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|---|---|--------------------|
|  | DATASHEET | Part No. |
| | Ultra-Low ESR, High Q, C0G/NPO Microwave Capacitor | A60L series |

CUSTOMER :

DATA SHEET

| | |
|----------------------|---|
| Product name | : Ultra-Low ESR, High Q, C0G/NPO Microwave Capacitor |
| Part number | : A60L series |
| Features | : 1005mm/0402inch, C0G/NPO, DC200V, High Q |
| Revision date | : 2021/07/13 |

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|---|--|
|   | Address : 380, NAMDONGSEO-RO, NAMDONG-GU INCHEON, 21629 KOREA (AMOTECH. CO., LTD) Contact : TEL) 82-32-821-0363, FAX) 82-32-811-0283 |
|---|--|

1. Features :

- Lowest ESR in Class
- **Highest Working Voltage in class – 200V**
- High Self Resonance Frequencies
- Low Inter-Modulation (IM) performance
- Standard EIA Size : 0402
- RoHS Compliant

2. Applications :

- 4G-LTE/ 5G NR/ Small Cells/ CBRS/ WiFi 6E/
- IoT / RFID
- Medical/ Autonomous / Automotive / Aerospace

3. Circuit Applications :

- Discrete lumped element filtering networks
- Input/ Output and Inter stage matching networks
- Circuit tuning, signal coupling, high current shunts, bypass and DC blocking circuits

4. Part Number Code & Ordering Information

- **Product Part No.**

| Series Name | Size | Capacitance | Cap tolerance | Terminal | Voltage | Packing info. |
|-------------|----------|-------------|---------------|----------|------------|---------------|
| <u>A60</u> | <u>L</u> | <u>0R2</u> | <u>B</u> | <u>T</u> | <u>200</u> | <u>T</u> |

- **Series Name** : A60
- **Size** : L – 1005 mm, 0402 inch
- **Capacitance/ Cap tolerance** : Refer to "6. Capacitance Values, Markings & Tolerances"
- **Terminal** : "T"-Sn plated over Ni Barrier "TN"-Sn plated over Non-Magnetic Barrier
- **Working Voltage** : WVDC – Working Voltage of DC
- **Packing info.** : T – Tape and Reel *

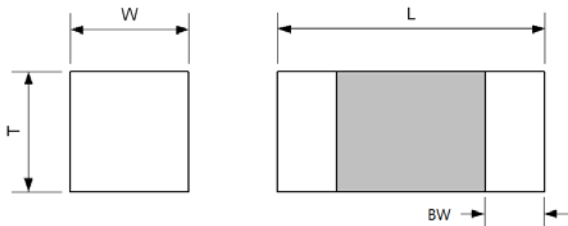
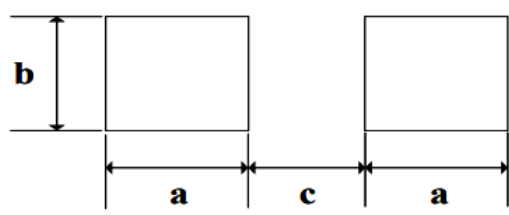
5. Specifications

■ Electrical Specifications

| | |
|---|---|
| Capacitance | 0.1 to 27pF |
| Tolerances | Refer to <u>6. Capacitance Values, Markings & Tolerances</u> |
| Working Voltage (WVDC) | 200V |
| Quality Factor (Q) | 2000 min. @ 1MHz |
| Temperature Range | -55 °C to + 125 °C (no derating of working voltage) |
| Temperature coefficient of Capacitances (TCC) | 0± 30 ppm/°C, -55°C to + 125°C |
| Insulation Resistance | 10 ⁵ MΩ min. at + 25°C at rated WVDC 10 ⁴ MΩ min. at + 125°C at rated WVDC |
| Dielectric Withstanding Voltage (DWV) | 2.5 x WVDC for 5 seconds |
| Aging | None |
| Piezo Effects | None |

■ Mechanical dimension

■ Recommended solder pad

| | | | | | | | | |
|---|---------------|---------------|-------------|----------------|--|------|------|------|
|  | | | | |  | | | |
| | L | W | T | BW | | a | b | c |
| Size (mm) | 1.0 ± 0.10 | 0.5 ± 0.10 | 0.6 max. | 0.25 ± 0.15 | | 0.61 | 0.51 | 0.51 |

■ Mechanical Specifications

| | |
|-------------------|---|
| Solderability | Solder coverage > 90% of end termination |
| Terminal Strength | 2 lbs. Typ., 1 lbs. min. (0.9kg typ. 0.45kg min.) |

■ Environmental Specifications

| | |
|---------------------|--------------------------------|
| Life Test | 2000 hours, +125°C at 2 X WVDC |
| Thermal Shock | 5 cycles, -55°C to +125°C |
| Moisture Resistance | MIL-STD-202, Method 106 |

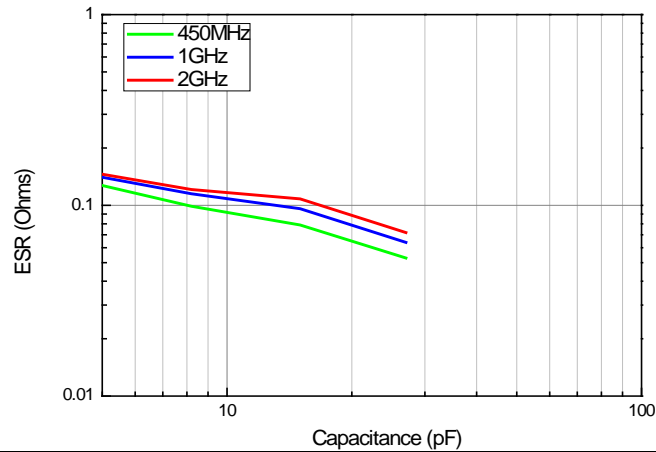
6. Capacitance Values, Markings & Tolerances

| Value [pF] | Cap Code | Tolerance | Value [pF] | Cap Code | Tolerance | Value [pF] | Cap Code | Tolerance |
|------------|----------|-----------|------------|----------|-----------|------------|----------|-----------|
| 0.1 | 0R1 | A,B | 1.6 | 1R6 | A,B,C,D | 6.2 | 6R2 | A,B,C,D |
| 0.2 | 0R2 | A,B | 1.8 | 1R8 | A,B,C,D | 6.8 | 6R8 | B,C,J,K |
| 0.3 | 0R3 | A,B,C | 2.0 | 2R0 | A,B,C,D | 7.5 | 7R5 | B,C,J,K |
| 0.4 | 0R4 | A,B,C | 2.2 | 2R2 | A,B,C,D | 8.2 | 8R2 | B,C,J,K |
| 0.5 | 0R5 | A,B,C | 2.4 | 2R4 | A,B,C,D | 9.1 | 9R1 | B,C,J,K |
| 0.6 | 0R6 | A,B,C | 2.7 | 2R7 | A,B,C,D | 10 | 100 | F,G,J,K,M |
| 0.7 | 0R7 | A,B,C | 3.0 | 3R0 | A,B,C,D | 11 | 110 | F,G,J,K,M |
| 0.8 | 0R8 | A,B,C | 3.3 | 3R3 | A,B,C,D | 12 | 120 | F,G,J,K,M |
| 0.9 | 0R9 | A,B,C | 3.6 | 3R6 | A,B,C,D | 15 | 150 | F,G,J,K,M |
| 1.0 | 1R0 | A,B,C,D | 3.9 | 3R9 | A,B,C,D | 18 | 180 | F,G,J,K,M |
| 1.1 | 1R1 | A,B,C,D | 4.3 | 4R3 | A,B,C,D | 20 | 200 | F,G,J,K,M |
| 1.2 | 1R2 | A,B,C,D | 4.7 | 4R7 | A,B,C,D | 22 | 220 | F,G,J,K,M |
| 1.3 | 1R3 | A,B,C,D | 5.1 | 5R1 | A,B,C,D | 24 | 240 | F,G,J,K,M |
| 1.5 | 1R5 | A,B,C,D | 5.6 | 5R6 | A,B,C,D | 27 | 270 | F,G,J,K,M |

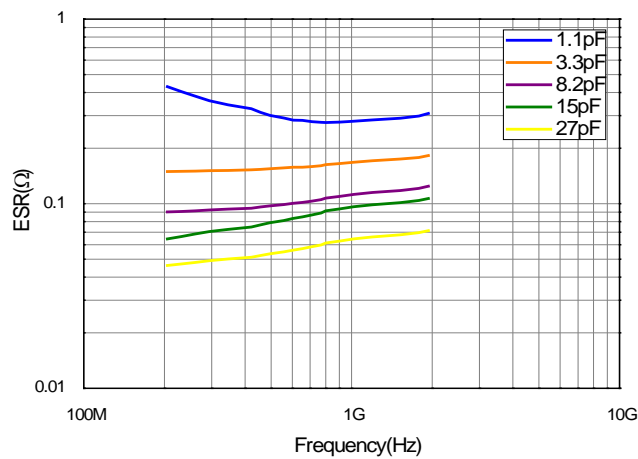
* **Cap tolerance :** "P"-±0.02pF "Q"-±0.03pF "A"-±0.05pF "B"-±0.1pF "C"-±0.25pF "D"-±0.5pF
 "F"-±1% "G"-±2% "J"-±5% "K"-±10% "M"-±20%

7. Series & Parallel Resonance Curves

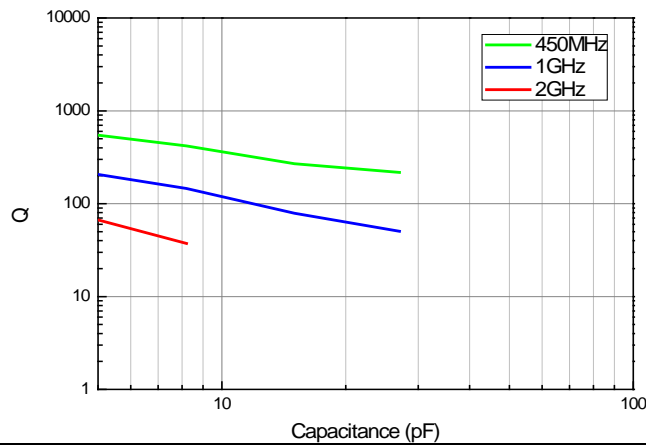
ESR vs Capacitance



ESR vs Frequency

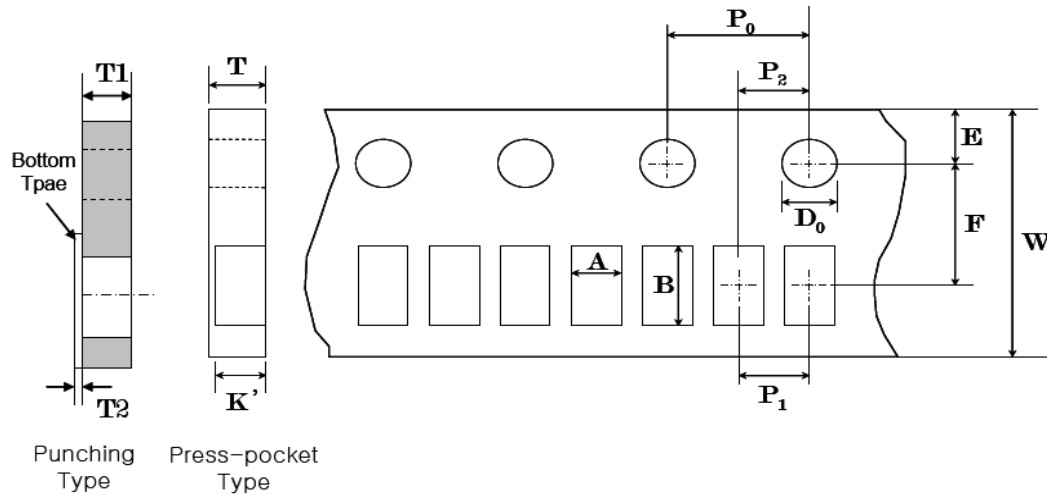


Q vs Capacitance



8. Tape and Reel Specification

■ **Size**



(Unit :mm)

| | A | B | D ₀ | E | F | P ₀ | P ₁ | P ₂ | W | K' | T | T ₁ | T ₂ |
|------------------|--------|--------|----------------|--------|--------|----------------|----------------|----------------|-------|--------|--------|----------------|----------------|
| Spec. | 0.62 | 1.12 | 1.55 | 1.75 | 3.50 | 4.00 | 2.00 | 2.00 | 8.0 | 0.60 | 0.65 | 0.60 | 0.1 |
| Tolerance | ± 0.04 | ± 0.04 | ± 0.10 | ± 0.05 | ± 0.05 | ± 0.10 | ± 0.05 | ± 0.05 | ± 0.1 | ± 0.03 | ± 0.03 | ± 0.05 | Max |

■ **Material**

- 1) Paper carrier tape: Laminated virgin pulp
- 2) Top tape (Cover tape): Polyester film

※ **Packing Amount Information**

Prototype - 500 pcs on 7 inch reel

Production – 3000 pcs (for 0805) on 7 inch reel (Always laser marked)

4000 pcs (for 0603) on 7 inch reel (Always laser marked)

10,000 pcs (for 0402 & 0201) on 7 inch reel