

Multilayer Ceramic Chip Capacitors

2-element array type

CKC series

Type: CKCL22
 CKCM25

Issue date: April 2007

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

REMINDERS

Please read this before using the product.

SAFETY REMINDERS

REMINDERS

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8. The descriptions in this catalog apply as of April 2007.

2-Element Multilayer Ceramic Chip Capacitor Array CKC Series CKCL22 Type

Conformity to RoHS Directive

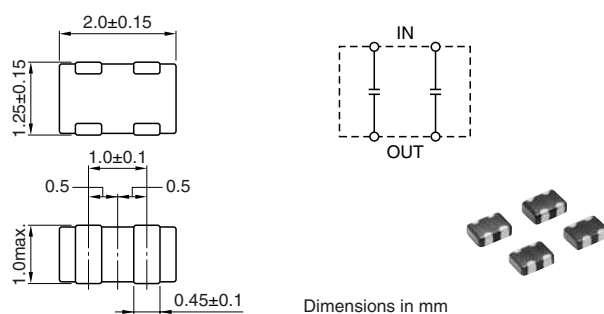
FEATURES

- Two capacitors are fitted in a single product, contributing to reduced installation costs.
- The electrostatic capacity range and shape are designed to meet the demands of the cellular phone market.
- Reduced crosstalk (signal interference) between the terminals.
- Available on tape or in bulk.

APPLICATIONS

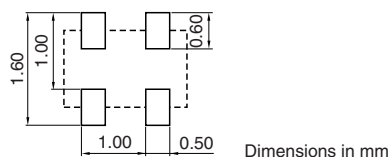
They are suited for circuits that require multiple identical capacitors in a particular area of a board, such as interfaces and high-frequency noise bypass circuits on cellular phones, interfaces including I/O cables on PCs and peripherals, as well as CPU bus lines.

SHAPES AND DIMENSIONS/CIRCUIT DIAGRAM



Dimensions in mm

RECOMMENDED PC BOARD PATTERN



Dimensions in mm

PRODUCT IDENTIFICATION

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| CKC | L22 | C0G | 1H | 150 | K | □ |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |

(1) Series name

(2) Dimensions L W

| | | |
|-----|-----|--------|
| L22 | 2.0 | 1.25mm |
|-----|-----|--------|

(3) Capacitance temperature characteristics

Class 1 (Temperature compensation)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| CH | 0±60ppm/°C | -25 to +85°C |
| C0G | 0±30ppm/°C | -55 to +125°C |

Class 2 (Temperature stable and general purpose)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| JB | ±10% | -25 to +85°C |
| X7R | ±15% | -55 to +125°C |
| X5R | ±15% | -55 to +85°C |

(4) Rated voltage Edc

| | |
|----|------|
| 0J | 6.3V |
| 1A | 10V |
| 1C | 16V |
| 1E | 25V |
| 1H | 50V |

(5) Nominal capacitance

The capacitance is expressed in three digit codes and in units of pico farads (pF).

The first and second digits identify the first and second significant figures of the capacitance.

The third digit identifies the multiplier.

R designates a decimal point.

| | |
|-----|----------|
| 223 | 22,000pF |
|-----|----------|

(6) Capacitance tolerance

| | |
|---|------|
| F | ±1pF |
| K | ±10% |
| M | ±20% |

(7) Packaging style

| | |
|---|---------------|
| T | Taping (reel) |
| B | Bulk |

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CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)
TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C), C0G(0±30ppm/°C)

RATED VOLTAGE E_{dc}: 50V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|------------------|-----------|------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: CH | Temperature characteristics: C0G |
| 10 | ±1pF | 1.00max. | CKCL22CH1H100F | CKCL22C0G1H100F |
| 15 | ±10% | 1.00max. | CKCL22CH1H150K | CKCL22C0G1H150K |
| 22 | ±10% | 1.00max. | CKCL22CH1H220K | CKCL22C0G1H220K |
| 33 | ±10% | 1.00max. | CKCL22CH1H330K | CKCL22C0G1H330K |
| 47 | ±10% | 1.00max. | CKCL22CH1H470K | CKCL22C0G1H470K |
| 68 | ±10% | 1.00max. | CKCL22CH1H680K | CKCL22C0G1H680K |
| 100 | ±10% | 1.00max. | CKCL22CH1H101K | CKCL22C0G1H101K |
| 150 | ±10% | 1.00max. | CKCL22CH1H151K | CKCL22C0G1H151K |
| 220 | ±10% | 1.00max. | CKCL22CH1H221K | CKCL22C0G1H221K |
| 330 | ±10% | 1.00max. | CKCL22CH1H331K | CKCL22C0G1H331K |
| 470 | ±10% | 1.00max. | CKCL22CH1H471K | CKCL22C0G1H471K |

CAPACITANCE RANGES: CLASS 2
TEMPERATURE CHARACTERISTICS: JB(±10%), X5R/X7R(±15%)

RATED VOLTAGE E_{dc}: 50V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | | |
|------------------|-----------|------------------|---------------------------------|----------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R | Temperature characteristics: X7R |
| 1,000 | ±20% | 1.00max. | CKCL22JB1H102M | CKCL22X5R1H102M | CKCL22X7R1H102M |
| 2,200 | ±20% | 1.00max. | CKCL22JB1H222M | CKCL22X5R1H222M | CKCL22X7R1H222M |
| 4,700 | ±20% | 1.00max. | CKCL22JB1H472M | CKCL22X5R1H472M | CKCL22X7R1H472M |
| 10,000 | ±20% | 1.00max. | CKCL22JB1H103M | CKCL22X5R1H103M | CKCL22X7R1H103M |
| 22,000 | ±20% | 1.00max. | CKCL22JB1H223M | CKCL22X5R1H223M | CKCL22X7R1H223M |
| 47,000 | ±20% | 1.00max. | CKCL22JB1H473M | CKCL22X5R1H473M | CKCL22X7R1H473M |

RATED VOLTAGE E_{dc}: 25V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | | |
|------------------|-----------|------------------|---------------------------------|----------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R | Temperature characteristics: X7R |
| 100,000 | ±20% | 1.00max. | CKCL22JB1E104M | CKCL22X5R1E104M | CKCL22X7R1E104M |

TEMPERATURE CHARACTERISTICS: JB(±10%), X5R(±15%)

RATED VOLTAGE E_{dc}: 16V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|------------------|-----------|------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R |
| 220,000 | ±20% | 1.00max. | CKCL22JB1C224M | CKCL22X5R1C224M |

RATED VOLTAGE E_{dc}: 10V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|------------------|-----------|------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R |
| 470,000 | ±20% | 1.00max. | CKCL22JB1A474M | CKCL22X5R1A474M |

RATED VOLTAGE E_{dc}: 6.3V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|------------------|-----------|------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R |
| 1,000,000 | ±20% | 1.00max. | CKCL22JB0J105M | CKCL22X5R0J105M |
| 2,200,000 | ±20% | 1.00max. | CKCL22JB0J225M | CKCL22X5R0J225M |

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CKC Series CKCM25 Type

Conformity to RoHS Directive

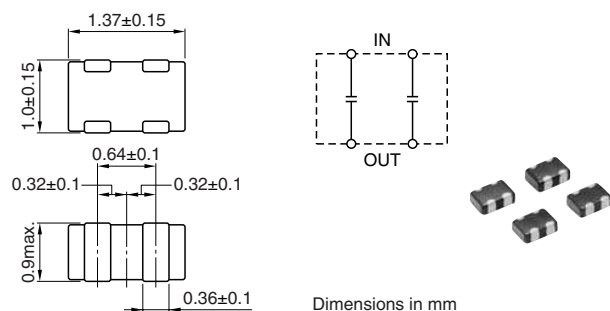
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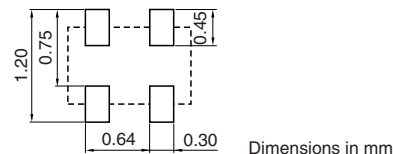
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RECOMMENDED PC BOARD PATTERN



PRODUCT IDENTIFICATION

CKC M25 C0G 1H 150 K □
 (1) (2) (3) (4) (5) (6) (7)

(1) Series name

(2) Dimensions L W

| | | |
|-----|------|-------|
| M25 | 1.37 | 1.0mm |
|-----|------|-------|

(3) Capacitance temperature characteristics

Class 1 (Temperature compensation)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| CH | 0±60ppm/°C | -25 to +85°C |
| C0G | 0±30ppm/°C | -55 to +125°C |

Class 2 (Temperature stable and general purpose)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| JB | ±10% | -25 to +85°C |
| X7R | ±15% | -55 to +125°C |
| X5R | ±15% | -55 to +85°C |

(4) Rated voltage E_{dc}

| | |
|----|------|
| 0J | 6.3V |
| 1A | 10V |
| 1C | 16V |
| 1E | 25V |
| 1H | 50V |

(5) Nominal capacitance

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| 223 | 22,000pF |
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(6) Capacitance tolerance

| | |
|---|------|
| F | ±1pF |
| K | ±10% |
| M | ±20% |

(7) Packaging style

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 RATED VOLTAGE E_{dc}: 50V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|---------------------|-----------|---------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: CH | Temperature characteristics: C0G |
| 10 | ±1pF | 0.66max. | CKCM25CH1H100F | CKCM25C0G1H100F |
| 15 | ±10% | 0.66max. | CKCM25CH1H150K | CKCM25C0G1H150K |
| 22 | ±10% | 0.66max. | CKCM25CH1H220K | CKCM25C0G1H220K |
| 33 | ±10% | 0.66max. | CKCM25CH1H330K | CKCM25C0G1H330K |
| 47 | ±10% | 0.66max. | CKCM25CH1H470K | CKCM25C0G1H470K |
| 68 | ±10% | 0.66max. | CKCM25CH1H680K | CKCM25C0G1H680K |
| 100 | ±10% | 0.66max. | CKCM25CH1H101K | CKCM25C0G1H101K |

CAPACITANCE RANGES: CLASS 2
TEMPERATURE CHARACTERISTICS: JB(±10%), X5R/X7R(±15%)

 RATED VOLTAGE E_{dc}: 50V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | | |
|---------------------|-----------|---------------------|---------------------------------|----------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R | Temperature characteristics: X7R |
| 1,000 | ±20% | 0.66max. | CKCM25JB1H102M | CKCM25X5R1H102M | CKCM25X7R1H102M |
| 2,200 | ±20% | 0.66max. | CKCM25JB1H222M | CKCM25X5R1H222M | CKCM25X7R1H222M |
| 4,700 | ±20% | 0.66max. | CKCM25JB1H472M | CKCM25X5R1H472M | CKCM25X7R1H472M |

 RATED VOLTAGE E_{dc}: 25V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | | |
|---------------------|-----------|---------------------|---------------------------------|----------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R | Temperature characteristics: X7R |
| 10,000 | ±20% | 0.66max. | CKCM25JB1E103M | CKCM25X5R1E103M | CKCM25X7R1E103M |

TEMPERATURE CHARACTERISTICS: JB(±10%), X5R(±15%)

 RATED VOLTAGE E_{dc}: 16V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|---------------------|-----------|---------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R |
| 22,000 | ±20% | 0.66max. | CKCM25JB1C223M | CKCM25X5R1C223M |

 RATED VOLTAGE E_{dc}: 10V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|---------------------|-----------|---------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R |
| 47,000 | ±20% | 0.66max. | CKCM25JB1A473M | CKCM25X5R1A473M |

 RATED VOLTAGE E_{dc}: 6.3V

| Capacitance (pF) | Tolerance | Thickness T (mm) | Part No. | |
|---------------------|-----------|---------------------|---------------------------------|----------------------------------|
| | | | Temperature characteristics: JB | Temperature characteristics: X5R |
| 100,000 | ±20% | 0.66max. | CKCM25JB0J104M | CKCM25X5R0J104M |
| 220,000 | ±20% | 0.66max. | CKCM25JB0J224M | CKCM25X5R0J224M |
| 470,000 | ±20% | 0.90max. | CKCM25JB0J474M | CKCM25X5R0J474M |
| 1,000,000 | ±20% | 0.90max. | CKCM25JB0J105M | CKCM25X5R0J105M |

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