



## Specifications

| Items                                                          | Condition                                     | Specifications                               |                                                     |              |    |    |
|----------------------------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------|--------------|----|----|
| Rated voltage (V)                                              | —                                             | 16                                           | 20                                                  | 25           | 32 | 35 |
| Surge voltage (V)                                              | Room temperature                              | 18                                           | 23                                                  | 29           | 37 | 40 |
| Category temperature range (°C)                                | —                                             | -55 to +105                                  |                                                     |              |    |    |
| Capacitance tolerance (%)                                      | 120Hz/20°C                                    | M : ±20                                      |                                                     |              |    |    |
| Dissipation Factor (DF)                                        | 120Hz/20°C                                    | Please see the attached characteristics list |                                                     |              |    |    |
| Leakage current※1                                              | Rated voltage applied, after 2 minutes        | Please see the attached characteristics list |                                                     |              |    |    |
| Equivalent series resistance (ESR)                             | 100kHz to 300kHz/20°C                         | Please see the attached characteristics list |                                                     |              |    |    |
| Characteristics of impedance ratio at high temp. and low temp. | Based the value at 100kHz, +20°C              | -55°C                                        | Z/Z20°C                                             | 0.75 to 1.25 |    |    |
|                                                                |                                               | +105°C                                       | Z/Z20°C                                             | 0.75 to 1.25 |    |    |
| Endurance                                                      | 105°C, 5,000h, Rated voltage applied          | ΔC/C                                         | Within ±20% of the initial value                    |              |    |    |
|                                                                |                                               | DF                                           | Within 1.5 times of the initial limit               |              |    |    |
|                                                                |                                               | ESR                                          | Within 1.5 times of the initial limit               |              |    |    |
|                                                                |                                               | LC                                           | Within the initial limit                            |              |    |    |
| Damp heat(Steady state)                                        | 60°C, 90 to 95%RH, 1,000h, No-applied voltage | ΔC/C                                         | Within ±20% of the initial value                    |              |    |    |
|                                                                |                                               | DF                                           | Within 1.5 times of the initial limit               |              |    |    |
|                                                                |                                               | ESR                                          | Within 1.5 times of the initial limit               |              |    |    |
|                                                                |                                               | LC                                           | Within the initial limit (after voltage processing) |              |    |    |
| Resistance to soldering heat※2                                 | Flow method (260±5°C X 10s)                   | ΔC/C                                         | Within ±5% of the initial value                     |              |    |    |
|                                                                |                                               | DF                                           | Within the initial limit                            |              |    |    |
|                                                                |                                               | ESR                                          | Within the initial limit                            |              |    |    |
|                                                                |                                               | LC                                           | Within the initial limit (after voltage processing) |              |    |    |

※1 In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 105°C.

※2 Please refer to page 25 for flow soldering conditions.

## Marking and dimensions

Polarity marking  
(Cathode)

223  
SEPF  
68  
32

Case No.

Series

(SEPF)

Rated capacitance

Rated voltage

(unit : mm)

| Size code | $\phi D \pm 0.5$ | L max | F             | $\phi d \pm 0.05$ |
|-----------|------------------|-------|---------------|-------------------|
| C55       | 6.3              | 5.5   | $2.5 \pm 0.5$ | 0.45              |
| C6        | 6.3              | 6.0   | $2.5 \pm 0.5$ | 0.5               |
| E7        | 8.0              | 7.0   | $3.5 \pm 0.5$ | 0.5※              |
| E12       | 8.0              | 12.0  | $3.5 \pm 0.5$ | 0.6               |
| F13       | 10.0             | 13.0  | $5.0 \pm 0.5$ | 0.6               |

※3 32SEPF68M is  $0.6 \pm 0.05$