

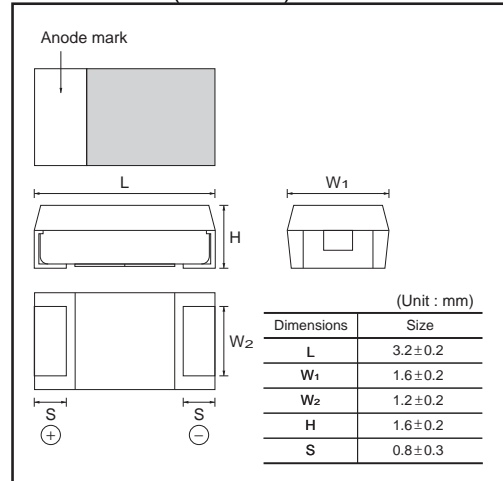
# Chip tantalum capacitors (Fail-safe open structure type)

## TCFG Series A Case

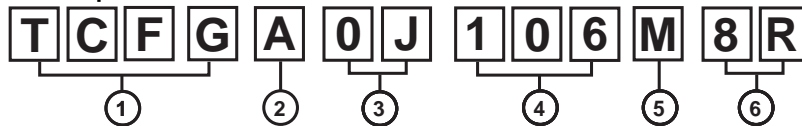
### ●Features

- 1) Safety design by open function built - in.
- 2) Wide capacitance range
- 3) Screening by thermal shock.

### ●Dimensions (Unit : mm)



### ●Part No. Explanation



① Series name  
TCFG

② Case code  
A

③ Rated voltage

|                   |    |     |    |    |    |    |
|-------------------|----|-----|----|----|----|----|
| Rated voltage (V) | 4  | 6.3 | 10 | 16 | 20 | 25 |
| CODE              | 0G | 0J  | 1A | 1C | 1D | 1E |

④ Capacitance

Nominal capacitance in pF in 3 digits : 2 significant figure representing the number of 0's.

⑤ Capacitance tolerance

M : ±20%

⑥ Taping

8 : Reel width (8mm)

R : Positive electrode on the side opposite to sprocket hole

●Capacitance range

| (μF)      | Rated voltage (V.DC) |     |    |    |    |    |
|-----------|----------------------|-----|----|----|----|----|
|           | 4                    | 6.3 | 10 | 16 | 20 | 25 |
| 1.0 (105) |                      |     |    | A  | A  | A  |
| 1.5 (155) |                      |     | A  | A  | A  | A  |
| 2.2 (225) |                      |     | A  | A  | A  | A  |
| 3.3 (335) |                      | A   | A  | A  | A  | A  |
| 4.7 (475) | A                    | A   | A  | A  | A  | A  |
| 6.8 (685) | A                    | A   | A  | A  |    |    |
| 10 (106)  | A                    | A   | A  | A  |    |    |
| 15 (156)  | A                    | A   | A  |    |    |    |
| 22 (226)  | A                    | A   | A  |    |    |    |
| 33 (336)  | A                    | A   |    |    |    |    |
| 47 (476)  | A                    | A   |    |    |    |    |
| 68 (686)  | A                    |     |    |    |    |    |

Remark) Case size codes (A) in the above show each size products line-up.

●Marking

The indications listed below should be given on the surface of a capacitor.

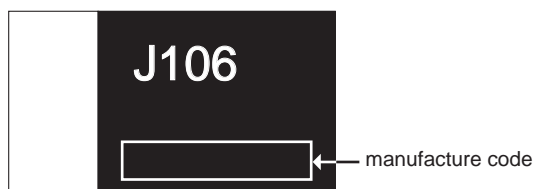
- ① Polarity : The polarity should be shown by □ bar. (on the anode side)
- ② Rated DC voltage : Due to the small size of A case, a voltage code is used as shown below.
- ③ Nominal capacitance

| Voltage Code | Rated Voltage(V) |
|--------------|------------------|
| G            | 4                |
| J            | 6.3              |
| A            | 10               |
| C            | 16               |
| D            | 20               |
| E            | 25               |

| Capacitance Code | Nominal Capacitance (μF) |
|------------------|--------------------------|
| 105              | 1.0                      |
| 155              | 1.5                      |
| 225              | 2.2                      |
| 335              | 3.3                      |
| 475              | 4.7                      |
| 685              | 6.8                      |
| 106              | 10                       |
| 156              | 15                       |
| 226              | 22                       |
| 336              | 33                       |
| 476              | 47                       |
| 686              | 68                       |

[A Case] note 1) Visual typical example (1)voltage code (2) capacitance code

$$\frac{J}{(1)} \frac{106}{(2)}$$



note 2) voltage code and capacitance code are variable with parts number

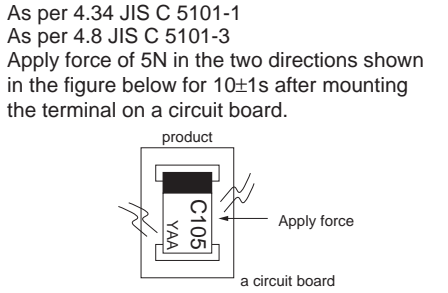
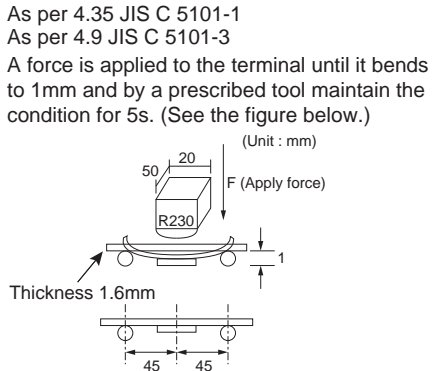
| Item                                                   |                                                                                                                                                                                       | Performance                                                                     | Test conditions<br>(based on JIS C5101-1 and JIS C5101-3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|------|---|---------|---------|---|------------|---------------|---|---------|---------|---|------------|---------------|
| Operating Temperature                                  |                                                                                                                                                                                       | -55 °C to +125 °C                                                               | Voltage reduction when temperature exceeds +85°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Maximum operating temperature with no voltage derating |                                                                                                                                                                                       | +85 °C                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Rated Voltage (V.DC)                                   |                                                                                                                                                                                       | 4 6.3 10 16 20 25                                                               | at 85°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Category Voltage (V.DC)                                |                                                                                                                                                                                       | 2.5 4 6.3 10 13 16                                                              | at 125°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Surge Voltage                                          |                                                                                                                                                                                       | 5.0 8 13 20 26 32                                                               | at 85°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| DC leakage current                                     |                                                                                                                                                                                       | 0.5μA or 0.01CV whichever is greater<br>(Shown in "Standard list")              | As per 4.9 JIS C 5101-1<br>As per 4.5.1 JIS C 5101-3<br>Voltage : Rated voltage for 1min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Capacitance tolerance                                  |                                                                                                                                                                                       | Shall be satisfied allowance range.<br>±20%                                     | As per 4.7 JIS C 5101-1<br>As per 4.5.2 JIS C 5101-3<br>Measuring frequency : 120±12Hz<br>Measuring voltage : 0.5Vrms, +1.5V.DC<br>Measuring circuit : DC Equivalent series circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Tangent of loss angle (Df, tanδ)                       |                                                                                                                                                                                       | Shall be satisfied the voltage on "Standard list"                               | As per 4.8 JIS C 5101-1<br>As per 4.5.3 JIS C 5101-3<br>Measuring frequency : 120±12Hz<br>Measuring voltage : 0.5Vrms, +1.5V.DC<br>Measuring circuit : DC Equivalent series circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Impedance                                              |                                                                                                                                                                                       | Shall be satisfied the voltage on "Standard list"                               | As per 4.10 JIS C 5101-1<br>As per 4.5.4 JIS C 5101-3<br>Measuring frequency : 100±10kHz<br>Measuring voltage : 0.5Vrms or less                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Resistance to soldering heat                           | Appearance                                                                                                                                                                            | There should be no significant abnormality.<br>The indications should be clear. | As per 4.14 JIS C 5101-1<br>As per 4.6 JIS C 5101-3<br>Dip in the solder bath<br>Solder temp : 260±5°C<br>Duration : 5±0.5s<br>Repetition : 1<br>After the specimens, leave it at room temperature for over 24h and then measure the sample.                                                                                                                                                                                                                                                                                                                                                                                              |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | L.C                                                                                                                                                                                   | Less than initial limit                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | ΔC / C                                                                                                                                                                                | Within ±5% of initial value                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | tanδ                                                                                                                                                                                  | Less than initial limit                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Fail-Safe open unit actuation                          |                                                                                                                                                                                       | Within 320°C – 20s                                                              | Dip in the solder bath<br>Solder temp : 320±5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Temperature cycle                                      | Appearance                                                                                                                                                                            | There should be no significant abnormality.<br>The indications should be clear. | As per 4.16 JIS C 5101-1<br>As per 4.10 JIS C 5101-3<br>Repetition : 5 cycles (1 cycle : steps 1 to 4)<br>without discontinuation.<br><table border="1" data-bbox="954 1355 1281 1514"> <thead> <tr> <th>Step</th> <th>Temp.</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±3°C</td> <td>30±3min</td> </tr> <tr> <td>2</td> <td>Room temp.</td> <td>3min. or less</td> </tr> <tr> <td>3</td> <td>125±2°C</td> <td>30±3min</td> </tr> <tr> <td>4</td> <td>Room temp.</td> <td>3min. or less</td> </tr> </tbody> </table><br>After the specimens, leave it at room temperature for over 24h and then measure the sample. | Step          | Temp. | Time | 1 | -55±3°C | 30±3min | 2 | Room temp. | 3min. or less | 3 | 125±2°C | 30±3min | 4 | Room temp. | 3min. or less |
|                                                        | Step                                                                                                                                                                                  | Temp.                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Time          |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | 1                                                                                                                                                                                     | -55±3°C                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 30±3min       |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | 2                                                                                                                                                                                     | Room temp.                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3min. or less |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| 3                                                      | 125±2°C                                                                                                                                                                               | 30±3min                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| 4                                                      | Room temp.                                                                                                                                                                            | 3min. or less                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| L.C                                                    | Less than initial limit                                                                                                                                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| ΔC / C                                                 | TCFGA1A226M8R : Within ±15% of initial value<br>TCFGA0J476M8R : Within ±15% of initial value<br>TCFGA0G686M8R : Within ±15% of initial value<br>Others : Within ±10% of initial value |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| tanδ                                                   | Less than initial limit                                                                                                                                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
| Moisture resistance                                    | Appearance                                                                                                                                                                            | There should be no significant abnormality.<br>The indications should be clear. | As per 4.12 JIS C 5101-1<br>As per 4.12 JIS C 5101-3<br>After leaving the sample under such atmospheric condition that the temperature and humidity are 60±2°C and 90 to 95%RH, respectively, for 500±12h level it at room temperature for over 24h and then measure the sample.                                                                                                                                                                                                                                                                                                                                                          |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | L.C                                                                                                                                                                                   | Less than initial limit                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | ΔC / C                                                                                                                                                                                | Within ±10% of initial value                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |
|                                                        | tanδ                                                                                                                                                                                  | Less than initial limit                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |       |      |   |         |         |   |            |               |   |         |         |   |            |               |

| Item                        | Performance                       | Test conditions<br>(based on JIS C5101-1 and JIS C5101-3)                                                                                                                             |
|-----------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Stability       | Temp.                             | -55°C                                                                                                                                                                                 |
|                             | ΔC / C                            | Within 0/-12%of initial value                                                                                                                                                         |
|                             | tanδ                              | Shall be satisfied the voltage on "Standard list"                                                                                                                                     |
|                             | L.C                               | -                                                                                                                                                                                     |
|                             | Temp.                             | +85°C                                                                                                                                                                                 |
|                             | ΔC / C                            | Within +10/0%of initial value                                                                                                                                                         |
|                             | tanδ                              | Shall be satisfied the voltage on "Standard list"                                                                                                                                     |
|                             | L.C                               | Less than 1000% of initial limit                                                                                                                                                      |
|                             | Temp.                             | +125°C                                                                                                                                                                                |
|                             | ΔC / C                            | Within +15/0%of initial value                                                                                                                                                         |
| Surge Voltage               | Appearance                        | There should be no significant abnormality. The indications should be clear.                                                                                                          |
|                             | L.C                               | Less than initial limit                                                                                                                                                               |
|                             | ΔC / C                            | Within ±10%of initial value                                                                                                                                                           |
|                             | tanδ                              | Less than initial limit                                                                                                                                                               |
| Loading at High temperature | Appearance                        | There should be no significant abnormality. The indications should be clear.                                                                                                          |
|                             | L.C                               | Less than initial limit                                                                                                                                                               |
|                             | ΔC / C                            | TCFGA1A226M8R : Within ±15% of initial value<br>TCFGA0J476M8R : Within ±15% of initial value<br>TCFGA0G686M8R : Within ±15% of initial value<br>Others : Within ±10% of initial value |
|                             | tanδ                              | Less than initial limit                                                                                                                                                               |
| Terminal Strength           | Capacitance                       | The measured value should be stable.                                                                                                                                                  |
|                             | Appearance                        | There should be no significant abnormality.                                                                                                                                           |
| Adhesiveness                | The terminal should not come off. |                                                                                                                                                                                       |

As per 4.29 JIS C 5101-1  
As per 4.13 JIS C 5101-3

As per 4.26 JIS C 5101-1  
As per 4.14 JIS C 5101-3  
Apply the specified surge voltage via the serial resistance of 1kΩ every 5±0.5min. for 30±5 s. each time in the atmospheric condition of 85±2°C. Repeat this procedure 1,000 times. After the specimens, leave it at room temperature for over 24h and then measure the sample.

As per 4.23 JIS C 5101-1  
As per 4.15 JIS C 5101-3  
After applying the rated voltage for 2000+72/0h without discontinuation via the serial resistance of 3Ω or less at a temperature of 85±2°C, leave the sample at room temperature/humidity for over 24h and measure the value.



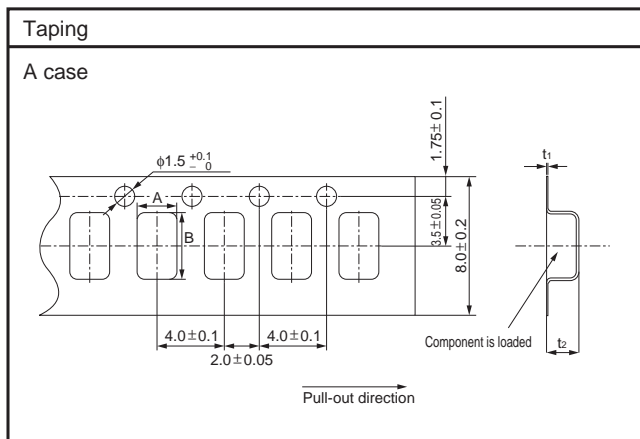
| Item                   |             | Performance                                                                                                                | Test conditions<br>(based on JIS C5101-1 and JIS C5101-3)                                                                                                                                                                                                                   |
|------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions             |             | Be based on "External dimensions"                                                                                          | Measure using a caliper of JIS B 7505 Class 2 or higher grade.                                                                                                                                                                                                              |
| Resistance to solvents |             | The indication should be clear.                                                                                            | As per 4.32 JIS C 5101-1<br>As per 4.18 JIS C 5101-3<br>Dip in the isopropyl alcohol for 30±5s, at room temperature.                                                                                                                                                        |
| Solderability          |             | 3/4 or more surface area of the solder coated terminal dipped in the soldering bath should be covered with the new solder. | As per 4.15.2 JIS C 5101-1<br>As per 4.7 JIS C 5101-3<br>Dip speed = 25±2.5mm/s<br>Pre-treatment (accelerated aging) : Leave the sample on the boiling distilled water for 1h.<br>Solder temp. : 245±5°C<br>Duration : 3±0.5s<br>Solder : M705<br>Flux : Rosin 25%, IPA 75% |
| Vibration              | Capacitance | The measured value should be stable.                                                                                       | As per 4.17 JIS C 5101-1<br>Frequency : 10 to 55 to 10Hz/min.<br>Amplitude : 1.5mm<br>Time : 2h each in X and Y directions<br>Mounting : The terminal is soldered on a print circuit board.                                                                                 |
|                        | Appearance  | There should be no significant abnormality.                                                                                |                                                                                                                                                                                                                                                                             |

## ●Standard list, TCFG series A Cases

| Part No.          | Rated Voltage<br>@85°C<br>(V) | Derated Voltage<br>@125°C<br>(V) | Surge Voltage<br>@85°C<br>(V) | Capacitance<br>120Hz<br>(μF) | Tolerance<br>(%) | Leakage current<br>25°C<br>1WV.60s<br>(μA) | DF 120Hz<br>(%) |              |       | Impedance<br>100kHz<br>(Ω) | Case code |
|-------------------|-------------------------------|----------------------------------|-------------------------------|------------------------------|------------------|--------------------------------------------|-----------------|--------------|-------|----------------------------|-----------|
|                   |                               |                                  |                               |                              |                  |                                            | -55°C           | 25°C<br>85°C | 125°C |                            |           |
| TCFG A 0G 475 M8R | 4                             | 2.5                              | 5                             | 4.7                          | ±20              | 0.5                                        | 10              | 6            | 8     | 5.6                        | A         |
| TCFG A 0G 685 M8R | 4                             | 2.5                              | 5                             | 6.8                          | ±20              | 0.5                                        | 12              | 8            | 10    | 4.9                        | A         |
| TCFG A 0G 106 M8R | 4                             | 2.5                              | 5                             | 10                           | ±20              | 0.5                                        | 12              | 8            | 10    | 4.2                        | A         |
| TCFG A 0G 156 M8R | 4                             | 2.5                              | 5                             | 15                           | ±20              | 0.6                                        | 12              | 8            | 10    | 4.0                        | A         |
| TCFG A 0G 226 M8R | 4                             | 2.5                              | 5                             | 22                           | ±20              | 0.9                                        | 12              | 8            | 10    | 3.0                        | A         |
| TCFG A 0G 336 M8R | 4                             | 2.5                              | 5                             | 33                           | ±20              | 1.3                                        | 14              | 10           | 12    | 3.5                        | A         |
| TCFG A 0G 476 M8R | 4                             | 2.5                              | 5                             | 47                           | ±20              | 1.9                                        | 30              | 12           | 16    | 3.2                        | A         |
| TCFG A 0G 686 M8R | 4                             | 2.5                              | 5                             | 68                           | ±20              | 3.0                                        | 32              | 16           | 20    | 3.0                        | A         |
| TCFG A 0J 335 M8R | 6.3                           | 4                                | 8                             | 3.3                          | ±20              | 0.5                                        | 10              | 6            | 8     | 5.6                        | A         |
| TCFG A 0J 475 M8R | 6.3                           | 4                                | 8                             | 4.7                          | ±20              | 0.5                                        | 12              | 8            | 10    | 4.9                        | A         |
| TCFG A 0J 685 M8R | 6.3                           | 4                                | 8                             | 6.8                          | ±20              | 0.5                                        | 12              | 8            | 10    | 4.2                        | A         |
| TCFG A 0J 106 M8R | 6.3                           | 4                                | 8                             | 10                           | ±20              | 0.6                                        | 12              | 8            | 10    | 4.0                        | A         |
| TCFG A 0J 156 M8R | 6.3                           | 4                                | 8                             | 15                           | ±20              | 0.9                                        | 12              | 8            | 10    | 3.0                        | A         |
| TCFG A 0J 226 M8R | 6.3                           | 4                                | 8                             | 22                           | ±20              | 1.4                                        | 14              | 10           | 12    | 3.5                        | A         |
| TCFG A 0J 336 M8R | 6.3                           | 4                                | 8                             | 33                           | ±20              | 2.1                                        | 30              | 12           | 16    | 3.2                        | A         |
| TCFG A 0J 476 M8R | 6.3                           | 4                                | 8                             | 47                           | ±20              | 3.0                                        | 34              | 18           | 24    | 3.2                        | A         |
| TCFG A 1A 155 M8R | 10                            | 6.3                              | 13                            | 1.5                          | ±20              | 0.5                                        | 10              | 6            | 8     | 8.8                        | A         |
| TCFG A 1A 225 M8R | 10                            | 6.3                              | 13                            | 2.2                          | ±20              | 0.5                                        | 10              | 6            | 8     | 5.6                        | A         |
| TCFG A 1A 335 M8R | 10                            | 6.3                              | 13                            | 3.3                          | ±20              | 0.5                                        | 12              | 8            | 10    | 4.9                        | A         |
| TCFG A 1A 475 M8R | 10                            | 6.3                              | 13                            | 4.7                          | ±20              | 0.5                                        | 12              | 8            | 10    | 4.2                        | A         |
| TCFG A 1A 685 M8R | 10                            | 6.3                              | 13                            | 6.8                          | ±20              | 0.7                                        | 12              | 8            | 10    | 4.0                        | A         |
| TCFG A 1A 106 M8R | 10                            | 6.3                              | 13                            | 10                           | ±20              | 1.0                                        | 12              | 8            | 10    | 3.0                        | A         |
| TCFG A 1A 156 M8R | 10                            | 6.3                              | 13                            | 15                           | ±20              | 1.5                                        | 14              | 10           | 12    | 3.5                        | A         |
| TCFG A 1A 226 M8R | 10                            | 6.3                              | 13                            | 22                           | ±20              | 2.2                                        | 30              | 12           | 16    | 3.2                        | A         |
| TCFG A 1C 105 M8R | 16                            | 10                               | 20                            | 1.0                          | ±20              | 0.5                                        | 10              | 6            | 8     | 7                          | A         |
| TCFG A 1C 155 M8R | 16                            | 10                               | 20                            | 1.5                          | ±20              | 0.5                                        | 10              | 6            | 8     | 5.6                        | A         |
| TCFG A 1C 225 M8R | 16                            | 10                               | 20                            | 2.2                          | ±20              | 0.5                                        | 10              | 6            | 8     | 4.9                        | A         |
| TCFG A 1C 335 M8R | 16                            | 10                               | 20                            | 3.3                          | ±20              | 0.5                                        | 10              | 6            | 8     | 4.8                        | A         |
| TCFG A 1C 475 M8R | 16                            | 10                               | 20                            | 4.7                          | ±20              | 0.8                                        | 10              | 6            | 8     | 3.9                        | A         |
| TCFG A 1C 685 M8R | 16                            | 10                               | 20                            | 6.8                          | ±20              | 1.1                                        | 10              | 6            | 8     | 3.8                        | A         |
| TCFG A 1C 106 M8R | 16                            | 10                               | 20                            | 10                           | ±20              | 1.6                                        | 12              | 8            | 10    | 3.5                        | A         |
| TCFG A 1D 105 M8R | 20                            | 13                               | 26                            | 1.0                          | ±20              | 0.5                                        | 10              | 6            | 8     | 7                          | A         |
| TCFG A 1D 155 M8R | 20                            | 13                               | 26                            | 1.5                          | ±20              | 0.5                                        | 10              | 6            | 8     | 6.0                        | A         |
| TCFG A 1D 255 M8R | 20                            | 13                               | 26                            | 2.2                          | ±20              | 0.5                                        | 10              | 6            | 8     | 5.2                        | A         |
| TCFG A 1D 335 M8R | 20                            | 13                               | 26                            | 3.3                          | ±20              | 0.7                                        | 10              | 6            | 8     | 4.8                        | A         |
| TCFG A 1D 475 M8R | 20                            | 13                               | 26                            | 4.7                          | ±20              | 0.9                                        | 10              | 6            | 8     | 3.9                        | A         |
| TCFG A 1E 105 M8R | 25                            | 16                               | 32                            | 1.0                          | ±20              | 0.5                                        | 10              | 6            | 8     | 7                          | A         |
| TCFG A 1E 155 M8R | 25                            | 16                               | 32                            | 1.5                          | ±20              | 0.5                                        | 10              | 6            | 8     | 6.0                        | A         |
| TCFG A 1E 255 M8R | 25                            | 16                               | 32                            | 2.2                          | ±20              | 0.6                                        | 10              | 6            | 8     | 5.2                        | A         |
| TCFG A 1E 335 M8R | 25                            | 16                               | 32                            | 3.3                          | ±20              | 0.8                                        | 10              | 6            | 8     | 4.8                        | A         |
| TCFG A 1E 475 M8R | 25                            | 16                               | 32                            | 4.7                          | ±20              | 1.2                                        | 12              | 8            | 10    | 3.4                        | A         |

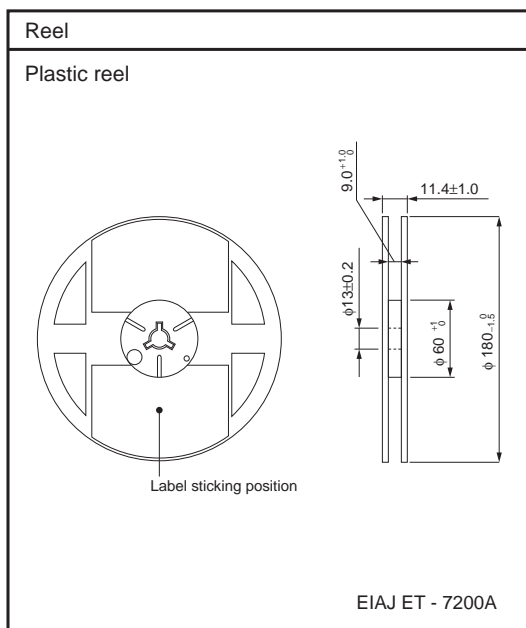
●Packaging specifications

|           |       |       |         |        |
|-----------|-------|-------|---------|--------|
| Case code | A±0.1 | B±0.1 | t1±0.05 | t2±0.1 |
| A (3216)  | 1.9   | 3.5   | 0.25    | 1.9    |



●Packaging style

| Case code | Packaging | Packaging style |                    | Symbol | Basic ordering unit |
|-----------|-----------|-----------------|--------------------|--------|---------------------|
| A Case    | Taping    | Plastic taping  | $\phi 180$ mm reel | 8R     | 2,000               |



## Notes

No copying or reproduction of this document, in part or in whole, is permitted without the consent of ROHM Co.,Ltd.

The content specified herein is subject to change for improvement without notice.

The content specified herein is for the purpose of introducing ROHM's products (hereinafter "Products"). If you wish to use any such Product, please be sure to refer to the specifications, which can be obtained from ROHM upon request.

Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

Great care was taken in ensuring the accuracy of the information specified in this document. However, should you incur any damage arising from any inaccuracy or misprint of such information, ROHM shall bear no responsibility for such damage.

The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM and other parties. ROHM shall bear no responsibility whatsoever for any dispute arising from the use of such technical information.

The Products specified in this document are intended to be used with general-use electronic equipment or devices (such as audio visual equipment, office-automation equipment, communication devices, electronic appliances and amusement devices).

The Products specified in this document are not designed to be radiation tolerant.

While ROHM always makes efforts to enhance the quality and reliability of its Products, a Product may fail or malfunction for a variety of reasons.

Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. ROHM shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

The Products are not designed or manufactured to be used with any equipment, device or system which requires an extremely high level of reliability the failure or malfunction of which may result in a direct threat to human life or create a risk of human injury (such as a medical instrument, transportation equipment, aerospace machinery, nuclear-reactor controller, fuel-controller or other safety device). ROHM shall bear no responsibility in any way for use of any of the Products for the above special purposes. If a Product is intended to be used for any such special purpose, please contact a ROHM sales representative before purchasing.

If you intend to export or ship overseas any Product or technology specified herein that may be controlled under the Foreign Exchange and the Foreign Trade Law, you will be required to obtain a license or permit under the Law.



Thank you for your accessing to ROHM product informations.  
More detail product informations and catalogs are available, please contact us.

### ROHM Customer Support System

<http://www.rohm.com/contact/>