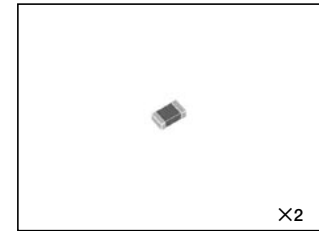


**2012(0805)Size chip capacitors : MCH21**

- Miniature, high capacitance
- Achieved high capacitance by thin and multi layer technology
- 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**

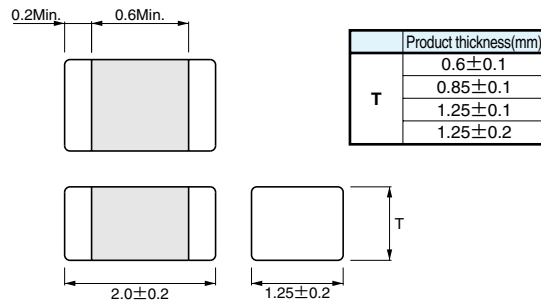
<b>MCH21</b>	Temperature	A,AN(CG) (COG) (CH) Characteristic			Packing style code
	Rated voltage(V)	50V			
	Product thickness(mm)	0.6±0.10	0.85±0.1	1.25±0.1	
	Capacitance(pF)	2,700~3,300	3,900~5,600	6,800~10,000	
Capacitance tolerance		J(±5%)			K, P
Nominal capacitance series		E12			

**Range of high dielectric constant capacitors**

<b>MCH21</b>	Temperature	CN(R) (B) (X7R) Characteristic						CN(X5R) Characteristic		Packing style code
	Rated voltage(V)	50V			25V	16V	10V	10V	6.3V	
	Product thickness(mm)	0.6±0.1	0.85±0.15	1.25±0.2						
	Capacitance(pF)	1,000~47,000	68,000	10,000	150,000~220,000	330,000~1,000,000	1,500,000~2,200,000	3,300,000~4,700,000	10,000,000	
Capacitance tolerance		K(±10%)						M(±20%)		K, P
Nominal capacitance series		E6								

<b>MCH21</b>	Temperature	FN(F) (Y5V) Characteristic			Packing style code	
	Rated voltage(V)	50V		16V		10V
	Product thickness(mm)	0.6±0.1		1.25±0.2		
	Capacitance(pF)	10,000~100,000		1,000,000~4,700,000		10,000,000
Capacitance tolerance		Z(+80%, -20%)			K, P	
Nominal capacitance series		E3				

**External dimensions (Unit : mm)**



**Production designation**

Part No. \_\_\_\_\_ Packing Style \_\_\_\_\_



Rated voltage	
Code	Voltage
8	6.3V
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	J	±5% (11pF or more)
	CH	-55~+125	0±60ppm/°C		K	±10%
CN	R	-55~+125	±15%		M	±20%
	B	-25~+85	±10%		Z	+80%, -20%
	(X5R)	(-55~+85)	(±15%)			
(X7R)	(-55~+125)	(±15%)				
FN	F	-25~+85	+30%, -80%			
	(Y5V)	(-30~+85)	(+22%, -82%)			

Code	Product thickness	Packing specification	Reel	Basic ordering unit(pcs.)
K	0.6, 0.85mm	Paper tape(width 8mm, pitch 4mm)	φ 180mm (7in.)	4,000
P	1.25mm	Pulastic tape(width 8mm, pitch 4mm)	φ 180mm (7in.)	2,000

Reel(φ 180mm):compatible with EIAJ ET-7200A



## ■ Product No. list

### ● Thermal compensation capacitors

Capacitance (pF)	Temperature		A·AN (CG) (COG) (CH) Characteristic
	Rated voltage(V)		25V
	Tolerance	Product thickness(mm)	Product No.
2,700	J (±5%)	0.6±0.1	MCH215A (AN) 272JK
3,300			MCH215A (AN) 332JK
3,900		0.85±0.1	MCH215A (AN) 392JK
4,700			MCH215A (AN) 472JK
5,600			MCH215A (AN) 562JK
6,800			MCH215A (AN) 682JP
8,200		1.25±0.1	MCH215A (AN) 822JP
10,000			MCH215A (AN) 103JP

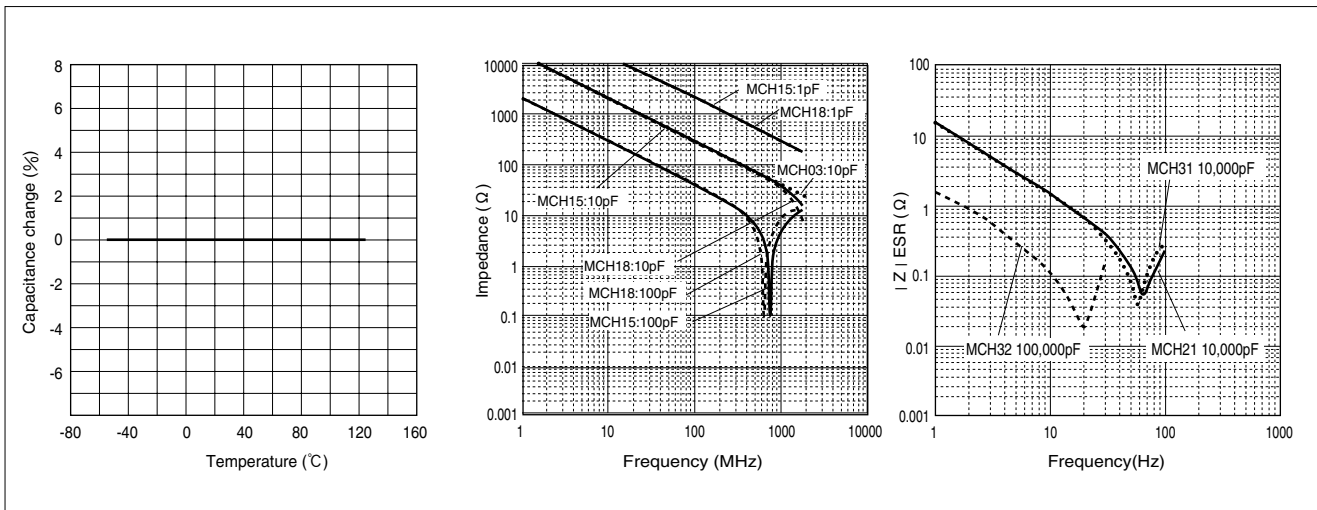
### ● High dielectric constant capacitors

Capacitance (pF)	Temperature		CN (R) (B) (X7R) Characteristic				CN (X5R) Characteristic		
	Rated voltage(V)		50V	25V	16V	10V	10V	6.3V	
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.	Product No.	Product No.	Product No.	
1,000	K (±10%)	0.6±0.1	MCH215CN102KK						
1,500			MCH215CN152KK						
2,200			MCH215CN222KK						
3,300			MCH215CN332KK						
4,700			MCH215CN472KK						
6,800			MCH215CN682KK						
10,000			MCH215CN103KK						
15,000			MCH215CN153KK						
22,000			MCH215CN223KK						
33,000			MCH215CN333KK						
47,000			MCH215CN473KK						
68,000			0.85±0.15	MCH215CN683KK					
100,000				MCH215CN104KP					
150,000					MCH212CN154KP				
220,000				MCH212CN224KP					
330,000		1.25±0.2				MCH213CN334KP			
470,000						MCH213CN474KP			
680,000						MCH213CN684KP			
1,000,000						MCH213CN105KP			
1,500,000							MCH214CN155KP		
2,200,000							MCH214CN225KP		
3,300,000								MCH214CN335KP	
4,700,000								MCH214CN475KP	
10,000,000		M (±20%)						MCH218CN106MP	

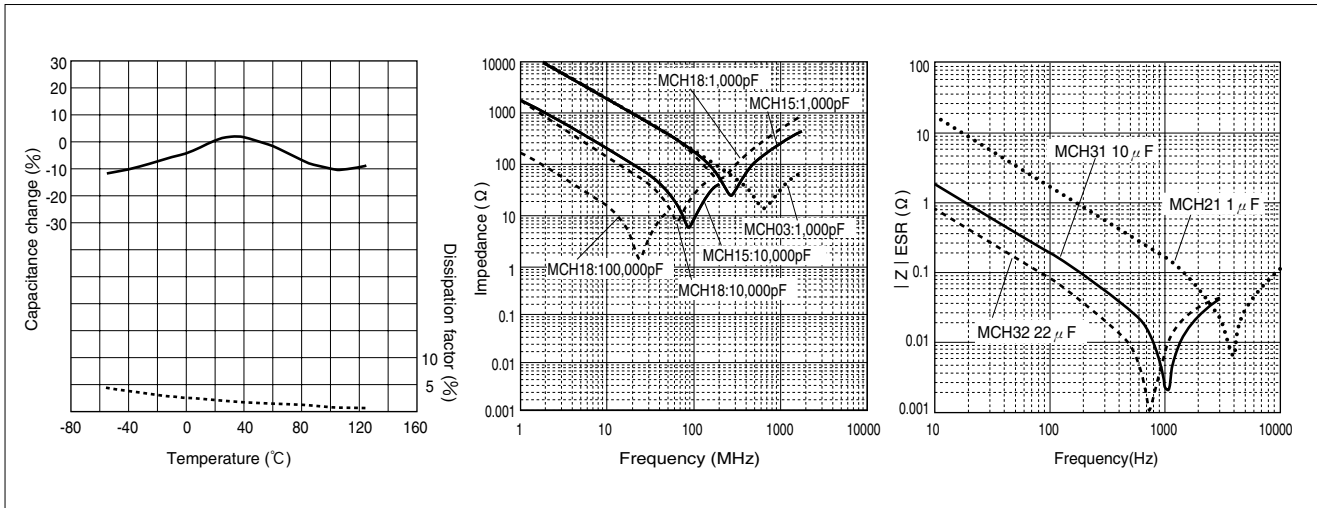
Capacitance (pF)	Temperature		FN (F) (Y5V) Characteristic		
	Rated voltage(V)		50V	16V	10V
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.
10,000	Z (+80%, -20%)	0.6±0.1	MCH215FN103ZK		
22,000			MCH215FN223ZK		
47,000			MCH215FN473ZK		
100,000			MCH215FN104ZK		
1,000,000		1.25±0.2		MCH213FN105ZP	
2,200,000				MCH213FN225ZP	
4,700,000				MCH213FN475ZP	
10,000,000					MCH214FN106ZP

**■ Characteristics**

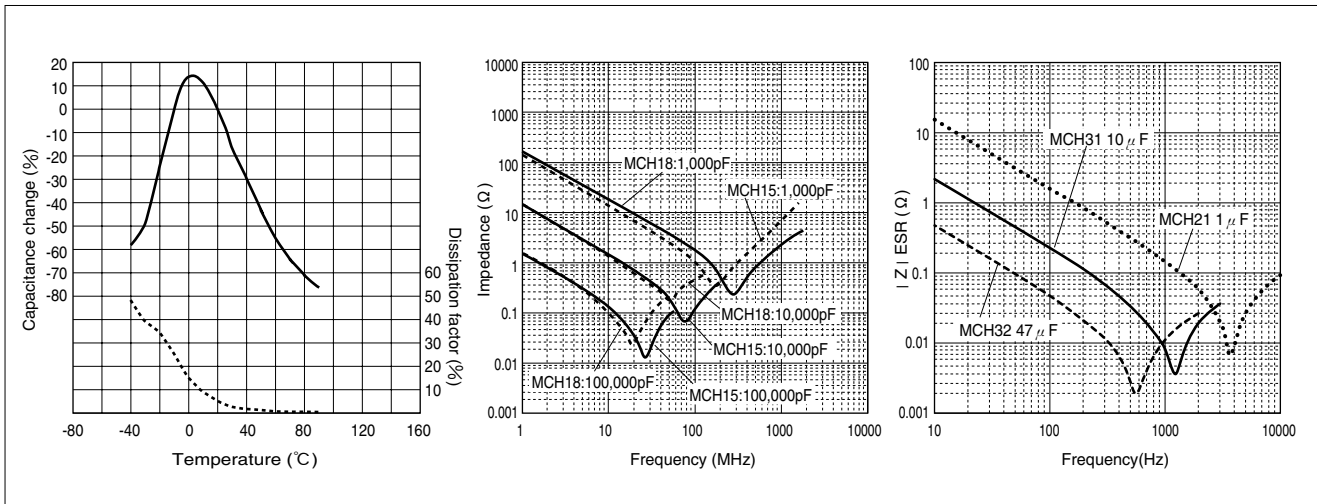
● **A (CG) (C0G) (CH) Characteristics**



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



● **FN (F) (Y5V) Characteristics**

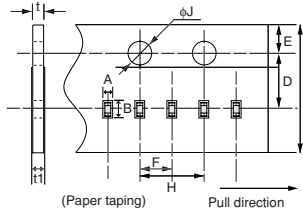




## ■ Packing specification

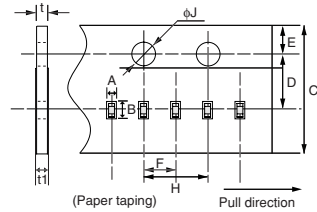
### ● Carrier tape dimensions (Unit:mm)

#### MCH03



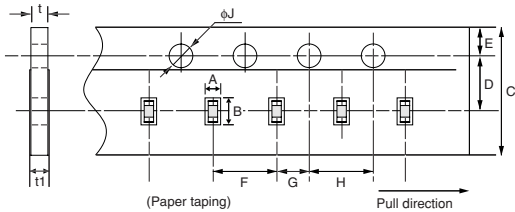
Code	A	B	C	D	E	F	H	J	t	t1
MCH03	0.37 ±0.03	0.67 ±0.03	8.0 ±0.2	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 <sup>+0.1</sup> / <sub>0</sub>	0.42 ±0.02	0.5 MAX

#### MCH15



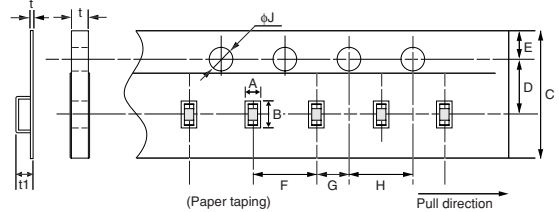
Code	A	B	C	D	E	F	H	J	t	t1
MCH15	0.65 ±0.05	1.15 ±0.05	8.0 ±0.2	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 <sup>+0.1</sup> / <sub>0</sub>	0.7 ±0.05	0.8 MAX

#### MCH18



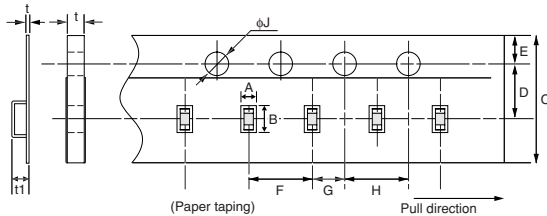
Code	A	B	C	D	E	F	G	H	J	t	t1
MCH18	1.0 ±0.05	1.8 ±0.05	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 <sup>+0.1</sup> / <sub>0</sub>	1.05 MAX.	1.2 MAX.

#### MCH21



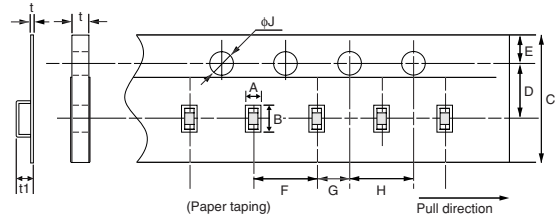
Code	A	B	C	D	E	F	G	H	J	t	t	t1
										Paper	Pulastic	
MCH21	1.5 ±0.2	2.3 ±0.2	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 <sup>+0.1</sup> / <sub>0</sub>	1.1 MAX.	0.3 MAX.	2.5 MAX.

#### 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 <sup>+0.1</sup> / <sub>0</sub>	1.1 MAX.	0.3 MAX.	2.5 MAX.

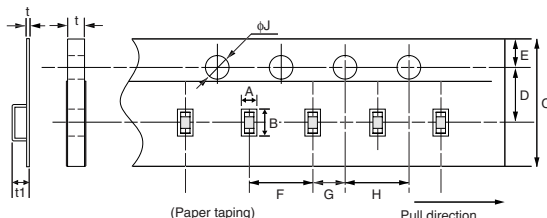
#### MCH32



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 <sup>+0.1</sup> / <sub>0</sub>	0.6 MAX.	2.5MAX (6.5MAX)

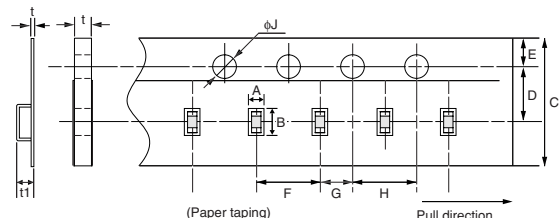
( ) 内は製品厚みの2.5mmに適用

#### 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 <sup>+0.1</sup> / <sub>0</sub>	0.6 MAX.	6.5 MAX.

#### MCH55



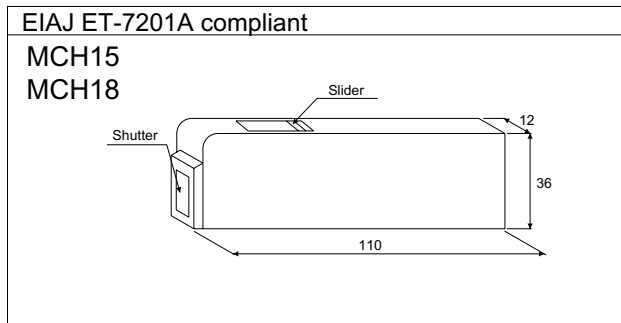
Code	A	B	C	D	E	F	G	H	J	t	t1
										Pulastic	
MCH55	5.4	6.1	12.0 ±0.3	5.5 ±0.05	1.75 ±0.1	8.0 ±0.1	2.0 ±0.05	4.0 ±0.1	φ1.5 <sup>+0.1</sup> / <sub>0</sub>	0.6 MAX.	6.5 MAX.

**■ 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".

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