

● Part Numbering

Chip Multilayer Ceramic Capacitors for Automotive

(Part Number)

| | | | | | | | | |
|------------|-----------|----------|-----------|-----------|------------|----------|------------|----------|
| GCM | 18 | 8 | R7 | 1H | 102 | K | A37 | D |
| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ |

① Series

| Code | Series |
|------------|---|
| GC3 | High Effective Capacitance & High Ripple Current Chip Multilayer Ceramic Capacitors for Automotive |
| GCD | MLSC Design Chip Multilayer Ceramic Capacitors for Automotive |
| GCE | Soft Termination MLSC Design Chip Multilayer Ceramic Capacitors for Automotive |
| GCG | AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive |
| GCJ | Soft Termination Chip Multilayer Ceramic Capacitors for Automotive |
| GCM | Chip Multilayer Ceramic Capacitors for Automotive |
| GCQ | High Q Chip Multilayer Ceramic Capacitors for Automotive |
| GGM | Water Repellent Chip Multilayer Ceramic Capacitors for Automotive |
| GGD | Water Repellent MLSC Design Chip Multilayer Ceramic Capacitors for Automotive |
| GRT | AEC-Q200 Compliant Chip Multilayer Ceramic Capacitors for Infotainment |
| GXT | AEC-Q200 Compliant Water Repellent Chip Multilayer Ceramic Capacitors for Infotainment |
| KC3 | High Effective Capacitance & High Allowable Ripple Current Metal Terminal Type Multilayer Ceramic Capacitors for Automotive |
| KCM | Metal Terminal Type Multilayer Ceramic Capacitors for Automotive |
| LLC | LW Reversed Low ESL Chip Multilayer Ceramic Capacitors for Automotive |

② Chip Dimension (L x W)

| Code | Dimension (L x W) | EIA |
|-----------|-------------------|------|
| 03 | 0.6 x 0.3mm | 0201 |
| 15 | 1.0 x 0.5mm | 0402 |
| 18 | 1.6 x 0.8mm | 0603 |
| 21 | 2.0 x 1.25mm | 0805 |
| 31 | 3.2 x 1.6mm | 1206 |
| 32 | 3.2 x 2.5mm | 1210 |
| 43 | 4.5 x 3.2mm | 1812 |
| 55 | 5.7 x 5.0mm | 2220 |

③ Height Dimension (T)

| Except KC□ | | KC□ Only | |
|------------|----------------------------------|----------|---------------|
| Code | Dimension (T) | Code | Dimension (T) |
| 2 | 0.2mm | L | 2.8mm |
| 3 | 0.3mm | R | 3.6mm |
| 5 | 0.5mm | Q | 3.7mm |
| 6 | 0.6mm | T | 4.8mm |
| 8 | 0.8mm | V | 6.2mm |
| 9 | 0.85mm | W | 6.4mm |
| A | 1.0mm | | |
| B | 1.25mm | | |
| C | 1.6mm | | |
| D | 2.0mm | | |
| E | 2.5mm | | |
| M | 1.15mm | | |
| N | 1.35mm | | |
| Q | 1.5mm | | |
| X | Depends on individual standards. | | |

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④ Temperature Characteristics

| Temperature Characteristic Codes | | | Temperature Characteristics | | | Operating Temperature Range | Capacitance Change Each Temperature (%) | | | | | |
|----------------------------------|-----------------|-----------------------|-----------------------------|---|------------------------|-----------------------------|---|-------|-------|-------|------|-------|
| Code | Public STD Code | Reference Temperature | Temperature Range | Capacitance Change or Temperature Coefficient | -55°C | | *3 | | -10°C | | | |
| | | | | | Max. | | Min. | Max. | Min. | Max. | Min. | |
| 0C | CHA | *1 | 20°C | 20 to 150°C | 0±60ppm/°C | -55 to 150°C | 0.82 | -0.45 | 0.49 | -0.27 | 0.33 | -0.18 |
| 2C | CH | JIS | 20°C | 20 to 125°C | 0±60ppm/°C | -55 to 125°C | 0.82 | -0.45 | 0.49 | -0.27 | 0.33 | -0.18 |
| 3C | CJ | JIS | 20°C | 20 to 125°C | 0±120ppm/°C | -55 to 125°C | 1.37 | -0.9 | 0.82 | -0.54 | 0.55 | -0.36 |
| 4C | CK | JIS | 20°C | 20 to 125°C | 0±250ppm/°C | -55 to 125°C | 2.56 | -1.88 | 1.54 | -1.13 | 1.02 | -0.75 |
| 5C | C0G | EIA | 25°C | 25 to 125°C | 0±30ppm/°C | -55 to 125°C | 0.58 | -0.24 | 0.4 | -0.17 | 0.25 | -0.11 |
| 5G | X8G | *1 | 25°C | 25 to 150°C | 0±30ppm/°C | -55 to 150°C | 0.58 | -0.24 | 0.4 | -0.17 | 0.25 | -0.11 |
| 7U | U2J | EIA | 25°C | 25 to 125°C *2 | -750±120ppm/°C | -55 to 125°C | 8.78 | 5.04 | 6.04 | 3.47 | 3.84 | 2.21 |
| 9E | ZLM | *1 | 20°C | -55 to -40°C | -4700+1000/-2500ppm/°C | -55 to 125°C | - | - | - | - | - | - |
| | | | | -40 to 20°C | -5350±750ppm/°C | | - | - | - | - | - | |
| | | | | 20 to 85°C | -4700±500ppm/°C | | - | - | - | - | - | |
| | | | | 85 to 125°C | -4700+2000/-1000ppm/°C | | - | - | - | - | - | |
| C7 | X7S | EIA | 25°C | -55 to 125°C | ±22% | -55 to 125°C | - | - | - | - | - | - |
| C8 | X6S | EIA | 25°C | -55 to 105°C | ±22% | -55 to 105°C | - | - | - | - | - | - |
| D7 | X7T | EIA | 25°C | -55 to 125°C | +22%, -33% | -55 to 125°C | - | - | - | - | - | - |
| L8 | X8L | *1 | 25°C | -55 to 150°C | +15%, -40% | -55 to 150°C | - | - | - | - | - | - |
| M8 | X8M | *1 | 25°C | -55 to 150°C | +15%, -50% | -55 to 150°C | - | - | - | - | - | - |
| R6 | X5R | EIA | 25°C | -55 to 85°C | ±15% | -55 to 85°C | - | - | - | - | - | - |
| R7 | X7R | EIA | 25°C | -55 to 125°C | ±15% | -55 to 125°C | - | - | - | - | - | - |
| R9 | X8R | EIA | 25°C | -55 to 150°C | ±15% | -55 to 150°C | - | - | - | - | - | - |

*1 Murata Temperature Characteristic Code.

*2 Rated Voltage 100Vdc max: 25 to 85°C

*3 -25°C (Reference Temperature 20°C) / -30°C (Reference Temperature 25°C)

⑤ Rated Voltage

| Code | | Rated Voltage |
|------------------|-------------------------|---------------|
| Standard Product | Voltage Derated Product | |
| 0E | EA | 2.5Vdc |
| 0G | EB | 4Vdc |
| 0J | EC | 6.3Vdc |
| 1A | ED | 10Vdc |
| 1C | EE | 16Vdc |
| 1E | EF | 25Vdc |
| YA | EG | 35Vdc |
| 1H | EH | 50Vdc |
| 1J | - | 63Vdc |
| 1K | - | 80Vdc |
| 2A | EL | 100Vdc |
| 2E | - | 250Vdc |
| 2W | LP | 450Vdc |
| 2J | LQ/LV | 630Vdc |
| 3A | - | 1kVdc |

⑥ Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers.

If there is a decimal point, it is expressed by the capital letter "R." In this case, all figures are significant digits.

If any letter, other than "R" is included, this indicates the specific part number is a non-standard part.

Ex.)

| Code | Capacitance |
|------|-------------|
| R50 | 0.50pF |
| 1R0 | 1.0pF |
| 100 | 10pF |
| 103 | 10000pF |

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(Part Number) **GCM** **18** **8** **R7** **1H** **102** **K** **A37** **D**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

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⑦ Capacitance Tolerance

| Code | Capacitance Tolerance |
|----------|----------------------------------|
| B | ±0.1pF |
| C | ±0.25pF |
| D | ±0.5pF (Less than 10pF) |
| | ±0.5% (10pF and over) |
| F | ±1% |
| G | ±2% |
| J | ±5% |
| K | ±10% |
| M | ±20% |
| R | Depends on individual standards. |
| W | ±0.05pF |

⑧ Individual Specification Code

Expressed by three figures.

⑨ Packaging

| Code | Packaging |
|------------|------------------------|
| L | ø180mm Embossed Taping |
| D/W | ø180mm Paper Taping |
| K | ø330mm Embossed Taping |
| J | ø330mm Paper Taping |

Please contact us if you find any part number not provided in this table.