

Multilayer Ceramic Chip Capacitors

Array type(4-element)

CKC series

Type: **CKCA43**
 CKCL44

Issue date: September 2011

- 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.
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REMINDERS

Please read this before using the product.

SAFETY REMINDERS

REMINDERS

1. If you intend to use a product listed in this catalog for a purpose that may cause loss of life or other damage, you must contact our company's sales window.
2. We may modify products or discontinue production of a product listed in this catalog without prior notification.
3. We provide "Delivery Specification" that explain precautions for the specifications and safety of each product listed in this catalog. We strongly recommend that you exchange these delivery specifications with customers that use one of these products.
4. If you plan to export a product listed in this catalog, keep in mind that it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in harmony with this law.
5. Any reproduction or transferring of the contents of this catalog is prohibited without prior permission from our company.
6. We are not responsible for problems that occur related to the intellectual property rights or other rights of our company or a third party when you use a product listed in this catalog. We do not grant license of these rights.
7. This catalog only applies to products purchased through our company or one of our company's official agencies. This catalog does not apply to products that are purchased through other third parties.
8. The descriptions in this catalog apply as of September, 2011.

Multilayer Ceramic Chip Capacitors Array Type(4-Element)

Conformity to RoHS Directive

CKC Series

CKCA43Type

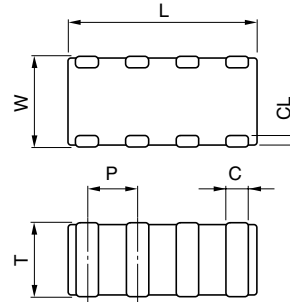
FEATURES

- Four capacitors are fitted in a single package.
- Capable of reducing the number of parts, contributing to reduced mounting area and cost.
- Effective for EMC control around connectors, etc., when used as noise bypass capacitors in digital signal lines.

APPLICATION EXAMPLES

- Interfaces of various devices
- High-frequency noise bypass circuits
- Circuits that require identical capacitance in a particular area, such as IC bus lines.

SHAPES AND DIMENSIONS



Dimensions in mm

Type	L	W	P	C	CL
CKCA43	3.2±0.2	1.6±0.15	0.8+0.2, -0.1	0.4+0.2, -0.1	0.15min.

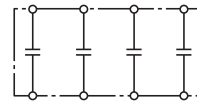
- Dimension tolerances are typical values.

Product's Thickness T

The value in parentheses at the end of the product name corresponds to thickness T.

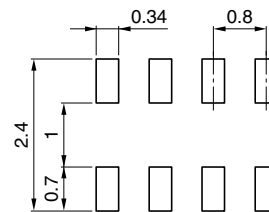
Refer to the table of "CAPACITANCE RANGES" for specific values.

CIRCUIT DIAGRAM



- No polarity

RECOMMENDED PC BOARD PATTERN



Dimensions in mm

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PRODUCT IDENTIFICATION

CKC A 4 3 X5R 1E 473 M (100 A A)
 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

(1) Series name

(2) Dimensions L×W

A	3.2×1.6mm
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(3) Number of elements

4	4-element
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(4) Terminal electrode structure

3	0.80mm-pitch
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(5) Capacitance temperature characteristics

Class 1 (Temperature compensation)

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

Class 2 (Temperature stable and general purpose)

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

(6) Rated voltage Edc

0J	6.3V
1C	16V
1E	25V
1H	50V

(7) 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.

100	10pF
471	470pF
102	1,000pF
333	33,000pF
474	470,000pF

(8) Capacitance tolerance

Symbol	Tolerance	Applicable capacitance range
F	±1pF	10pF or less
K	±10%	Over 10pF
M	±20%	

(9) Dimensions T

Expressed by a three-digit number in mm units.

The second and third digits denote the first and second decimal places, respectively.

080	0.80mm
100	1.00mm

(10) Packaging style

A	ø178mm reel with 4mm-pitch
B	ø178mm reel with 2mm-pitch
C	ø178mm reel with 1mm-pitch
D	ø330mm reel with 4mm-pitch
E	ø330mm reel with 2mm-pitch
F	ø330mm reel with 1mm-pitch
H	Bulk(bag)
J	ø330mm reel with 8mm-pitch
K	ø178mm reel with 8mm-pitch

(11) TDK internal code

In brochures issued in August, 2011 and later, the product thickness and packing specifications are described at the end of the ordering name [the product name described in brochures] in parentheses.

Since the existing ordering name could not clearly express the product thickness and packing specifications, it has been changed to a new product description method that solves this inconvenience.

Please be aware that the last five digits of the ordering name on the delivery label and those in the brochure differ.

No changes have been made to the delivery name.

(Example)

Brochure issued date	Ordering name (description in the brochure)	Delivery name (description on the delivery label)
Prior to July, 2011	C1608X5R1C105K	C1608X5R1C105KT000N
August, 2011 or later	C1608X5R1C105K(080AA)	C1608X5R1C105KT000N

- For more information about the products of other capacitance or data, please contact us.
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CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)
TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
10pF	3216	1.00±0.10	±1pF	CKCA43C0G1H100F(100AA)		
15pF	3216	1.00±0.10	±10%	CKCA43C0G1H150K(100AA)		
22pF	3216	1.00±0.10	±10%	CKCA43C0G1H220K(100AA)		
33pF	3216	1.00±0.10	±10%	CKCA43C0G1H330K(100AA)		
47pF	3216	1.00±0.10	±10%	CKCA43C0G1H470K(100AA)		
68pF	3216	1.00±0.10	±10%	CKCA43C0G1H680K(100AA)		
100pF	3216	1.00±0.10	±10%	CKCA43C0G1H101K(100AA)		
150pF	3216	1.00±0.10	±10%	CKCA43C0G1H151K(100AA)		
220pF	3216	1.00±0.10	±10%	CKCA43C0G1H221K(100AA)		
330pF	3216	1.00±0.10	±10%	CKCA43C0G1H331K(100AA)		
470pF	3216	1.00±0.10	±10%	CKCA43C0G1H471K(100AA)		
680pF	3216	1.00±0.10	±10%	CKCA43C0G1H681K(100AA)		
1nF	3216	1.00±0.10	±10%	CKCA43C0G1H102K(100AA)		

TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
10pF	3216	1.00±0.10	±1pF	CKCA43CH1H100F(100AA)		
15pF	3216	1.00±0.10	±10%	CKCA43CH1H150K(100AA)		
22pF	3216	1.00±0.10	±10%	CKCA43CH1H220K(100AA)		
33pF	3216	1.00±0.10	±10%	CKCA43CH1H330K(100AA)		
47pF	3216	1.00±0.10	±10%	CKCA43CH1H470K(100AA)		
68pF	3216	1.00±0.10	±10%	CKCA43CH1H680K(100AA)		
100pF	3216	1.00±0.10	±10%	CKCA43CH1H101K(100AA)		
150pF	3216	1.00±0.10	±10%	CKCA43CH1H151K(100AA)		
220pF	3216	1.00±0.10	±10%	CKCA43CH1H221K(100AA)		
330pF	3216	1.00±0.10	±10%	CKCA43CH1H331K(100AA)		
470pF	3216	1.00±0.10	±10%	CKCA43CH1H471K(100AA)		
680pF	3216	1.00±0.10	±10%	CKCA43CH1H681K(100AA)		
1nF	3216	1.00±0.10	±10%	CKCA43CH1H102K(100AA)		

CAPACITANCE RANGES: CLASS 2
TEMPERATURE CHARACTERISTICS: X5R(±15%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.			
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V	Rated voltage Edc: 6.3V
470pF	3216	1.00±0.10	±20%	CKCA43X5R1H471M(100AA)			
1nF	3216	1.00±0.10	±20%	CKCA43X5R1H102M(100AA)			
2.2nF	3216	1.00±0.10	±20%	CKCA43X5R1H222M(100AA)			
4.7nF	3216	1.00±0.10	±20%	CKCA43X5R1H472M(100AA)			
10nF	3216	1.00±0.10	±20%	CKCA43X5R1H103M(100AA)			
22nF	3216	1.00±0.10	±20%	CKCA43X5R1H223M(100AA)			
47nF	3216	1.00±0.10	±20%		CKCA43X5R1E473M(100AA)		
100nF	3216	1.00±0.10	±20%			CKCA43X5R1C104M(100AA)	
1µF	3216	1.00±0.10	±20%				CKCA43X5R0J105M(100AA)

TEMPERATURE CHARACTERISTICS: X7R(±15%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.			
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V	Rated voltage Edc: 6.3V
470pF	3216	0.80±0.10	±20%	CKCA43X7R1H471M(080AA)			
1nF	3216	1.00±0.10	±20%	CKCA43X7R1H102M(100AA)			
2.2nF	3216	1.00±0.10	±20%	CKCA43X7R1H222M(100AA)			
4.7nF	3216	1.00±0.10	±20%	CKCA43X7R1H472M(100AA)			
10nF	3216	1.00±0.10	±20%	CKCA43X7R1H103M(100AA)			
22nF	3216	1.00±0.10	±20%	CKCA43X7R1H223M(100AA)			
47nF	3216	1.00±0.10	±20%		CKCA43X7R1E473M(100AA)		
100nF	3216	1.00±0.10	±20%			CKCA43X7R1C104M(100AA)	

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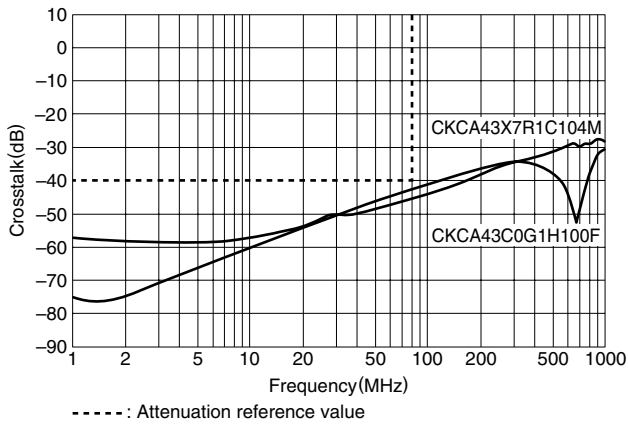
CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: JB(±10%)

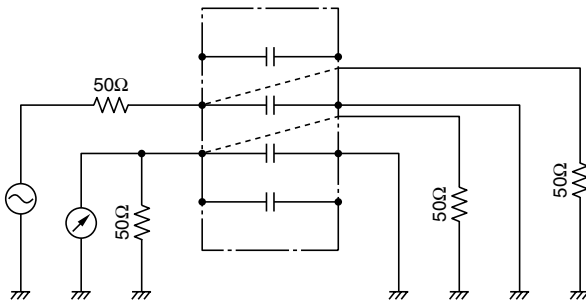
Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.	Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V	Rated voltage Edc: 6.3V
470pF	3216	1.00±0.10	±20%	CKCA43JB1H471M(100AA)				
1nF	3216	1.00±0.10	±20%	CKCA43JB1H102M(100AA)				
2.2nF	3216	1.00±0.10	±20%	CKCA43JB1H222M(100AA)				
4.7nF	3216	1.00±0.10	±20%	CKCA43JB1H472M(100AA)				
10nF	3216	1.00±0.10	±20%	CKCA43JB1H103M(100AA)				
22nF	3216	1.00±0.10	±20%	CKCA43JB1H223M(100AA)				
47nF	3216	1.00±0.10	±20%			CKCA43JB1E473M(100AA)		
100nF	3216	1.00±0.10	±20%				CKCA43JB1C104M(100AA)	
1µF	3216	1.00±0.10	±20%					CKCA43JB0J105M(100AA)

TYPICAL ELECTRICAL CHARACTERISTICS

CROSSTALK CHARACTERISTICS



MEASURING CIRCUIT



- Measurement were performed by wiring this product onto a printed circuit

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CKCL44 Type

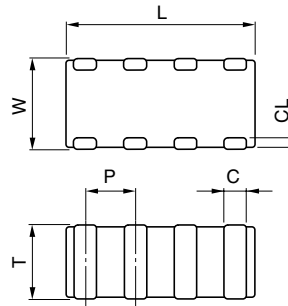
FEATURES

- Four capacitors are fitted in a single package.
- Capable of reducing the number of parts, contributing to reduced mounting area and cost.
- Effective for EMC control around connectors, etc., when used as noise bypass capacitors in digital signal lines.

APPLICATION EXAMPLES

- Interfaces of various devices
- High-frequency noise bypass circuits
- Circuits that require identical capacitance in a particular area, such as IC bus lines.

SHAPES AND DIMENSIONS



Dimensions in mm

Type	L	W	P	C	CL
CKCL44	2.0±0.15	1.25±0.15	0.5±0.1	0.25±0.1	0.15min.

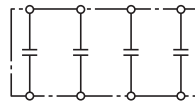
- Dimension tolerances are typical values.

Product's Thickness T

The value in parentheses at the end of the product name corresponds to thickness T.

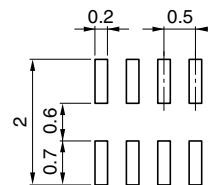
Refer to the table of "CAPACITANCE RANGES" for specific values.

CIRCUIT DIAGRAM



- No polarity

RECOMMENDED PC BOARD PATTERN



Dimensions in mm

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PRODUCT IDENTIFICATION

CKC L 4 4 C0G 1H 680 K (085 A A)
 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

(1) Series name

(2) Dimensions L×W

L	2.0×1.25mm
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(3) Number of elements

4	4-element
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(4) Terminal electrode structure

4	0.50mm-pitch
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(5) Capacitance temperature characteristics

Class 1 (Temperature compensation)

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

Class 2 (Temperature stable and general purpose)

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

(6) Rated voltage E_{dc}

1C	16V
1E	25V
1H	50V

(7) 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.

100	10pF
471	470pF
102	1,000pF

(8) Capacitance tolerance

Symbol	Tolerance	Applicable capacitance range
F	±1pF	10pF or less
K	±10%	Over 10pF
M	±20%	

(9) Dimensions T

Expressed by a three-digit number in mm units.

The second and third digits denote the first and second decimal places, respectively.

085	0.85mm
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(10) Packaging style

A	ø178mm reel with 4mm-pitch
B	ø178mm reel with 2mm-pitch
C	ø178mm reel with 1mm-pitch
D	ø330mm reel with 4mm-pitch
E	ø330mm reel with 2mm-pitch
F	ø330mm reel with 1mm-pitch
H	Bulk(bag)
J	ø330mm reel with 8mm-pitch
K	ø178mm reel with 8mm-pitch

(11) TDK internal code

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(Example)

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August, 2011 or later	C1608X5R1C105K(080AA)	C1608X5R1C105KT000N

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

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
10pF	2012	0.85±0.15	±1pF	CKCL44C0G1H100F(085AA)		
15pF	2012	0.85±0.15	±10%	CKCL44C0G1H150K(085AA)		
22pF	2012	0.85±0.15	±10%	CKCL44C0G1H220K(085AA)		
33pF	2012	0.85±0.15	±10%	CKCL44C0G1H330K(085AA)		
47pF	2012	0.85±0.15	±10%	CKCL44C0G1H470K(085AA)		
68pF	2012	0.85±0.15	±10%	CKCL44C0G1H680K(085AA)		
100pF	2012	0.85±0.15	±10%	CKCL44C0G1H101K(085AA)		
150pF	2012	0.85±0.15	±10%	CKCL44C0G1H151K(085AA)		

TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
10pF	2012	0.85±0.15	±1pF	CKCL44CH1H100F(085AA)		
15pF	2012	0.85±0.15	±10%	CKCL44CH1H150K(085AA)		
22pF	2012	0.85±0.15	±10%	CKCL44CH1H220K(085AA)		
33pF	2012	0.85±0.15	±10%	CKCL44CH1H330K(085AA)		
47pF	2012	0.85±0.15	±10%	CKCL44CH1H470K(085AA)		
68pF	2012	0.85±0.15	±10%	CKCL44CH1H680K(085AA)		
100pF	2012	0.85±0.15	±10%	CKCL44CH1H101K(085AA)		
150pF	2012	0.85±0.15	±10%	CKCL44CH1H151K(085AA)		

CAPACITANCE RANGES: CLASS 2
TEMPERATURE CHARACTERISTICS: X5R(±15%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
220pF	2012	0.85±0.15	±20%	CKCL44X5R1H221M(085AA)		
470pF	2012	0.85±0.15	±20%	CKCL44X5R1H471M(085AA)		
1nF	2012	0.85±0.15	±20%	CKCL44X5R1H102M(085AA)		
2.2nF	2012	0.85±0.15	±20%	CKCL44X5R1H222M(085AA)		
4.7nF	2012	0.85±0.15	±20%	CKCL44X5R1H472M(085AA)		
10nF	2012	0.85±0.15	±20%		CKCL44X5R1E103M(085AA)	
22nF	2012	0.85±0.15	±20%			CKCL44X5R1C223M(085AA)

TEMPERATURE CHARACTERISTICS: X5R(±15%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.	
				Rated voltage Edc: 10V	Rated voltage Edc: 6.3V
47nF	2012	0.85±0.15	±20%	CKCL44X5R1A473M(085AA)	
100nF	2012	0.85±0.15	±20%		CKCL44X5R0J104M(085AA)

TEMPERATURE CHARACTERISTICS: X7R(±15%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
220pF	2012	0.85±0.15	±20%	CKCL44X7R1H221M(085AA)		
470pF	2012	0.85±0.15	±20%	CKCL44X7R1H471M(085AA)		
1nF	2012	0.85±0.15	±20%	CKCL44X7R1H102M(085AA)		
2.2nF	2012	0.85±0.15	±20%	CKCL44X7R1H222M(085AA)		
4.7nF	2012	0.85±0.15	±20%	CKCL44X7R1H472M(085AA)		
10nF	2012	0.85±0.15	±20%		CKCL44X7R1E103M(085AA)	
22nF	2012	0.85±0.15	±20%			CKCL44X7R1C223M(085AA)

TEMPERATURE CHARACTERISTICS: JB(±10%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.		
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
220pF	2012	0.85±0.15	±20%	CKCL44JB1H221M(085AA)		
470pF	2012	0.85±0.15	±20%	CKCL44JB1H471M(085AA)		
1nF	2012	0.85±0.15	±20%	CKCL44JB1H102M(085AA)		
2.2nF	2012	0.85±0.15	±20%	CKCL44JB1H222M(085AA)		
4.7nF	2012	0.85±0.15	±20%	CKCL44JB1H472M(085AA)		
10nF	2012	0.85±0.15	±20%		CKCL44JB1E103M(085AA)	
22nF	2012	0.85±0.15	±20%			CKCL44JB1C223M(085AA)

TEMPERATURE CHARACTERISTICS: JB(±10%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No.	
				Rated voltage Edc: 10V	Rated voltage Edc: 6.3V
47nF	2012	0.85±0.15	±20%	CKCL44JB1A473M(085AA)	
100nF	2012	0.85±0.15	±20%		CKCL44JB0J104M(085AA)

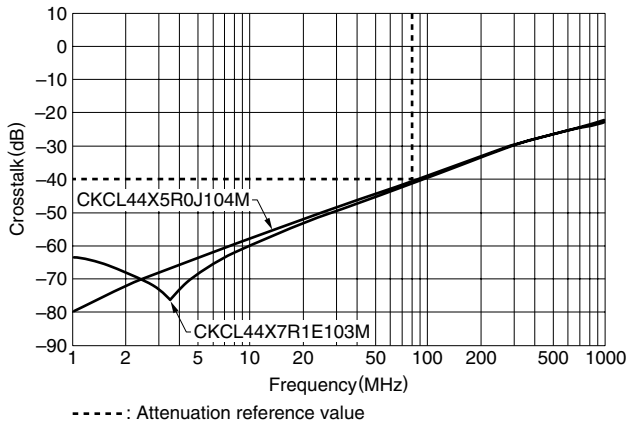
- For more information about the products of other capacitance or data, please contact us.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

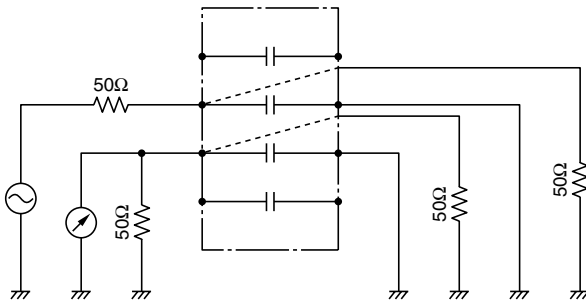
Please read the precautions before using this catalog.

TYPICAL ELECTRICAL CHARACTERISTICS

CROSSTALK CHARACTERISTICS



MEASURING CIRCUIT



- Measurement were performed by wiring this product onto a printed circuit

- For more information about the products of other capacitance or data, please contact us.
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