.047 |
| 1800 | 0.047 | |
| 2400 | | 0.032 |
| 3300 | 0.032 | |

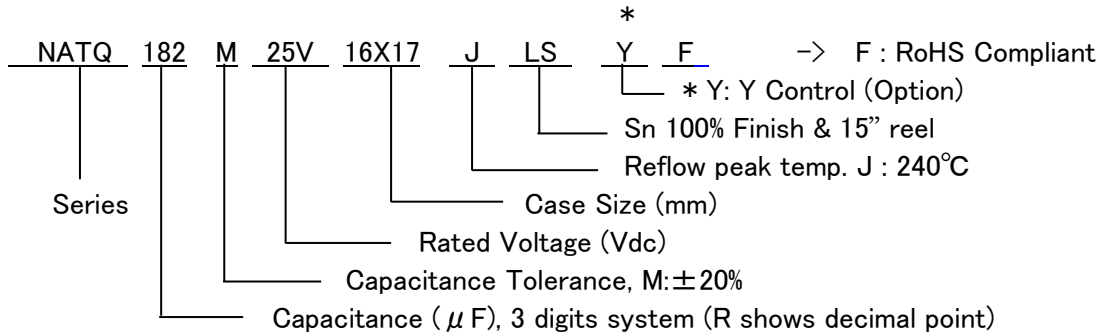
MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA r.m.s. at 100kHz & 125°C)

| R.V.(Vdc) Cap.(μ F) | 25 | 35 |
|-----------------------------|------|------|
| 1300 | | 2400 |
| 1800 | 2400 | |
| 2400 | | 3250 |
| 3300 | 3250 | |

STANDARD PRODUCTS AND SPECIFICATIONS

| NIC Part number | Size | R.V. (μF) | Cap. (μF) | Tan δ | MAX.ESR (Ω) +20°C,100kHz | Max. Ripple current (mA) 125°C,100kHz | Life (hours) |
|----------------------|-------|------------------|------------------|--------------|--------------------------------------|---------------------------------------|--------------|
| NATQ182M25V16X17JLSF | 16X17 | 25V | 1800 | 0.18 | 0.047 | 2400 | 3000 |
| NATQ332M25V18X22JLSF | 18X22 | | 3300 | 0.22 | 0.032 | 3250 | 4000 |
| NATQ132M35V16X17JLSF | 16X17 | 35V | 1300 | 0.16 | 0.047 | 2400 | 3000 |
| NATQ242M35V18X22JLSF | 18X22 | | 2400 | 0.18 | 0.032 | 3250 | 4000 |

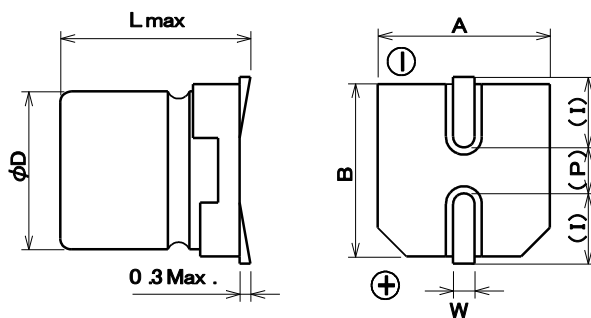
PART NUMBER SYSTEM



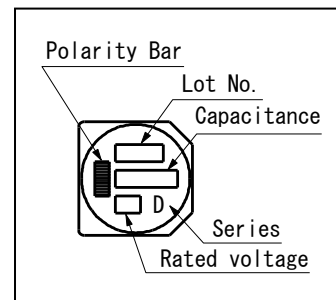
MULTIPLIER FOR RIPPLE CURRENT/Frequency coefficient

| Frequency : F(Hz) | | | |
|-------------------|-------------------|---------------------|---------------|
| $100 \leq F < 1k$ | $1k \leq F < 10k$ | $10k \leq F < 100k$ | $100k \leq F$ |
| 0.75 | 0.90 | 0.95 | 1.00 |

DIMENSIONS (mm)

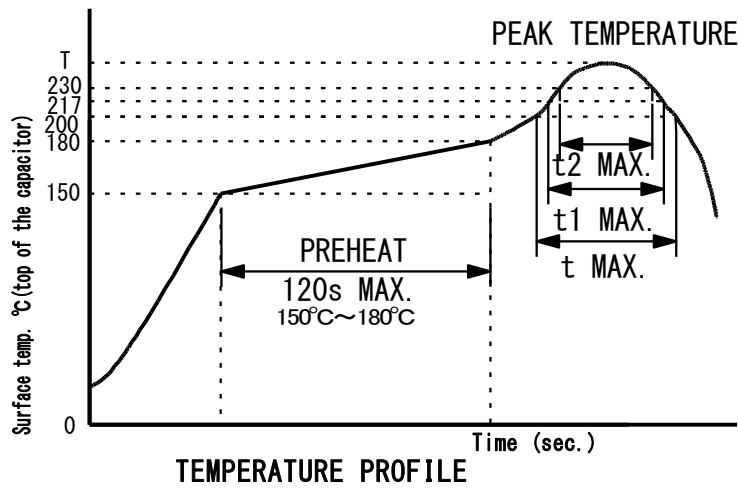


MARKING



| Case Size | $\phi D \pm 0.5$ | L max | $A \pm 0.2$ | $B \pm 0.2$ | (I) | W | (P) |
|-----------|------------------|-------|-------------|-------------|-----|---------|-----|
| 16X17 | 16 | 17.0 | 16.3 | 16.3 | 5.1 | 1.7~2.1 | 7.0 |
| 18X22 | 18 | 22.0 | 19.0 | 19.0 | 6.5 | 1.7~2.1 | 7.0 |

PERMISSIBLE REFLOW TEMPERATURE PROFILE

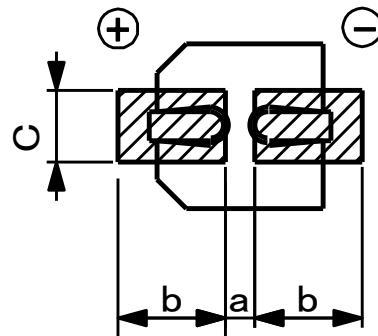


| Size | Time for more than 200°C (t) | Time for more than 217°C (t1) | Time for more than 230°C (t2) | Peak temperature (T) |
|-----------|------------------------------|-------------------------------|-------------------------------|-----------------------|
| Φ16 & Φ18 | Within 50sec. | Within 40sec. | Within 20sec. | 240°C (Within 5 sec.) |

Capacitor can withstand two reflow processes on the above condition.
 Second reflow shall be taken after more than one hour natural cooling time
 and taken after the return to normal temperatures of PCB and components.

RECOMMEND LAND PATTERN : (mm)

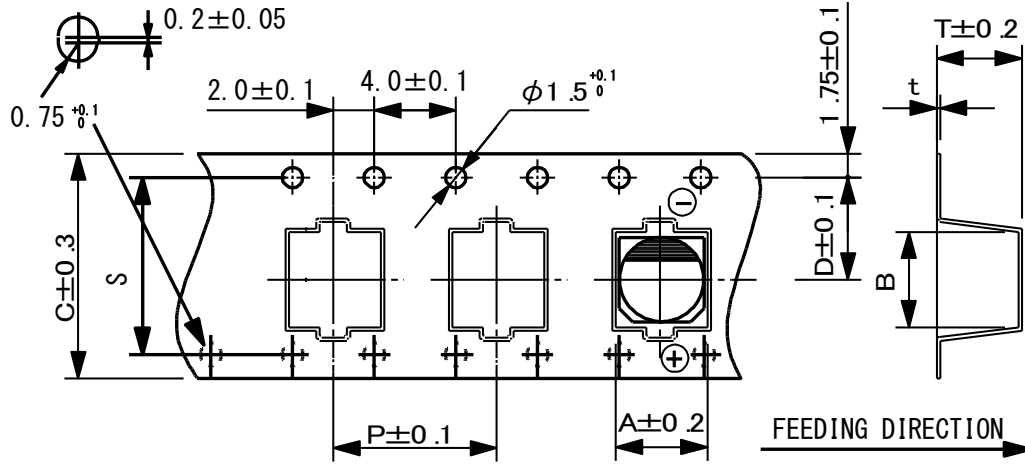
| Case Size | a | b | c |
|-----------|-----|-----|-----|
| 16X17 | 6.6 | 6.5 | 5.0 |
| 18X22 | 6.6 | 7.7 | 5.0 |



TAPING SPECIFICATIONS :

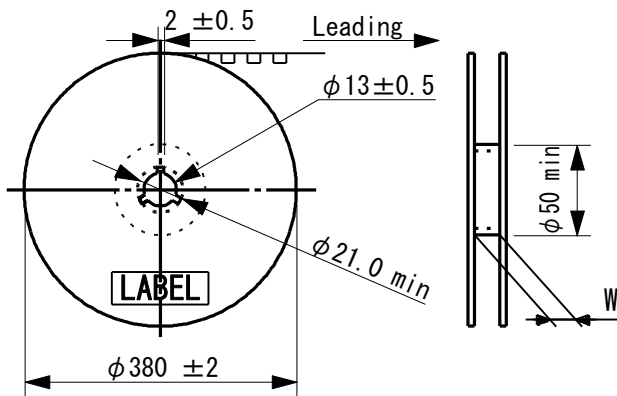
1. Leader and ending tape : Min. 10 cm empty pockets and min. 20 cm of cover tape.
2. Connection : Within 3 connections per reel.

CARRIER TAPE DIMENSIONS (mm) :



| Case Size | A | B | C | D | P | T | t | S |
|-----------|------|------|------|------|------|------|------|------|
| 16X17 | ±0.2 | ±0.2 | ±0.3 | ±0.1 | ±0.1 | ±0.2 | MAX. | ±0.1 |
| 18X22 | 17.5 | 17.5 | 44.0 | 20.2 | 28.0 | 17.3 | 0.6 | 40.4 |
| 18X22 | 19.5 | 19.5 | 44.0 | 20.2 | 32.0 | 22.5 | 0.6 | 40.4 |

REEL DIMENSIONS (mm) :



| Case Size | W | Qty per reel (pcs) TR15 (380mm) |
|-----------|----|------------------------------------|
| 16X17 | 46 | 200 |
| 18X22 | 46 | 125 |