

Axial Lead Ceramic Capacitors

Series: **ECB**

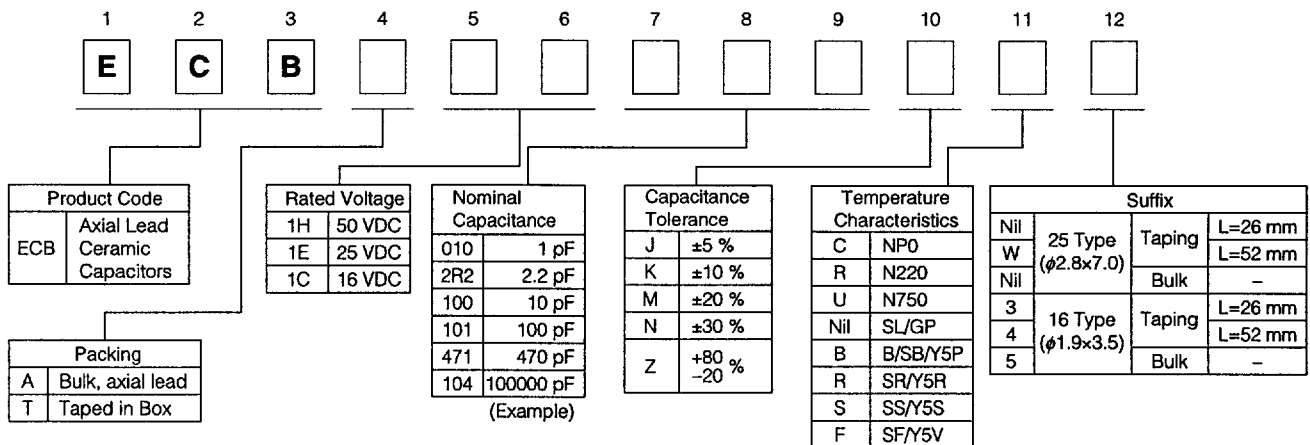
■ Features

- Two standard sizes cover wide capacitance range
16 type: 1 to 22000 pF
25 type: 1 to 100000 pF
- Excellent frequency stability
- Easy classification or assortment by body color and color code
- Available as other cylindrical type components for automatic insertion machine

■ Recommended Applications

- [Class 1]: For temperature compensation of resonant circuit and filters
- [Class 2 and Class 3]: For coupling and by-pass, where low losses and high stability of capacitance are not so important

■ Explanation of Part Numbers



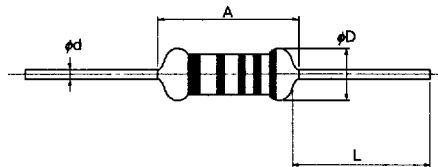
■ Specifications (Axial Lead Type)

Characteristics	Specifications		
	Class 1	Class 2	Class 3
Operating Temp. Range	-25 to 85 °C		
Rated Voltage	50 VDC, 25 VDC or 16 VDC		
Withstanding Voltage (For 1 to 5 seconds)	Rated Voltage ×3	Rated Voltage ×2.5	Rated Voltage ×1.5 (50 V, 25 V) Rated Voltage ×1.13 (16 V)
Capacitance	● Within specified tolerance		
	Measured at 1 MHz, 1 Vrms and 20 °C	Measured at 1 kHz, 1 Vrms and 20 °C	
Q or Dissipation Factor (tan δ)	16 type ● Cap. ≥ 33 pF Q ≥ 500 ● Cap. ≤ 30 pF Q* ≥ 400 + 20 × C	● D.F. (tan δ) ≤ 0.025 (D.F. (tan δ) ≤ 0.075 Char. SF/Y5V only)	
Insulation Resistance	10000 MΩ min.		1000 MΩ min.
Temperature Characteristics	[Temperature Coefficient] (ppm/°C)	[Temperature Characteristics]	
	NPO: 0 ± 60 N220: -220 ± 60 N750: -750 ± 120 and SL/GP	● Temp. Range: -25 to 85 °C ● Reference Temp.: 20 °C	
		T.C.	Cap. Change
		B/Y5P/2B4	± 10 % max.
		SB/Y5P/2B4	± 10 % max.
		SR/Y5R	± 15 % max.
		SS/Y5S	± 22 % max.
		SF/Y5V	+30, -85 % max.

*Q: Q ≥ 500 at 16 pF and 18 pF of characteristics N220, 16 type.

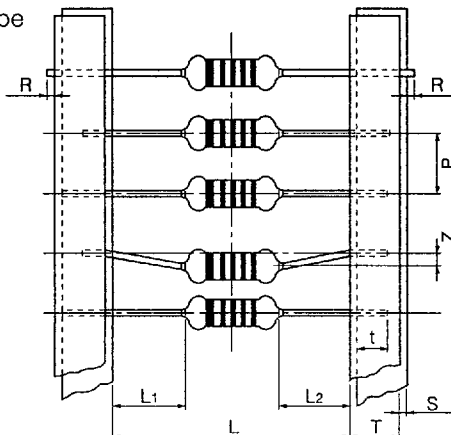
■ Dimensions in mm (not to scale)

● Bulk



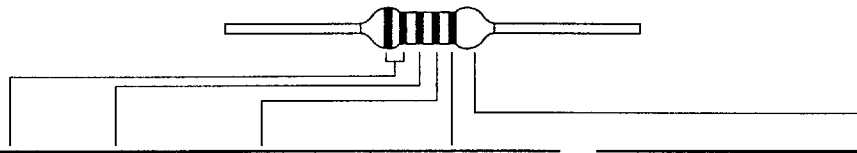
Symbol	Dimensions in mm	
	25 Type	16 Type
A	7.1 max.	3.5 max.
φD	2.8 max.	1.9 max.
φd	0.55 ± 0.05	0.45 ± 0.05
L	20 min.	20 min.

● Taped type



Symbol	Dimensions in mm			
	25 Type		16 Type	
L	26.0 ^{+1.5} ₀	52 ⁺² ₋₁	26.0 ^{+0.5} ₀	52 ⁺² ₋₁
P	5.0 ± 0.5		5.0 ± 0.5	
L ₁ -L ₂	1.0 max.		1.0 max.	
Z	0.8 max.	1.2 max.	0.8 max.	1.2 max.
R	0 max.		0 max.	
T	6.0 ± 1.0		6.0 ± 1.0	
t	3.2 min.		3.2 min.	
S	0.8 max.		0.8 max.	

Color Code Marking

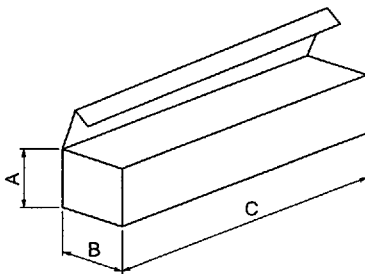


Bar Color	Nominal Capacitance (pF)			Temperature Characteristics	Body Color	Rated Voltage
	First and second Figure	Multiplier	Tolerance		Yellow green	50 V
Black	0	1	±20 %	C (NP0)	Pink	25 V, 16 V
Brown	1	10	—	SS (Y5S)		
Red	2	100	—	—		
Orange	3	1000	—	—		
Yellow	4	10000	—	R (N220)		
Green	5	—	—	—		
Blue	6	—	—	—		
Purple	7	—	—	U (N750)		
Gray	8	—	±30 %	SR (Y5R)		
White	9	—	+80, -20 %	SL/GP*		
Gold	—	0.1	±5 %	—		
Silver	—	0.01	±10 %	B (Y5P)		

* SL/GP: For general purpose capacitor with temperature coefficient of +350 to -1000 ppm/°C

Packaging Specifications

- Box for Taped Version



Dimensions in mm

Symbol		Dimensions in mm
A	16 Type (4000 pcs./box)	70±3
	25 Type (2000 pcs./box)	55±3
B	Taping width L=26 mm	50±3
	Taping width L=52 mm	75±3
C		255±3

- Standard Packing Quantity

Type of Product	Packing Style	
	Taped in Box	Bulk
16 Type	4000 pcs./box	500 pcs./bag
25 Type	2000 pcs./box	200 pcs./bag

- Part Numbers

Type of Product	Taped in Box		Bulk
	L=26 mm	L=52 mm	
16 Type	ECBT□□□□□□3	ECBT□□□□□□4	ECBA□□□□□□5
25 Type	ECBT□□□□□□	ECBT□□□□□□W	ECBA□□□□□□

■ Ratings and Characteristics (16 Type)

● Bulk

Cap. (pF)	Tol. (%)	Temperature Characteristics	Rated Voltage (VDC)	NP0	N220	N750	SL/GP	B/Y5P	SB/Y5P	SR/Y5R	SS/Y5S	SF/Y5V
				1.0	±20	50	ECBA1H010MC5	ECBA1H010MR5		ECBA1H010M5		
1.2	±20	50	ECBA1H1R2MC5	ECBA1H1R2MR5		ECBA1H1R2M5						
1.5	±20	50	ECBA1H1R5MC5	ECBA1H1R5MR5		ECBA1H1R5M5						
1.8	±20	50	ECBA1H1R8MC5	ECBA1H1R8MR5		ECBA1H1R8M5						
2.2	±10	50	ECBA1H2R2KC5	ECBA1H2R2KR5	ECBA1H2R2KU5	ECBA1H2R2K5						
2.7	±10	50	ECBA1H2R7KC5	ECBA1H2R7KR5	ECBA1H2R7KU5	ECBA1H2R7K5						
3.3	±10	50	ECBA1H3R3KC5	ECBA1H3R3KR5	ECBA1H3R3KU5	ECBA1H3R3K5						
3.9	±10	50	ECBA1H3R9KC5	ECBA1H3R9KR5	ECBA1H3R9KU5	ECBA1H3R9K5						
4.7	±10	50	ECBA1H4R7KC5	ECBA1H4R7KR5	ECBA1H4R7KU5	ECBA1H4R7K5						
5.6	±10	50	ECBA1H5R6KC5	ECBA1H5R6KR5	ECBA1H5R6KU5	ECBA1H5R6K5						
6.8	±10	50	ECBA1H6R8KC5	ECBA1H6R8KR5	ECBA1H6R8KU5	ECBA1H6R8K5						
8.2	±10	50	ECBA1H8R2KC5	ECBA1H8R2KR5	ECBA1H8R2KU5	ECBA1H8R2K5						
10	±5	50	ECBA1H100JC5	ECBA1H100JR5	ECBA1H100JU5	ECBA1H100J5						
12	±5	50	ECBA1H120JC5	ECBA1H120JR5	ECBA1H120JU5	ECBA1H120J5						
15	±5	50	ECBA1H150JC5	ECBA1H150JR5	ECBA1H150JU5	ECBA1H150J5						
18	±5	50	ECBA1H180JC5	ECBA1H180JR5	ECBA1H180JU5	ECBA1H180J5						
22	±5	50			ECBA1H220JU5	ECBA1H220J5						
27	±5	50			ECBA1H270JU5	ECBA1H270J5						
33	±5	50				ECBA1H330J5						
39	±5	50				ECBA1H390J5						
47	±5	50				ECBA1H470J5						
56	±5	50				ECBA1H560J5						
68	±5	50				ECBA1H680J5						
82	±10	50					ECBA1H820KB5					
100	±10	50					ECBA1H101KB5					
120	±10	50					ECBA1H121KB5					
150	±10	50					ECBA1H151KB5					
180	±10	50					ECBA1H181KB5					
220	±10	50					ECBA1H221KB5					
270	±10	50					ECBA1H271KB5					
330	±10	50					ECBA1H331KB5					
390	±10	50					ECBA1H391KB5					
470	±10	50					ECBA1H471KB5					
560	±10	50					ECBA1H561KB5					
680	±10	50					ECBA1H681KB5					
820	±10	50						ECBA1H821KB5				
1000	±10	50						ECBA1H102KB5				
1200	±20	16							ECBA1C122MR5			
1500	±20	16							ECBA1C152MR5			
1800	±20	16							ECBA1C182MR5			
2200	±20	16							ECBA1C222MR5			
2700	±20	16							ECBA1C272MR5			
3300	±20	16							ECBA1C332MR5			
3900	±20	16							ECBA1C392MR5			
4700	±20	16							ECBA1C472MR5			
5600	±20	16							ECBA1C562MR5			
6800	±20	16							ECBA1C682MR5			
10000	±30	16								ECBA1C103NS5		
10000	+80,-20	25										ECBA1E103ZF5
22000	+80,-20	25										ECBA1E223ZF5

■ Ratings and Characteristics (16 Type)

● Taped Version

Cap. (pF)	Tol. (%)	Temperature Characteristics Rated Voltage (VDC)	Temperature Characteristics																	
			NP0	N220	N750	SL/GP	B/Y5P	SB/Y5P	SR/Y5R	SS/Y5S	SF/Y5V									
1.0	±20	50	ECBT1H010MC	ECBT1H010MR		ECBT1H010M														
1.2	±20	50	ECBT1H1R2MC	ECBT1H1R2MR		ECBT1H1R2M														
1.5	±20	50	ECBT1H1R5MC	ECBT1H1R5MR		ECBT1H1R5M														
1.8	±20	50	ECBT1H1R8MC	ECBT1H1R8MR		ECBT1H1R8M														
2.2	±10	50	ECBT1H2R2KC	ECBT1H2R2KR	ECBT1H2R2KU	ECBT1H2R2K														
2.7	±10	50	ECBT1H2R7KC	ECBT1H2R7KR	ECBT1H2R7KU	ECBT1H2R7K														
3.3	±10	50	ECBT1H3R3KC	ECBT1H3R3KR	ECBT1H3R3KU	ECBT1H3R3K														
3.9	±10	50	ECBT1H3R9KC	ECBT1H3R9KR	ECBT1H3R9KU	ECBT1H3R9K														
4.7	±10	50	ECBT1H4R7KC	ECBT1H4R7KR	ECBT1H4R7KU	ECBT1H4R7K														
5.6	±10	50	ECBT1H5R6KC	ECBT1H5R6KR	ECBT1H5R6KU	ECBT1H5R6K														
6.8	±10	50	ECBT1H6R8KC	ECBT1H6R8KR	ECBT1H6R8KU	ECBT1H6R8K														
8.2	±10	50	ECBT1H8R2KC	ECBT1H8R2KR	ECBT1H8R2KU	ECBT1H8R2K														
10	±5	50	ECBT1H100JC	ECBT1H100JR	ECBT1H100JU	ECBT1H100J														
12	±5	50	ECBT1H120JC	ECBT1H120JR	ECBT1H120JU	ECBT1H120J														
15	±5	50	ECBT1H150JC	ECBT1H150JR	ECBT1H150JU	ECBT1H150J														
18	±5	50	ECBT1H180JC	ECBT1H180JR	ECBT1H180JU	ECBT1H180J														
22	±5	50			ECBT1H220JU	ECBT1H220J														
27	±5	50			ECBT1H270JU	ECBT1H270J														
33	±5	50				ECBT1H330J														
39	±5	50				ECBT1H390J														
47	±5	50				ECBT1H470J														
56	±5	50				ECBT1H560J														
68	±5	50				ECBT1H680J														
82	±10	50					ECBT1H820KB													
100	±10	50					ECBT1H101KB													
120	±10	50					ECBT1H121KB													
150	±10	50					ECBT1H151KB													
180	±10	50					ECBT1H181KB													
220	±10	50					ECBT1H221KB													
270	±10	50					ECBT1H271KB													
330	±10	50					ECBT1H331KB													
390	±10	50					ECBT1H391KB													
470	±10	50					ECBT1H471KB													
560	±10	50					ECBT1H561KB													
680	±10	50					ECBT1H681KB													
820	±10	50																		
1000	±10	50																		
1200	±20	16																		ECBT1C122MR
1500	±20	16																		ECBT1C152MR
1800	±20	16																		ECBT1C182MR
2200	±20	16																		ECBT1C222MR
2700	±20	16																		ECBT1C272MR
3300	±20	16																		ECBT1C332MR
3900	±20	16																		ECBT1C392MR
4700	±20	16																		ECBT1C472MR
5600	±20	16																		ECBT1C562MR
6800	±20	16																		ECBT1C682MR
10000	±30	16																		ECBT1C103NS
10000	+80,-20	25																		ECBT1E103ZF
22000	+80,-20	25																		ECBT1E223ZF

Note: □: Suffix for taping width; "3" for the dimension of 26 mm or "4" for 52 mm.

■ 6932855 0014400 869 ■

■ Ratings and Characteristics (25 Type)

● Bulk

Cap. (pF)	Temperature Characteristics		NPO	N220	N750	SL/GP	B/Y5P	SR/Y5R	SS/Y5S	SF/Y5V
	Tol. (%)	Rated Voltage (VDC)								
1.0	±20	50	ECBA1H010MC			ECBA1H010M				
1.2	±20	50	ECBA1H1R2MC			ECBA1H1R2M				
1.5	±20	50	ECBA1H1R5MC			ECBA1H1R5M				
1.8	±20	50	ECBA1H1R8MC			ECBA1H1R8M				
2.2	±10	50	ECBA1H2R2KC	ECBA1H2R2KR		ECBA1H2R2K				
2.7	±10	50	ECBA1H2R7KC	ECBA1H2R7KR		ECBA1H2R7K				
3.3	±10	50	ECBA1H3R3KC	ECBA1H3R3KR	ECBA1H3R3KU	ECBA1H3R3K				
3.9	±10	50	ECBA1H3R9KC	ECBA1H3R9KR	ECBA1H3R9KU	ECBA1H3R9K				
4.7	±10	50	ECBA1H4R7KC	ECBA1H4R7KR	ECBA1H4R7KU	ECBA1H4R7K				
5.6	±10	50	ECBA1H5R6KC	ECBA1H5R6KR	ECBA1H5R6KU	ECBA1H5R6K				
6.8	±10	50	ECBA1H6R8KC	ECBA1H6R8KR	ECBA1H6R8KU	ECBA1H6R8K				
8.2	±10	50	ECBA1H8R2KC	ECBA1H8R2KR	ECBA1H8R2KU	ECBA1H8R2K				
10	±5	50	ECBA1H100JC	ECBA1H100JR	ECBA1H100JU	ECBA1H100J				
12	±5	50	ECBA1H120JC	ECBA1H120JR	ECBA1H120JU	ECBA1H120J				
15	±5	50	ECBA1H150JC	ECBA1H150JR	ECBA1H150JU	ECBA1H150J				
18	±5	50	ECBA1H180JC	ECBA1H180JR	ECBA1H180JU	ECBA1H180J				
22	±5	50	ECBA1H220JC	ECBA1H220JR	ECBA1H220JU	ECBA1H220J				
27	±5	50	ECBA1H270JC	ECBA1H270JR	ECBA1H270JU	ECBA1H270J				
33	±5	50	ECBA1H330JC	ECBA1H330JR	ECBA1H330JU	ECBA1H330J				
39	±5	50	ECBA1H390JC	ECBA1H390JR	ECBA1H390JU	ECBA1H390J				
47	±5	50			ECBA1H470JU	ECBA1H470J				
56	±5	50			ECBA1H560JU	ECBA1H560J				
68	±5	50			ECBA1H680JU	ECBA1H680J				
82	±5	50				ECBA1H820J				
100	±5	50				ECBA1H101J				
120	±5	50				ECBA1H121J				
150	±10	50					ECBA1H151KB			
180	±10	50					ECBA1H181KB			
220	±10	50					ECBA1H221KB			
270	±10	50					ECBA1H271KB			
330	±10	50					ECBA1H331KB			
390	±10	50					ECBA1H391KB			
470	±10	50					ECBA1H471KB			
560	±10	50					ECBA1H561KB			
680	±10	50					ECBA1H681KB			
820	±10	50					ECBA1H821KB			
1000	±10	50					ECBA1H102KB			
1200	±20	50						ECBA1H122MR		
1500	±20	50						ECBA1H152MR		
1800	±20	50						ECBA1H182MR		
2200	±20	50						ECBA1H222MR		
2700	±20	50						ECBA1H272MR		
3300	±20	50						ECBA1H332MR		
3900	±20	50						ECBA1H392MR		
4700	±20	50						ECBA1H472MR		
5600	±20	50						ECBA1H562MR		
6800	±20	25						ECBA1E682MR		
10000	±20	25						ECBA1E103MR		
15000	±20	25						ECBA1E153MR		
22000	±30	16							ECBA1C223NS	
10000	+80,-20	50								ECBA1H103ZF
22000	+80,-20	50								ECBA1H223ZF
47000	+80,-20	50								ECBA1H473ZF
100000	+80,-20	25								ECBA1E104ZF

■ Ratings and Characteristics (25 Type)

● Taped Version

Cap. (pF)	Tol. (%)	Rated Voltage (VDC)	Temperature Characteristics									
			NPO	N220	N750	SL/GP	B/Y5P	SR/Y5R	SS/Y5S	SF/Y5V		
1.0	±20	50	ECBT1H010MC□				ECBT1H010M□					
1.2	±20	50	ECBT1H1R2MC□				ECBT1H1R2M□					
1.5	±20	50	ECBT1H1R5MC□				ECBT1H1R5M□					
1.8	±20	50	ECBT1H1R8MC□				ECBT1H1R8M□					
2.2	±10	50	ECBT1H2R2KC□	ECBT1H2R2KR□			ECBT1H2R2K□					
2.7	±10	50	ECBT1H2R7KC□	ECBT1H2R7KR□			ECBT1H2R7K□					
3.3	±10	50	ECBT1H3R3KC□	ECBT1H3R3KR□	ECBT1H3R3KU□	ECBT1H3R3K□						
3.9	±10	50	ECBT1H3R9KC□	ECBT1H3R9KR□	ECBT1H3R9KU□	ECBT1H3R9K□						
4.7	±10	50	ECBT1H4R7KC□	ECBT1H4R7KR□	ECBT1H4R7KU□	ECBT1H4R7K□						
5.6	±10	50	ECBT1H5R6KC□	ECBT1H5R6KR□	ECBT1H5R6KU□	ECBT1H5R6K□						
6.8	±10	50	ECBT1H6R8KC□	ECBT1H6R8KR□	ECBT1H6R8KU□	ECBT1H6R8K□						
8.2	±10	50	ECBT1H8R2KC□	ECBT1H8R2KR□	ECBT1H8R2KU□	ECBT1H8R2K□						
10	±5	50	ECBT1H100JC□	ECBT1H100JR□	ECBT1H100JU□	ECBT1H100J□						
12	±5	50	ECBT1H120JC□	ECBT1H120JR□	ECBT1H120JU□	ECBT1H120J□						
15	±5	50	ECBT1H150JC□	ECBT1H150JR□	ECBT1H150JU□	ECBT1H150J□						
18	±5	50	ECBT1H180JC□	ECBT1H180JR□	ECBT1H180JU□	ECBT1H180J□						
22	±5	50	ECBT1H220JC□	ECBT1H220JR□	ECBT1H220JU□	ECBT1H220J□						
27	±5	50	ECBT1H270JC□	ECBT1H270JR□	ECBT1H270JU□	ECBT1H270J□						
33	±5	50	ECBT1H330JC□	ECBT1H330JR□	ECBT1H330JU□	ECBT1H330J□						
39	±5	50	ECBT1H390JC□	ECBT1H390JR□	ECBT1H390JU□	ECBT1H390J□						
47	±5	50			ECBT1H470JU□	ECBT1H470J□						
56	±5	50			ECBT1H560JU□	ECBT1H560J□						
68	±5	50			ECBT1H680JU□	ECBT1H680J□						
82	±5	50				ECBT1H820J□						
100	±5	50				ECBT1H101J□						
120	±5	50				ECBT1H121J□						
150	±10	50					ECBT1H151KB□					
180	±10	50					ECBT1H181KB□					
220	±10	50					ECBT1H221KB□					
270	±10	50					ECBT1H271KB□					
330	±10	50					ECBT1H331KB□					
390	±10	50					ECBT1H391KB□					
470	±10	50					ECBT1H471KB□					
560	±10	50					ECBT1H561KB□					
680	±10	50					ECBT1H681KB□					
820	±10	50					ECBT1H821KB□					
1000	±10	50					ECBT1H102KB□					
1200	±20	50						ECBT1H122MR□				
1500	±20	50						ECBT1H152MR□				
1800	±20	50						ECBT1H182MR□				
2200	±20	50						ECBT1H222MR□				
2700	±20	50						ECBT1H272MR□				
3300	±20	50						ECBT1H332MR□				
3900	±20	50						ECBT1H392MR□				
4700	±20	50						ECBT1H472MR□				
5600	±20	50						ECBT1H562MR□				
6800	±20	25						ECBT1E682MR□				
10000	±20	25						ECBT1E103MR□				
15000	±20	25						ECBT1E153MR□				
22000	±30	16								ECBT1C223NS□		
10000	+80, -20	50									ECBT1H103ZF□	
22000	+80, -20	50									ECBT1H223ZF□	
47000	+80, -20	50									ECBT1H473ZF□	
100000	+80, -20	25									ECBT1E104ZF□	

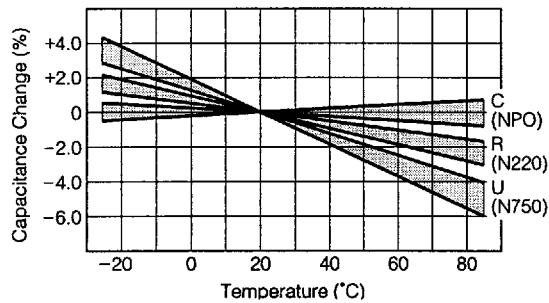
Note: □: Suffix for taping width, "Nil" for the dimension of 26 mm or "W" for 52 mm.

■ Typical Characteristics

● (Typical Temperature Characteristics)

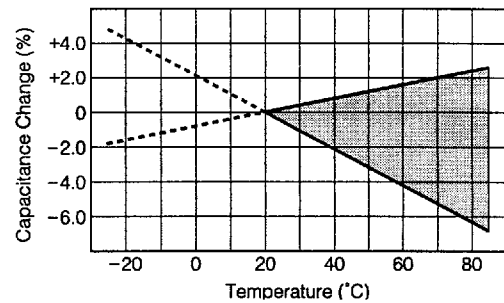
[Class 1]

[Characteristics C(NP0),R(N220),U(N750)]



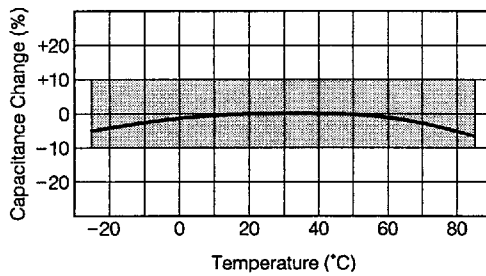
[Class 1]

[Characteristics SL/GP (P350 to N1000)]



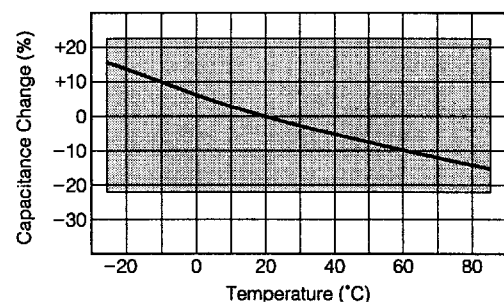
[Class 2]

[Characteristics B (Y5P/2B4)]



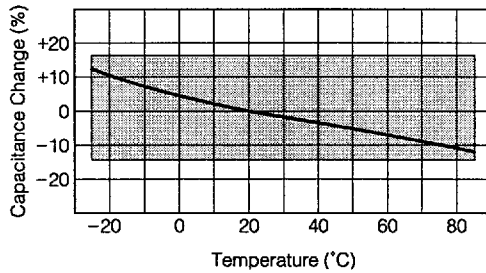
[Class 3]

[Characteristics SS (Y5S)]



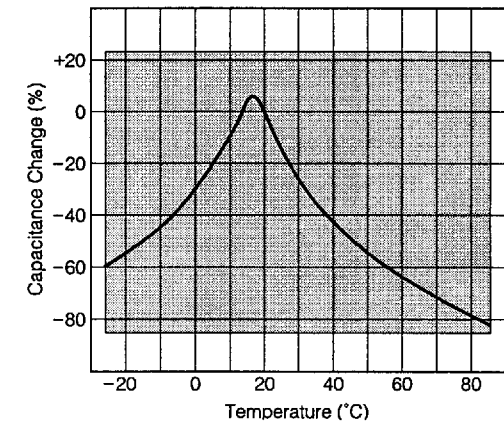
[Class 3]

[Characteristics SR (Y5R)]



[Class 3]

[Characteristics SF (Y5V)]



[Class 3]

[Characteristics SR (Y5R)]

