

# SMD METALLIZED PEN FILM CAPACITOR

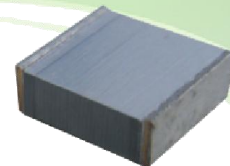
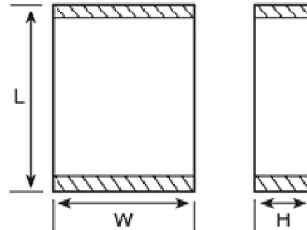
## FEATURES

- Use non over case stacked technic. Small size.
- Stable performance. Good temperature and voltage characteristic. Time reliability and showerproof.
- High reliability
- Non-piezoelectric effect, non-polar, non-nonlinear distortion
- Low ESR, Low Noise Level
- Strong ability of anti-Pulse

### SF1

### USE

- Telecommunications, base stations, distributor
- Automotive (engine control systems, security systems, car radios, navigation systems, air-conditioning)
- Lighting (electronic ballast)
- DC/DC switch
- Electrical appliance (LCD, PDP TV)



### DIMENSIONS

| Size Code | 1206    | 1210    | 1812    | 2220    | 2824    | 4030     | 5040     | 6054     |
|-----------|---------|---------|---------|---------|---------|----------|----------|----------|
| L         | 3.2±0.2 | 3.2±0.2 | 4.5±0.5 | 5.7±0.5 | 7.1±0.5 | 10.2±0.6 | 12.7±0.6 | 15.2±0.6 |
| W         | 1.6±0.2 | 2.5±0.2 | 3.2±0.5 | 5.0±0.5 | 6.1±0.5 | 7.6±0.8  | 10.2±0.8 | 13.7±0.8 |
| H         | ±0.2    |         |         | ±0.4    |         |          |          |          |

### SPECIFICATIONS

|                         |                                                                                 |  |  |
|-------------------------|---------------------------------------------------------------------------------|--|--|
| Standard                | IEC60384-19                                                                     |  |  |
| Environment             | 55/125/56                                                                       |  |  |
| Rated temperature       | 105℃                                                                            |  |  |
| Temperature             | 55℃~125℃ (+105℃ to +125℃: decreasing factor 1.25% per℃ for V <sub>R</sub> (DC)) |  |  |
| Rated Voltage           | 50/63V, 100V, 250V, 400V, 630V                                                  |  |  |
| Capacitance             | 0.001μF~12μF                                                                    |  |  |
| Tolerance               | ±5%(J), ±10%(K), ±20%(M)                                                        |  |  |
| Voltage                 | 1.40U <sub>R</sub> (5s)                                                         |  |  |
| DF                      | ≤0.008(1KHz)                                                                    |  |  |
| Insulation Resistance   | ≥1000MΩ, C <sub>R</sub> 0.33μF<br>≥400s, C <sub>R</sub> >0.33μF                 |  |  |
| Max. speed of pulse up. | 100                                                                             |  |  |
| Solder                  | resolder                                                                        |  |  |

### PATTREN I

| Cap<br>(μF) | 50/63VDC |     |           | 100VDC |     |           | 250VDC |     |           | 400VDC |     |           | 630VDC |     |           |
|-------------|----------|-----|-----------|--------|-----|-----------|--------|-----|-----------|--------|-----|-----------|--------|-----|-----------|
|             | Size     | .H  | Tape Code | Size   | .H  | Tape Code | Size   | .H  | Tape Code | Size   | .H  | Tape Code | Size   | .H  | Tape Code |
| 0.001       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0012      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0015      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0018      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0022      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0027      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0033      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0039      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0047      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0056      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0068      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         |
| 0.0082      | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.8 | a         |
| 0.010       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 2.0 | a         | 2220   | 2.0 | a         |
| 0.012       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 2.0 | b         | 2220   | 2.4 | b         |
| 0.015       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | a         | 1812   | 1.4 | b         | 2220   | 3.6 | c         |
| 0.018       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 4.0 | c         |
| 0.022       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.8 | a         | 2220   | 2.0 | a         | 2824   | 2.8 | a         |
| 0.027       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 2.0 | a         | 2220   | 2.4 | a         | 2824   | 3.2 | a         |
| 0.033       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.4 | a         | 2220   | 2.8 | a         | 2824   | 4.0 | b         |
| 0.039       | 1812     | 1.8 | b         | 1812   | 1.8 | b         | 2220   | 1.4 | a         | 2220   | 3.2 | b         | 2824   | 4.8 | c         |
| 0.047       | 1812     | 2.0 | b         | 1812   | 2.0 | b         | 2220   | 1.8 | a         | 2220   | 3.6 | b         | 4030   | 2.8 | a         |
| 0.056       | 1812     | 1.4 | a         | 1812   | 1.4 | a         | 2220   | 1.8 | a         | 2824   | 2.8 | c         | 4030   | 3.6 | b         |

|       |      |     |   |      |     |   |      |     |   |      |     |   |      |     |   |
|-------|------|-----|---|------|-----|---|------|-----|---|------|-----|---|------|-----|---|
| 0.068 | 1812 | 1.4 | a | 1812 | 1.4 | a | 2220 | 2.4 | a | 2824 | 3.2 | a | 4030 | 4.0 | b |
| 0.082 | 1812 | 1.4 | a | 1812 | 1.4 | a | 2824 | 1.8 | a | 2824 | 4.0 | b | 4030 | 4.8 | c |
| 0.10  | 1812 | 2.0 | b | 1812 | 1.4 | b | 2824 | 2.0 | a | 2824 | 4.8 | c | 5040 | 3.6 | b |
| 0.12  | 1812 | 1.4 | a | 2220 | 2.0 | a | 2824 | 2.4 | a | 4030 | 2.8 | a | 5040 | 4.0 | b |
| 0.15  | 1812 | 1.4 | a | 2220 | 1.4 | a | 2824 | 3.2 | a | 4030 | 3.6 | b | 5040 | 5.2 | c |
| 0.18  | 1812 | 2.0 | b | 2220 | 1.4 | a | 4030 | 2.0 | a | 4030 | 4.4 | c | 6054 | 3.6 | a |
| 0.22  | 1812 | 2.0 | b | 2220 | 1.4 | a | 4030 | 2.4 | a | 5040 | 3.2 | a | 6054 | 4.4 | b |
| 0.27  | 2220 | 1.4 | a | 2220 | 1.8 | a | 4030 | 2.8 | a | 5040 | 4.0 | b | 6054 | 5.2 | c |
| 0.33  | 2220 | 1.4 | a | 2220 | 2.4 | b | 4030 | 3.6 | b | 5040 | 4.8 | c |      |     |   |
| 0.39  | 2220 | 1.8 | a | 2824 | 2.8 | a | 5040 |     |   |      | 4.6 | a |      |     |   |
| 0.47  | 2220 | 1.8 | a | 2824 | 2.0 | a | 5040 | 2.8 | a | 6054 | 4.0 | b |      |     |   |
| 0.56  | 2220 | 2.4 | a | 2824 | 2.4 | a | 5040 | 3.6 | b | 6054 | 4.8 | c |      |     |   |
| 0.68  | 2220 | 2.8 | b | 2824 | 2.8 | a | 6054 | 2.4 | a |      |     |   |      |     |   |
| 0.82  | 2824 | 2.0 | a | 4030 | 3.6 | a | 6054 | 3.2 | a |      |     |   |      |     |   |
| 1.0   | 2824 | 2.4 | a | 4030 | 2.4 | a | 6054 | 3.6 | a |      |     |   |      |     |   |
| 1.2   | 2824 | 3.2 | a | 5040 | 2.8 | a |      |     |   |      |     |   |      |     |   |
| 1.5   | 5040 | 2.4 | a | 5040 | 2.4 | a |      |     |   |      |     |   |      |     |   |
| 1.8   | 5040 | 2.8 | a | 5040 | 2.4 | a |      |     |   |      |     |   |      |     |   |
| 2.2   | 5040 | 3.2 | a | 5040 | 3.2 | a |      |     |   |      |     |   |      |     |   |
| 2.7   | 5040 | 4.0 | b | 6054 | 2.8 | a |      |     |   |      |     |   |      |     |   |
| 3.3   | 6054 | 3.2 | a | 6054 | 3.2 | a |      |     |   |      |     |   |      |     |   |
| 3.9   | 6054 | 3.6 | a | 6054 | 3.6 | a |      |     |   |      |     |   |      |     |   |
| 4.7   | 6054 | 4.4 | b | 6054 | 4.4 | b |      |     |   |      |     |   |      |     |   |

## PATTREN II

| Cap<br>( $\mu$ F) | 50/63VDC |     |           | 100VDC |     |           | 250VDC |     |           |
|-------------------|----------|-----|-----------|--------|-----|-----------|--------|-----|-----------|
|                   | Size     | .H  | Tape Code | Size   | .H  | Tape Code | Size   | .H  | Tape Code |
| 0.001             | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0012            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0015            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0018            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0022            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0027            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0033            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.1 | a         |
| 0.0039            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.5 | b         |
| 0.0047            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1206   | 1.5 | b         |
| 0.0056            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1210   | 1.5 | b         |
| 0.0068            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1210   | 1.5 | b         |
| 0.0082            | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1210   | 1.5 | b         |
| 0.010             | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1210   | 2.1 | c         |
| 0.012             | 1206     | 1.1 | a         | 1206   | 1.1 | a         | 1210   | 2.2 | c         |
| 0.015             | 1206     | 1.1 | a         | 1206   | 1.1 | a         | *      | *   | *         |
| 0.018             | 1206     | 1.1 | a         | 1210   | 1.1 | a         | 1812   | 1.4 | a         |
| 0.022             | 1206     | 1.1 | a         | 1210   | 1.1 | a         | 1812   | 1.8 | b         |
| 0.027             | 1206     | 1.1 | a         | 1210   | 1.5 | b         | 1812   | 2.0 | b         |
| 0.033             | 1206     | 1.5 | b         | 1210   | 1.5 | b         | 1812   | 2.4 | b         |
| 0.039             | 1210     | 2.1 | c         | 1210   | 2.1 | c         | *      | *   | *         |
| 0.047             | 1210     | 2.1 | c         | 1210   | 2.1 | c         | *      | *   | *         |
| 0.056             | 1210     | 1.5 | b         | *      | *   | *         | *      | *   | *         |
| 0.068             | 1210     | 1.5 | b         | *      | *   | *         | *      | *   | *         |
| 0.082             | 1210     | 2.1 | c         | *      | *   | *         | 2220   | 2.8 | b         |
| 0.10              | 1210     | 2.1 | c         | *      | *   | *         | 2220   | 3.2 | b         |
| 0.12              | *        | *   | *         | 1812   | 2.4 | b         | 2220   | 4.0 | c         |
| 0.15              | *        | *   | *         | *      | *   | *         | *      | *   | *         |
| 0.18              | *        | *   | *         | *      | *   | *         | 2824   | 3.6 | b         |
| 0.22              | *        | *   | *         | *      | *   | *         | 2824   | 4.6 | b         |
| 0.27              | *        | *   | *         | *      | *   | *         | 2824   | 5.2 | c         |
| 0.33              | *        | *   | *         | *      | *   | *         | *      | *   | *         |
| 0.39              | *        | *   | *         | 2220   | 3.2 | b         | 4030   | 4.0 | b         |
| 0.47              | *        | *   | *         | 2220   | 4.0 | c         | 4030   | 4.8 | c         |
| 0.56              | *        | *   | *         | 2220   | 4.4 | c         | 4030   | 5.6 | c         |
| 0.68              | *        | *   | *         | *      | *   | *         | 5040   | 4.0 | b         |
| 0.82              | 2220     | 3.2 | b         | 2824   | 4.0 | c         | 5040   | 4.8 | c         |
| 1.0               | 2220     | 4.0 | c         | 2824   | 5.2 | c         | *      | *   | *         |
| 1.2               | *        | *   | *         | 4030   | 3.2 | a         | 6054   | 4.4 | b         |
| 1.5               | 2824     | 3.6 | b         | 4030   | 4.0 | b         | 6054   | 5.2 | c         |
| 1.8               | 2824     | 4.4 | c         | 4030   | 4.8 | c         |        |     |           |
| 2.2               | 2824     | 5.2 | c         | 4030   | 5.6 | c         |        |     |           |
| 2.7               | 4030     | 3.6 | b         | 5040   | 4.0 | b         |        |     |           |
| 3.3               | 4030     | 4.4 | c         | 5040   | 5.0 | c         |        |     |           |
| 3.9               | 4030     | 4.8 | c         | 5040   | 5.6 | c         |        |     |           |
| 4.7               | 5040     | 3.6 | b         | *      | *   | *         |        |     |           |
| 5.6               | 5040     | 4.0 | b         | 6054   | 5.0 | c         |        |     |           |
| 6.8               | 5040     | 5.0 | c         |        |     |           |        |     |           |
| 8.2               | 6054     | 3.6 | a         |        |     |           |        |     |           |
| 10.0              | 6054     | 4.4 | b         |        |     |           |        |     |           |
| 12                | 6054     | 5.2 | c         |        |     |           |        |     |           |