

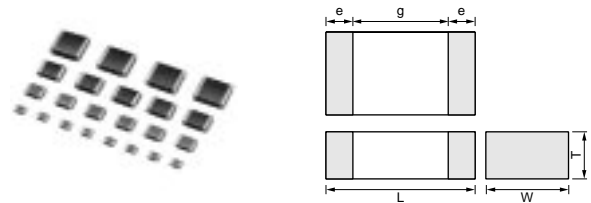
# Chip Monolithic Ceramic Capacitors



## for Flow/Reflow Soldering GRP15/GRM15/18/21/31 Series

### ■ Features

1. Terminations are made of metal highly resistant to migration.
2. The GRM series is a complete line of chip ceramic capacitors in 6.3V, 10V, 16V, 25V, 50V and 100V ratings. These capacitors have temperature characteristics ranging from C0G to Y5V.
3. A wide selection of sizes is available, from the miniature LxWxT: 1.0x0.5x0.5mm to LxWxT: 3.2x1.6x1.15 mm.  
GRM18, 21 and GRM31 types are suited to flow and reflow soldering.  
GRP15 types is applied to only reflow soldering.
4. Stringent dimensional tolerances allow highly reliable, high speed automatic chip placement on PCBs.
5. The GRP/GRM series is available in paper or plastic embossed tape and reel packaging for automatic placement. Bulk case packaging is also available for GRP15, GRM18, GRM21 electronic equipment.
6. Dielectric layer of GRP15 Y5V 0.22uF/0.47uF/1.0uF are relaxor



| Part Number | Dimensions (mm) |           |           |             |        |
|-------------|-----------------|-----------|-----------|-------------|--------|
|             | L               | W         | T         | e           | g min. |
| GRP155      | 1.0 ±0.05       | 0.5 ±0.05 | 0.5 ±0.05 | 0.15 to 0.3 | 0.4    |
| GRM155      |                 |           |           |             |        |
| GRM188*     | 1.6 ±0.1        | 0.8 ±0.1  | 0.8 ±0.1  | 0.2 to 0.5  | 0.5    |
| GRM216      |                 |           | 0.6 ±0.1  |             |        |
| GRM219      | 2.0 ±0.1        | 1.25 ±0.1 | 0.85 ±0.1 | 0.2 to 0.7  | 0.7    |
| GRM21B      |                 |           | 1.25 ±0.1 |             |        |
| GRM319      | 3.2 ±0.15       | 1.6 ±0.15 | 0.85 ±0.1 | 0.3 to 0.8  | 1.5    |
| GRM31M      |                 |           | 1.15 ±0.1 |             |        |
| GRM31C      | 3.2 ±0.2        | 1.6 ±0.2  | 1.6 ±0.2  |             |        |

\* Bulk Case : 1.6 ±0.07(L) × 0.8 ±0.07(W) × 0.8 ±0.07(T)

### ■ Applications

General electronic equipment.

### Temperature Compensating Type GRP15 Series (1.0x0.5mm)

| Part Number   | GRP15            |             |             |             |             |            |            |             |             |
|---|------------------|-------------|-------------|-------------|-------------|------------|------------|-------------|-------------|
| L x W [EIA]   | 1.00x0.50 [0402] |             |             |             |             |            |            |             |             |
| TC  | C0G<br>(5C)      | C0H<br>(6C) | P2H<br>(6P) | R2H<br>(6R) | S2H<br>(6S) | SL<br>(1X) |            | T2H<br>(6T) | U2J<br>(7U) |
| Rated Volt.   | 50<br>(1H)       | 25<br>(1E)  | 50<br>(1H)  | 50<br>(1H)  | 50<br>(1H)  | 25<br>(1E) | 50<br>(1H) | 50<br>(1H)  | 50<br>(1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |             |             |             |             |            |            |             |             |
| 0.5pF(R50)  | 0.50(5)          |             |             |             |             |            |            |             |             |
| 0.75pF(R75)   | 0.50(5)          |             |             |             |             |            |            |             |             |
| 1.0pF(1R0)  | 0.50(5)          |             |             |             |             |            |            |             |             |
| 2.0pF(2R0)  | 0.50(5)          |             |             |             |             |            |            |             |             |
| 3.0pF(3R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 4.0pF(4R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 5.0pF(5R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 6.0pF(6R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 7.0pF(7R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 8.0pF(8R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 9.0pF(9R0)  | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 10.0pF(100)   | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 12.0pF(120)   | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 15.0pF(150)   | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 18.0pF(180)   | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 22.0pF(220)   | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 27.0pF(270)   | 0.50(5)          |             | 0.50(5)     | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |

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| Part Number   | GRP15            |             |             |             |             |            |            |             |             |
|---|------------------|-------------|-------------|-------------|-------------|------------|------------|-------------|-------------|
| L x W [EIA]   | 1.00x0.50 [0402] |             |             |             |             |            |            |             |             |
| TC  | COG<br>(5C)      | COH<br>(6C) | P2H<br>(6P) | R2H<br>(6R) | S2H<br>(6S) | SL<br>(1X) |            | T2H<br>(6T) | U2J<br>(7U) |
| Rated Volt.   | 50<br>(1H)       | 25<br>(1E)  | 50<br>(1H)  | 50<br>(1H)  | 50<br>(1H)  | 25<br>(1E) | 50<br>(1H) | 50<br>(1H)  | 50<br>(1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |             |             |             |             |            |            |             |             |
| 33.0pF(330)   | 0.50(5)          |             |             | 0.50(5)     | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 39.0pF(390)   | 0.50(5)          |             |             |             | 0.50(5)     |            |            | 0.50(5)     | 0.50(5)     |
| 47pF(470)   | 0.50(5)          |             |             |             |             |            | 0.50(5)    | 0.50(5)     | 0.50(5)     |
| 56pF(560)   | 0.50(5)          |             |             |             |             |            | 0.50(5)    | 0.50(5)     | 0.50(5)     |
| 68pF(680)   | 0.50(5)          |             |             |             |             |            | 0.50(5)    | 0.50(5)     | 0.50(5)     |
| 82pF(820)   | 0.50(5)          |             |             |             |             |            | 0.50(5)    | 0.50(5)     | 0.50(5)     |
| 100pF(101)  | 0.50(5)          |             |             |             |             |            | 0.50(5)    | 0.50(5)     | 0.50(5)     |
| 120pF(121)  | 0.50(5)          |             |             |             |             |            | 0.50(5)    |             | 0.50(5)     |
| 150pF(151)  | 0.50(5)          |             |             |             |             |            | 0.50(5)    |             | 0.50(5)     |
| 180pF(181)  |                  | 0.50(5)     |             |             |             |            | 0.50(5)    |             | 0.50(5)     |
| 220pF(221)  |                  | 0.50(5)     |             |             |             | 0.50(5)    |            |             |             |
| 270pF(271)  |                  | 0.50(5)     |             |             |             | 0.50(5)    |            |             |             |
| 330pF(331)  |                  |             |             |             |             | 0.50(5)    |            |             |             |
| 390pF(391)  |                  |             |             |             |             | 0.50(5)    |            |             |             |

The part numbering code is shown in ( ).  
Dimensions are shown in mm and Rated Voltage in Vdc.

### Temperature Compensating Type GRM18 Series (1.60x0.80mm)

| Part Number   | GRM18            |             |             |             |             |             |            |            |            |             |             |             |            |
|---|------------------|-------------|-------------|-------------|-------------|-------------|------------|------------|------------|-------------|-------------|-------------|------------|
| L x W [EIA]   | 1.60x0.80 [0603] |             |             |             |             |             |            |            |            |             |             |             |            |
| TC  | COG<br>(5C)      |             | COH<br>(6C) | P2H<br>(6P) | R2H<br>(6R) | S2H<br>(6S) | SL<br>(1X) |            |            |             | T2H<br>(6T) | U2J<br>(7U) |            |
| Rated Volt.   | 50<br>(1H)       | 100<br>(2A) | 200<br>(2D) | 25<br>(1E)  | 50<br>(1H)  | 50<br>(1H)  | 50<br>(1H) | 25<br>(1E) | 50<br>(1H) | 100<br>(2A) | 200<br>(2D) | 50<br>(1H)  | 50<br>(1H) |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |             |             |             |             |             |            |            |            |             |             |             |            |
| 0.5pF(R50)  | 0.80(8)          |             | 0.80(8)     |             |             |             |            |            |            |             |             |             |            |
| 0.75pF(R75)   | 0.80(8)          |             | 0.80(8)     |             |             |             |            |            |            |             |             |             |            |
| 1.0pF(1R0)  | 0.80(8)          |             | 0.80(8)     |             |             |             |            |            |            |             |             |             |            |
| 2.0pF(2R0)  | 0.80(8)          |             | 0.80(8)     |             |             |             |            |            |            |             |             |             |            |
| 3.0pF(3R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 4.0pF(4R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 5.0pF(5R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 6.0pF(6R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 7.0pF(7R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 8.0pF(8R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 9.0pF(9R0)  | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 10.0pF(100)   | 0.80(8)          |             | 0.80(8)     |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             |             | 0.80(8)     | 0.80(8)    |
| 12pF(120)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 15pF(150)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 18pF(180)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 22pF(220)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 27pF(270)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 33pF(330)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 39pF(390)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 47pF(470)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 56pF(560)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            |            |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 68pF(680)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            | 0.80(8)    |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 82pF(820)   | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            | 0.80(8)    |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 100pF(101)  | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            | 0.80(8)    |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |
| 120pF(121)  | 0.80(8)          | 0.80(8)     |             |             | 0.80(8)     | 0.80(8)     | 0.80(8)    |            | 0.80(8)    | 0.80(8)     |             | 0.80(8)     | 0.80(8)    |

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| Part Number   | GRM18            |          |          |          |          |          |          |         |         |          |          |          |          |
|---|------------------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|----------|----------|
| L x W [EIA]   | 1.60x0.80 [0603] |          |          |          |          |          |          |         |         |          |          |          |          |
| TC  | COG (5C)         |          |          | COH (6C) | P2H (6P) | R2H (6R) | S2H (6S) | SL (1X) |         |          |          | T2H (6T) | U2J (7U) |
| Rated Volt.   | 50 (1H)          | 100 (2A) | 200 (2D) | 25 (1E)  | 50 (1H)  | 50 (1H)  | 50 (1H)  | 25 (1E) | 50 (1H) | 100 (2A) | 200 (2D) | 50 (1H)  | 50 (1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |          |          |          |          |          |          |         |         |          |          |          |          |
| 150pF(151)  | 0.80(8)          | 0.80(8)  |          |          | 0.80(8)  | 0.80(8)  | 0.80(8)  |         | 0.80(8) | 0.80(8)  |          | 0.80(8)  | 0.80(8)  |
| 180pF(181)  | 0.80(8)          |          |          |          |          | 0.80(8)  | 0.80(8)  |         | 0.80(8) | 0.80(8)  |          | 0.80(8)  | 0.80(8)  |
| 220pF(221)  | 0.80(8)          |          |          |          |          |          | 0.80(8)  |         | 0.80(8) | 0.80(8)  |          | 0.80(8)  | 0.80(8)  |
| 270pF(271)  | 0.80(8)          |          |          |          |          |          |          |         | 0.80(8) | 0.80(8)  |          | 0.80(8)  | 0.80(8)  |
| 330pF(331)  | 0.80(8)          |          |          |          |          |          |          |         | 0.80(8) | 0.80(8)  |          | 0.80(8)  | 0.80(8)  |
| 390pF(391)  | 0.80(8)          |          |          |          |          |          |          |         | 0.80(8) | 0.80(8)  |          | 0.80(8)  | 0.80(8)  |
| 470pF(471)  | 0.80(8)          |          |          |          |          |          |          |         | 0.80(8) |          |          |          | 0.80(8)  |
| 560pF(561)  | 0.80(8)          |          |          | 0.80(8)  |          |          |          |         | 0.80(8) |          |          |          | 0.80(8)  |
| 680pF(681)  | 0.80(8)          |          |          |          |          |          |          |         | 0.80(8) |          |          |          | 0.80(8)  |
| 820pF(821)  | 0.80(8)          |          |          |          |          |          |          | 0.80(8) |         |          |          |          |          |
| 1000pF(102)   | 0.80(8)          |          |          |          |          |          |          | 0.80(8) |         |          |          |          |          |
| 1200pF(122)   | 0.80(8)          |          |          |          |          |          |          | 0.80(8) |         |          |          |          |          |
| 1500pF(152)   | 0.80(8)          |          |          |          |          |          |          | 0.80(8) |         |          |          |          |          |

The part numbering code is shown in ( ).  
Dimensions are shown in mm and Rated Voltage in Vdc.

### Temperature Compensating Type GRM21 Series (2.00x1.25mm)

| Part Number   | GRM21            |          |          |          |          |          |          |         |         |          |          |          |          |
|---|------------------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|----------|----------|
| L x W [EIA]   | 2.00x1.25 [0805] |          |          |          |          |          |          |         |         |          |          |          |          |
| TC  | COG (5C)         |          |          | COH (6C) | P2H (6P) | R2H (6R) | S2H (6S) | SL (1X) |         |          |          | T2H (6T) | U2J (7U) |
| Rated Volt.   | 50 (1H)          | 100 (2A) | 200 (2D) | 25 (1E)  | 50 (1H)  | 50 (1H)  | 50 (1H)  | 25 (1E) | 50 (1H) | 100 (2A) | 200 (2D) | 50 (1H)  | 50 (1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |          |          |          |          |          |          |         |         |          |          |          |          |
| 12pF(120)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 15pF(150)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 18pF(180)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 22pF(220)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 27pF(270)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 33pF(330)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 39pF(390)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 47pF(470)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 56pF(560)   |                  |          | 0.85(9)  |          |          |          |          |         |         |          |          |          |          |
| 68pF(680)   |                  | 0.85(9)  | 1.25(B)  |          |          |          |          |         |         |          |          |          |          |
| 82pF(820)   |                  | 0.85(9)  | 1.25(B)  |          |          |          |          |         |         |          |          |          |          |
| 100pF(101)  |                  | 0.85(9)  | 1.25(B)  |          |          |          |          |         |         |          |          |          |          |
| 120pF(121)  |                  | 0.85(9)  | 1.25(B)  |          |          |          |          |         |         |          | 0.85(9)  |          |          |
| 150pF(151)  |                  | 0.85(9)  | 1.25(B)  |          |          |          |          |         |         |          | 1.25(B)  |          |          |
| 180pF(181)  |                  | 0.85(9)  | 1.25(B)  |          | 0.85(9)  |          |          |         |         |          | 1.25(B)  |          |          |
| 220pF(221)  |                  | 0.85(9)  | 1.25(B)  |          | 0.85(9)  | 0.85(9)  |          |         |         |          | 1.25(B)  |          |          |
| 270pF(271)  |                  | 0.85(9)  |          |          | 0.85(9)  | 0.85(9)  | 0.85(9)  |         |         |          | 1.25(B)  |          |          |
| 330pF(331)  |                  | 0.85(9)  |          |          | 0.85(9)  | 0.85(9)  | 0.85(9)  |         |         |          | 1.25(B)  |          |          |
| 390pF(391)  |                  | 1.25(B)  |          |          | 1.25(B)  | 0.85(9)  | 0.85(9)  |         |         |          | 1.25(B)  |          |          |
| 470pF(471)  |                  | 1.25(B)  |          |          | 1.25(B)  | 0.85(9)  | 0.85(9)  |         |         | 0.85(9)  | 1.25(B)  |          |          |
| 560pF(561)  | 0.60(6)          | 1.25(B)  |          |          | 1.25(B)  | 1.25(B)  | 1.25(B)  |         |         | 0.85(9)  |          | 1.25(B)  |          |
| 680pF(681)  | 0.60(6)          | 1.25(B)  |          |          |          | 1.25(B)  | 1.25(B)  |         |         | 0.85(9)  |          | 1.25(B)  |          |
| 820pF(821)  | 0.60(6)          | 1.25(B)  |          |          |          |          | 1.25(B)  |         | 0.60(6) | 1.25(B)  |          | 1.25(B)  | 0.60(6)  |
| 1000pF(102)   | 0.60(6)          | 1.25(B)  |          |          |          |          |          |         | 0.60(6) | 1.25(B)  |          | 1.25(B)  | 0.60(6)  |
| 1200pF(122)   | 0.60(6)          |          |          |          |          |          |          |         | 0.60(6) | 1.25(B)  |          | 1.25(B)  | 0.60(6)  |
| 1500pF(152)   | 0.60(6)          |          |          |          |          |          |          |         | 0.85(9) | 1.25(B)  |          | 1.25(B)  | 0.85(9)  |

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| Part Number   | GRM21            |          |          |          |          |          |          |         |         |          |          |          |          |
|---|------------------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|----------|----------|
| L x W [EIA]   | 2.00x1.25 [0805] |          |          |          |          |          |          |         |         |          |          |          |          |
| TC  | COG (5C)         |          |          | COH (6C) | P2H (6P) | R2H (6R) | S2H (6S) | SL (1X) |         |          |          | T2H (6T) | U2J (7U) |
| Rated Volt.   | 50 (1H)          | 100 (2A) | 200 (2D) | 25 (1E)  | 50 (1H)  | 50 (1H)  | 50 (1H)  | 25 (1E) | 50 (1H) | 100 (2A) | 200 (2D) | 50 (1H)  | 50 (1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |          |          |          |          |          |          |         |         |          |          |          |          |
| 1800pF(182)   | 0.60(6)          |          |          |          |          |          |          |         | 0.85(9) | 1.25(B)  |          | 1.25(B)  | 0.85(9)  |
| 2200pF(222)   | 0.60(6)          |          |          |          |          |          |          |         | 0.85(9) |          |          |          | 0.85(9)  |
| 2700pF(272)   | 0.60(6)          |          |          | 1.25(B)  |          |          |          |         | 1.25(B) |          |          |          | 1.25(B)  |
| 3300pF(332)   | 0.60(6)          |          |          | 1.25(B)  |          |          |          |         | 1.25(B) |          |          |          | 1.25(B)  |
| 3900pF(392)   |                  |          |          | 1.25(B)  |          |          |          | 0.85(9) |         |          |          |          |          |
| 4700pF(472)   |                  |          |          |          |          |          |          | 0.85(9) |         |          |          |          |          |
| 5600pF(562)   |                  |          |          |          |          |          |          | 1.25(B) |         |          |          |          |          |
| 6800pF(682)   |                  |          |          |          |          |          |          | 1.25(B) |         |          |          |          |          |

The part numbering code is shown in ( ).  
Dimensions are shown in mm and Rated Voltage in Vdc.

### Temperature Compensating Type GRM31 Series (3.20x1.60mm)

| Part Number   | GRM31            |         |          |          |          |          |          |          |         |         |          |          |          |          |          |
|---|------------------|---------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|----------|----------|----------|
| L x W [EIA]   | 3.20x1.60 [1206] |         |          |          |          |          |          |          |         |         |          |          |          |          |          |
| TC  | COG (5C)         |         |          |          | COH (6C) | P2H (6P) | R2H (6R) | S2H (6S) | SL (1X) |         |          |          |          | T2H (6T) | U2J (7U) |
| Rated Volt.   | 25 (1E)          | 50 (1H) | 200 (2D) | 500 (2H) | 25 (1E)  | 50 (1H)  | 50 (1H)  | 50 (1H)  | 25 (1E) | 50 (1H) | 100 (2A) | 200 (2D) | 500 (2H) | 50 (1H)  | 50 (1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |         |          |          |          |          |          |          |         |         |          |          |          |          |          |
| 1.0pF(1R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 2.0pF(2R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 3.0pF(3R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 4.0pF(4R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 5.0pF(5R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 6.0pF(6R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 7.0pF(7R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 8.0pF(8R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 9.0pF(9R0)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 10.0pF(100)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 12pF(120)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 15pF(150)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 18pF(180)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 22pF(220)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 27pF(270)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 33pF(330)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 39pF(390)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 47pF(470)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 56pF(560)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 68pF(680)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 82pF(820)   |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 100pF(101)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 120pF(121)  |                  |         |          | 1.15(M)  |          |          |          |          |         |         |          |          |          |          |          |
| 150pF(151)  |                  |         |          |          |          |          |          |          |         |         |          |          | 1.15(M)  |          |          |
| 180pF(181)  |                  |         |          |          |          |          |          |          |         |         |          |          | 1.15(M)  |          |          |
| 220pF(221)  |                  |         |          |          |          |          |          |          |         |         |          |          | 1.15(M)  |          |          |
| 270pF(271)  |                  |         | 1.15(M)  |          |          |          |          |          |         |         |          |          | 1.15(M)  |          |          |
| 330pF(331)  |                  |         | 1.15(M)  |          |          |          |          |          |         |         |          |          |          |          |          |
| 390pF(391)  |                  |         | 1.15(M)  |          |          |          |          |          |         |         |          |          |          |          |          |
| 470pF(471)  |                  |         | 1.15(M)  |          |          |          |          |          |         |         |          |          |          |          |          |
| 560pF(561)  |                  |         |          |          |          |          |          |          |         |         | 1.15(M)  |          |          |          |          |

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| Part Number   | GRM31            |            |             |             |             |             |             |             |            |            |             |             |             |             |             |
|---|------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| L x W [EIA]   | 3.20x1.60 [1206] |            |             |             |             |             |             |             |            |            |             |             |             |             |             |
| TC  | C0G<br>(5C)      |            |             |             | COH<br>(6C) | P2H<br>(6P) | R2H<br>(6R) | S2H<br>(6S) | SL<br>(1X) |            |             |             |             | T2H<br>(6T) | U2J<br>(7U) |
| Rated Volt.   | 25<br>(1E)       | 50<br>(1H) | 200<br>(2D) | 500<br>(2H) | 25<br>(1E)  | 50<br>(1H)  | 50<br>(1H)  | 50<br>(1H)  | 25<br>(1E) | 50<br>(1H) | 100<br>(2A) | 200<br>(2D) | 500<br>(2H) | 50<br>(1H)  | 50<br>(1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |            |             |             |             |             |             |             |            |            |             |             |             |             |             |
| 680pF(681)  |                  |            |             |             |             | 0.85(9)     |             |             |            |            |             |             | 1.15(M)     |             |             |
| 820pF(821)  |                  |            |             |             |             | 0.85(9)     | 0.85(9)     |             |            |            |             |             | 1.15(M)     |             |             |
| 1000pF(102)   |                  |            |             |             |             | 1.15(M)     | 1.15(M)     | 0.85(9)     |            |            |             |             | 1.15(M)     |             |             |
| 1200pF(122)   |                  |            |             |             |             | 1.15(M)     | 1.15(M)     | 1.15(M)     |            |            |             |             | 1.15(M)     |             |             |
| 1500pF(152)   |                  |            |             |             |             | 1.15(M)     | 1.15(M)     | 1.15(M)     |            |            |             |             |             |             |             |
| 1800pF(182)   |                  |            |             |             |             |             |             | 1.15(M)     |            |            |             |             |             |             |             |
| 2200pF(222)   |                  |            |             |             |             |             |             |             |            |            | 1.15(M)     |             |             | 1.15(M)     |             |
| 2700pF(272)   |                  | 0.85(9)    |             |             |             |             |             |             |            |            | 1.15(M)     |             |             | 1.15(M)     |             |
| 3300pF(332)   |                  | 0.85(9)    |             |             |             |             |             |             |            |            | 1.15(M)     |             |             | 1.15(M)     |             |
| 3900pF(392)   |                  | 1.15(M)    |             |             |             |             |             |             |            | 0.85(9)    | 1.15(M)     |             |             | 1.15(M)     | 0.85(9)     |
| 4700pF(472)   |                  | 0.85(9)    |             |             |             |             |             |             |            | 0.85(9)    | 1.15(M)     |             |             |             | 0.85(9)     |
| 5600pF(562)   |                  | 1.15(M)    |             |             |             |             |             |             |            | 0.85(9)    |             |             |             |             | 0.85(9)     |
| 6800pF(682)   |                  |            |             |             | 0.85(9)     |             |             |             |            | 1.15(M)    |             |             |             |             | 1.15(M)     |
| 8200pF(822)   |                  |            |             |             | 1.15(M)     |             |             |             |            | 1.15(M)    |             |             |             |             | 1.15(M)     |
| 10000pF(103)  | 0.85(9)          |            |             |             |             |             |             |             |            | 1.15(M)    |             |             |             |             |             |
| 12000pF(123)  |                  |            |             |             |             |             |             |             |            | 1.15(M)    |             |             |             |             |             |
| 15000pF(153)  |                  |            |             |             |             |             |             |             |            | 1.15(M)    |             |             |             |             |             |

The part numbering code is shown in ( ).  
Dimensions are shown in mm and Rated Voltage in Vdc.

### High Dielectric Constant Type X5R (R6) Characteristics

| TC  | X5R<br>(R6)      |             |                  |             |                  |             |                  |         |
|---|------------------|-------------|------------------|-------------|------------------|-------------|------------------|---------|
| Part Number   | GRP15            |             | GRM18            |             | GRM21            |             | GRM31            |         |
| L x W [EIA]   | 1.00x0.50 [0402] |             | 1.60x0.80 [0603] |             | 2.00x1.25 [0805] |             | 3.20x1.60 [1206] |         |
| Rated Volt.   | 10<br>(1A)       | 6.3<br>(0J) | 10<br>(1A)       | 6.3<br>(0J) | 10<br>(1A)       | 6.3<br>(0J) | 10<br>(1A)       |         |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |             |                  |             |                  |             |                  |         |
| 68000pF(683)  | 0.50(5)          |             |                  |             |                  |             |                  |         |
| 0.1μF(104)  | 0.50(5)          |             |                  |             |                  |             |                  |         |
| 0.33μF(334)   |                  |             | 0.80(8)          |             |                  |             |                  |         |
| 0.47μF(474)   |                  |             | 0.80(8)          |             |                  |             |                  |         |
| 0.68μF(684)   |                  |             | 0.80(8)          |             |                  |             |                  |         |
| 1.0μF(105)  |                  | 0.80(8)     | 0.80(8)          |             |                  | 0.85(9)     |                  |         |
| 1.5μF(155)  |                  |             |                  |             | 0.85(9)          |             |                  |         |
| 2.2μF(225)  |                  |             |                  |             | 1.25(B)          |             |                  | 0.85(9) |
| 3.3μF(335)  |                  |             |                  |             | 1.25(B)          |             |                  | 1.30(X) |
| 4.7μF(475)  |                  |             |                  |             | 1.25(B)          |             | 1.15(M)          | 1.60(C) |
| 10μF(106)   |                  |             |                  |             |                  |             | 1.60(C)          | 1.60(C) |

The part numbering code is shown in each ( ).  
3.3μF and 4.7μF for 6.3V is replaced with GRM21B series of L: 2±0.15, W: 1.25±0.15, T: 1.25±0.15.  
T: 1.25±0.1mm is also available for GRM21 10V 1.0μF type.  
3.3μF for 10V rated is replaced with GRM31X series of L: 3.2±0.2, W: 1.6±0.2, T: 1.2±0.1mm.  
T: 1.15±0.1 is also available for GRM31, 16V, 1.0μF type.  
Dimensions are shown in mm and Rated Voltage in Vdc.

## High Dielectric Constant Type X7R (R7) Characteristics

| TC  | X7R (R7)         |             |             |             |                  |             |             |             |             |                  |             |             |             |                  |             |             |             |
|---|------------------|-------------|-------------|-------------|------------------|-------------|-------------|-------------|-------------|------------------|-------------|-------------|-------------|------------------|-------------|-------------|-------------|
| Part Number   | GRP15            |             |             |             | GRM18            |             |             |             |             | GRM21            |             |             |             | GRM31            |             |             |             |
| L x W [EIA]   | 1.00x0.50 [0402] |             |             |             | 1.60x0.80 [0603] |             |             |             |             | 2.00x1.25 [0805] |             |             |             | 3.20x1.60 [1206] |             |             |             |
| Rated Volt.   | 10<br>(1A)       | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  | 10<br>(1A)       | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  | 100<br>(2A) | 16<br>(1C)       | 25<br>(1E)  | 50<br>(1H)  | 100<br>(2A) | 10<br>(1A)       | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |             |             |             |                  |             |             |             |             |                  |             |             |             |                  |             |             |             |
| 220pF<br>(221)  |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 330pF<br>(331)  |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 470pF<br>(471)  |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 680pF<br>(681)  |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 1000pF<br>(102)   |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 1500pF<br>(152)   |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 2200pF<br>(222)   |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) | 0.80<br>(8) |                  |             |             |             |                  |             |             |             |
| 3300pF<br>(332)   |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) | 0.80<br>(8) |                  |             |             |             |                  |             |             |             |
| 4700pF<br>(472)   |                  |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             | 0.85<br>(9) |                  |             |             |             |
| 6800pF<br>(682)   |                  |             | 0.50<br>(5) |             |                  |             |             | 0.80<br>(8) |             |                  |             |             | 0.85<br>(9) |                  |             |             |             |
| 10000pF<br>(103)  |                  |             | 0.50<br>(5) |             |                  |             |             | 0.80<br>(8) |             |                  |             |             | 1.25<br>(B) |                  |             |             |             |
| 15000pF<br>(153)  |                  | 0.50<br>(5) |             |             |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 22000pF<br>(223)  |                  | 0.50<br>(5) |             |             |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |
| 33000pF<br>(333)  | 0.50<br>(5)      |             |             |             |                  |             |             | 0.80<br>(8) |             |                  |             |             | 0.85<br>(9) |                  |             |             |             |
| 47000pF<br>(473)  | 0.50<br>(5)      |             |             |             |                  |             |             | 0.80<br>(8) |             |                  |             |             | 1.25<br>(B) |                  |             |             |             |
| 68000pF<br>(683)  |                  |             |             |             |                  |             |             | 0.80<br>(8) |             |                  |             |             | 1.25<br>(B) |                  |             |             |             |
| 0.10μF<br>(104)   |                  |             |             |             |                  | 0.80<br>(8) | 0.80<br>(8) |             |             |                  |             | 1.25<br>(B) | 1.25<br>(B) |                  |             |             |             |
| 0.15μF<br>(154)   |                  |             |             |             | 0.80<br>(8)      |             |             |             |             |                  |             | 1.25<br>(B) | 1.25<br>(B) |                  |             |             |             |
| 0.22μF<br>(224)   |                  |             |             |             | 0.80<br>(8)      |             |             |             |             |                  |             | 0.85<br>(9) | 1.25<br>(B) |                  |             |             |             |
| 0.33μF<br>(334)   |                  |             |             |             |                  |             |             |             |             |                  |             | 1.25<br>(B) |             |                  |             |             | 0.85<br>(9) |
| 0.47μF<br>(474)   |                  |             |             |             |                  |             |             |             |             | 0.85<br>(9)      | 1.25<br>(B) |             |             |                  |             |             | 1.15<br>(M) |
| 0.68μF<br>(684)   |                  |             |             |             |                  |             |             |             |             | 0.85<br>(9)      |             |             |             |                  |             |             | 0.85<br>(9) |
| 1.00μF<br>(105)   |                  |             |             |             |                  |             |             |             |             | 1.25<br>(B)      |             |             |             | 0.85<br>(9)      | 0.85<br>(9) | 1.15<br>(M) |             |
| 1.5μF<br>(155)  |                  |             |             |             |                  |             |             |             |             |                  |             |             |             |                  | 1.15<br>(M) |             |             |

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| TC  | X7R<br>(R7)      |            |            |            |                  |            |            |            |             |                  |            |            |             |                  |            |             |             |  |
|---|------------------|------------|------------|------------|------------------|------------|------------|------------|-------------|------------------|------------|------------|-------------|------------------|------------|-------------|-------------|--|
| Part Number   | GRP15            |            |            |            | GRM18            |            |            |            |             | GRM21            |            |            |             | GRM31            |            |             |             |  |
| L x W [EIA]   | 1.00x0.50 [0402] |            |            |            | 1.60x0.80 [0603] |            |            |            |             | 2.00x1.25 [0805] |            |            |             | 3.20x1.60 [1206] |            |             |             |  |
| Rated Volt.   | 10<br>(1A)       | 16<br>(1C) | 25<br>(1E) | 50<br>(1H) | 10<br>(1A)       | 16<br>(1C) | 25<br>(1E) | 50<br>(1H) | 100<br>(2A) | 16<br>(1C)       | 25<br>(1E) | 50<br>(1H) | 100<br>(2A) | 10<br>(1A)       | 16<br>(1C) | 25<br>(1E)  | 50<br>(1H)  |  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |            |            |            |                  |            |            |            |             |                  |            |            |             |                  |            |             |             |  |
| 2.2μF<br>(225)  |                  |            |            |            |                  |            |            |            |             |                  |            |            |             |                  |            | 1.15<br>(M) | 1.15<br>(M) |  |

The part numbering code is shown in each ( ).

0.10μF, 50V rated are GRM21 series of L: 2±0.15, W: 1.25±0.15, T: 1.25±0.15.

T: 1.25±0.1mm is also available for GRM31 1.0μF for 16V.

The tolerance will be changed to L: 3.2±0.2, W: 1.6±0.2 for GRM31 16V 1.0μF type. Also L: 3.2±0.2, W: 1.6±0.2, T: 1.15±0.15 for GRM31 16V 1.5μF and 2.2μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

### High Dielectric Constant Type Y5V(F5) Characteristics

| TC  | Y5V<br>(F5)      |             |             |             |             |                  |             |             |             |             |                  |             |             |             |                  |             |             |             |             |
|---|------------------|-------------|-------------|-------------|-------------|------------------|-------------|-------------|-------------|-------------|------------------|-------------|-------------|-------------|------------------|-------------|-------------|-------------|-------------|
| Part Number   | GRP15            |             |             |             |             | GRM18            |             |             |             |             | GRM21            |             |             |             | GRM31            |             |             |             |             |
| L x W [EIA]   | 1.00x0.50 [0402] |             |             |             |             | 1.60x0.80 [0603] |             |             |             |             | 2.00x1.25 [0805] |             |             |             | 3.20x1.60 [1206] |             |             |             |             |
| Rated Volt.   | 6.3<br>(0J)      | 10<br>(1A)  | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  | 10<br>(1A)       | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  | 100<br>(2A) | 10<br>(1A)       | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  | 6.3<br>(0J)      | 10<br>(1A)  | 16<br>(1C)  | 25<br>(1E)  | 50<br>(1H)  |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |             |             |             |             |                  |             |             |             |             |                  |             |             |             |                  |             |             |             |             |
| 2200pF<br>(222)   |                  |             |             |             | 0.50<br>(5) |                  |             |             |             |             |                  |             |             |             |                  |             |             |             |             |
| 4700pF<br>(472)   |                  |             |             |             | 0.50<br>(5) |                  |             |             |             | 0.80<br>(8) |                  |             |             |             |                  |             |             |             |             |
| 10000pF<br>(103)  |                  |             |             |             | 0.50<br>(5) |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |             |
| 22000pF<br>(223)  |                  |             |             | 0.50<br>(5) |             |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |             |
| 47000pF<br>(473)  |                  |             | 0.50<br>(5) |             |             |                  |             |             | 0.80<br>(8) |             |                  |             |             |             |                  |             |             |             |             |
| 0.10μF<br>(104)   |                  |             | 0.50<br>(5) |             |             |                  |             | 0.80<br>(8) |             |             |                  |             |             | 0.85<br>(9) |                  |             |             |             |             |
| 0.22μF<br>(224)   |                  | 0.50<br>(5) |             |             |             |                  | 0.80<br>(8) |             |             |             |                  |             | 0.85<br>(9) | 1.25<br>(B) |                  |             |             |             |             |
| 0.47μF<br>(474)   |                  | 0.50<br>(5) |             |             |             | 0.80<br>(8)      | 0.80<br>(8) |             |             |             |                  |             | 1.25<br>(B) |             |                  |             |             |             | 1.15<br>(M) |
| 1.0μF<br>(105)  | 0.50<br>(5)      |             |             |             |             | 0.80<br>(8)      |             |             |             |             | 0.85<br>(9)      | 0.85<br>(9) | 0.85<br>(9) |             |                  |             | 0.85<br>(9) | 1.15<br>(M) |             |
| 2.2μF<br>(225)  |                  |             |             |             |             |                  |             |             |             |             | 1.25<br>(B)      | 1.25<br>(B) | 1.25<br>(B) |             |                  | 0.85<br>(9) | 1.15<br>(M) |             |             |
| 4.7μF<br>(475)  |                  |             |             |             |             |                  |             |             |             |             | 1.25<br>(B)      |             |             |             |                  | 1.15<br>(M) | 1.15<br>(M) |             |             |
| 10.0μF<br>(106)   |                  |             |             |             |             |                  |             |             |             |             |                  |             |             |             | 1.15<br>(M)      | 1.15<br>(M) |             |             |             |

The part numbering code is shown in each ( ).

T: 1.25±0.1mm is also available for GRM21 25V or 16V 1.0μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

## High Dielectric Constant Type Z5U(E4) Characteristics

| TC  | Z5U<br>(E4)      |                  |                  |
|---|------------------|------------------|------------------|
| Part Number   | GRM18            | GRM21            | GRM31            |
| L x W [EIA]   | 1.60x0.80 [0603] | 2.00x1.25 [0805] | 3.20x1.60 [1206] |
| Rated Volt.   | 50<br>(1H)       | 50<br>(1H)       | 50<br>(1H)       |
| Capacitance (Capacitance part numbering code) and T(mm) Dimension (T Dimension part numbering code) |                  |                  |                  |
| 10000pF(103)  | 0.80(8)          |                  |                  |
| 22000pF(223)  | 0.80(8)          |                  |                  |
| 47000pF(473)  |                  | 0.60(6)          |                  |
| 0.10μF(104)   |                  | 0.85(9)          |                  |
| 0.22μF(224)   |                  |                  | 0.85(9)          |

The part numbering code is shown in ( ).  
 Dimensions are shown in mm and Rated Voltage in Vdc.