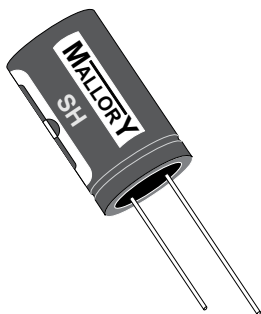


# Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## 2000 Hour Long Life, Aluminum Electrolytic



Type SH is a radial leaded aluminum electrolytic capacitor with a +105 °C, 2000 hour long life rating. The SH is a high reliability product and is ideal for high quality applications that require long life in high temperatures environments.

### Highlights

- +105 °C
- 2000 hours - long life
- High reliability
- Available in T&R and ammo pack

### Specifications



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

**Capacitance Range:** 1.0 to 4700  $\mu$ F  
**Voltage Range:** 6.3 to 450 Vdc  
**Capacitance Tolerance:**  $\pm$ 20%  
**Operating Temperature Range:** -40 °C to +105 °C (-25 °C for 160 to 450 Vdc)  
**DC Leakage Current:** After 2 minutes, 25 °C at rated voltage

6.3 to 100 Vdc

$I = .01CV + 3 \mu A$  Max

$\geq 160$  Vdc after voltage applied for 3 minutes

$I = .03CV + 10 \mu A$  Max

C = Capacitance in ( $\mu$ F)

V = Rated voltage

I = Leakage current in  $\mu A$

**Dissipation Factor @ 120 Hz, +25 °C:**

| WV (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160-250 | 400-450 |
|--------|-----|----|----|----|----|----|----|-----|---------|---------|
| DF(%)  | 26  | 22 | 18 | 16 | 14 | 12 | 10 | 10  | 15      | 20      |

Above 1000  $\mu$ F, the value of DF (%) is increased 2% for every additional 1000  $\mu$ F

**Ripple Multipliers for Frequency and Temperature:**

| Rated WVDC | Ripple Multipliers |       |      |       |
|------------|--------------------|-------|------|-------|
|            | 60Hz               | 120Hz | 1kHz | 10kHz |
| 6 to 25    | 0.80               | 1.0   | 1.1  | 1.2   |
| 35 to 100  | 0.75               | 1.0   | 1.3  | 1.4   |
| 160 to 450 | 0.70               | 1.0   | 1.4  | 1.6   |

| Ambient Temperature | Ripple Multiplier |
|---------------------|-------------------|
| +105 °C             | 1.00              |
| +85 °C              | 1.50              |
| +70 °C              | 1.80              |

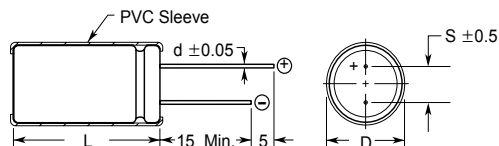
**Load Life Test:** Apply Rated WVDC for 2000 hours at +105 °C  
Capacitance change within 20% of initial value  
DF not to exceed 200% of initial requirement  
DC Leakage current meets initial limits

**Shelf Life:** 1000 hrs @105 °C with no voltage applied  
Cap change within 20% of initial value  
DF  $\leq$  200% of initial requirements  
DC leakage current meets initial requirement

# Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Outline Drawing

Outline Dimensions  
(Millimeters)



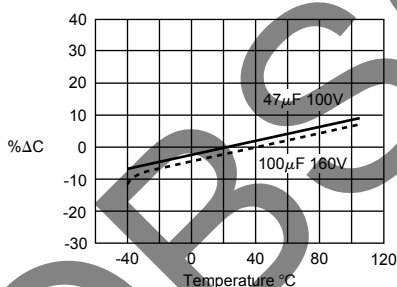
Case vented on diameters 6.3 and greater

Vinyl sleeve adds .5 Max. to diameter and 2.0 Max. to length

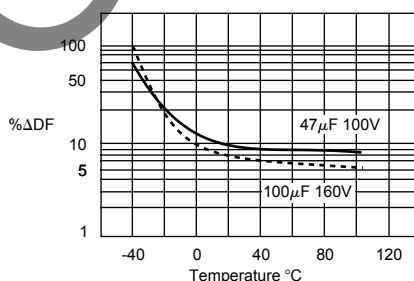
## Part Numbering System

| SH   | 100                                            | M                               | 100                                | S                                                                                  | T                                                                            |
|------|------------------------------------------------|---------------------------------|------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Type | Capacitance<br>( $\mu$ F)                      | Capacitance<br>Tolerance<br>(%) | Rated<br>Voltage<br>(Vdc)          | Packaging                                                                          | Lead<br>Configuration                                                        |
| SH   | 1R0 = 1<br>100 = 10<br>101 = 100<br>102 = 1000 | K = $\pm 10$<br>M = $\pm 20$    | 6R3 = 6.3<br>010 = 10<br>100 = 100 | A = Tape & Ammo<br>E = Different Characteristic<br>R = Tape & Reel<br>S = Standard | 1 = Lead cut<br>2 = Lead form<br>4 = Lead crimp & cut (form)<br>T = Standard |

## Temperature Characteristics

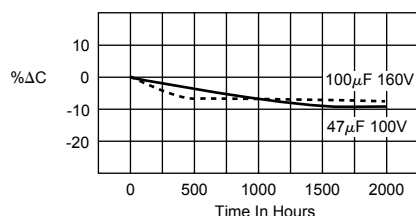


Capacitance Change Ratio

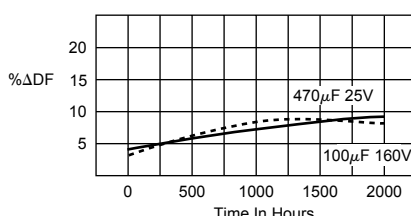


Dissipation Factor Change

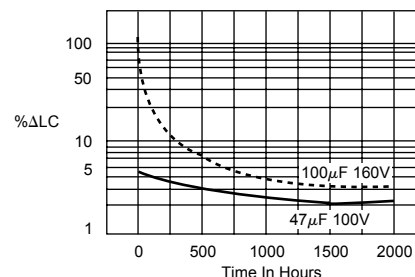
## Load Life Characteristics



Capacitance Change Ratio



Dissipation Factor Change



Leakage Current Change

# Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Ratings

| Capacitance<br>(uF)     | Catalog<br>Part Number | ESR<br>120<br>Hz/+25°C<br>(ohms) | Max<br>Ripple Current<br>120 Hz/<br>+105°C<br>(ma) | Size in. (mm)   |        |               |        |                   |       |                  |       |
|-------------------------|------------------------|----------------------------------|----------------------------------------------------|-----------------|--------|---------------|--------|-------------------|-------|------------------|-------|
|                         |                        |                                  |                                                    | Diameter<br>(D) |        | Length<br>(L) |        | Lead Space<br>(S) |       | Lead dia.<br>(d) |       |
| 6.3 Vdc (8 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 47                      | SH470M6R3ST            | 7.34                             | 65                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 100                     | SH101M6R3ST            | 3.45                             | 100                                                | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 220                     | SH221M6R3ST            | 1.57                             | 165                                                | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 330                     | SH331M6R3ST            | 1.04                             | 200                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 470                     | SH471M6R3ST            | 0.73                             | 280                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 1000                    | SH102M6R3ST            | 0.34                             | 470                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 2200                    | SH222M6R3ST            | 0.17                             | 930                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 3300                    | SH332M6R3ST            | 0.12                             | 1100                                               | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 4700                    | SH472M6R3ST            | 0.09                             | 1320                                               | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 10 Vdc (13 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 47                      | SH470M010ST            | 6.21                             | 75                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 100                     | SH101M010ST            | 2.92                             | 110                                                | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 220                     | SH221M010ST            | 1.33                             | 180                                                | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 330                     | SH331M010ST            | 0.88                             | 255                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 470                     | SH471M010ST            | 0.62                             | 305                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 1000                    | SH102M010ST            | 0.29                             | 570                                                | 0.394           | (10.0) | 0.630         | (16.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 2200                    | SH222M010ST            | 0.14                             | 1010                                               | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 3300                    | SH332M010ST            | 0.10                             | 1220                                               | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 4700                    | SH472M010ST            | 0.08                             | 1410                                               | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 16 Vdc (20 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 33                      | SH330M016ST            | 7.23                             | 70                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 47                      | SH470M016ST            | 5.08                             | 85                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 100                     | SH101M016ST            | 2.39                             | 135                                                | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 220                     | SH221M016ST            | 1.09                             | 235                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 330                     | SH331M016ST            | 0.72                             | 285                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 470                     | SH471M016ST            | 0.51                             | 395                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 1000                    | SH102M016ST            | 0.24                             | 700                                                | 0.394           | (10.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 2200                    | SH222M016ST            | 0.12                             | 1150                                               | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 3300                    | SH332M016ST            | 0.09                             | 1350                                               | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 4700                    | SH472M016ST            | 0.07                             | 1560                                               | 0.630           | (16.0) | 1.26          | (32.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 25 Vdc (32 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 10                      | SH100M025ST            | 21.22                            | 39                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 22                      | SH220M025ST            | 9.65                             | 60                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 33                      | SH330M025ST            | 6.43                             | 75                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 47                      | SH470M025ST            | 4.52                             | 90                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 100                     | SH101M025ST            | 2.12                             | 145                                                | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 220                     | SH221M025ST            | 0.96                             | 250                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 330                     | SH331M025ST            | 0.64                             | 355                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 470                     | SH471M025ST            | 0.45                             | 470                                                | 0.394           | (10.0) | 0.630         | (16.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 1000                    | SH102M025ST            | 0.21                             | 855                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 2200                    | SH222M025ST            | 0.11                             | 1230                                               | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 3300                    | SH332M025ST            | 0.08                             | 1450                                               | 0.630           | (16.0) | 1.26          | (32.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 4700                    | SH472M025ST            | 0.06                             | 1690                                               | 0.709           | (18.0) | 1.40          | (36.0) | 0.295             | (7.5) | 0.031            | (0.8) |

# Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Ratings

| Capacitance<br>(uF)       | Catalog<br>Part Number | ESR<br>120<br>Hz/+25°C<br>(ohms) | Max<br>Ripple Current<br>120 Hz/<br>+105°C<br>(ma) | Size in. (mm)   |        |               |        |                   |       |                  |       |
|---------------------------|------------------------|----------------------------------|----------------------------------------------------|-----------------|--------|---------------|--------|-------------------|-------|------------------|-------|
|                           |                        |                                  |                                                    | Diameter<br>(D) |        | Length<br>(L) |        | Lead Space<br>(S) |       | Lead dia.<br>(d) |       |
| 35 Vdc (44 Volts Surge)   |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 10                        | SH100M035ST            | 18.57                            | 40                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 22                        | SH220M035ST            | 8.44                             | 65                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 33                        | SH330M035ST            | 5.63                             | 85                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 47                        | SH470M035ST            | 3.95                             | 115                                                | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 100                       | SH101M035ST            | 1.86                             | 190                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 220                       | SH221M035ST            | 0.84                             | 315                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 330                       | SH331M035ST            | 0.56                             | 440                                                | 0.394           | (10.0) | 0.630         | (16.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 470                       | SH471M035ST            | 0.40                             | 580                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 1000                      | SH102M035ST            | 0.19                             | 995                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 2200                      | SH222M035ST            | 0.10                             | 1450                                               | 0.630           | (16.0) | 1.26          | (32.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 3300                      | SH332M035ST            | 0.07                             | 1660                                               | 0.709           | (18.0) | 1.40          | (36.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 50 Vdc (63 Volts Surge)   |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 1                         | SH010M050ST            | 159.15                           | 12                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 2.2                       | SH2R2M050ST            | 72.34                            | 18                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 3.3                       | SH3R3M050ST            | 48.23                            | 25                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 4.7                       | SH4R7M050ST            | 33.86                            | 30                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 10                        | SH100M050ST            | 15.92                            | 50                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 22                        | SH220M050ST            | 7.23                             | 75                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 33                        | SH330M050ST            | 4.82                             | 105                                                | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 47                        | SH470M050ST            | 3.39                             | 125                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 100                       | SH101M050ST            | 1.59                             | 210                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 220                       | SH221M050ST            | 0.72                             | 400                                                | 0.394           | (10.0) | 0.630         | (16.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 330                       | SH331M050ST            | 0.48                             | 535                                                | 0.394           | (10.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 470                       | SH471M050ST            | 0.34                             | 730                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 1000                      | SH102M050ST            | 0.16                             | 1110                                               | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 2200                      | SH222M050ST            | 0.08                             | 1530                                               | 0.709           | (18.0) | 1.40          | (36.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 63 Vdc (79 Volts Surge)   |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 4.7                       | SH4R7M063ST            | 28.22                            | 34                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 10                        | SH100M063ST            | 13.26                            | 55                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 22                        | SH220M063ST            | 6.03                             | 90                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 33                        | SH330M063ST            | 4.02                             | 110                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 47                        | SH470M063ST            | 2.82                             | 155                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 100                       | SH101M063ST            | 1.33                             | 260                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 220                       | SH221M063ST            | 0.60                             | 460                                                | 0.394           | (10.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 330                       | SH331M063ST            | 0.40                             | 650                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 470                       | SH471M063ST            | 0.28                             | 800                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 1000                      | SH102M063ST            | 0.13                             | 1200                                               | 0.630           | (16.0) | 1.26          | (32.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 100 Vdc (125 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 1                         | SH010M100ST            | 132.63                           | 15                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 2.2                       | SH2R2M100ST            | 60.29                            | 22                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 3.3                       | SH3R3M100ST            | 40.19                            | 29                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 4.7                       | SH4R7M100ST            | 28.22                            | 37                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 10                        | SH100M100ST            | 13.26                            | 65                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 22                        | SH220M100ST            | 6.03                             | 115                                                | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |

# Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Ratings

| Capacitance<br>(uF)        | Catalog<br>Part Number | ESR<br>120<br>Hz/+25°C<br>(ohms) | Max<br>Ripple Current<br>120 Hz/<br>+105°C<br>(ma) | Size in. (mm)   |        |               |        |                   |       |                  |       |
|----------------------------|------------------------|----------------------------------|----------------------------------------------------|-----------------|--------|---------------|--------|-------------------|-------|------------------|-------|
|                            |                        |                                  |                                                    | Diameter<br>(D) |        | Length<br>(L) |        | Lead Space<br>(S) |       | Lead dia.<br>(d) |       |
| 100 Vdc (125 Volts Surge)  |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 33                         | SH330M100ST            | 4.02                             | 160                                                | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 47                         | SH470M100ST            | 2.82                             | 210                                                | 0.394           | (10.0) | 0.630         | (16.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 100                        | SH101M100ST            | 1.33                             | 385                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 220                        | SH221M100ST            | 0.60                             | 590                                                | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 330                        | SH331M100ST            | 0.40                             | 720                                                | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 470                        | SH471M100ST            | 0.28                             | 875                                                | 0.630           | (16.0) | 1.26          | (32.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| *160 Vdc (200 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 1                          | SH010M160ST            | 198.94                           | 17                                                 | 0.197           | (5.0)  | 0.433         | (11.0) | 0.079             | (2.0) | 0.020            | (0.5) |
| 2.2                        | SH2R2M160ST            | 90.43                            | 25                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 3.3                        | SH3R3M160ST            | 60.29                            | 36                                                 | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 4.7                        | SH4R7M160ST            | 42.33                            | 43                                                 | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 10                         | SH100M160ST            | 19.89                            | 70                                                 | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 22                         | SH220M160ST            | 9.04                             | 130                                                | 0.394           | (10.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 33                         | SH330M160ST            | 6.03                             | 180                                                | 0.512           | (13.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 47                         | SH470M160ST            | 4.23                             | 270                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 100                        | SH101M160ST            | 1.99                             | 330                                                | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| *200 Vdc (250 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 1                          | SH010M200ST            | 198.94                           | 17                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 2.2                        | SH2R2M200ST            | 90.43                            | 25                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 3.3                        | SH3R3M200ST            | 60.29                            | 36                                                 | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 4.7                        | SH4R7M200ST            | 42.33                            | 50                                                 | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 10                         | SH100M200ST            | 19.89                            | 80                                                 | 0.394           | (10.0) | 0.630         | (16.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 22                         | SH220M200ST            | 9.04                             | 140                                                | 0.394           | (10.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 33                         | SH330M200ST            | 6.03                             | 190                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 47                         | SH470M200ST            | 4.23                             | 220                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 100                        | SH101M200ST            | 1.99                             | 335                                                | 0.630           | (16.0) | 1.26          | (32.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| *250 Vdc (300 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 1                          | SH010M250ST            | 198.94                           | 17                                                 | 0.248           | (6.3)  | 0.433         | (11.0) | 0.098             | (2.5) | 0.020            | (0.5) |
| 2.2                        | SH2R2M250ST            | 90.43                            | 29                                                 | 0.315           | (8.0)  | 0.433         | (11.0) | 0.138             | (3.5) | 0.024            | (0.6) |
| 3.3                        | SH3R3M250ST            | 60.29                            | 42                                                 | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 4.7                        | SH4R7M250ST            | 42.33                            | 50                                                 | 0.394           | (10.0) | 0.492         | (12.5) | 0.197             | (5.0) | 0.024            | (0.6) |
| 10                         | SH100M250ST            | 19.89                            | 88                                                 | 0.394           | (10.0) | 0.787         | (20.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 22                         | SH220M250ST            | 9.04                             | 155                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 33                         | SH330M250ST            | 6.03                             | 190                                                | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |
| 47                         | SH470M250ST            | 4.23                             | 230                                                | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| 100                        | SH101M250ST            | 1.99                             | 340                                                | 0.709           | (18.0) | 1.40          | (36.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| *400 Vdc (450 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 22                         | SH220M400ST            | 12.06                            | 110                                                | 0.630           | (16.0) | 0.984         | (25.0) | 0.295             | (7.5) | 0.031            | (0.8) |
| *450 Vdc (500 Volts Surge) |                        |                                  |                                                    |                 |        |               |        |                   |       |                  |       |
| 10                         | SH100M450ST            | 26.53                            | 80                                                 | 0.512           | (13.0) | 0.984         | (25.0) | 0.197             | (5.0) | 0.024            | (0.6) |

\* Over 160 Vdc the ripple is measured at 85 °C

# Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Taping & Packaging

Fig. 1 - Formed Taping

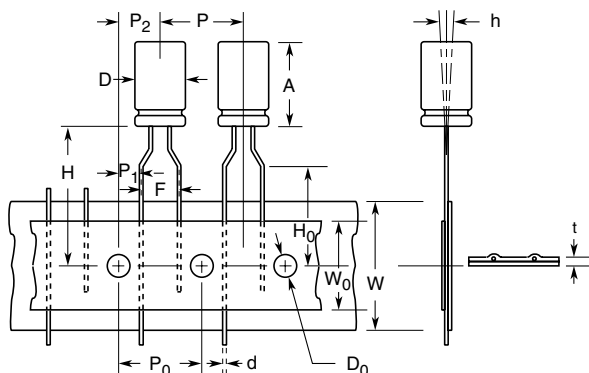


Fig. 2 - Straight Taping (5φ, 6.3φ, 8φ)

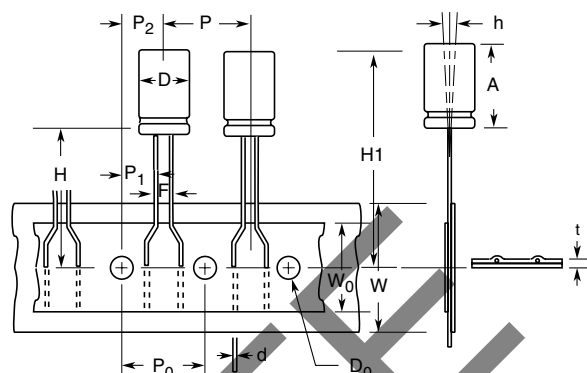


Fig. 3 - Straight Taping (Under 10φ, 12φ, 13φ)

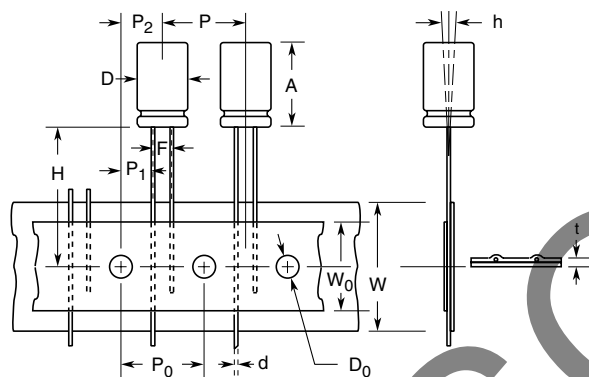
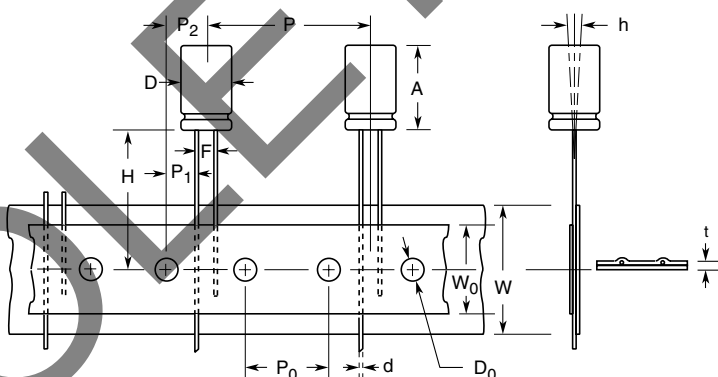


Fig. 4 - Straight Taping (16φ, 18φ)

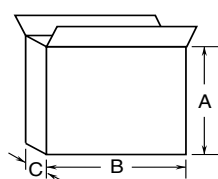


Standard Lead Spacing of Taped Components is 5mm  
Other Lead Spacing is Available by Special Order

| Code      | D       | A    | d     | P    | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | F            | W    | W <sub>0</sub> | H     | H <sub>0</sub> | D <sub>0</sub> | t    | ih   | Fig. |
|-----------|---------|------|-------|------|----------------|----------------|----------------|--------------|------|----------------|-------|----------------|----------------|------|------|------|
| Tolerance | 0.5     | 1.0  | ±0.05 | ±1.0 | ±0.2           | ±0.7           | ±1.3           | +0.8<br>-0.2 | ±0.5 | Min.           | ±0.75 | ±0.5           | ±0.2           | ±0.2 | Max. |      |
| Item      | 4 ~ 6.3 | 7.0  | 0.45  | 12.7 | 12.7           | 3.85           | 6.35           | 5.0          | 18.0 | 12.5           | 18.5  | 16.0           | 4.0            | 0.7  | 2.0  | 1    |
|           | 5 ~ 8   | 12.5 | 0.5   | 12.7 | 12.7           | 3.85           | 6.35           | 5.0          | 18.0 | 12.5           | 18.5  | 16.0           | 4.0            | 0.7  | 2.0  |      |
|           | 5, 6.3  | 12.5 | 0.5   | 12.7 | 12.7           | 5.1            | 6.35           | 2.5          | 18.0 | 12.5           | 18.5  | —              | 4.0            | 0.7  | 2.0  | 2    |
|           | 8       | 12.5 | 0.5   | 12.7 | 12.7           | 4.6            | 6.35           | 3.5          | 18.0 | 12.5           | 18.5  | —              | 4.0            | 0.7  | 2.0  |      |
|           | 10      | 21.0 | 0.6   | 12.7 | 12.7           | 3.85           | 6.35           | 5.0          | 18.0 | 12.5           | 18.5  | —              | 4.0            | 0.7  | 2.0  | 3    |
|           | 12, 13  | 26.0 | 0.6   | 15.0 | 15.0           | 5.0            | 7.5            | 5.0          | 18.0 | 12.5           | 18.5  | —              | 4.0            | 0.7  | 2.0  |      |
|           | 16, 18  | 26.0 | 0.8   | 30.0 | 15.0           | 3.75           | 7.5            | 7.5          | 18.0 | 12.5           | 18.0  | —              | 4.0            | 0.7  | 2.0  | 4    |

| Capacitor Diameter D (mm) | Ammo Pack Box Dimensions (mm) |       |     | Quantity Per Ammo Pack Box |
|---------------------------|-------------------------------|-------|-----|----------------------------|
|                           | A±5                           | B Max | C±3 |                            |
| 4                         | 250                           | 340   | 54  | 3000                       |
| 5                         | 250                           | 340   | 54  | 2,000                      |
| 6.3                       | 290                           | 340   | 54  | 2,000                      |
| 8                         | 250                           | 340   | 54  | 1,000                      |
| 10 (12L)                  | 290                           | 340   | 54  | 600                        |
| 10 (16L)                  | 350                           | 340   | 59  | 600                        |
| 10 (20L)                  | 340                           | 340   | 71  | 600                        |
| 12, 13                    | 340                           | 340   | 71  | 400                        |
| 16                        | 340                           | 340   | 71  | 300                        |

### Ammo Pack



Ammo Pack boxes are shipped 5 to the outer packing carton

### Tape And Reel Quantities

| Case Diameter D (mm) | Reel Width | Reel Qty. (Pcs.) |
|----------------------|------------|------------------|
| 4                    | 44         | 1500             |
| 5                    | 44         | 1200             |
| 6                    | 44         | 1000             |
| 8                    | 44         | 800              |
| 10 (12L)             | 44         | 600              |
| 10 (16L)             | 50         | 600              |
| 12, 13               | -          | -                |
| 16                   | -          | -                |

## Type SH 105 °C Radial Leaded Aluminum Electrolytic Capacitors

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