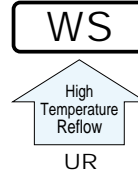


ALUMINUM ELECTROLYTIC CAPACITORS

WS Chip Type, High CV
High Temperature (260°C) Reflow
series



- Corresponding with 260°C peak reflow soldering
Recommended reflow condition : 260°C peak 5 sec. 230°C over 60 sec. 2 times (φ8 × 6.2, φ10 × 10 : 1 time)
- Chip type higher capacitance in large case size.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2002/95/EC).

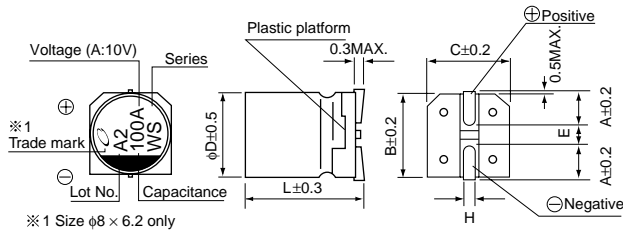


Specifications

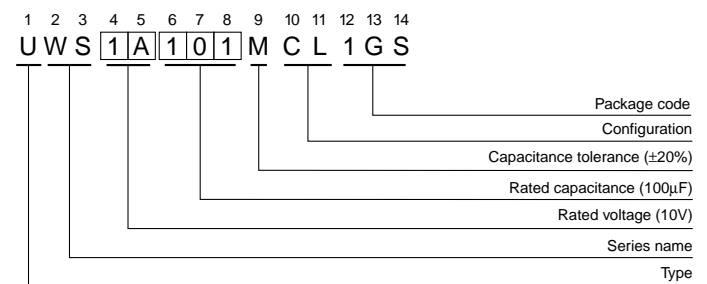
| Item | Performance Characteristics | | | | | | | |
|-------------------------------|---|-----------------------|----------------------|--------|--------|--------|--------|---|
| Category Temperature Range | -40 to +85°C | | | | | | | |
| Rated Voltage Range | 6.3 to 50V | | | | | | | |
| Rated Capacitance Range | 22 to 1500μF | | | | | | | |
| Capacitance Tolerance | ±20% at 120Hz, 20°C | | | | | | | |
| Leakage Current | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV (μA) . | | | | | | | |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C | | | | | | | |
| | Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | |
| | tan δ (MAX.) | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | |
| Stability at Low Temperature | Measurement frequency: 120Hz | | | | | | | |
| | Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | |
| | Impedance ratio ZT / Z20 (MAX.) | Z-25°C / Z+20°C 10 | Z-40°C / Z+20°C 8 | 5 4 | 3 6 | 2 4 | 2 3 | |
| Endurance | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C. | | Capacitance change | | | | | Within ±20% of the initial capacitance value |
| | | | tan δ | | | | | 200% or less than the initial specified value |
| Shelf Life | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C. | | Leakage current | | | | | Less than or equal to the initial specified value |
| | | | | | | | | |
| Resistance to soldering heat | The capacitors are kept on a hot plate for 30 seconds, which is maintained at 250°C. The capacitors shall meet the characteristic requirements listed at right when they are removed from the plate and restored to 20°C. | | Capacitance change | | | | | Within ±10% of the initial capacitance value |
| | | | tan δ | | | | | Less than or equal to the initial specified value |
| Marking | | | Leakage current | | | | | Less than or equal to the initial specified value |
| | | | | | | | | |

Chip Type

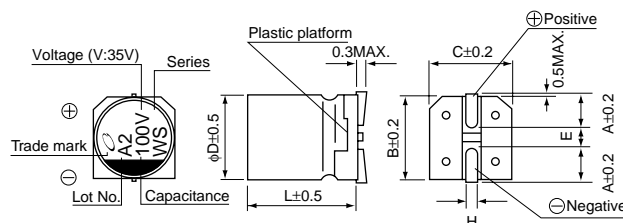
(φ6.3, φ8 × 6.2)



Type numbering system (Example : 10V 100μF)



(φ8 × 10, φ10 × 10)



| φD × L | (mm) | | | | |
|--------|------------|------------|------------|------------|------------|
| | 6.3 × 5.8 | 6.3 × 7.7 | 8 × 6.2 | 8 × 10 | 10 × 10 |
| A | 2.4 | 2.4 | 3.3 | 2.9 | 3.2 |
| B | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| C | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| E | 2.2 | 2.2 | 2.3 | 3.1 | 4.5 |
| L | 5.8 | 7.7 | 6.2 | 10 | 10 |
| H | 0.5 to 0.8 | 0.5 to 0.8 | 0.5 to 0.8 | 0.8 to 1.1 | 0.8 to 1.1 |

Voltage

| | | | | | | |
|------|-----|----|----|----|----|----|
| V | 6.3 | 10 | 16 | 25 | 35 | 50 |
| Code | j | A | C | E | V | H |

● Dimension table in next page.

■ Dimensions

| Cap. (μF) | Code | V | | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | |
|-----------|------|-------|-----|-------|---------|-------|---------|-------|-------|-------|---------|---------|-------|------------------------|-----------------|
| | | 0J | 1A | 1C | 1E | 1V | 1H | | | | | | | | |
| 22 | 220 | | | | | | | | | | | | | 6.3×5.8 | 45 |
| 33 | 330 | | | | | | | | | | | 6.3×5.8 | 55 | 8×6.2 | 95 |
| 47 | 470 | | | | | | | | | | 6.3×5.8 | 65 | 8×6.2 | 105 | 8×10 |
| 100 | 101 | | | | 6.3×5.8 | 70 | 8×6.2 | 125 | 8×6.2 | 145 | 8×10 | 175 | 10×10 | 195 | 195 |
| 150 | 151 | | | | 6.3×5.8 | 85 | 6.3×7.7 | 151 | 8×10 | 192 | 8×10 | 214 | 10×10 | 238 | 238 |
| 220 | 221 | 8×6.2 | 160 | 8×6.2 | 175 | 8×10 | 215 | 10×10 | 250 | 10×10 | 265 | 10×10 | 289 | 289 | 289 |
| 330 | 331 | 8×6.2 | 190 | 8×10 | 240 | 8×10 | 270 | 10×10 | 305 | 10×10 | 324 | | | | |
| 470 | 471 | 8×10 | 265 | 8×10 | 290 | 10×10 | 330 | 10×10 | 393 | | | | | | |
| 680 | 681 | 8×10 | 318 | 10×10 | 374 | 10×10 | 396 | | | | | | | | |
| 1000 | 102 | 10×10 | 400 | 10×10 | 454 | | | | | | | | | | |
| 1500 | 152 | 10×10 | 489 | | | | | | | | | | | Case size φD×L (mm) | Rated ripple |

Rated ripple current (mArms) at 85°C 120Hz

● Frequency coefficient of rated ripple current

| Cap. (μF) | Frequency | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
|--------------|-----------|-------|--------|--------|-------|----------------|
| Less than 47 | | 0.80 | 1.00 | 1.15 | 1.40 | 1.67 |
| 100 to 1500 | | 0.85 | 1.00 | 1.08 | 1.20 | 1.30 |

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.