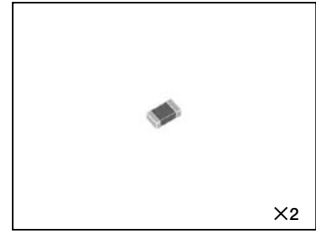


## 2012(0805)Size chip capacitors : MCH21

- 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

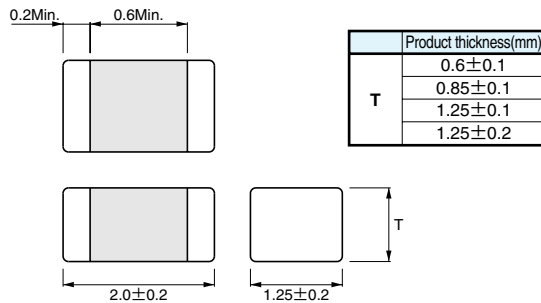
MCH21	Temperature	A,AN(CG) (COG) (CH) Characteristic			Packing style code
	Rated voltage(V)	50V			
	Product thickness(mm)	0.6±0.10	0.85±0.1	1.25±0.1	
	Capacitance(pF)	2,700~3,300	3,900~5,600	6,800~10,000	
Capacitance tolerance					K, P
Nominal capacitance series					
					E12

### Range of high dielectric constant capacitors

MCH21	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					

MCH21	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					K, P	
Nominal capacitance series						
					E3	

### External dimensions (Unit : mm)



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

### 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(Y5V)	-25~+85	+30%, -80%			
		(-30~+85)	(+22%, -82%)			



## ■ 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			MCH215A (AN) 392JK
4,700		0.85±0.1	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

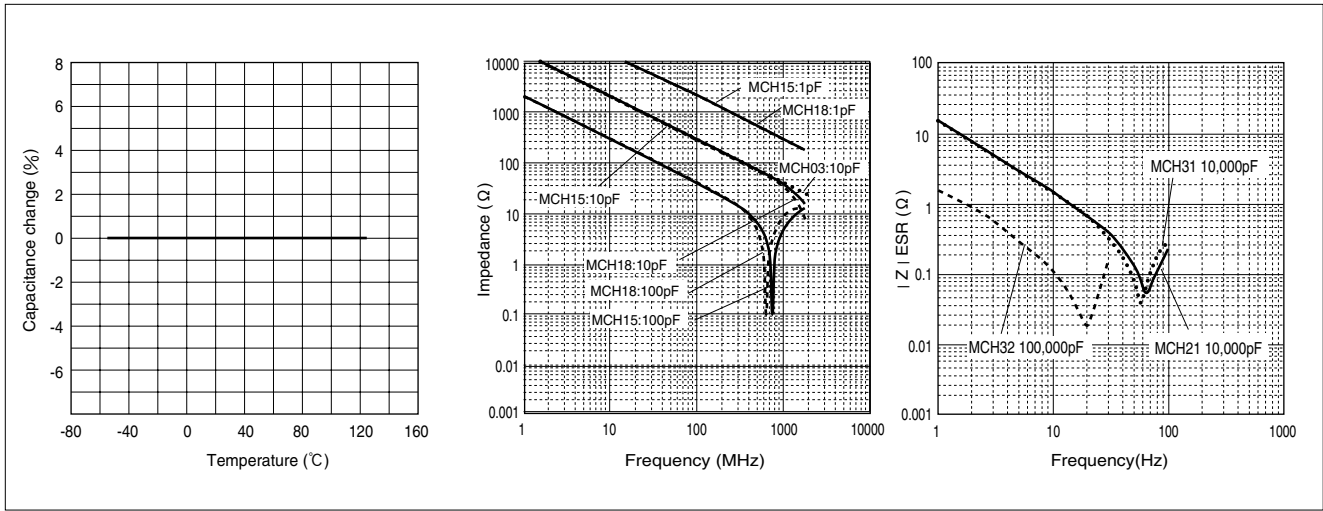
### ● High dielectric constant capacitors

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			1.25±0.2	MCH215CN104KP					
150,000					MCH212CN154KP				
220,000				MCH212CN224KP					
330,000					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

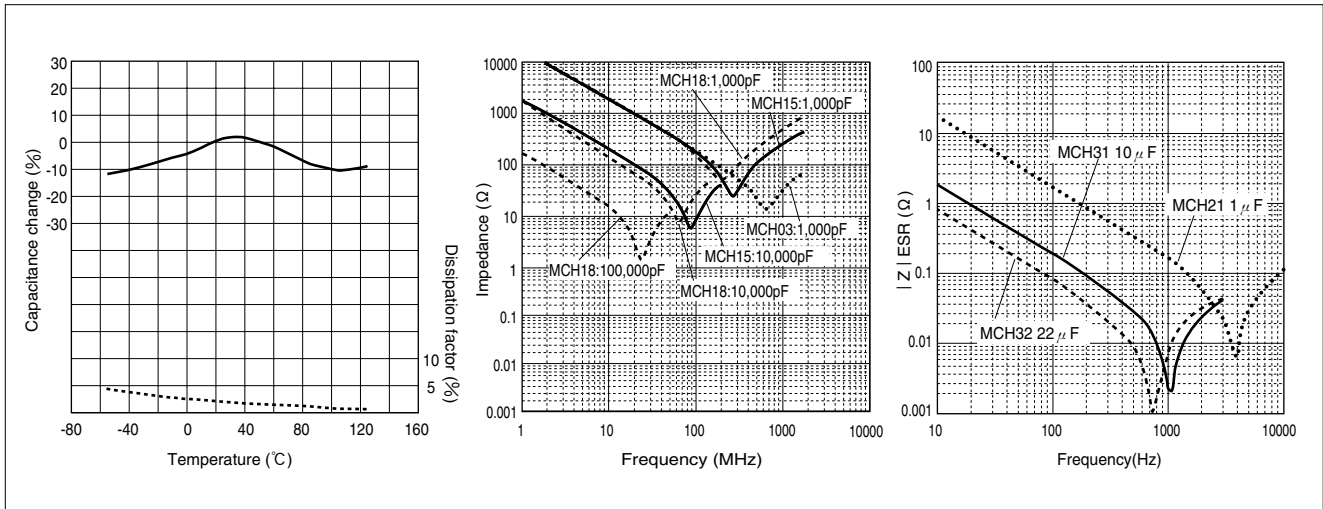
Capacitance (pF)	Temperature		FN (F) (Y5V) Characteristic		
	Rated voltage(V)		50V	16V	10V
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.
10,000	Z (+80%, -20%)	0.6±0.1	MCH215FN103ZK		
22,000			MCH215FN223ZK		
47,000			MCH215FN473ZK		
100,000			MCH215FN104ZK		
1,000,000		1.25±0.2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

■ **Characteristics**

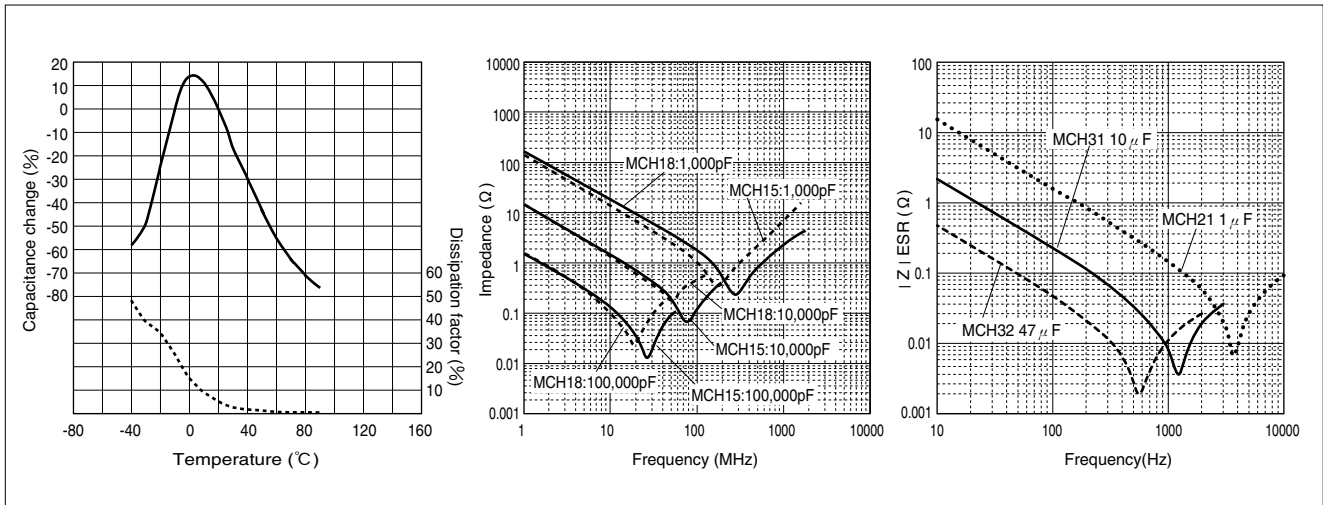
● **A (CG) (C0G) (CH) Characteristics**



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

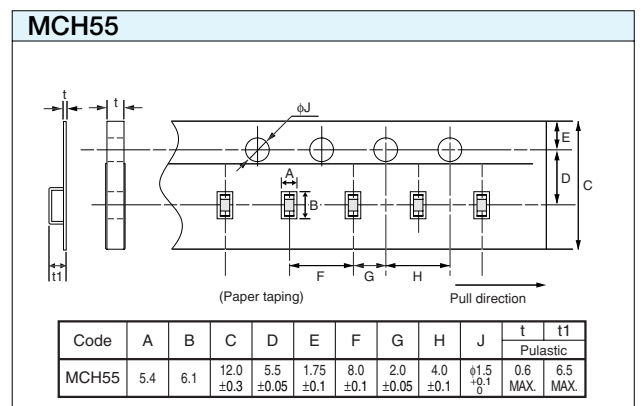
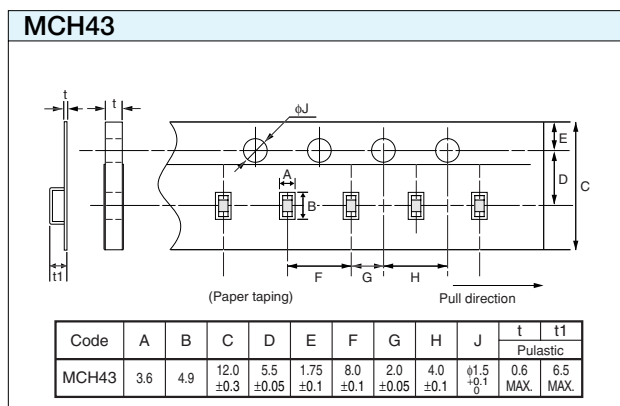
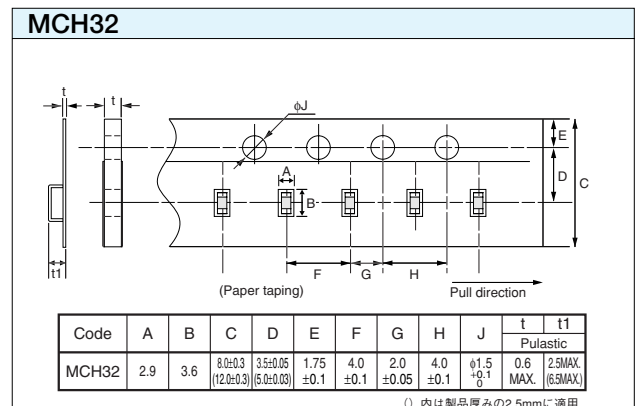
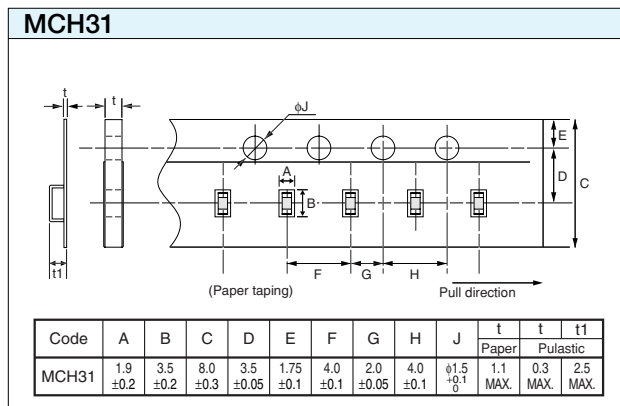
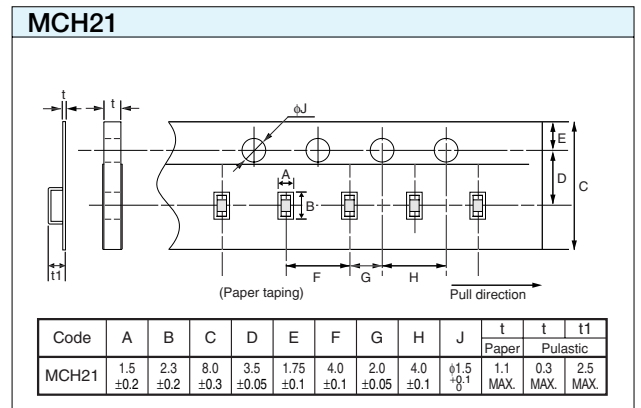
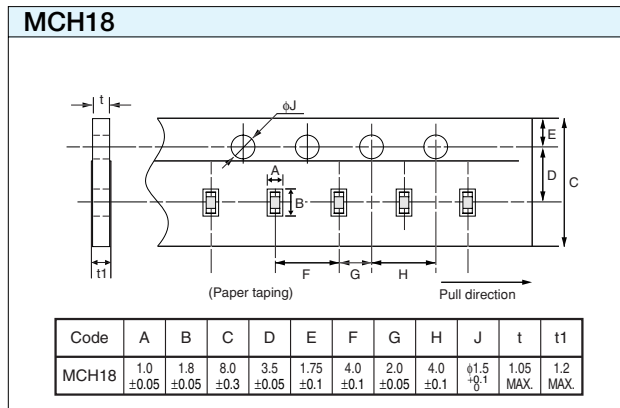
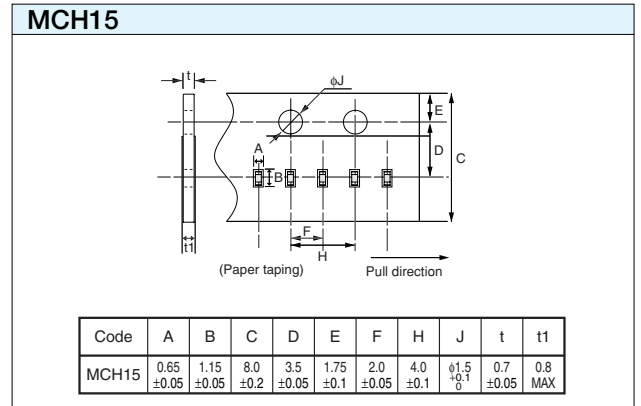
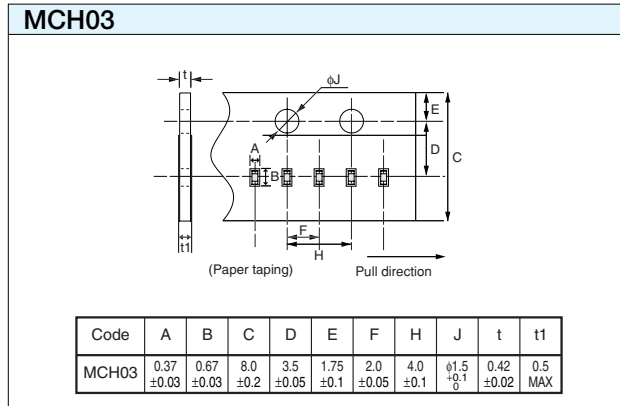


● **FN (F) (Y5V) Characteristics**



## ■ Packing specification

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

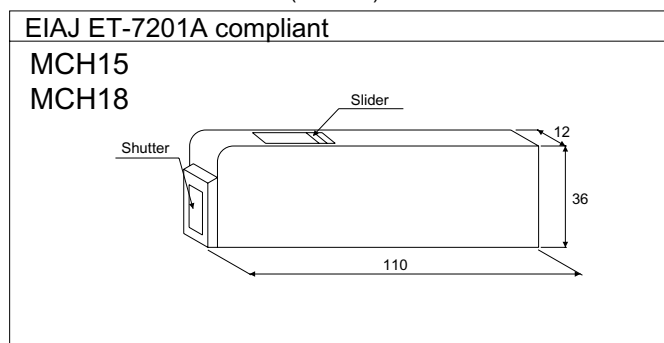


■ Packing specification

● 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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