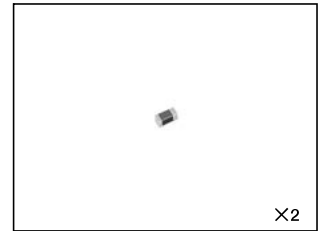


**1005(0402)Size chip capacitors : MCH15**

- Miniture, light weight
- Suitable for mobile devices
- Lead-free plating terminal
- No polarity



**Quick Reference**

The design and specifications are subject to change without prior notice. Before ordering or using, please check the latest technical specifications. For more detail information regarding temperature characteristic code and packaging style code, please check product destination.

**Range of thermal compensation capacitors**

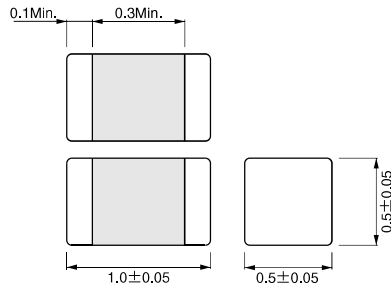
<b>MCH15</b>	Temperature	A,AN(CG) (COG) (CH) Characteristic			Packing style code
	Rated voltage(V)	50V			
	Product thickness(mm)	0.5±0.05			
	Capacitance(pF)	0.5~220			
Capacitance tolerance	〈over 11pF〉 : J (±5%), 〈0.5~5pF〉 : C (±0.25pF), 〈5.1~10pF〉 : D (±0.5pF)				K, L, C
Nominal capacitance series	E24				

**Range of high dielectric constant capacitors**

<b>MCH15</b>	Temperature	CN(R) (B) (X7R) Characteristic			CN(X5R) Characteristic	Packing style code
	Rated voltage(V)	50V	25V	16V	10V	
	Product thickness(mm)	0.5±0.05				
	Capacitance(pF)	220~6,800		10,000~47,000	68,000~100,000	
Capacitance tolerance	10,000 K(±10%)				K, L, C	
Nominal capacitance series	E6					

<b>MCH15</b>	Temperature	FN(F) (Y5V) Characteristic			Packing style code
	Rated voltage(V)	50V	25V	16V	
	Product thickness(mm)	0.5±0.05			
	Capacitance(pF)	1,000~10,000	22,000	47,000~100,000	
Capacitance tolerance	Z(+80%, -20%)				K, L, C
Nominal capacitance series	E3				

**External dimensions (Unit : mm)**



**Production designation**

Code	Product thickness	Packing specification	Reel	Basic ordering unit(pcs.)
<b>K</b>	<b>0.5mm</b>	Paper tape(width 8mm, pitch 2mm)	φ 180mm (7in.)	10,000
<b>L</b>	<b>0.5mm</b>	Paper tape(width 8mm, pitch 2mm)	φ 330mm (13in.)	50,000
<b>C</b>	<b>0.5mm</b>	Bulk case	—	50,000

Reel(φ 180, φ 330mm):compatible with EIAJ ET-7200A  
Bulk case:compatible with EIAJ ET-7201A

Part No.

Packing Style



Rated voltage	
Code	Voltage
4	10V
3	16V
2	25V
5	50V

Capacitance-temperature characteristics				Nominal capacitance	Capacitance tolerance	
Code	EIA code	Operating temp. range(°C)	Temp. coefficient or percent change		Code	Tolerance
<b>A,AN</b>	CG(COG)	-55~+125	0±30ppm/°C	3-digit designation according to IEC	<b>C</b>	±0.25pF (0.5~5pF)
	CH	-55~+125	0±60ppm/°C		<b>D</b>	±0.5pF (5.1~10pF)
<b>CN</b>	R	-55~+125	±15%		<b>J</b>	±5% (11pF or more)
	B	-25~+85	±10%		<b>K</b>	±10%
	(X5R)	(-55~+85)	(±15%)		<b>Z</b>	+80%, -20%
<b>FN</b>	(X7R)	(-55~+125)	(±15%)			
	F	-25~+85	+30%, -80%			
	(Y5V)	(-30~+85)	(+22%, -82%)			



## Product No. list

### Thermal compensation capacitors

Capacitance(pF)	Temperature		A*AN(CG) (COG) (CH) Characteristic 50V
	Rated voltage(V)		
	Tolerance	Product thickness(mm)	
0.5	C (±0.25pF)	0.5±0.05	MCH155A (AN) 0R5C*
0.75			MCH155A (AN) R75C*
1.0			MCH155A (AN) 010C*
1.1			MCH155A (AN) 1R1C*
1.2			MCH155A (AN) 1R2C*
1.3			MCH155A (AN) 1R3C*
1.5			MCH155A (AN) 1R5C*
1.6			MCH155A (AN) 1R6C*
1.8			MCH155A (AN) 1R8C*
2.0			MCH155A (AN) 020C*
2.2			MCH155A (AN) 2R2C*
2.4			MCH155A (AN) 2R4C*
2.7			MCH155A (AN) 2R7C*
3.0			MCH155A (AN) 030C*
3.3			MCH155A (AN) 3R3C*
3.6			MCH155A (AN) 3R6C*
3.9			MCH155A (AN) 3R9C*
4.0			MCH155A (AN) 040C*
4.3			MCH155A (AN) 4R3C*
4.7			MCH155A (AN) 4R7C*
5.0	MCH155A (AN) 050C*		
5.1	D (±0.5pF)	0.5±0.05	MCH155A (AN) 5R1D*
5.6			MCH155A (AN) 5R6D*
6			MCH155A (AN) 060D*
6.2			MCH155A (AN) 6R2D*
6.8			MCH155A (AN) 6R8D*
7			MCH155A (AN) 070D*
7.5			MCH155A (AN) 7R5D*
8			MCH155A (AN) 080D*
8.2			MCH155A (AN) 8R2D*
9			MCH155A (AN) 090D*
9.1	MCH155A (AN) 9R1D*		
10	MCH155A (AN) 100D*		

Capacitance(pF)	Temperature		A*AN(CG) (COG) (CH) Characteristic 50V
	Rated voltage(V)		
	Tolerance	Product thickness(mm)	
11	J (±5%)	0.5±0.05	MCH155A (AN) 110J*
12			MCH155A (AN) 120J*
13			MCH155A (AN) 130J*
15			MCH155A (AN) 150J*
16			MCH155A (AN) 160J*
18			MCH155A (AN) 180J*
20			MCH155A (AN) 200J*
22			MCH155A (AN) 220J*
24			MCH155A (AN) 240J*
27			MCH155A (AN) 270J*
30			MCH155A (AN) 300J*
33			MCH155A (AN) 330J*
36			MCH155A (AN) 360J*
39			MCH155A (AN) 390J*
43			MCH155A (AN) 430J*
47			MCH155A (AN) 470J*
51			MCH155A (AN) 510J*
56			MCH155A (AN) 560J*
62			MCH155A (AN) 620J*
68			MCH155A (AN) 680J*
75	MCH155A (AN) 750J*		
82	MCH155A (AN) 820J*		
91	MCH155A (AN) 910J*		
100	MCH155A (AN) 101J*		
110	MCH155A (AN) 111J*		
120	MCH155A (AN) 121J*		
130	MCH155A (AN) 131J*		
150	MCH155A (AN) 151J*		
160	MCH155A (AN) 161J*		
180	MCH155A (AN) 181J*		
200	MCH155A (AN) 201J*		
220	MCH155A (AN) 221J*		

\*: Packaging Code

### High dielectric constant capacitors

Capacitance(pF)	Temperature		CN (R) (B) (X7R) Characteristic			CN (X5R) Characteristic	
	Rated voltage(V)		50V	25V	16V	10V	
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.	Product No.	
220	K (±10%)	0.5±0.05	MCH155CN221K*				
330			MCH155CN331K*				
470			MCH155CN471K*				
680			MCH155CN681K*				
1,000			MCH155CN102K*				
1,500			MCH155CN152K*				
2,200			MCH155CN222K*				
3,300			MCH155CN332K*				
4,700			MCH155CN472K*				
6,800			MCH155CN682K*				
10,000					MCH152CN103K*	MCH153CN103K*	
15,000						MCH153CN153K*	
22,000						MCH153CN223K*	
33,000						MCH153CN333K*	
47,000						MCH153CN473K*	
68,000							MCH154CN683K*
100,000							MCH154CN104K*

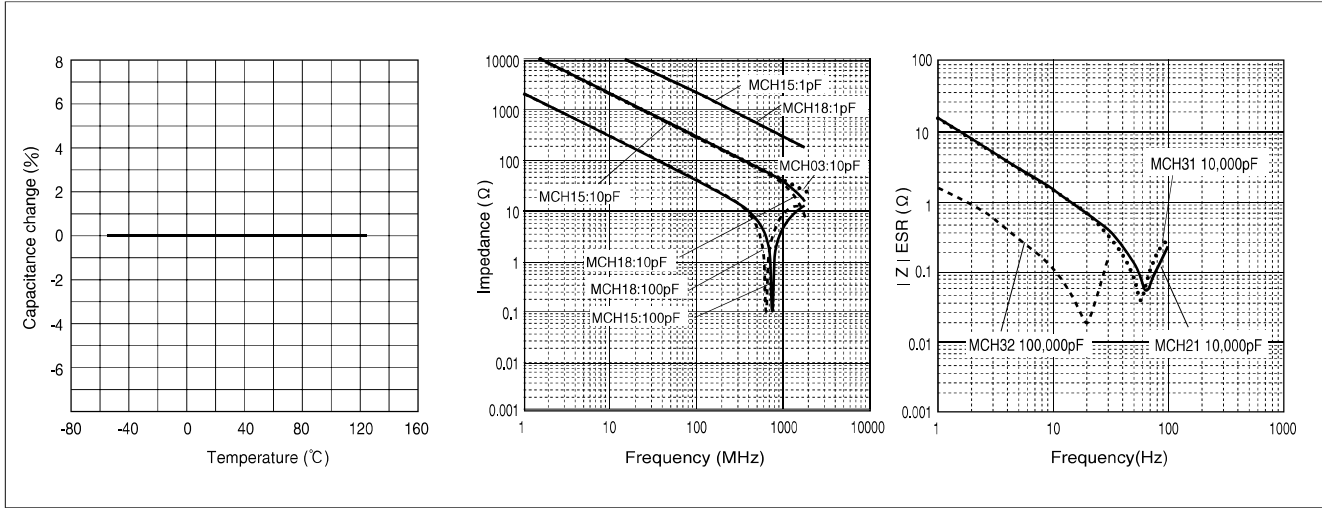
\*: Packaging Code

Capacitance(pF)	Temperature		FN (F) (Y5V) Characteristic			
	Rated voltage(V)		50V	25V	16V	
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.	
1,000	Z (+80%, -20%)	0.5±0.05	MCH155FN102Z*			
2,200			MCH155FN222Z*			
4,700			MCH155FN472Z*			
10,000			MCH155FN103Z*			
22,000					MCH152FN223Z*	
47,000						MCH153FN473Z*
100,000					MCH153FN104Z*	

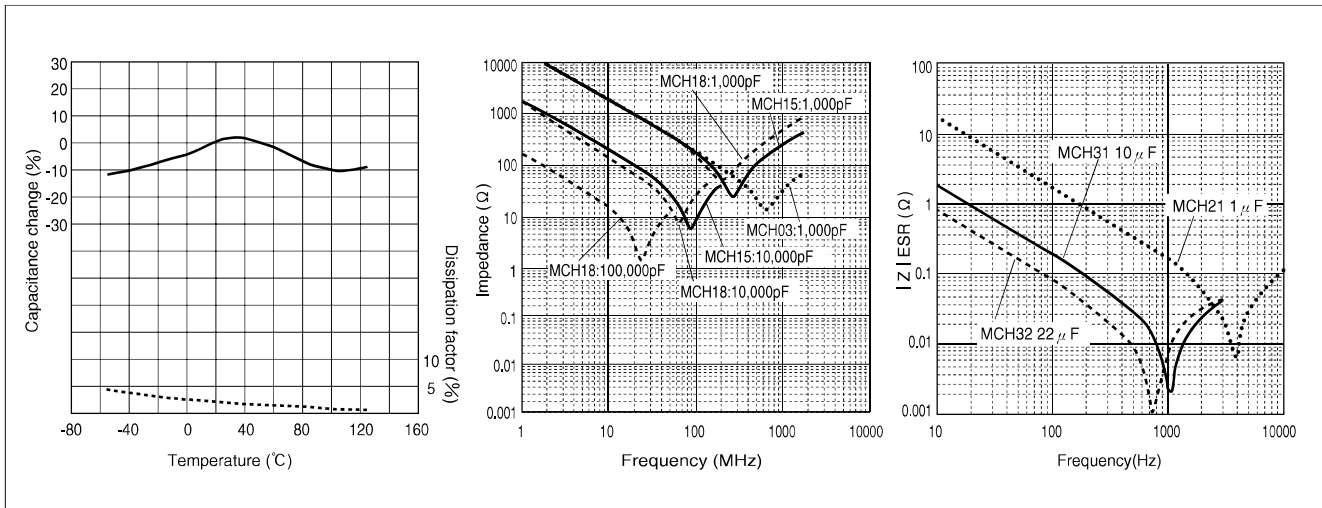
\*: Packaging Code

■ **Characteristics**

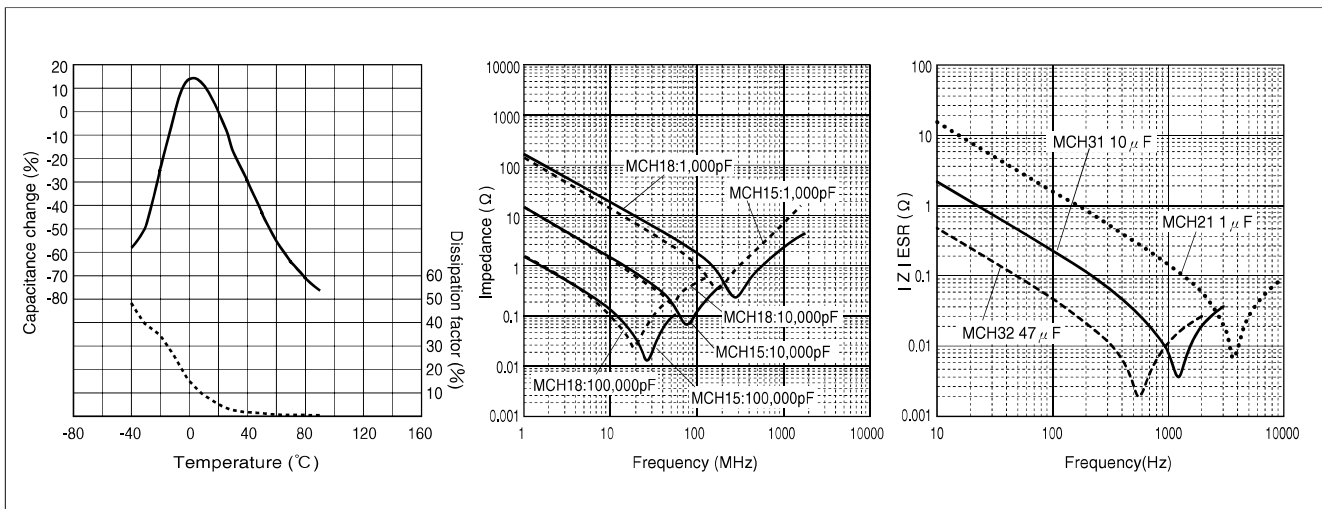
● **A (CG) (C0G) (CH) Characteristics**



● **CN (R) (B) (X5R) (X7R) Characteristics**



● **FN (F) (Y5V) Characteristics**

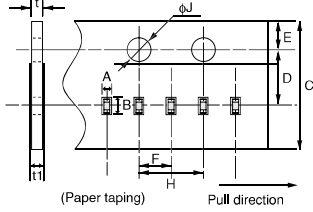




## ■ Packing specification

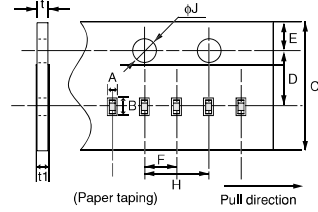
### ● Carrier tape dimensions (Unit:mm)

**MCH03**



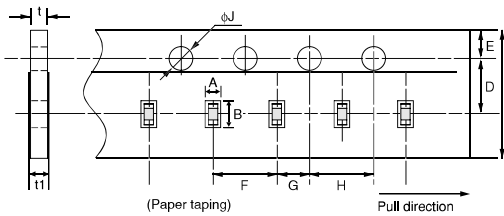
Code	A	B	C	D	E	F	H	J	t	t1
MCH03	0.37 ±0.03	0.67 ±0.03	8.0 ±0.2	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.42 ±0.02	0.5 MAX

**MCH15**



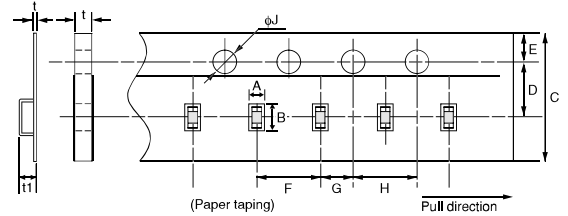
Code	A	B	C	D	E	F	H	J	t	t1
MCH15	0.65 ±0.05	1.15 ±0.05	8.0 ±0.2	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.7 ±0.05	0.8 MAX

**MCH18**



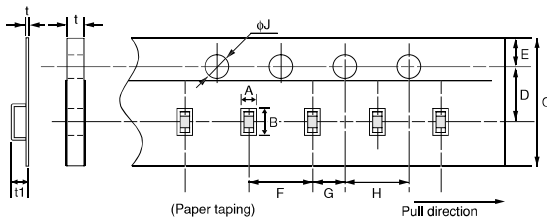
Code	A	B	C	D	E	F	G	H	J	t	t1
MCH18	1.0 ±0.05	1.8 ±0.05	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	1.05 MAX	1.2 MAX

**MCH21**



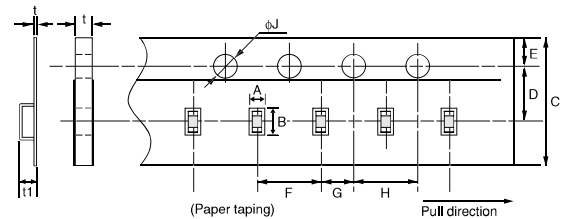
Code	A	B	C	D	E	F	G	H	J	t Paper	t Pulastic	t1
MCH21	1.5 ±0.2	2.3 ±0.2	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	1.1 MAX	0.3 MAX	2.5 MAX

**MCH31**



Code	A	B	C	D	E	F	G	H	J	t Paper	t Pulastic	t1
MCH31	1.9 ±0.2	3.5 ±0.2	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	1.1 MAX	0.3 MAX	2.5 MAX

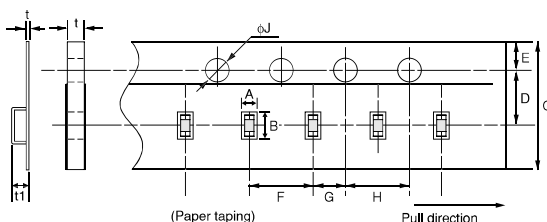
**MCH32**



Code	A	B	C	D	E	F	G	H	J	t Paper	t Pulastic	t1
MCH32	2.9	3.6	8.0±0.3 (12.0±0.3)	3.5±0.05 (5.0±0.03)	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.6 MAX	2.5MAX (6.5MAX)	

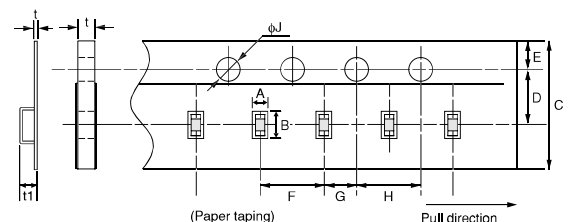
( ) 内は製品厚みの2.5mmに適用

**MCH43**



Code	A	B	C	D	E	F	G	H	J	t Paper	t Pulastic	t1
MCH43	3.6	4.9	12.0 ±0.3	5.5 ±0.05	1.75 ±0.1	8.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.6 MAX	6.5 MAX	

**MCH55**



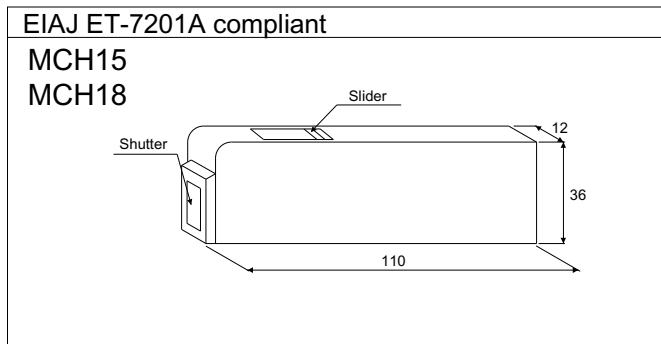
Code	A	B	C	D	E	F	G	H	J	t Paper	t Pulastic	t1
MCH55	5.4	6.1	12.0 ±0.3	5.5 ±0.05	1.75 ±0.1	8.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.6 MAX	6.5 MAX	

■ Packing specification

● Reel dimensions (Unit:mm)

φ180mm Plastic reel	φ330mm Plastic reel
<p>MCH03 MCH15 MCH18 MCH21 MCH31 MCH32 MCH43 MCH55</p>	<p>MCH15 MCH18</p>

● Bulk case dimensions (Unit:mm)



● For fundamental considerations on capacitors, refer to Electric Industries Association of Japan, technical report, "EIAJ RCR-2333, Guideline of notabilia for fixed multilayer ceramic capacitors for use in electronic equipment".

● The contents described herein are correct as of Sep, 2003.

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