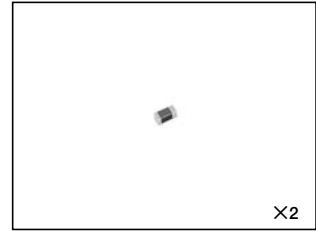


1005(0402)Size chip capacitors : MCH15

- 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

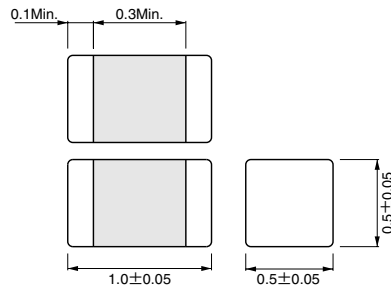
MCH15	Temperature	A,AN (CG) (COG) (CH) Characteristic		Packing style code
	Rated voltage(V)	50V		
	Product thickness(mm)	0.5± 0.05		
	Capacitance(pF)	0.5~220		
Capacitance tolerance		〈over 11pF〉: J (± 5%), 〈0.5 ~ 5pF〉: C (± 0.25pF) , 〈5.1 ~ 10pF〉: D (± 0.5pF)		K, L, C
Nominal capacitance series		E24		

● Range of high dielectric constant capacitors

MCH15	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				

MCH15	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.)
K	0.5mm	Paper tape(width 8mm, pitch 2mm)	φ 180mm (7in.)	10,000
L	0.5mm	Paper tape(width 8mm, pitch 2mm)	φ 330mm (13in.)	50,000
C	0.5mm	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
A,AN	CG (COG)	-55~+125	0±30ppm/°C	3-digit designation according to IEC	C	±0.25pF (0.5~5pF)
	CH	-55~+125	0±60ppm/°C		D	±0.5pF (5.1~10pF)
CN	R	-55~+125	±15%		J	±5% (11pF or more)
	B	-25~+85	±10%		K	±10%
	(X5R)	(-55~+85)	(±15%)		Z	+80%, -20%
	(X7R)	(-55~+125)	(±15%)			
FN	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
	Rated voltage(V)		
	Tolerance	Product thickness(mm)	
			50V
			Product No.
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
	Rated voltage(V)		
	Tolerance	Product thickness(mm)	
			50V
			Product No.
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*

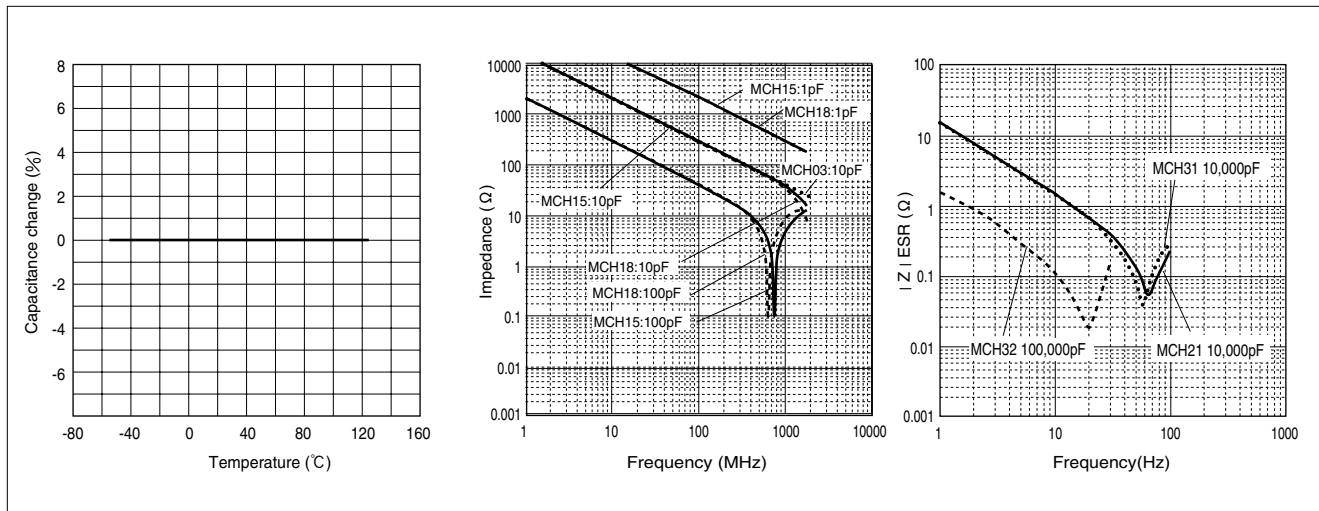
※: Packaging Code

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*

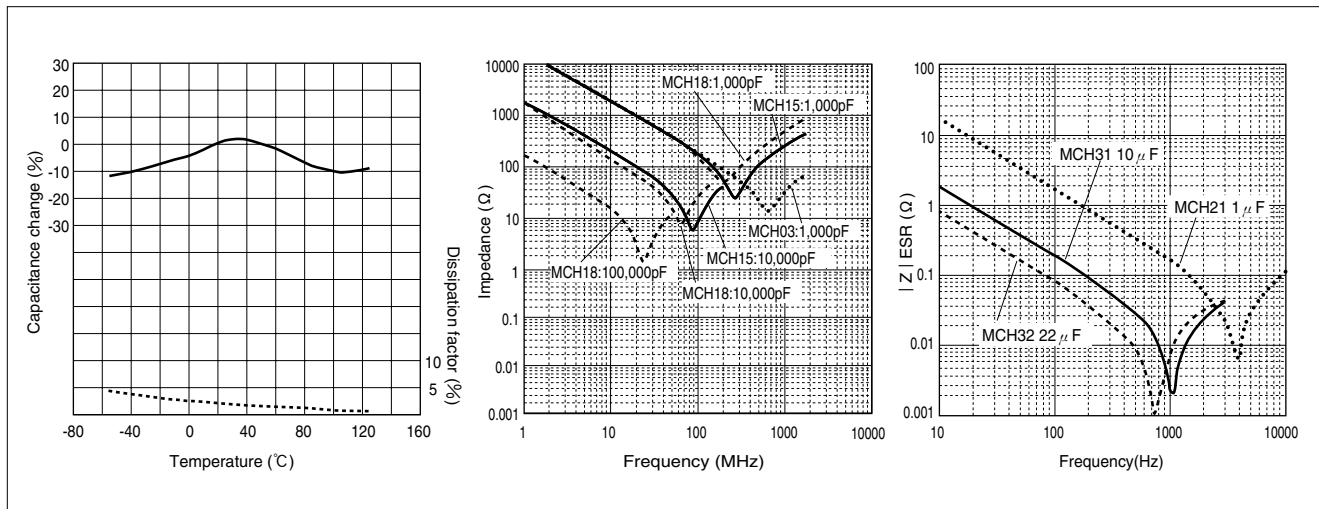
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■ Characteristics

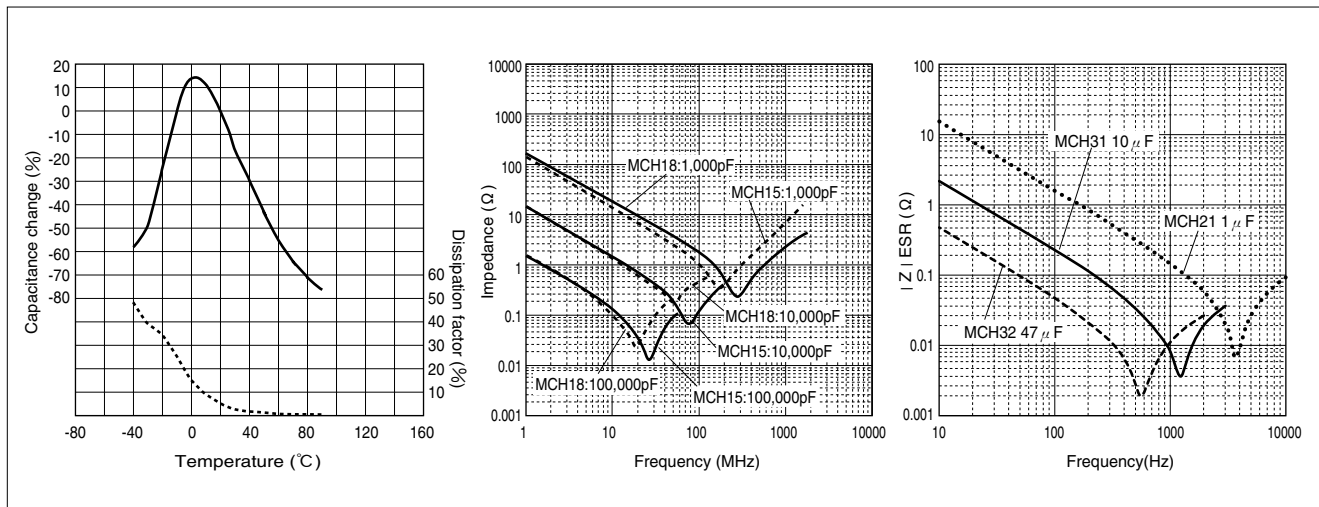
● A (CG) (C0G) (CH) Characteristics



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



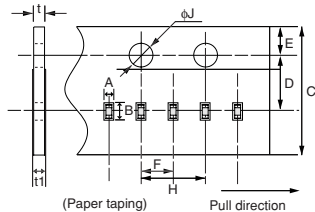
● FN (F) (Y5V) Characteristics



■ Packing specification

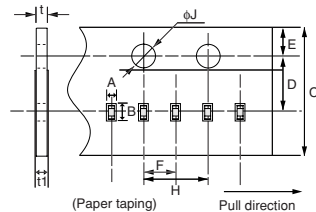
● Carrier tape dimensions (Unit:mm)

MCH03



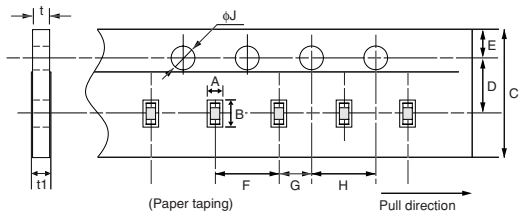
Code	A	B	C	D	E	F	H	J	t	t1
MCH03	0.37 ±0.03	0.67 ±0.03	8.0 ±0.2	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.42 ±0.02	0.5 MAX

MCH15



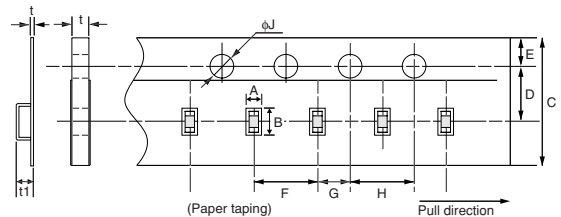
Code	A	B	C	D	E	F	H	J	t	t1
MCH15	0.65 ±0.05	1.15 ±0.05	8.0 ±0.2	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.7 ±0.05	0.8 MAX

MCH18



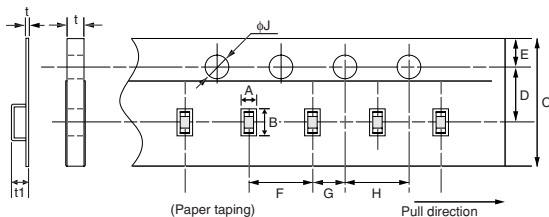
Code	A	B	C	D	E	F	G	H	J	t	t1
MCH18	1.0 ±0.05	1.8 ±0.05	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	1.05 MAX.	1.2 MAX.

MCH21



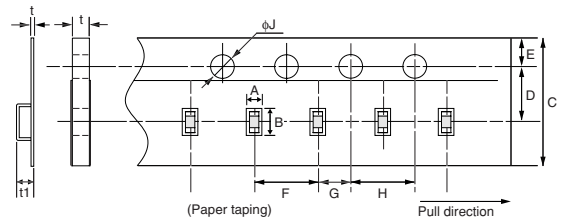
Code	A	B	C	D	E	F	G	H	J	t	t	t1
										Paper	Pulastic	
MCH21	1.5 ±0.2	2.3 ±0.2	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	1.1 MAX.	0.3 MAX.	2.5 MAX.

MCH31



Code	A	B	C	D	E	F	G	H	J	t	t	t1
										Paper	Pulastic	
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.

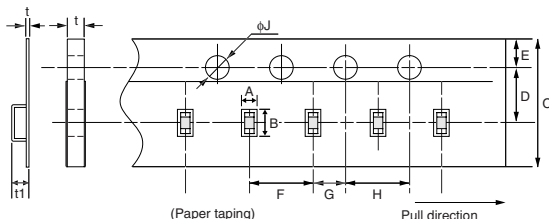
MCH32



Code	A	B	C	D	E	F	G	H	J	t	t1
										Pulastic	
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.)

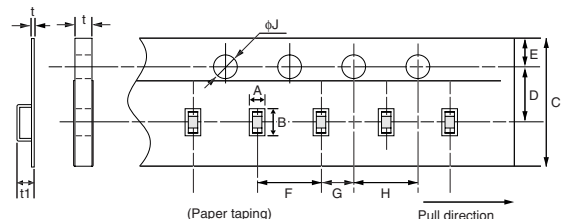
() 内は製品厚みの2.5mmに適用

MCH43



Code	A	B	C	D	E	F	G	H	J	t	t1
										Pulastic	
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.

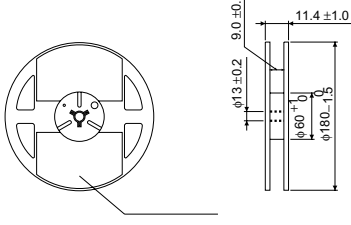
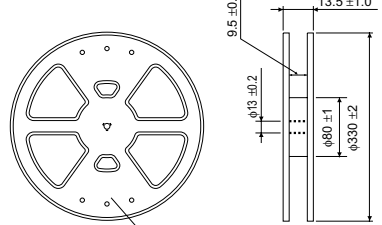
MCH55



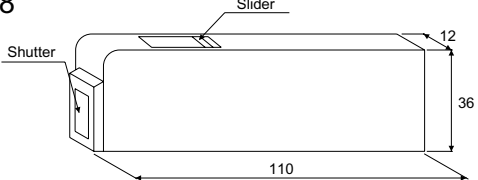
Code	A	B	C	D	E	F	G	H	J	t	t1
										Pulastic	
MCH55	5.4	6.1	12.0 ±0.3	5.5 ±0.05	1.75 ±0.1	8.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 +0.1 0	0.6 MAX.	6.5 MAX.

■ Packing specification

● Reel dimensions (Unit:mm)

φ180mm Plastic reel	φ330mm Plastic reel
MCH03 MCH15 MCH18 MCH21 MCH31 MCH32 MCH43 MCH55 	MCH15 MCH18 

● Bulk case dimensions (Unit:mm)

EIAJ ET-7201A compliant
MCH15 MCH18 

- 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".

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