



# ARMA SERIES

## HIGH RELIABLE 105°C TYPE

HYBRID ALUMINUM ELECTROLYTIC CAPACITOR • THT type

Low leakage current

Self-healing of dielectric layer

Low drift and stable electrical characteristics over lifetime

Best performance in small size

**Long lifetime with 10000 hours at 105°C**

## SPECIFICATION

| Item                                   |                   | Characteristics                                                                                                                                                                    |                   |                   |                   |                   |                   |
|----------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Category Temperature Range             |                   | -55°C to +105°C                                                                                                                                                                    |                   |                   |                   |                   |                   |
| Rated Voltage Range                    | V <sub>R</sub>    | 25V <sub>DC</sub> to 80V <sub>DC</sub>                                                                                                                                             |                   |                   |                   |                   |                   |
| Rated Capacitance Range                | C <sub>R</sub>    | 22μF to 470μF                                                                                                                                                                      |                   |                   |                   |                   |                   |
| Capacitance Tolerance ▪ At 20°C; 120Hz | ΔC                | ±20%                                                                                                                                                                               |                   |                   |                   |                   |                   |
| Surge Voltage ▪ At 105°C               | V <sub>S</sub>    | V <sub>S</sub> = 1.15 × V <sub>R</sub>                                                                                                                                             |                   |                   |                   |                   |                   |
| Dissipation Factor ▪ At 20°C; 120Hz    | tan δ             | V <sub>R</sub>                                                                                                                                                                     | 25V <sub>DC</sub> | 35V <sub>DC</sub> | 50V <sub>DC</sub> | 63V <sub>DC</sub> | 80V <sub>DC</sub> |
|                                        |                   | tan δ <sub>max</sub>                                                                                                                                                               | 0.14              | 0.12              | 0.10              | 0.08              | 0.08              |
| Leakage Current ▪ At 20°C; after 2min. | I <sub>LEAK</sub> | Shall not exceed values in the electrical characteristics                                                                                                                          |                   |                   |                   |                   |                   |
| Endurance                              | Test              | 105°C ▲ 10000hrs ▲ V <sub>R</sub> and I <sub>R</sub> applied                                                                                                                       |                   |                   |                   |                   |                   |
|                                        | Appearance        | No significant damage                                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | ΔC/C <sub>R</sub> | ≤ ±30% of the initial value                                                                                                                                                        |                   |                   |                   |                   |                   |
|                                        | tan δ             | ≤ 200% of the initial specified value                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | ESR               | ≤ 200% of the initial specified value                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | I <sub>LEAK</sub> | ≤ The initial specified value                                                                                                                                                      |                   |                   |                   |                   |                   |
| Damp Heat (Steady State)               | Test              | 60°C ▲ 90 to 95% RH ▲ 1000hrs ▪ V <sub>R</sub> applied                                                                                                                             |                   |                   |                   |                   |                   |
|                                        | Appearance        | No significant damage                                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | ΔC/C <sub>R</sub> | ≤ ±20% of the initial value                                                                                                                                                        |                   |                   |                   |                   |                   |
|                                        | tan δ             | ≤ 200% of the initial specified value                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | ESR               | ≤ 200% of the initial specified value                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | I <sub>LEAK</sub> | ≤ The initial specified value                                                                                                                                                      |                   |                   |                   |                   |                   |
| Shelf Life                             | Test              | After storage for 1000hrs at 105±2°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the limits specified in Endurance. (With voltage treatment). |                   |                   |                   |                   |                   |
|                                        | Appearance        | No significant damage                                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | ΔC/C <sub>R</sub> | ≤ ±30% of the initial value                                                                                                                                                        |                   |                   |                   |                   |                   |
|                                        | tan δ             | ≤ 200% of the initial specified value                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | ESR               | ≤ 200% of the initial specified value                                                                                                                                              |                   |                   |                   |                   |                   |
|                                        | I <sub>LEAK</sub> | ≤ The initial specified value                                                                                                                                                      |                   |                   |                   |                   |                   |

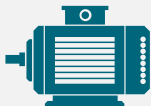
## ELECTRICAL CHARACTERISTICS

| $V_{RDC}$<br>(V) | $C_R$<br>( $\mu F$ ) | Size<br>Code | Dimensions (mm) |    |     |          | $I_{LEAK}$<br>20°C<br>2min<br>( $\mu A$ ) | ESR<br>20°C<br>100kHz<br>(m $\Omega$ ) | $I_R$<br>105°C<br>100kHz<br>(mA) | Part Number <sup>Note 1</sup> |
|------------------|----------------------|--------------|-----------------|----|-----|----------|-------------------------------------------|----------------------------------------|----------------------------------|-------------------------------|
|                  |                      |              | D               | L  | P   | $\phi d$ |                                           |                                        |                                  |                               |
| 25               | 100                  | 06X8         | 6.3             | 8  | 2.5 | 0.6      | 25                                        | 30                                     | 2000                             | 250ARMA101M06X8T              |
|                  | 220                  | 08X8         | 8               | 8  | 3.5 | 0.6      | 55                                        | 27                                     | 2300                             | 250ARMA221M08X8T              |
|                  | 330                  | 10A0         | 10              | 10 | 5   | 0.6      | 83                                        | 20                                     | 2500                             | 250ARMA331M10A0T              |
|                  | 470                  | 10A0         | 10              | 10 | 5   | 0.6      | 118                                       | 20                                     | 2500                             | 250ARMA471M10A0T              |
| 35               | 68                   | 06X8         | 6.3             | 8  | 2.5 | 0.6      | 24                                        | 35                                     | 2000                             | 350ARMA680M06X8T              |
|                  | 150                  | 08X8         | 8               | 8  | 3.5 | 0.6      | 53                                        | 27                                     | 2300                             | 350ARMA151M08X8T              |
|                  | 270                  | 10A0         | 10              | 10 | 5   | 0.6      | 95                                        | 20                                     | 2500                             | 350ARMA271M10A0T              |
|                  | 330                  | 10A0         | 10              | 10 | 5   | 0.6      | 116                                       | 20                                     | 2500                             | 350ARMA331M10A0T              |
| 50               | 33                   | 06X8         | 6.3             | 8  | 2.5 | 0.6      | 17                                        | 40                                     | 1600                             | 500ARMA330M06X8T              |
|                  | 68                   | 08X8         | 8               | 8  | 3.5 | 0.6      | 34                                        | 30                                     | 1800                             | 500ARMA680M08X8T              |
|                  | 100                  | 10A0         | 10              | 10 | 5   | 0.6      | 50                                        | 28                                     | 2000                             | 500ARMA101M10A0T              |
|                  | 120                  | 10A0         | 10              | 10 | 5   | 0.6      | 60                                        | 28                                     | 2000                             | 500ARMA121M10A0T              |
|                  | 150                  | 10A2         | 10              | 12 | 5   | 0.6      | 75                                        | 19                                     | 2300                             | 500ARMA151M10A2T              |
| 63               | 22                   | 06X8         | 6.3             | 8  | 2.5 | 0.6      | 14                                        | 80                                     | 1500                             | 630ARMA220M06X8T              |
|                  | 33                   | 08X8         | 8               | 8  | 3.5 | 0.6      | 21                                        | 40                                     | 1700                             | 630ARMA330M08X8T              |
|                  | 47                   | 08X8         | 8               | 8  | 3.5 | 0.6      | 30                                        | 40                                     | 1700                             | 630ARMA470M08X8T              |
|                  | 56                   | 10A0         | 10              | 10 | 5   | 0.6      | 35                                        | 30                                     | 1800                             | 630ARMA560M10A0T              |
|                  | 82                   | 10A0         | 10              | 10 | 5   | 0.6      | 52                                        | 30                                     | 1800                             | 630ARMA820M10A0T              |
|                  | 100                  | 10A2         | 10              | 12 | 5   | 0.6      | 63                                        | 22                                     | 2100                             | 630ARMA101M10A2T              |
| 80               | 22                   | 08X8         | 8               | 8  | 3.5 | 0.6      | 18                                        | 45                                     | 1600                             | 800ARMA220M08X8T              |
|                  | 47                   | 10A0         | 10              | 10 | 5   | 0.6      | 38                                        | 36                                     | 1700                             | 800ARMA470M10A0T              |
|                  | 56                   | 10A2         | 10              | 12 | 5   | 0.6      | 45                                        | 32                                     | 1800                             | 800ARMA560M10A2T              |

### Notes

1 Part number shows the standard Tape/Ammo version

## APPLICATIONS

| DC Link in<br>Motor Drives                                                          | Harsh Environmental<br>Applications                                                 | Input/Output Filter<br>in DC/DC Converter                                           | Power and Battery<br>decoupling                                                       | Smoothing in<br>Power Supplies                                                        |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |

# REFERENCE DATA ▲ 250ARMA221M08X8T ▲ 220 $\mu$ F ▲ 25V ▲ 8.0 x 8.0mm

Fig. 1 • Frequency Characteristics of ESR & |Z|

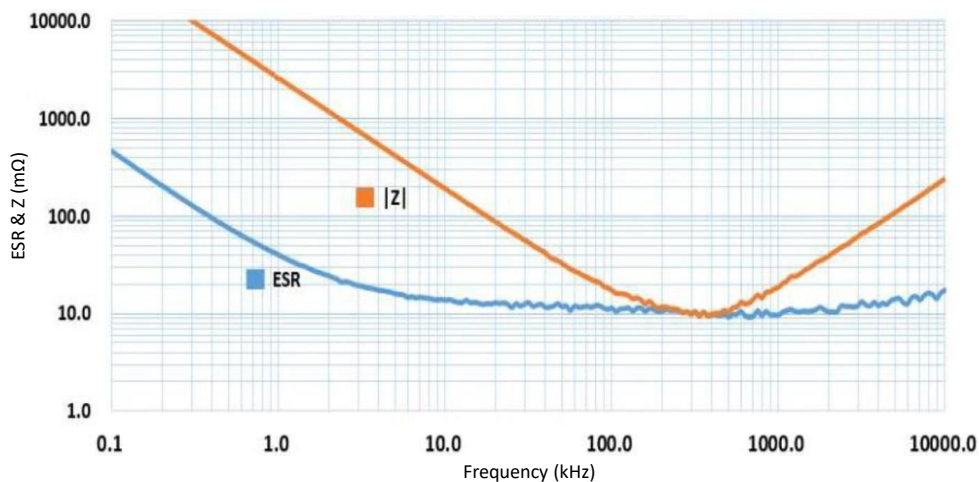


Fig. 2 • Frequency Characteristics of C ( $\mu$ F)

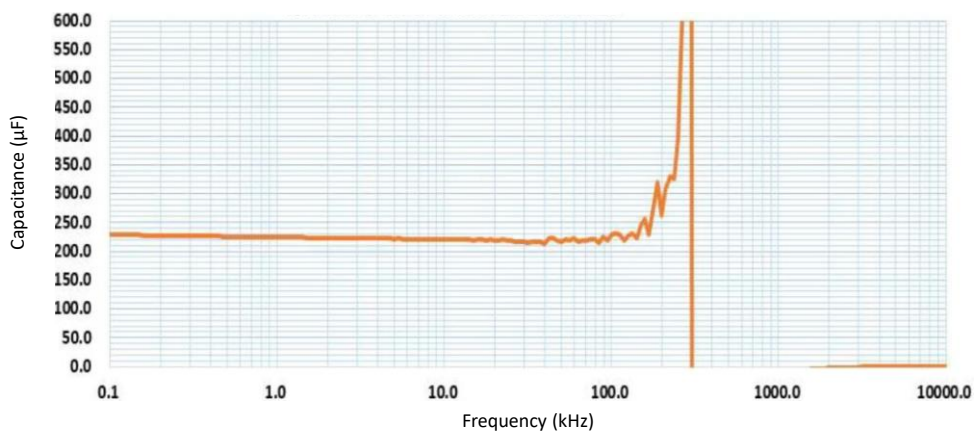
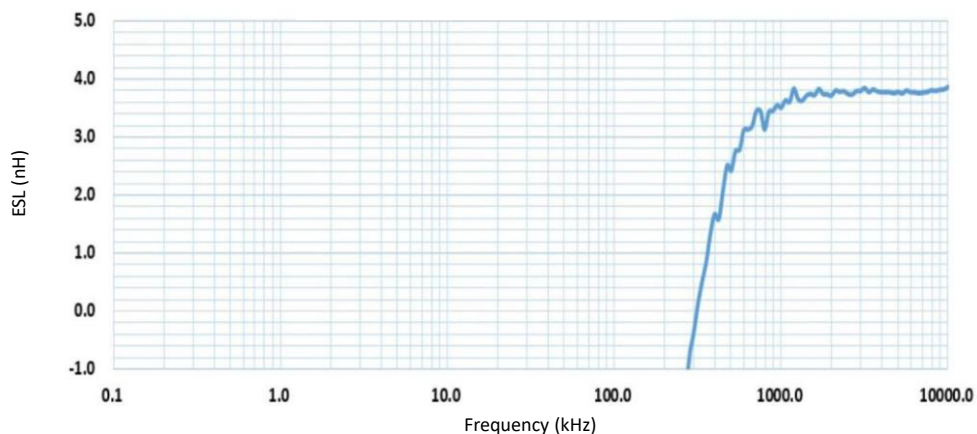


Fig. 3 • Frequency Characteristics of ESL (nH)



# REFERENCE DATA ▲ 350ARMA101M0808T ▲ 100 $\mu$ F ▲ 35V ▲ 8.0 x 8.0mm

Fig. 4 • Frequency Characteristics of ESR & |Z|

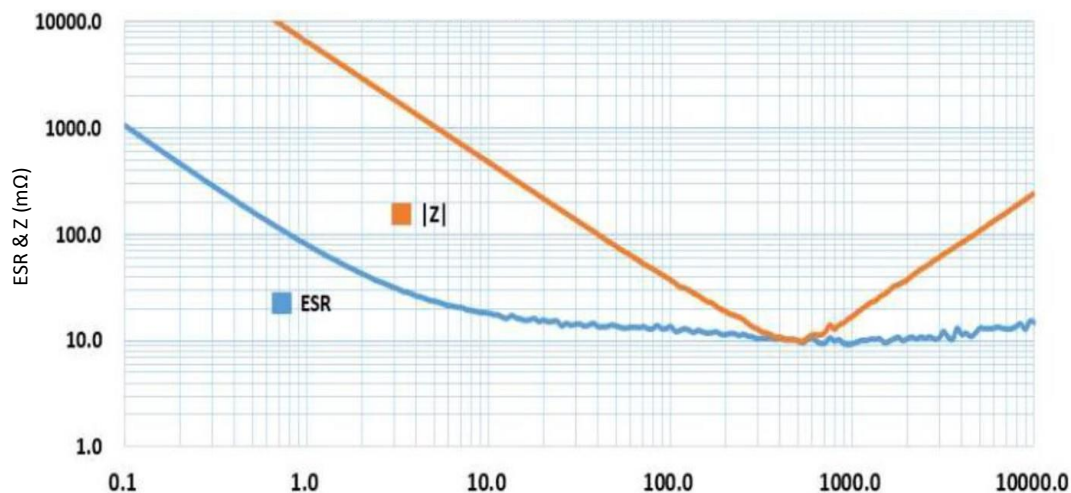


Fig. 5 • Frequency Characteristics of C ( $\mu$ F)

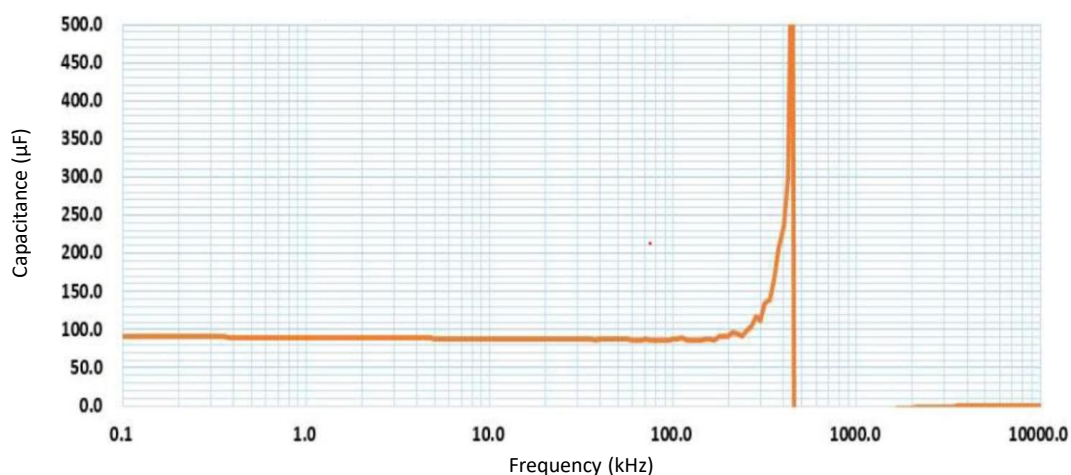
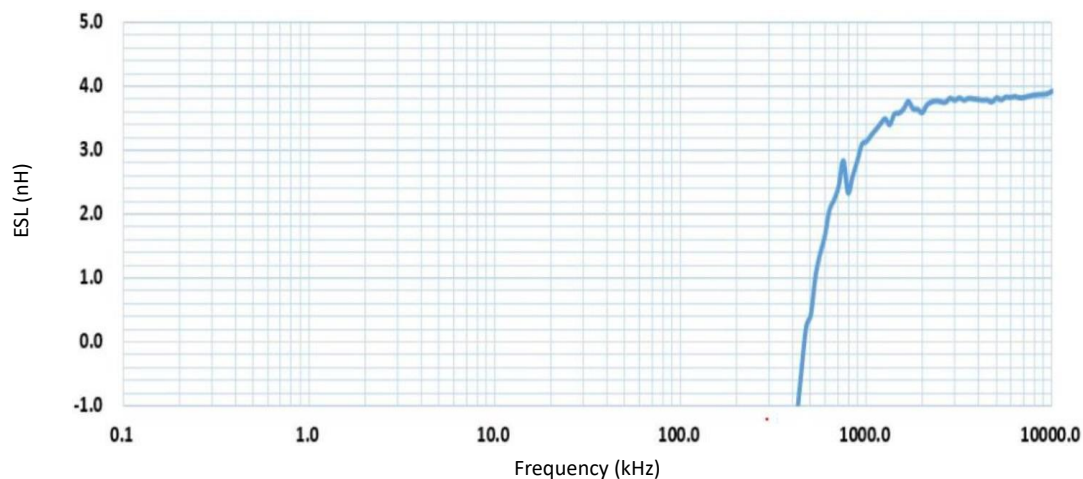


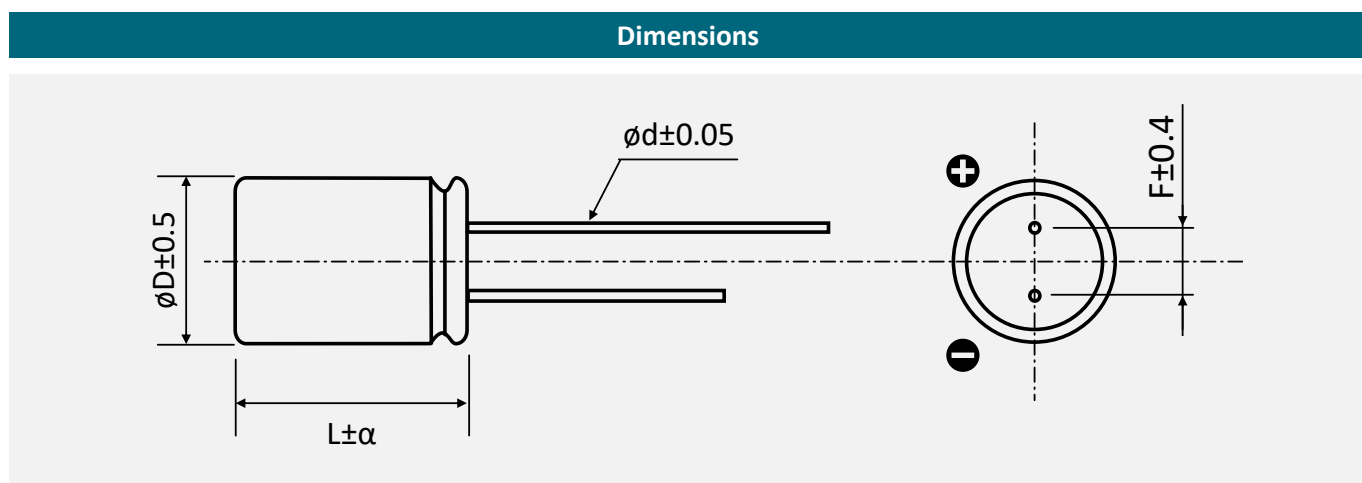
Fig. 6 • Frequency Characteristics of ESL (nH)



## FREQUENCY CORRECTION FACTOR

| Frequency Correction Factor of Permissible Ripple Current |                                     |                                    |                                     |                                      |                                       |                                       |                                        |
|-----------------------------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|----------------------------------------|
| Frequency                                                 | $120\text{Hz} \leq f < 1\text{kHz}$ | $1\text{kHz} \leq f < 5\text{kHz}$ | $5\text{kHz} \leq f < 10\text{kHz}$ | $10\text{kHz} \leq f < 20\text{kHz}$ | $20\text{kHz} \leq f < 300\text{kHz}$ | $30\text{kHz} \leq f < 100\text{kHz}$ | $100\text{kHz} \leq f < 500\text{kHz}$ |
| Coefficient                                               | 0.05                                | 0.3                                | 0.5                                 | 0.6                                  | 0.7                                   | 0.75                                  | 1                                      |

## PACKAGE OUTLINE ▲ All dimensions in mm



| Size Code | $\varnothing D \pm 0.5 \text{ max.}$ | L    | $\alpha$     | $\varnothing d \pm 0.05$ | $F \pm 0.4$ |
|-----------|--------------------------------------|------|--------------|--------------------------|-------------|
| 06X8      | 6.3                                  | 8.0  | -0.5 to +1.0 | 0.60                     | 2.5         |
| 08X8      | 8.0                                  | 8.0  | -0.5 to +1.0 | 0.60                     | 3.5         |
| 10A0      | 10.0                                 | 10.0 | -0.5 to +1.0 | 0.60                     | 5.0         |
| 10A2      | 10.0                                 | 12.0 | -0.5 to +1.0 | 0.60                     | 5.0         |

## PRODUCT CODE

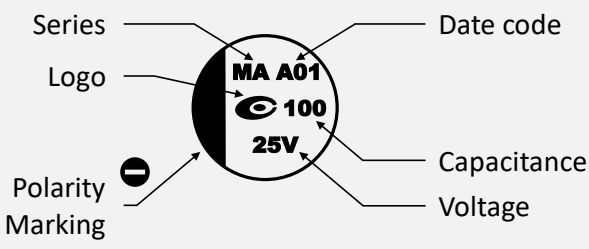
Example: ARMA series ▲ 100μF ▲ 25V<sub>DC</sub> ▲ ±20% ▲ D=6.3mm ▲ L=8mm ▲ F=2.5mm ▲ Tape/Ammo

| 250                              |     | ARMA   |        | 101                                     |     | M                         |      | 06X8         |             | T              |                   |
|----------------------------------|-----|--------|--------|-----------------------------------------|-----|---------------------------|------|--------------|-------------|----------------|-------------------|
| Rated Voltage (V <sub>DC</sub> ) |     | Series |        | Capacitance Code <sup>Note 1</sup> (μF) |     | Capacitance Tolerance (%) |      | Package Code |             | Packaging Type |                   |
| Code                             | VDC | Code   | Series | Code                                    | μF  | Code                      | Tol. | Code         | D x L       | Code           | Type              |
| 250                              | 25  | ARMA   | ARMA   | 220                                     | 22  | M                         | ±20  | 06X8         | 6.3 x 8.0   | Blank<br>T     | Bulk<br>Tape/Ammo |
| 350                              | 35  |        |        | 560                                     | 56  |                           |      | 08X8         | 8.0 x 8.0   |                |                   |
| 500                              | 50  |        |        | 101                                     | 100 |                           |      | 10A0         | 10.0 x 10.0 |                |                   |
| 630                              | 63  |        |        | 331                                     | 330 |                           |      | 10A2         | 10.0 x 12.0 |                |                   |
| 800                              | 80  |        |        | 471                                     | 470 |                           |      |              |             |                |                   |

Note:

- Capacitance code expressed in μF. The first two digits represent significant figures. The last digit specifies the total number of zeros to be added.

## PRODUCT MARKING

| Marking                                                                             | Details              |                      |
|-------------------------------------------------------------------------------------|----------------------|----------------------|
|  | Marking              | Description          |
|                                                                                     | Logo                 | Manufacturer Logo    |
|                                                                                     | Series               | MA = ARMA            |
|                                                                                     | Date code            | See date code table  |
|                                                                                     | Capacitance          | 100 = 100μF          |
|                                                                                     | Voltage              | 25V = 25V            |
|                                                                                     | Polarity Marking (-) | Polarity (-) marking |

## DATE CODE

Example:

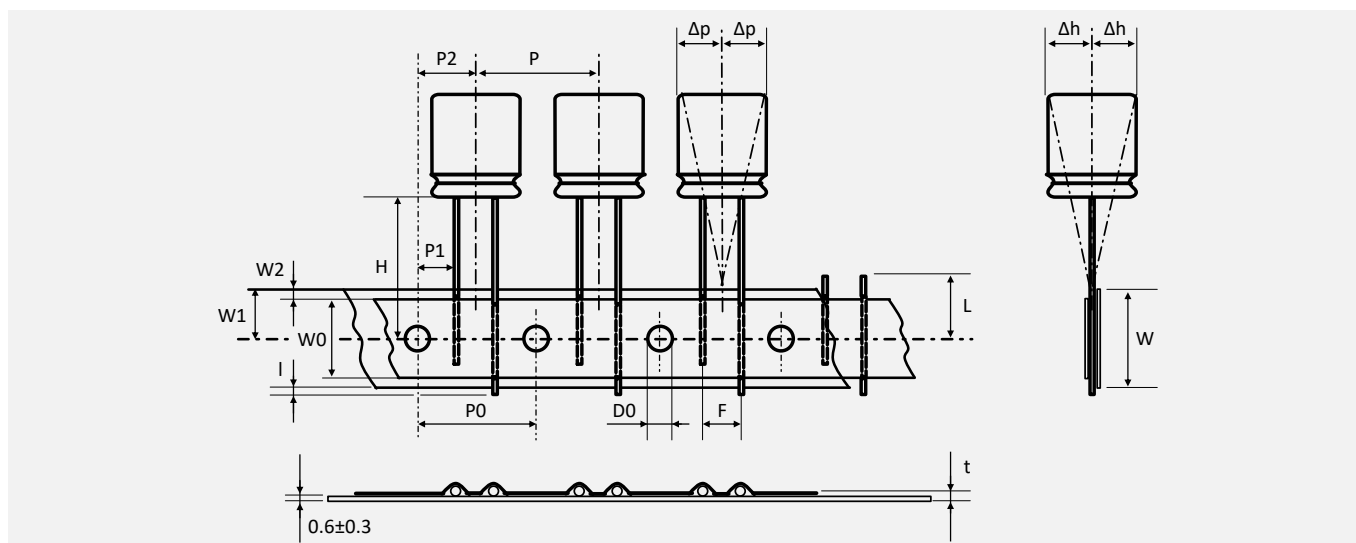
Datecode

A01: A01 = 1<sup>st</sup> week of 2020

| A    |      | 01   |                  |
|------|------|------|------------------|
| Year |      | Week |                  |
| A    | 2019 | 01   | 1 <sup>st</sup>  |
| B    | 2020 | 02   | 2 <sup>nd</sup>  |
| ...  | ...  | ...  | ...              |
| Z    | 2030 | 53   | 53 <sup>rd</sup> |

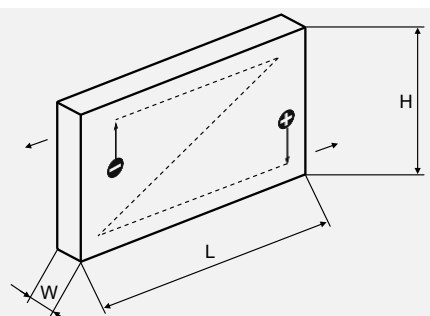
## TAPING SPECIFICATION ▲ THT TYPE

Dimensions in mm



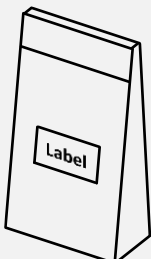
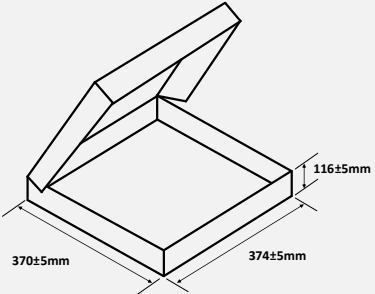
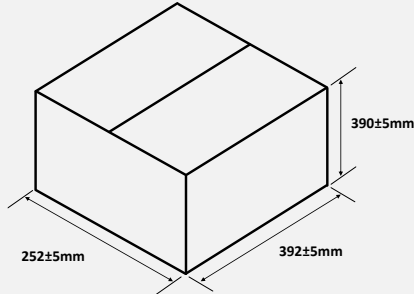
| Size Code | F                                          | P    | P0   | P1   | P2   | Δp   | Δh   | W    | W0  | W1   | W2  | H     | ØD0  | t    | l   | L   |
|-----------|--------------------------------------------|------|------|------|------|------|------|------|-----|------|-----|-------|------|------|-----|-----|
| Tolerance | $\begin{matrix} +0.8 \\ -0.2 \end{matrix}$ | ±1.0 | ±0.2 | ±0.5 | ±1.0 | ±1.0 | ±1.0 | ±0.5 | Min | ±0.5 | Max | ±0.75 | ±0.2 | ±0.3 | Max | max |
| 06X8      | 2.5                                        | 12.7 | 12.7 | 5.1  | 6.35 | 0    | 0    | 18   | 9.5 | 9    | 2.5 | 18.5  | 4    | 0.6  | 0   | 11  |
| 08X8      | 3.5                                        | 12.7 | 12.7 | 4.6  | 6.35 | 0    | 0    | 18   | 9.5 | 9    | 2.5 | 18.5  | 4    | 0.6  | 0   | 11  |
| 10A0      | 5                                          | 12.7 | 12.7 | 3.85 | 6.35 | 0    | 0    | 18   | 9.5 | 9    | 2.5 | 18.5  | 4    | 0.6  | 0   | 11  |
| 10A2      | 5                                          | 12.7 | 12.7 | 3.85 | 6.35 | 0    | 0    | 18   | 9.5 | 9    | 2.5 | 18.5  | 4    | 0.6  | 0   | 11  |

## AMMO PACKAGING QUANTITIES ▲ THT TYPE

| Carton                                                                              | Diameter (mm) | Length (mm) | Size Code | L max. (mm) | W max. (mm) | H max. (mm) | Qty per carton (pcs) |
|-------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------|-------------|-------------|----------------------|
|  | Ø 6.3         | 8.0         | 06X8      | 335         | 42          | 260         | 2000                 |
|                                                                                     | Ø 8.0         | 8.0         | 08X8      | 335         | 42          | 260         | 1200                 |
|                                                                                     | Ø 10.0        | 10.0        | 10A0      | 335         | 45          | 260         | 650                  |
|                                                                                     | Ø 10.0        | 12.0        | 10A2      | 335         | 45          | 260         | 650                  |

## BULK PACKAGING ▲ THT TYPE

| Code | Capacitor Dimensions |      | Quantity / Bag | Quantity / Inner Box |           | Quantity outer box |            |
|------|----------------------|------|----------------|----------------------|-----------|--------------------|------------|
|      | ØD                   | L    |                |                      |           |                    |            |
| 06X8 | 6.3                  | 8.0  | 500 pcs        | 6 bags               | 3 000 pcs | 5 inner boxes      | 15 000 pcs |
| 08X8 | 8.0                  | 8.0  | 500 pcs        | 4 bags               | 2 000 pcs | 5 inner boxes      | 10 000 pcs |
| 10A0 | 10.0                 | 10.0 | 300 pcs        | 4 bags               | 1 200 pcs | 5 inner boxes      | 6 000 pcs  |
| 10A2 | 10.0                 | 12.0 | 300 pcs        | 4 bags               | 1 200 pcs | 5 inner boxes      | 6 000 pcs  |

| Bag                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Inner Box                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Outer Carton                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Label content</b><br/>Size L x W = 70mm x 50mm</p> <ol style="list-style-type: none"> <li><b>P/N:</b> Customer part number</li> <li><b>R-ID:</b> CCF1001290001<br/>CCF: Fix<br/>10: e.g., 2010<br/>01: e.g., January<br/>29: e.g., Day 29<sup>th</sup><br/>0001: Running number</li> <li><b>DESC:</b> Customer specification</li> <li><b>SPEC:</b> Manufacturer part number</li> <li><b>COO:</b> Country of origin</li> <li><b>MAKER:</b> Manufacturer</li> <li><b>VENDOR:</b> Manufacturer</li> <li><b>DC:</b> Date code</li> <li><b>LOT/NO:</b> Production lot</li> </ol> |  <p><b>Label on the inner box</b><br/>Size L x W = 70mm x 35mm</p> <ol style="list-style-type: none"> <li><b>P/N:</b> Customer part number</li> <li><b>DESC:</b> Customer specification</li> <li><b>SPEC:</b> Manufacturer part number</li> <li><b>COO:</b> Country of origin</li> <li><b>QTY:</b> Quantity (pcs)</li> <li><b>MAKER:</b> Manufacturer</li> <li><b>VENDOR:</b> Manufacturer</li> <li><b>DC:</b> Date code</li> <li><b>LOT/NO:</b> Production lot</li> </ol> |  <p><b>Label on the outer carton</b><br/>Size L x W = 100mm x 90mm</p> <ol style="list-style-type: none"> <li><b>CUSTOMER:</b> Customer name</li> <li><b>P/O:</b> Customer order number</li> <li><b>P/N:</b> Customer part number</li> <li><b>DESCRIPTION:</b> Manufacturer part number</li> <li><b>QTY:</b> Quantity (pcs) and shipping date</li> <li><b>COO:</b> Country of origin</li> </ol> |

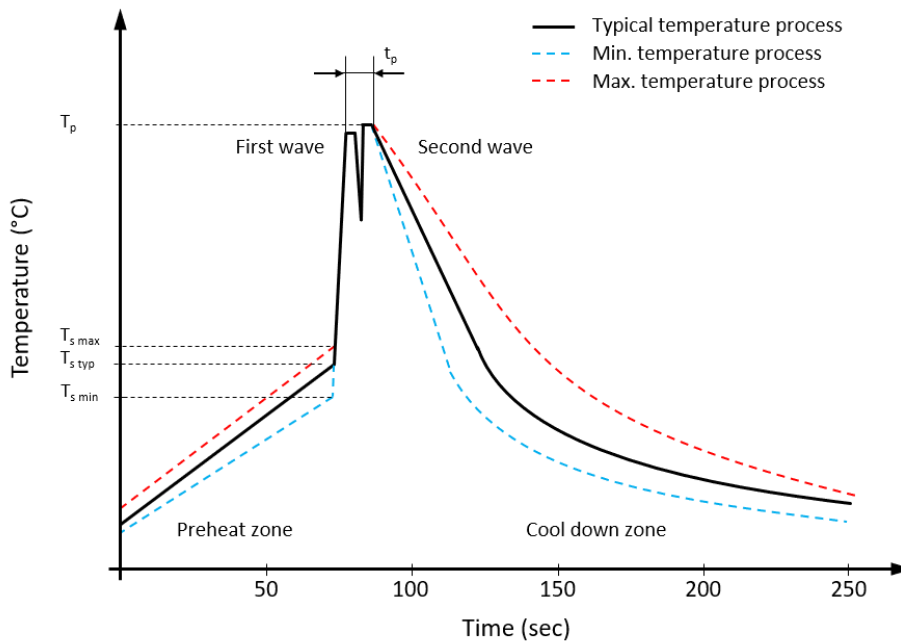
## BULK PACKAGING ▲ THT TYPE WITH CUTTED LEADS <sup>NOTE 1</sup>

| Code | Capacitor Dimensions |      | Quantity / Bag | Quantity / Inner Box |           | Quantity outer box |            |
|------|----------------------|------|----------------|----------------------|-----------|--------------------|------------|
|      | ØD                   | L    |                |                      |           |                    |            |
| 06X8 | 6.3                  | 8.0  | 500 pcs        | 8 bags               | 4 000 pcs | 5 inner boxes      | 20 000 pcs |
| 08X8 | 8.0                  | 8.0  | 500 pcs        | 6 bags               | 3 000 pcs | 5 inner boxes      | 15 000 pcs |
| 10A0 | 10.0                 | 10.0 | 500 pcs        | 4 bags               | 2 000 pcs | 5 inner boxes      | 10 000 pcs |
| 10A2 | 10.0                 | 12.0 | 500 pcs        | 4 bags               | 2 000 pcs | 5 inner boxes      | 10 000 pcs |

Note:

- Please consult MGT for possible lead length, drawing and ordering code.

## RECOMMENDED WAVE SOLDERING PROFILE ▲ THT PACKAGE



| Profile Features                                     |                     | Value ▲ Sn-Pb Assembly                     | Value ▲ Pb-free Assembly                   |
|------------------------------------------------------|---------------------|--------------------------------------------|--------------------------------------------|
| Preheat temperature min.                             | $T_{s \min}$        | 100 °C                                     | 100 °C                                     |
| Preheat temperature typical                          | $T_{s \text{ typ}}$ | 120 °C                                     | 120 °C                                     |
| Preheat temperature max.                             | $T_{s \max}$        | 130 °C                                     | 130 °C                                     |
| Preheat time $t_s$ from $T_{s \min}$ to $T_{s \max}$ | $t_s$               | 70 seconds                                 | 70 seconds                                 |
| Peak temperature                                     | $T_p$               | 235 °C to 260 °C                           | 245 °C to 260 °C                           |
| Time of actual peak temperature                      | $t_p$               | Max. 10 seconds<br>Max. 5 second each wave | Max. 10 seconds<br>Max. 5 second each wave |
| Ramp-down rate min.                                  |                     | ~ 2 °C/second                              | ~ 2 °C/second                              |
| Ramp-down rate typical                               |                     | ~ 3.5 °C/second                            | ~ 3.5 °C/second                            |
| Ramp-down rate max.                                  |                     | ~ 5 °C/second                              | ~ 5 °C/second                              |
| Time 25°C to 25°C                                    |                     | 4 minutes                                  | 4 minutes                                  |

## SOLDERING SUGGESTIONS

When solder a capacitor, heat in soldering is conducted to the element of the capacitor from wire lead and an enclosure, and hence it should be noted that soldering under high temperature and a long period may cause deterioration of breakdown of capacitors. Be sure to solder within the recommended temperature condition range.

### HAND SOLDERING

- Soldering iron top temperature:  $\leq 350^\circ\text{C}$
- Soldering time:  $\leq 3\text{sec}$

If re-work or dipping twice in necessary, it should be done after the capacitor returned to the normal temperature.

Suggestion time is 24 hours.

THT capacitors are not suitable for reflow soldering.

When SMD components are used together with film capacitor, the film capacitor should not pass into the SMD adhesive curing oven. The film capacitor should be assembled after the SMD process.

## REVISION TABLE

| Revision | Date       | Status          | Notes               |
|----------|------------|-----------------|---------------------|
| 001      | 01/10/2021 | Initial release | Initial publication |
|          |            |                 |                     |
|          |            |                 |                     |
|          |            |                 |                     |
|          |            |                 |                     |
|          |            |                 |                     |

## DISCLAIMER

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