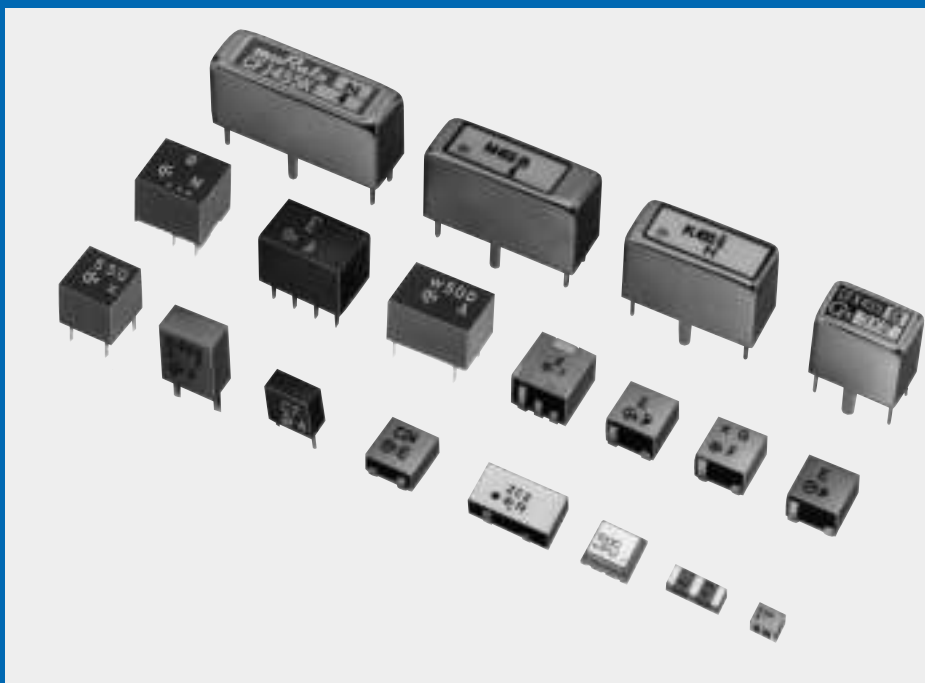




# CERAMIC FILTER (CERAFIL®)/CERAMIC DISCRIMINATOR FOR COMMUNICATIONS EQUIPMENT

CERAMIC FILTER/  
CERAMIC  
DISCRIMINATOR FOR  
COMMUNICATIONS  
EQUIPMENT



*Innovator  
in Electronics*

Murata  
Manufacturing Co., Ltd.

Cat.No.P05E-9

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■SELECTION GUIDE

● SMD Type

Type	Part Number	6dB Bandwidth (kHz) min.												Attenuation (dB) min. Within 455±80 or ±100kHz	Page Number
		A ±17.5	B ±15	C ±12.5	D ±10	E ±7.5	E10 ±7	F ±6	G ±4.5	H ±3	I ±2	HT ±3	IT ±2		
High Selectivity Series (Plastic Case Type)	SFPC455□ (4 Elements)	—	—	—	●	●	—	●	●	●	—	—	—	27 (G—H : 25)	4
	CFUCG455□ (4 Elements)	—	—	—	●	●	—	●	●	—	—	—	—	27 (G : 25)	6
Narrow Bandwidth G.D.T. Flat Type Miniature Series (Plastic Case Type)	CFUCG455□X (4 Elements)	—	—	—	—	●	—	●	●	●	—	—	—	27 (G—H : 25)	8
G.D.T.Flat Type Miniature Series (Plastic Case Type)	SFGCG455□ (4 Elements)	●	●	●	●	●	—	—	—	—	—	—	—	25 (D—E : 23)	10
G.D.T. Flat Type High Selectivity SMD Series (Plastic Case Type)	KMFC626□ (4 Elements×2)	—	—	●	—	—	—	—	—	—	—	—	—	55	12
G.D.T. Flat Type Miniature Series (Plastic Case Type)	CFWC455BY/CZ (6 Elements)	—	●	●	—	—	—	—	—	—	—	—	—	25 (D—E : 23)	14
G.D.T. Flat Type High Selectivity SMD Series (Plastic Case Type)	CFWC455□ (6 Elements)	—	—	●	—	—	—	—	—	—	—	—	—	55	16
Ultra Small package Series (Cap package)	CFUXC450C100H (4 Elements)	—	—	●	—	—	—	—	—	—	—	—	—	—	18
MHz Range G.D.T. Flat Type Ultra Small package Series (Cap package)	CFEC10.8M□ (2 Elements)	● 3dB bandwidth is available in ±110kHz to ±170kHz. ● Types with 10.7, 10.75, and 10.8MHz of center frequency are available.												—	20
	CFECS10.8M□ (2 Elements)	● 3dB bandwidth is available in ±110kHz and ±150kHz. ● Types with 10.75, 10.8MHz of center frequency are available.												—	22

● Metal Case Type

Type	Part Number	6dB Bandwidth (kHz) min.												Attenuation (dB) min. Within 455±80 or ±100kHz	Page Number
		A ±17.5	B ±15	C ±13	D ±10	E ±8	E10 ±7.5	F ±6	G ±4	H ±3	I ±2	J ±1.5	K Total 1.0—3.2		
High Selectivity Series	CFK455□ (11 Elements)	—	●	●	●	●	●	●	●	●	●	●	—	80	25
	CFX455□ (9 Elements)	—	●	●	●	●	●	●	●	●	●	●	—	70	
	CFS455□ (15 Elements)	●	●	●	●	●	●	●	●	●	●	●	—	70 (J : 60)	
	CFR455□ (11 Elements)	●	●	●	●	●	—	●	●	●	●	●	—	60 (E—I : 55)	
	CFL455□ (9 Elements)	—	●	●	●	●	(±7.0)	●	●	●	●	—	—	60	
	CFG455□ (7 Elements)	—	●	●	●	●	(±7.0)	●	●	●	●	●	—	50	
	CFM455□ (9 Elements)	●	●	●	●	●	●	●	●	●	●	—	—	50 (E—I : 45)	
SFJ455□ (11 Elements)	—	—	—	—	—	—	—	—	—	—	—	●	60		

Type	Part Number	Features	Page Number
G.D.T. Flat Type Series	CFKR455□ (11 Elements)	High selectivity, small G.D.T.deviation, Bandwidth : D—H	30
	CFL455□G (9 Elements)	High selectivity, small G.D.T.deviation, Bandwidth : A—E	31

● Plastic Case Type

Type	Part Number	6dB Bandwidth (kHz) min.												Attenuation (dB) min. Within 455±80 or ±100kHz	Page Number
		A ±17.5	B ±15	C ±12.5	D ±10	E ±7.5	E10 ±7	F ±6	G ±4.5	H ±3	I ±2	J ±1.5	K ±1		
High Selectivity	CFUS455□ (4 Elements)	—	●	●	●	●	—	●	●	●	●	—	—	27 (G : 25) (H, I : 35)	32
Low Profile Series	CFWS455□ (6 Elements)	—	●	●	●	●	—	●	●	—	—	●	●	35 (HT, IT : 60)	33
High Selectivity Miniature Series	CFWM455□ (4 Elements)	—	●	●	●	●	—	●	●	●	●	—	—	27 (G : 25) (H, I : 35)	34
	CFVM455□ (7 Elements)	—	●	(±13)	●	(±8)	●	●	(±4)	●	—	—	—	50	
	CFZM455□ (9 Elements)	—	●	(±13)	●	(±8)	(±7.5)	●	(±4)	●	—	—	—	70	
G.D.T. Flat Type Series	CFUS455□Y (4 Elements)	—	●	●	●	●	—	●	●	—	—	—	—	25 (D—F : 23) (G : 20)	38
	CFWS455□Y (6 Elements)	●	●	●	●	●	—	●	●	—	—	—	—	35	39
G.D.T. Flat Type Miniature Series	CFUM455□Y (4 Elements)	—	●	●	●	●	—	●	●	—	—	—	—	25 (D—F : 23) (G : 20)	40
	CFWM455□Y (6 Elements)	●	●	●	●	●	—	●	●	—	—	—	—	35	

## ■SELECTION GUIDE OF CERAMIC DISCRIMINATOR AND IC LIST

### ● Ceramic Discriminator For Quadrature Detection

Type	Part Number	Features	Page Number
Standard Series	CDB455C□	Ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	42
Miniature Series	CDBM455C□	Small sized ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	
Wide Bandwidth Series	CDB455CL□	Wide bandwidth ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	
Wide Bandwidth Miniature Series	CDBM455CL□	Small sized, wide bandwidth ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	
SMD Series	CDBC455CX□	Reflow solderable SMD ceramic discriminator for quadrature detection, non-adjustment.	
Wide Bandwidth SMD Series	CDBC455CLX□	Reflow solderable wide bandwidth SMD ceramic discriminator for quadrature detection, non-adjustment.	

### ● IC List

IC	Applicable Series						□No.
	CDB455C□	CDBM455C□	CDBC455CX□	CDB455CL□	CDBM455CL□	CDBC455CLX□	
MC3357	●	●	●				7
MC3361			●				49
MC3371	—	●					18
MC3372	●	●	●				16
MC13136	●	●					34
LA8610	—	●					4
NE604	●	●	●	●	●		9
NE605	●	●	●				29
NE (SA) 606/616	—	●				●	36
NE (SA) 607/617	—	●	●				39
CXA1003BM	●	●	●	●	●	●	13
CXA1183M	—	●					15
CXA1184M	●	●					3
CXA1474	—	●					33
CXA1484	—	●					25
CXA3117		●	●				50
TK10487	●	●	●				27
TK14501	●	●	●				30
TK14590/14591	●	●					42
TK10930	●	●	●				35
TA8103F	●	●					10
TA8104F	—	●	●				2
TA31132	●	●	●	●	●	●	21
TA31136	●	●	●				24
TA31141	—	●	●				31
TA31142	●	●	●				28
TA31143	●	●	●				32
TA31145	—	●	●				40
TA31147		●	●				47
TA31149		●	●				54

"—" Not available Part Number

Please feel free to ask us on other IC. We will arrange the discriminator.

\* Ceramic filter and discriminators for 450kHz frequency range are also available.

## ■ MINIMUM ORDER QUANTITY OF CERAMIC FILTER AND DISCRIMINATOR

### ● Minimum Order Quantity

Type	Part Number	Packaging Quantity (pcs.)
Chip Combination	KMFC626	450 (kit)
Chip Type	SFPC455	1,000 (/reel)
	CFUCG/SFGCG	450 (/reel)
	CFWC	350 (/reel)
	CFUXC	2,500 (/reel)
	CFEC10.8	2,000 (/reel)
	CFECS10.8	2,000 (/reel)
Metal Case Type for General Use	CFS455	100
	CFM455	100
	CFK455	100
	CFL455	100
	CFL455□G	100
Metal Case Small Size Series	CFX455	100
	CFG455	100
	CFJ455	100
Resin Molded Type for General Use	CFUS455	200
	CFWS455	150
Resin Molded	CFUM	250
Ultra-small type	CFWM	150
Discriminators for General Use	CDB455C	500
Discriminators	CDBM455C	500
Ultra-small Series	CDBC455CX	500 (/reel)

"Minimum Quantity" means the numbers of units of each delivery or order. The quantity should be an integral multiple of the "minimum quantity".  
(Please note that the actual delivery quantity in a package may change sometimes.)



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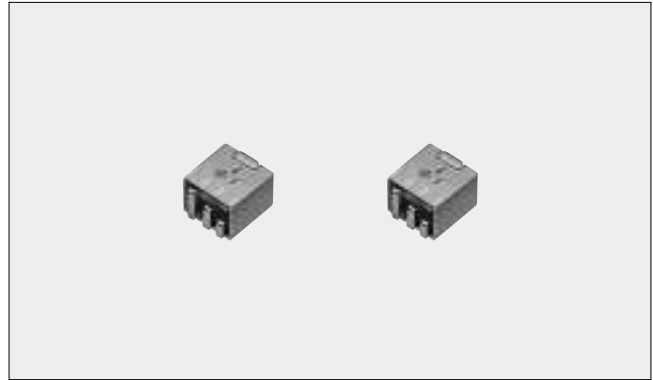
SMD Type Ceramic Filter for Communications Equipment **SFPC455 Series**

# Washable Chip Ceramic Filters for Automatic Insertion and Reflow Soldering

The SFPC455□ series comprises small, high performance, economical, thin (5.0mm) filters consisting of 4 ceramic elements. Their innovative construction is perfect for shrinking mobile communication products such as cordless phones, pager and transceivers.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 5.0mm maximum thickness.
4. The bandwidth ranges from D to H.
5. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C

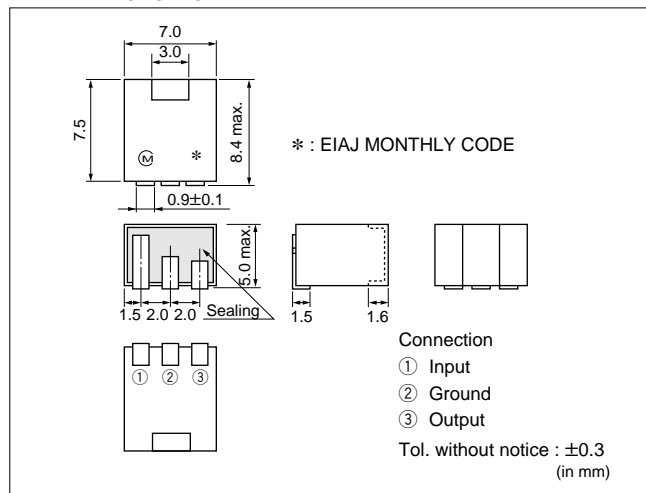


## ■SPECIFICATIONS

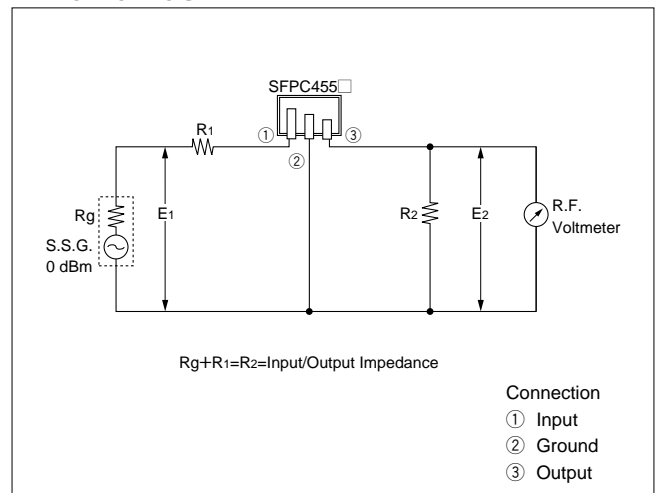
Character-istics Part Number	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Stopband Attenuation 455±100kHz (dB) min.	Insertion Loss (at minimum loss point) (dB) max.	Ripple (dB) max.	Input/Output Impedance (Ω)
SFPC455D	455±1.5	±10.0	±20.0	27	4	2.0	1500
SFPC455E	455±1.5	± 7.5	±15.0	27	6	1.5	1500
SFPC455F	455±1.5	± 6.0	±12.5	27	6	1.5	1500
SFPC455G	455±1.0	± 4.5	±10.0	25	6	1.5	1500
SFPC455H	455±1.0	± 3.0	± 9.0	25	6	1.5	2000

Note : For tape and reel packaging, the suffix is "-TC01". For example, SFPC455G-TC01.

## ■DIMENSIONS

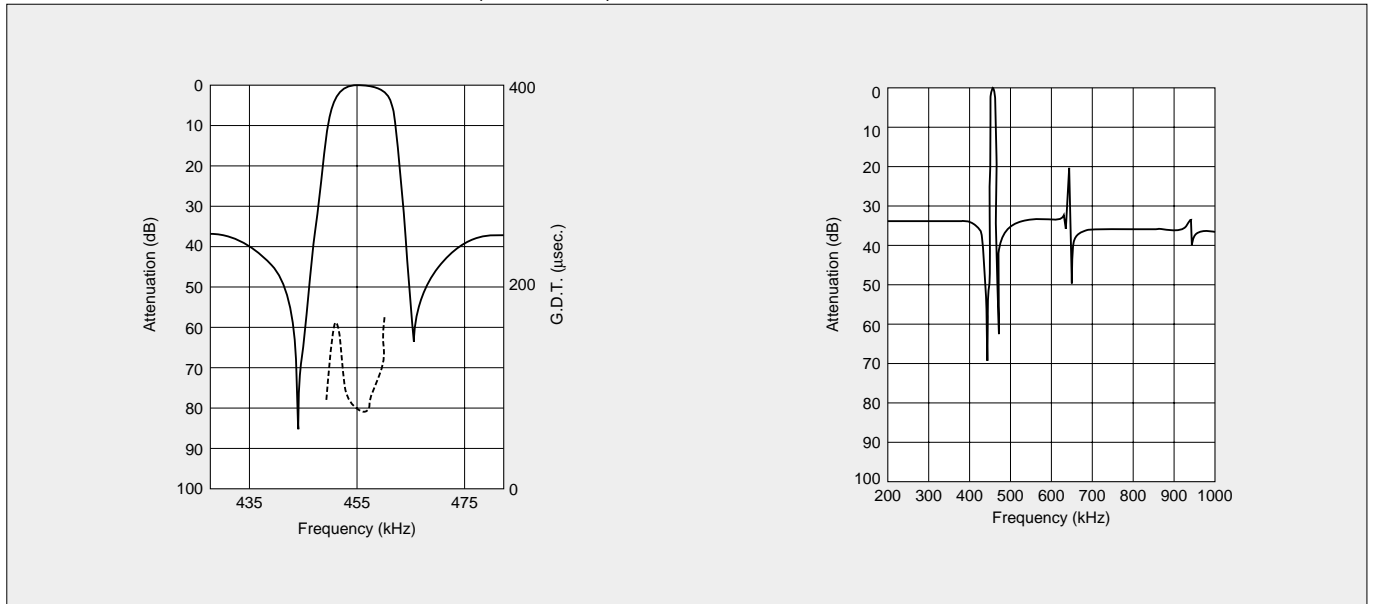


## ■TEST CIRCUIT



Note : Use DC blocking capacitor to connect the filters output to an IF amplifier. Avoid applying direct current between terminals ② and ③.

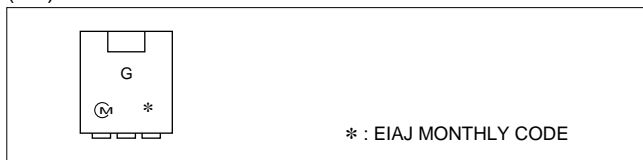
■FREQUENCY CHARACTERISTICS (SFPC455G)



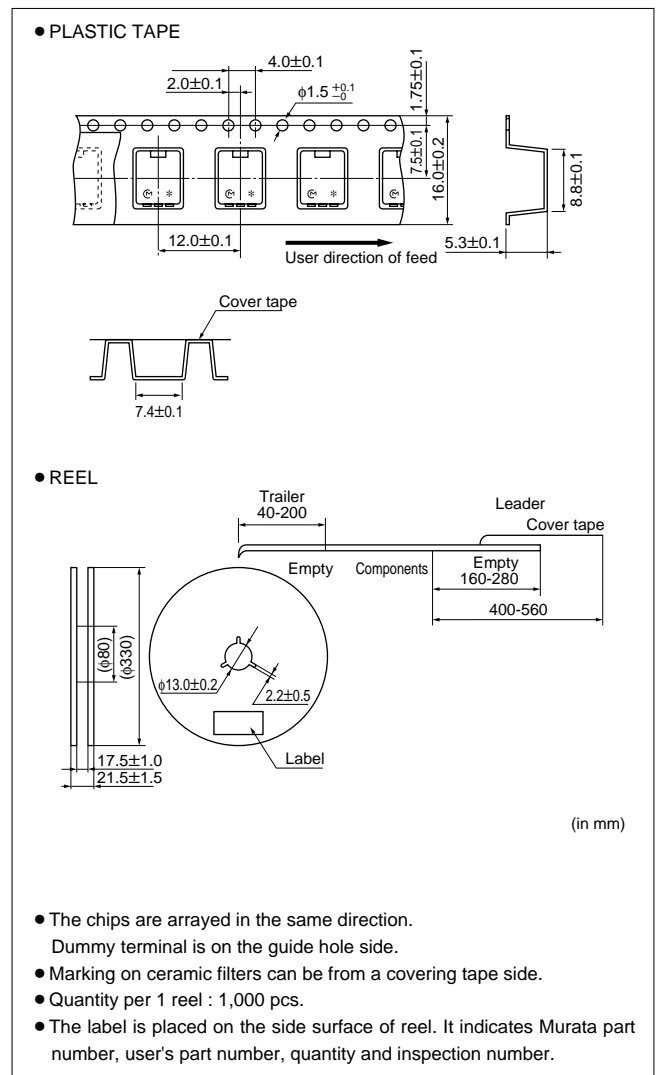
■MARKING

Part Number	Marking
SFPC455D	D
SFPC455E	E
SFPC455F	F
SFPC455G	G
SFPC455H	H

(Ex.) SFPC455G



■DIMENSIONS





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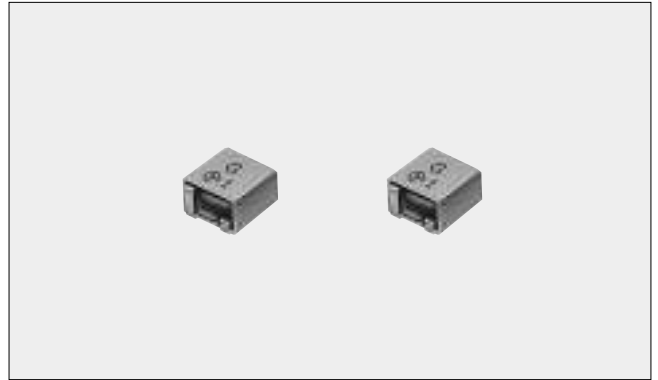
SMD Type Ceramic Filter for Communications Equipment **CFUCG455 Series**

# Chip Ceramic Filters for Automatic Insertion and Reflow Soldering

The CFUCG455□ series comprises small, high performance, thin (4.0mm) filters consisting of 4 ceramic elements. Their innovative construction is perfect for shrinking mobile communication products such as pocket pagers and cellular phones.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 4.0mm maximum thickness, and have a small mounting area (7.5X6.0mm) enabling flexible PCB design.
4. The bandwidth ranges from D to G.
5. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C

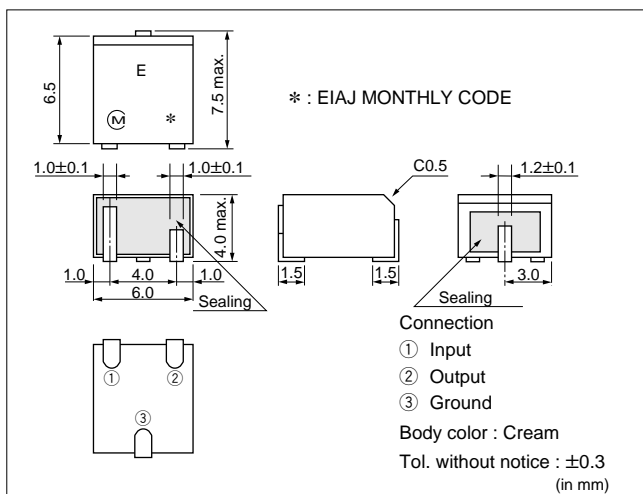


## ■SPECIFICATIONS

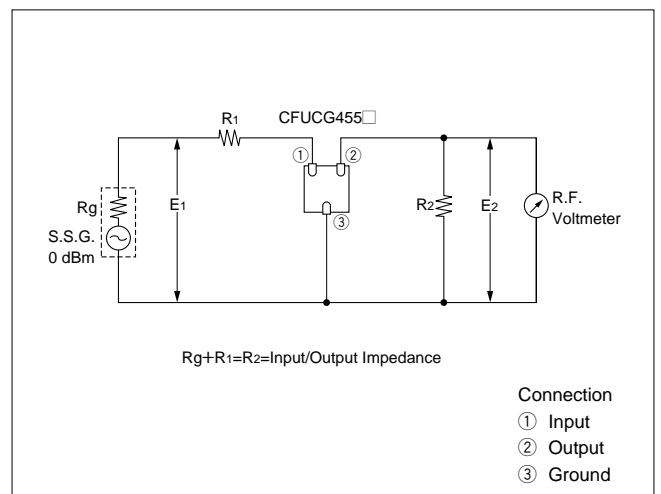
Character-istics Part Number	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Insertion Loss (dB) max.	Ripple (dB) max.	Input/Output Impedance (Ω)
CFUCG455D	455±1.5	±10.0	±20.0	27	4	2.0	1500
CFUCG455E	455±1.5	± 7.5	±15.0	27	6	1.5	1500
CFUCG455F	455±1.5	± 6.0	±12.5	27	6	1.5	1500
CFUCG455G	455±1.0	± 4.5	±10.0	25	6	1.5	1500

Note : For tape and reel packaging, the suffix is "-TC". For example, CFUCG455G-TC.

## ■DIMENSIONS



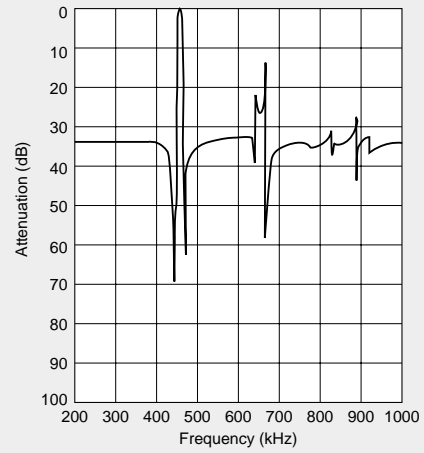
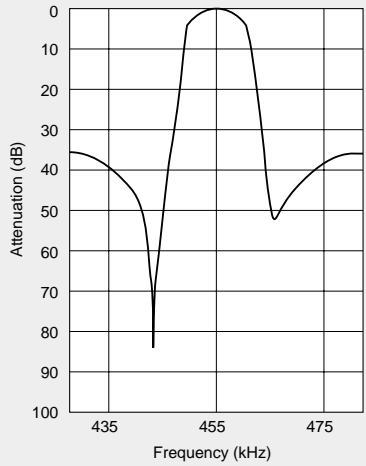
## ■TEST CIRCUIT



Note : Use DC blocking capacitor to connect the filters output to an IF amplifier. Avoid applying direct current between terminals ② and ③.



**■FREQUENCY CHARACTERISTICS (CFUCG455G)**



**■MARKING**

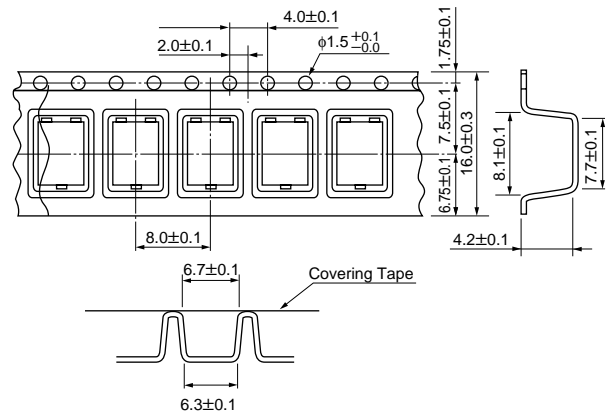
Part Number	Marking
CFUCG455D	D
CFUCG455E	E
CFUCG455F	F
CFUCG455G	G

(Ex.) CFUCG455G

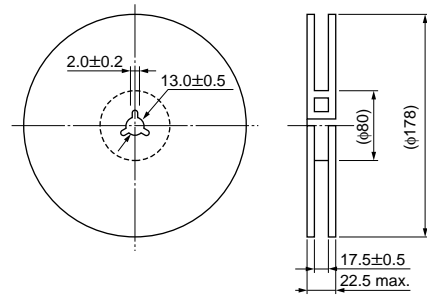


**■DIMENSIONS**

● PLASTIC TAPE



● REEL



(in mm)

- The chips are arrayed in the same direction. I/O terminals are on the guide hole side.
- Marking on ceramic filters can be from a covering tape side.
- Quantity per 1 reel : 450 pcs.
- The label is placed on the side surface of reel. It indicates Murata part number, user's part number, quantity and inspection number.



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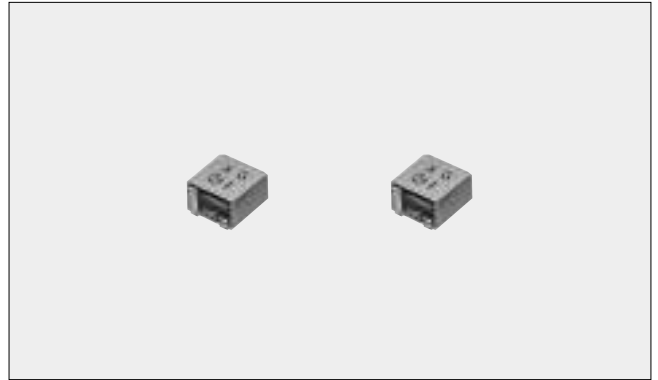
SMD Type Ceramic Filter for Communications Equipment **CFUCG455□X Series**

# Chip Ceramic Filter with Narrow Bandwidth and Flat G.D.T. in Smaller Package

The CFUCG455□X series comprises small, high performance, thin (4.0mm) filters consisting of 4 ceramic elements. The filters exhibit an extremely flat G.D.T. characteristic combined with a narrow bandwidth. The filters are recommended for narrow band digital communication applications.

## FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 4.0mm maximum thickness, and have a small mounting area (7.5×6.0mm) enabling flexible PCB design.
4. The bandwidth ranges from E to H.
5. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C

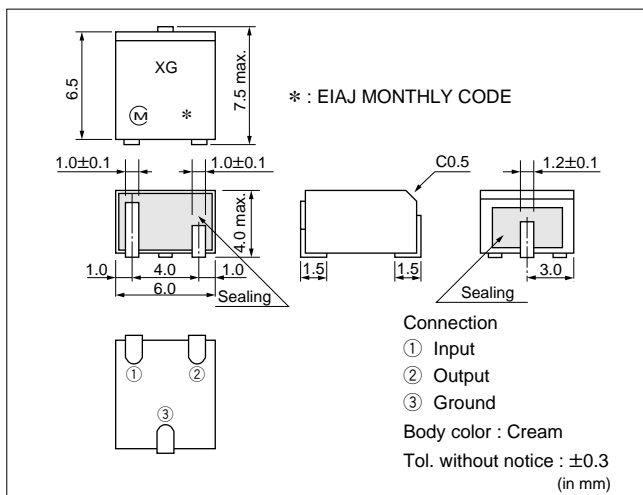


## SPECIFICATIONS

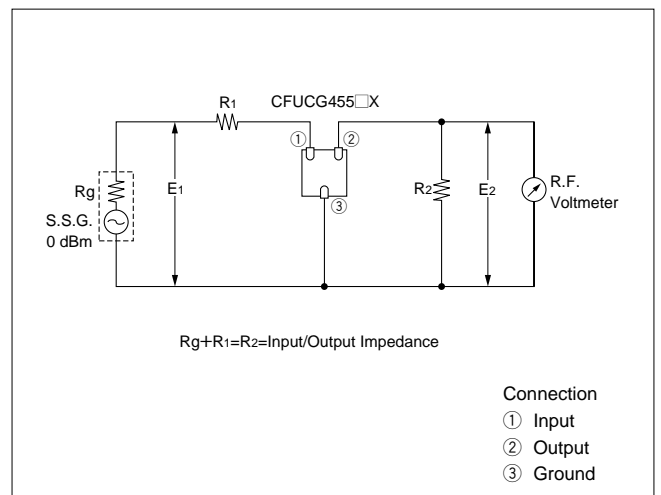
Characteristics Part Number	Center Frequency (Center of 6dB B.W.) (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Stopband Attenuation 455±100kHz (dB) min.	Insertion Loss (at minimum loss point) (dB) max.	Ripple (dB) max.	G.D.T. Deviation (μ sec.) max.	Input/Output Impedance (Ω)
CFUCG455EX	455±1.5	±7.5	±17.5	27	6	1.0	25	1500
CFUCG455FX	455±1.5	±6.0	±15.0	27	6	1.0	25	1500
CFUCG455GX	455±1.0	±4.5	±12.5	25	6	1.0	25	1500
CFUCG455HX	455±1.0	±3.0	±10.0	25	7	1.0	25	1500

Note : For tape and reel packaging, the suffix is "-TC". For example, CFUCG455GX-TC.

## DIMENSIONS

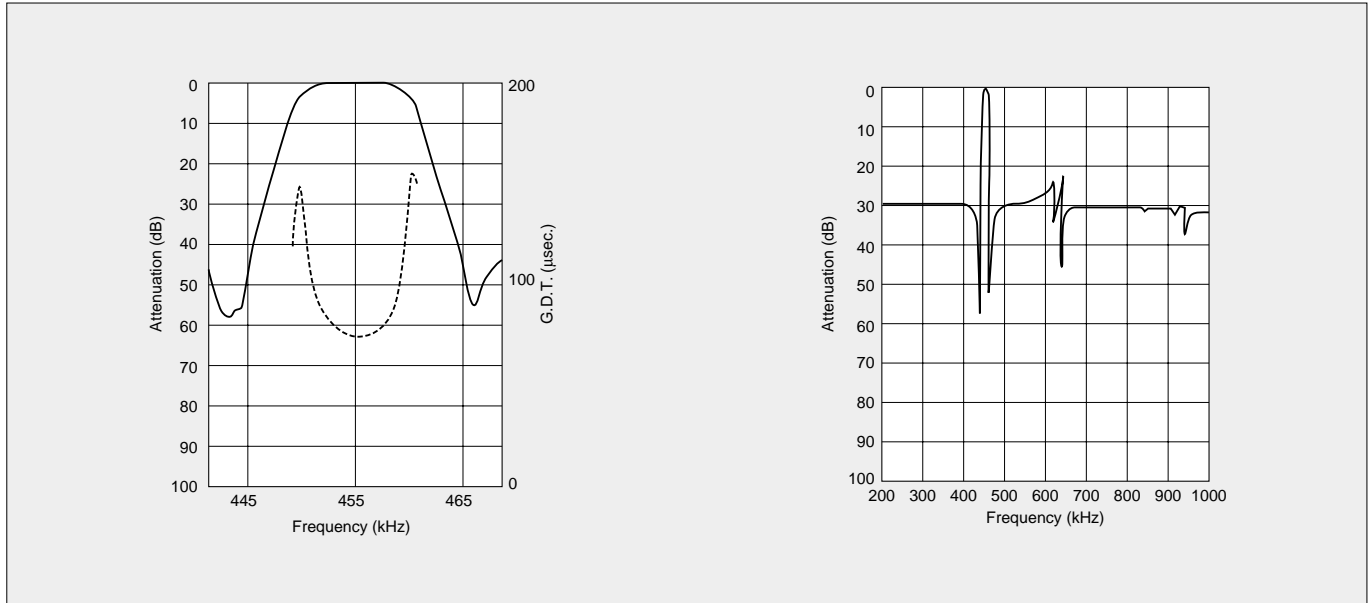


## TEST CIRCUIT



Note : Use DC blocking capacitor to connect the filters output to an IF amplifier. Avoid applying direct current between terminals ② and ③.

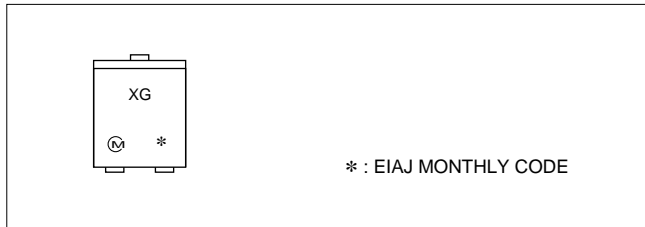
**■FREQUENCY CHARACTERISTICS (CFUCG455GX)**



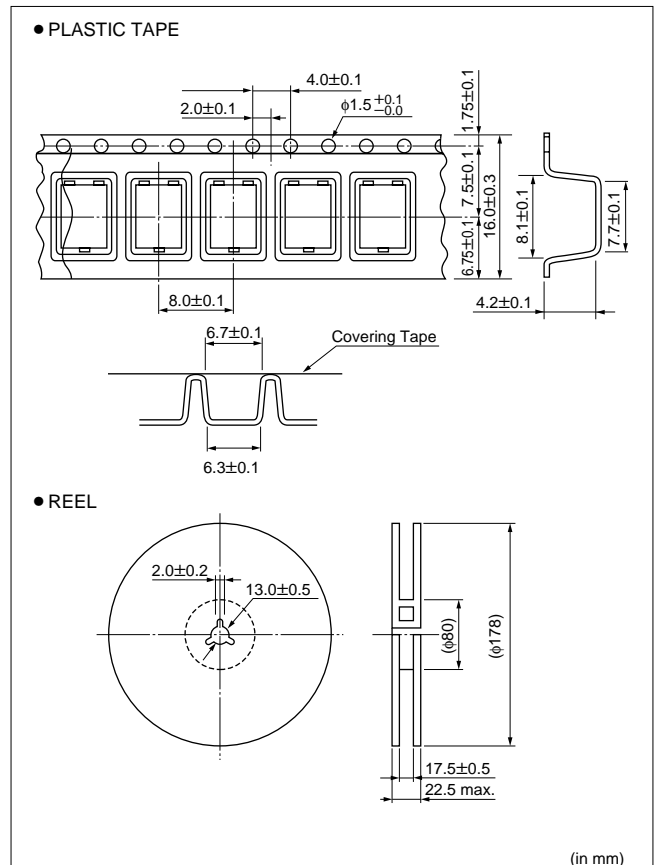
**■MARKING**

Part Number	Marking
CFUCG455EX	XE
CFUCG455FX	XF
CFUCG455GX	XG
CFUCG455HX	XH

(Ex.) CFUCG455GX



**■DIMENSIONS**



- The chips are arrayed in the same direction. I/O terminals are on the guide hole side.
- Marking on ceramic filters is observed on the covering tape side.
- Quantity per 1 reel : 450 pcs.
- The label is placed on the side surface of reel. It indicates Murata part number, user's part number, quantity and inspection number.



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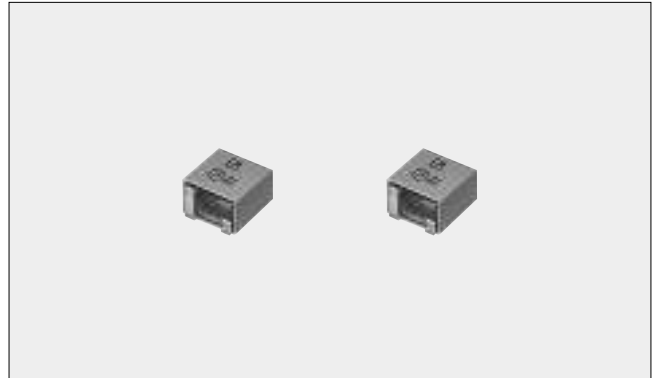
SMD Type Ceramic Filter for Communications Equipment **SFGCG455 Series**

# Chip Ceramic for Automatic Insertion and Reflow Soldering in Smaller Package

The SFGCG455□ series comprises small, high performance, thin (4.0mm) filters consisting of 4 ceramic elements. The filters exhibit an extremely flat G.D.T. characteristic. The filters are recommended for digital communication applications and are perfect in hand held cellular phones, etc.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 4.0mm maximum thickness, and have a small mounting area (7.5×6.0mm) enabling flexible PCB design.
4. The bandwidth ranges from A to E.
5. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C

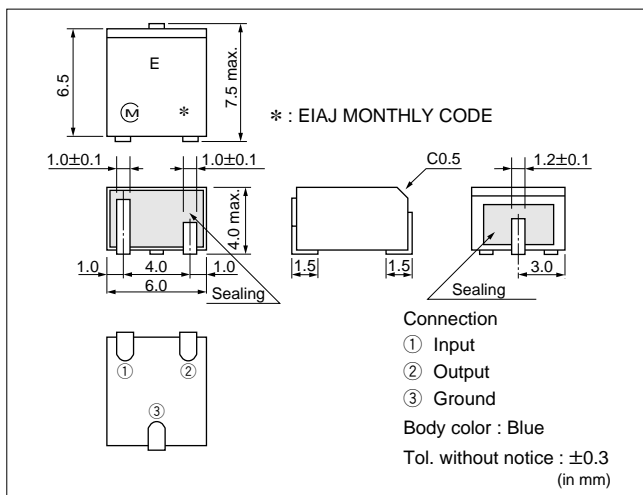


## ■SPECIFICATIONS

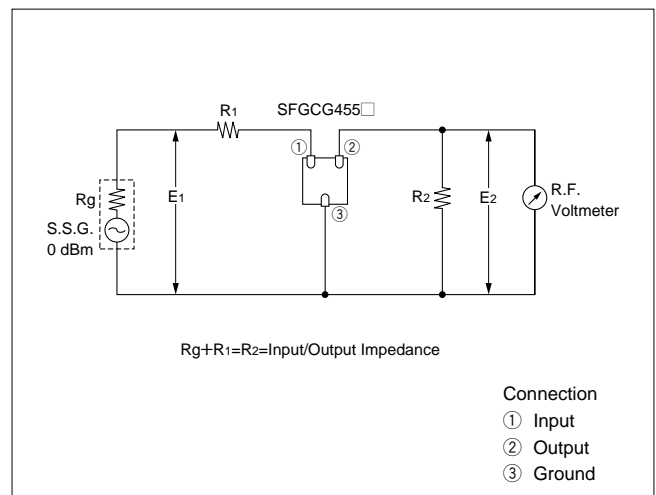
Character-istics Part Number	Center Frequency (Center of 6dB B.W.) (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Stopband Attenuation 455±100kHz (dB) min.	Insertion Loss (at minimum loss point) (dB) max.	Ripple (dB) max.	G.D.T. Deviation (μ sec.) max.	Input/Output Impedance (Ω)
SFGCG455AX	455±2.0	±17.5	±40.0	25	4	1.0	15	1000
SFGCG455BX	455±1.5	±15.0	±35.0	25	5	1.0	15	1000
SFGCG455CX	455±1.5	±12.5	±30.0	25	6	1.0	15	1000
SFGCG455DX	455±1.0	±10.0	±25.0	23	7	1.0	20	1500
SFGCG455EX	455±1.0	± 7.5	±20.0	23	8	1.0	20	1500

Note : For tape and reel packaging, the suffix is "-TC". For example, SFGCG455EX-TC.

## ■DIMENSIONS

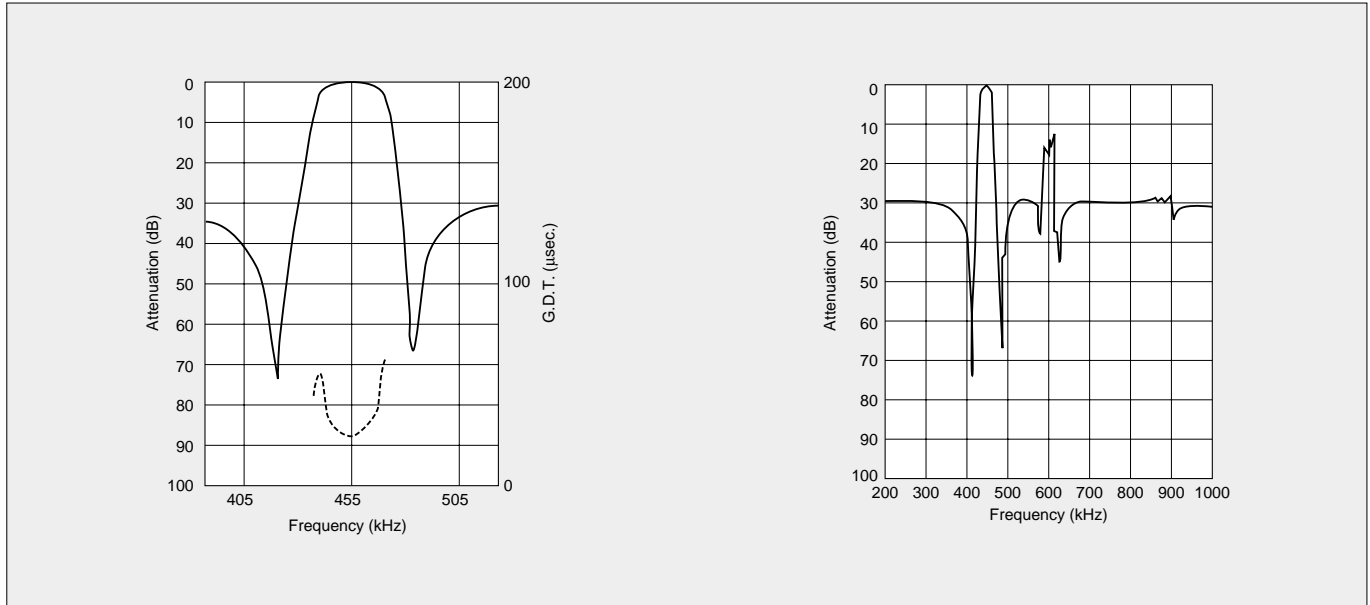


## ■TEST CIRCUIT



Note : Use DC blocking capacitor to connect the filters output to an IF amplifier. Avoid applying direct current between terminals ② and ③.

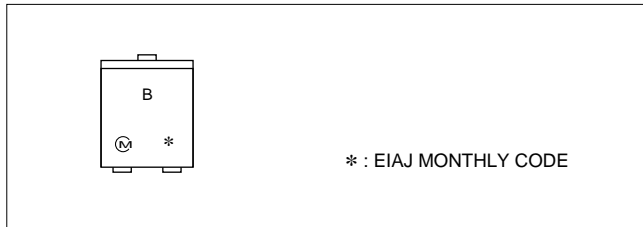
**■FREQUENCY CHARACTERISTICS (CFUCG455BX)**



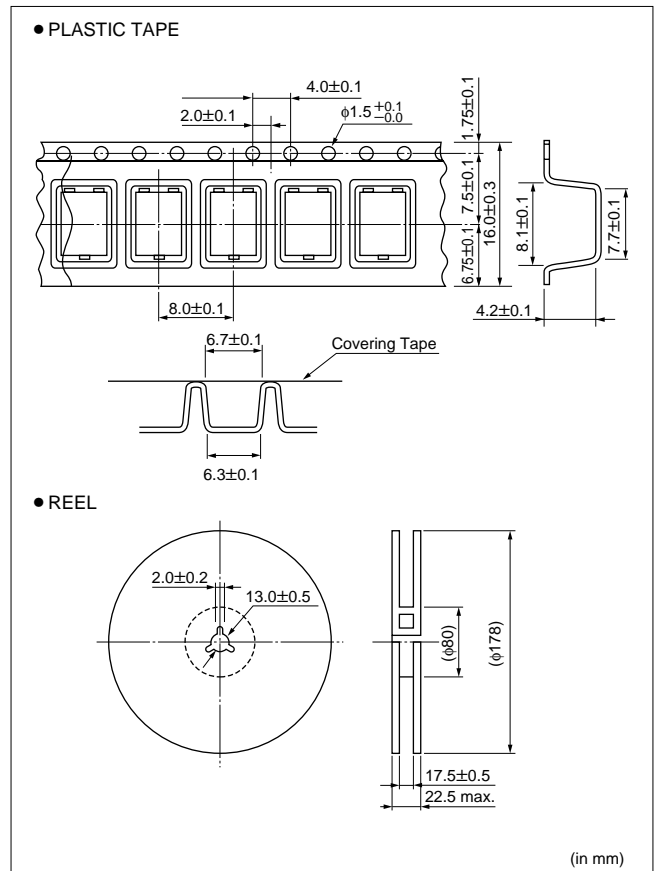
**■MARKING**

Part Number	Marking
SFGCG455AX	A
SFGCG455BX	B
SFGCG455CX	C
SFGCG455DX	D
SFGCG455EX	E

(Ex.) CFUCG455BX



**■DIMENSIONS**



- The chips are arrayed in the same direction. I/O terminals are on the guide hole side.
- Marking on ceramic filters is observed on the covering tape side.
- Quantity per 1 reel : 450 pcs.
- The label is placed on the side surface of reel. It indicates Murata part number, user's part number, quantity and inspection number.



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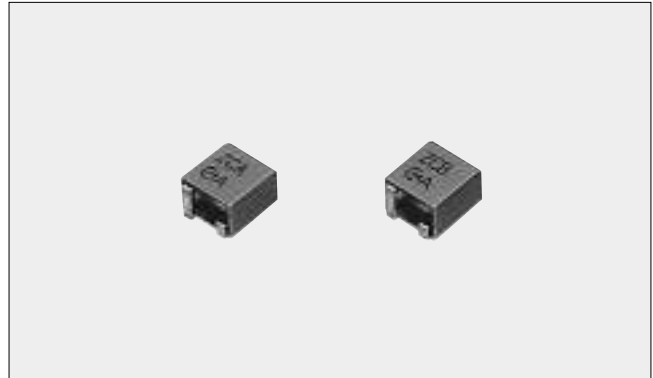
SMD Type Ceramic Filter for Communications Equipment **KMFC626C Series**

# Washable, Chip Ceramic Filter Kit for Automatic Insertion and Reflow Soldering

The KMFC626C□ series comprises filters that are two types of SFGCG455CZ□ series filters coupled at random. SFGCG455CZ□ series filters are small, high performance, thin (4.0mm) filters consisting of 4 ceramic elements. The filters are recommended for digital communication applications and are perfect in hand held cellular phones.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 4.0mm maximum thickness, and have a small mounting area (7.5X6.0mm) enable flexible PCB design.
4. The filters are wide bandwidth, flat G.D.T. within pass band.
5. Operating temperature range : -20°C to +75°C  
Storage temperature range : -40°C to +85°C

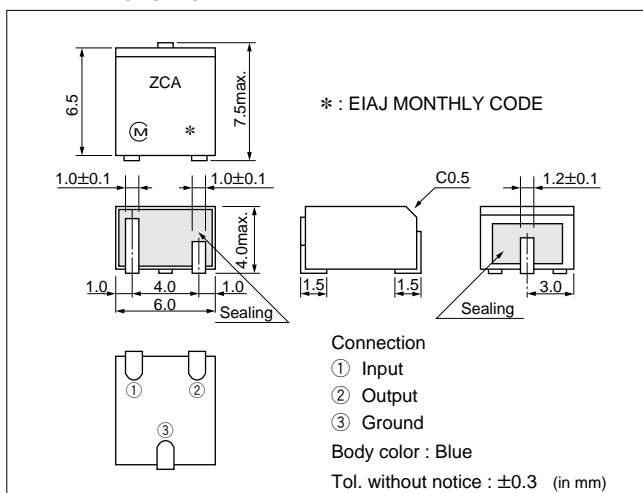


## ■SPECIFICATIONS

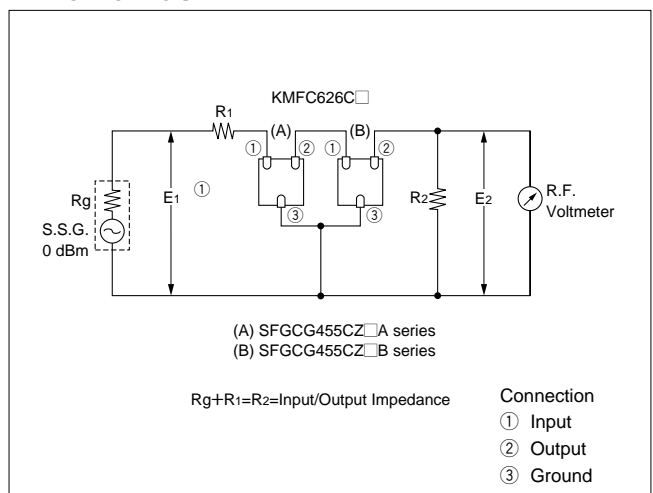
Character-istics Part Number	Nominal Center Frequency (f <sub>n</sub> ) (kHz)	3dB Bandwidth (from 455kHz) (kHz)	Stop Band Attenuation				Spurious Response		Insertion Loss at 455kHz (dB)	Ripple (dB)	G.D.T. Ripple Deviation (μ sec.)	Input /Output Impedance (kΩ)
			at 455 ±16kHz (dB)	at 455 ±25kHz (dB)	within 455 ±40-±50kHz (dB)	within 455 ±100kHz (dB)	within 0.1-1MHz (dB)	within 555-675kHz (dB)				
KMFC626C (SFGCG455CZA+CZB)	455	±10.5 to ±13.0max.	-	30min.	60min.	55min.	40min.	20min.	8max.	within 455 ±10.5kHz	within 455 ±10.5kHz	1.5
KMFC626C30 (SFGCG455CZ10A+CZ10B)			-	30min.	60min.	55min.	40min.	20min.		0.5max.	20max.	1.0
KMFC626C5 (SFGCG455CZ5A+CZ5B)	455	±9.0 to ±11.5max.	6.5min.	40min.	60min.	55min.	20min.	-	8max.	within 455 ±9kHz	within 455 ±9kHz	1.5
KMFC626C35 (SFGCG455CZ15A+CZ15B)			6.5min.	40min.	60min.	55min.	20min.	-		0.5max.	20max.	1.0

Note : For tape and reel packaging, the suffix is "-TC". For example, KMFC626C-TC. Combination part number involves A, B type filter each 1 piece.

## ■DIMENSIONS

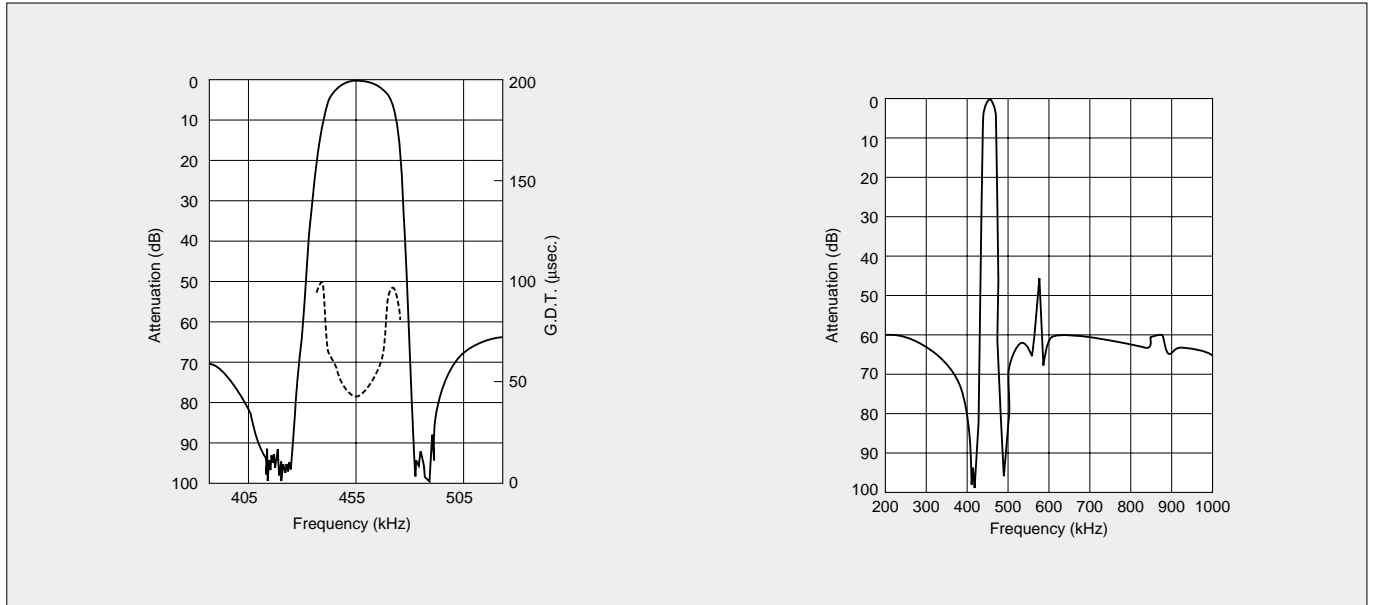


## ■TEST CIRCUIT



Note : To take best advantage of safety features of ceramic filters, connect B type filter's output to IF amplifier though DC cut capacitor. Avoid to apply direct current output of B type filter.

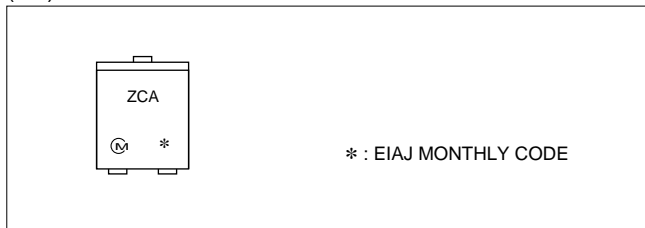
**■FREQUENCY CHARACTERISTICS (KMFC626C)**



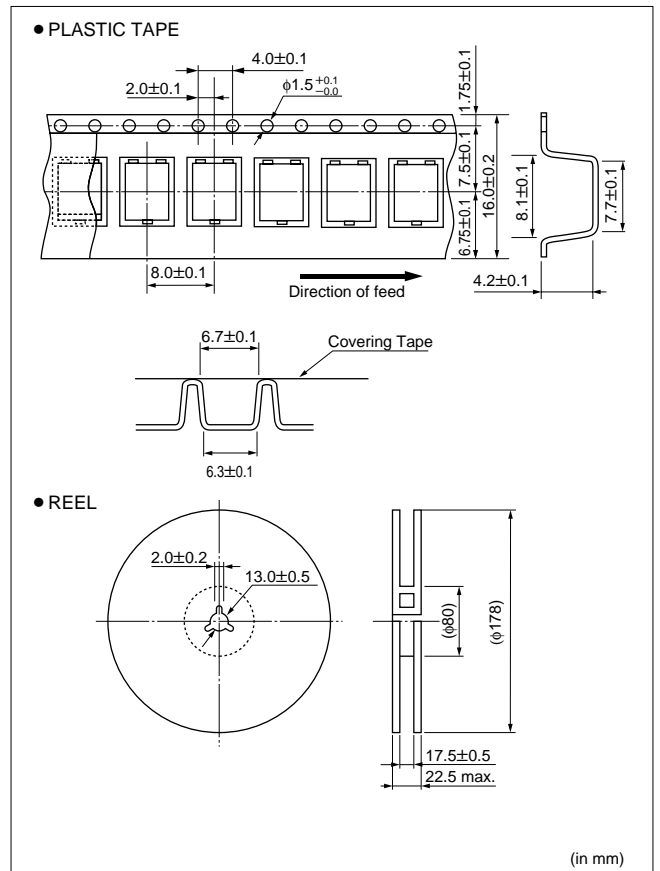
**■MARKING**

	A type	B type
KMFC626C	ZCA (SFGCG455CZA)	ZCB (SFGCG455CZB)
KMFC626C30	Z C10A (SFGCG455CZ10A)	Z C10B (SFGCG455CZ10B)
KMFC626C5	Z C5A (SFGCG455CZ5A)	Z C5B (SFGCG455CZ5B)
KMFC626C35	Z C15A (SFGCG455CZ15A)	Z C15B (SFGCG455CZ15B)

(Ex.) SFGCG455CZA



**■DIMENSIONS**



- The chips are arrayed in the same direction. I/O terminals are on the guide hole side.
- Marking on ceramic filters are observed on the covering tape side.
- Quantity per 1 reel : 450 pcs.
- The label is placed on the side surface of reel. It indicates Murata part number, user's part number, quantity and inspection number.



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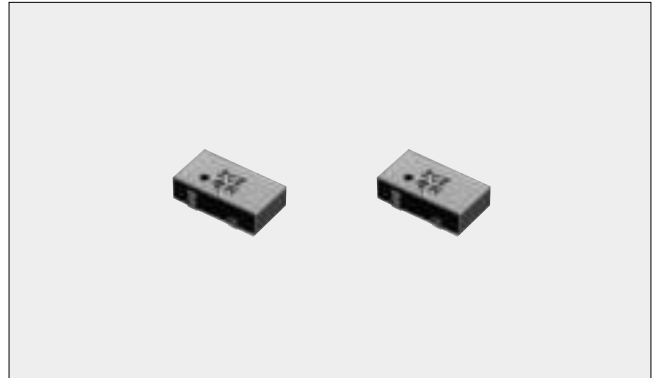
SMD Ceramic Filter for Communications Equipment **CFWC455BY/CZ Series**

# Chip Ceramic Filter for Automatic Insertion and Reflow Soldering

The CFWC455BY/CZ series consist of 6 ceramic elements. The filters are recommended for digital communication applications and are perfect in hand held cellular phones.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered.
3. They are slim, at only 3.0mm maximum thickness, and have a small mounting area (11.5X7.5mm) enable flexible PCB design.
4. The filters are wide bandwidth, flat G.D.T. within pass band.
5. Operating temperature range : -20°C to +75°C  
Storage temperature range : -40°C to +85°C



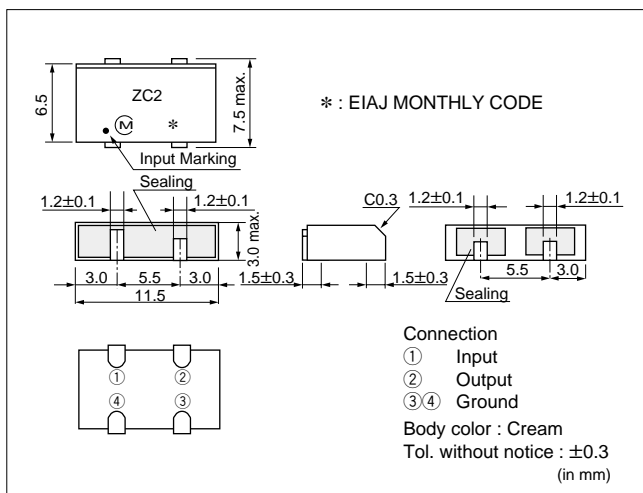
## ■SPECIFICATIONS

Character-istics Part Number	Nominal Center Frequency(fn) (kHz)	3dB Bandwidth (from fn) (kHz)	Stop Band Attenuation				Spurious Response		Insertion Loss (at fn) (dB)	Ripple (dB)	G.D.T. Ripple Deviation (μ sec.)	Input /Output Impedance (kΩ)
			at fn ±16kHz (dB)	at fn ±25kHz (dB)	within fn ±40-±50kHz (dB)	within fn ±100kHz (dB)	within 0.1-1.0MHz (dB)	within 555-675kHz (dB)				
CFWC455CZ	455	±10.5 to ±13.0	-	30min.	55min.	50min.	40min.	20min.	6.0max.	(±10.5kHz) 0.5max.	(±10.5kHz) 27max.	1.0
CFWC455CZ2	455	± 9.0 to ±11.5	6.5min.	40min.	55min.	50min.	20min.	-	6.0max.	(±9kHz) 0.5max.	(±9kHz) 27max.	1.0

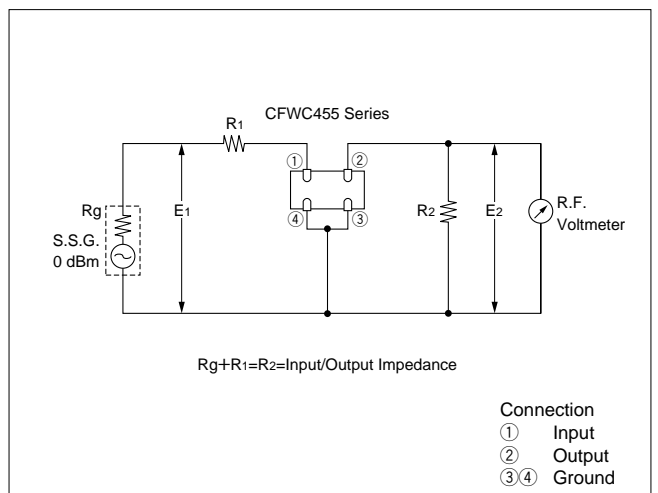
Character-istics Part Number	Nominal Center Frequency(fn) (kHz)	3dB Bandwidth (from 450kHz) (kHz)	6dB Bandwidth (from 450kHz) (kHz)	50dB Bandwidth (from 450kHz) (kHz)	Stop Band Attenuation (within 450±100kHz) (dB)	Spurious Response (within 0.1-1.0MHz) (dB)	Insertion Loss (at 450kHz) (dB)	Ripple (dB)	G.D.T. Ripple Deviation (μ sec.)	Input/Output Impedance (Nominal) (kΩ)
CFWC450BY1	450	±11.5min.	±13.0min.	±30.0max.	45min.	20min.	4.0max.	(±10.0kHz) 2.0max.	(±10.0kHz) 3.0max.	1.0

Note : For tape and reel packaging, the suffix is "-TC". For example, CFWC455CZ-TC.

## ■DIMENSIONS



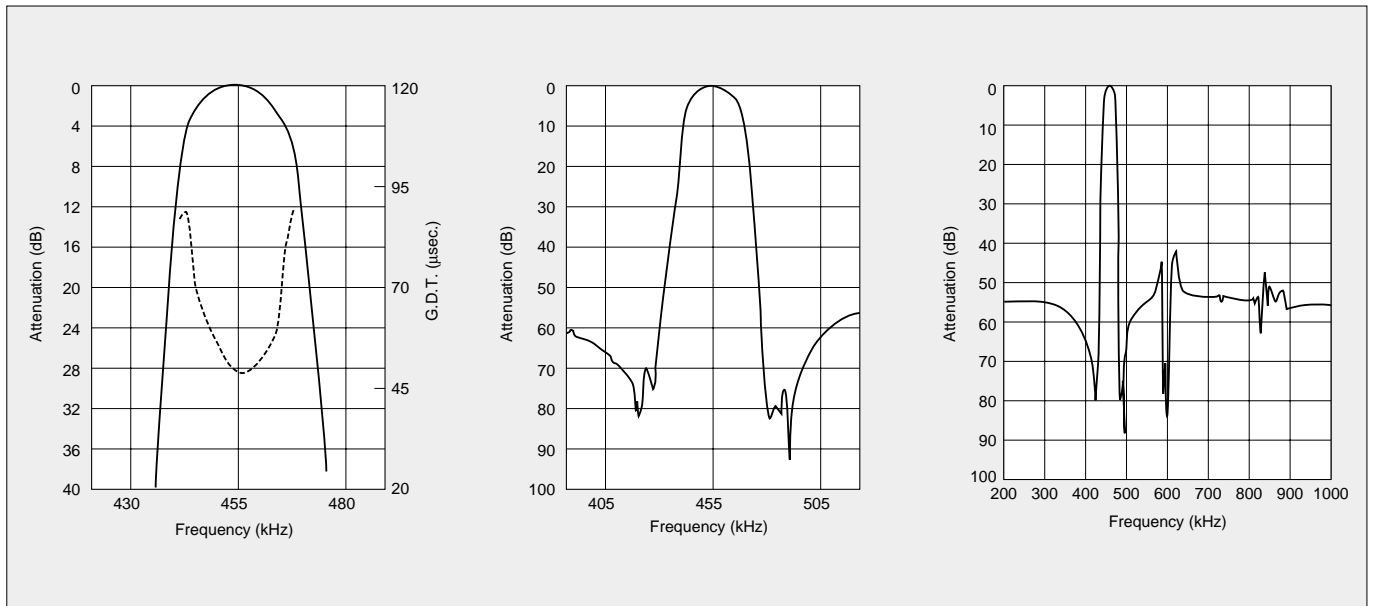
## ■TEST CIRCUIT



Note : To take best advantage of safety features of ceramic filters, connect B type filter's output to IF amplifier though DC cut capacitor. Avoid to apply direct current output of B type filter.



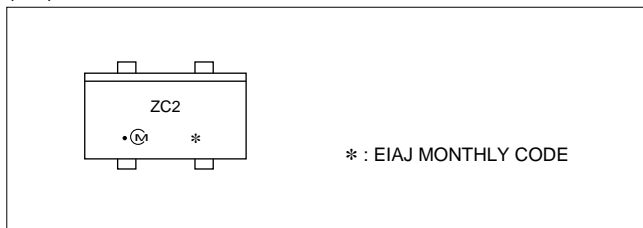
**■ FREQUENCY CHARACTERISTICS (CFWC455CZ2)**



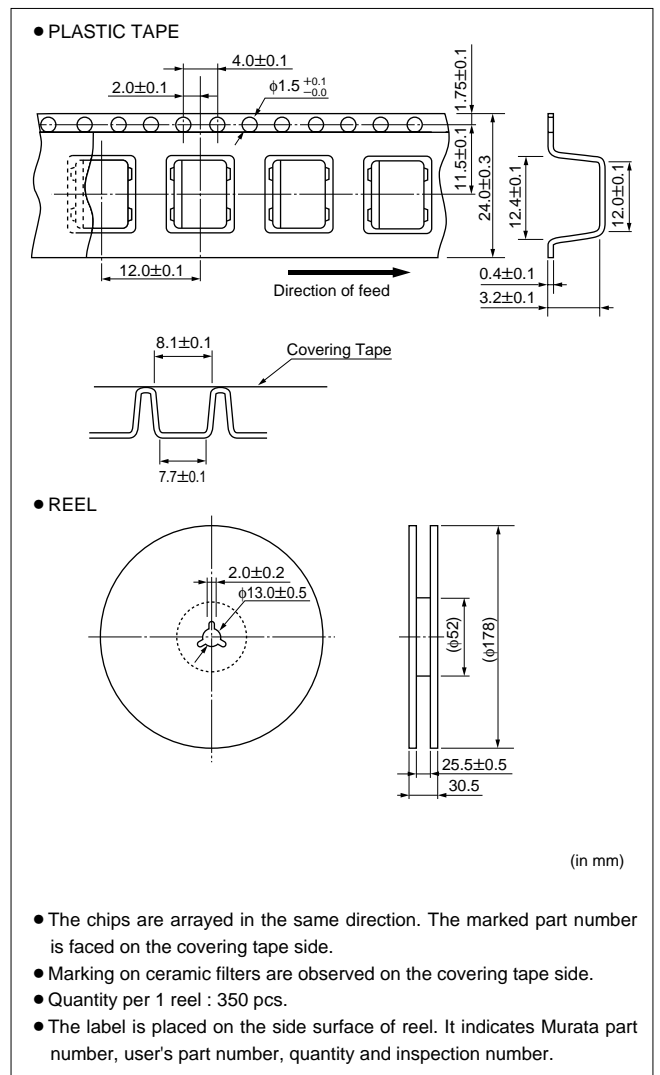
**■ MARKING**

Part Number	Marking
CFWC455CZ	ZC
CFWC455CZ2	ZC2
CFWC450BY1	Y50 B1

(Ex.) CFWC455CZ2



**■ DIMENSIONS**





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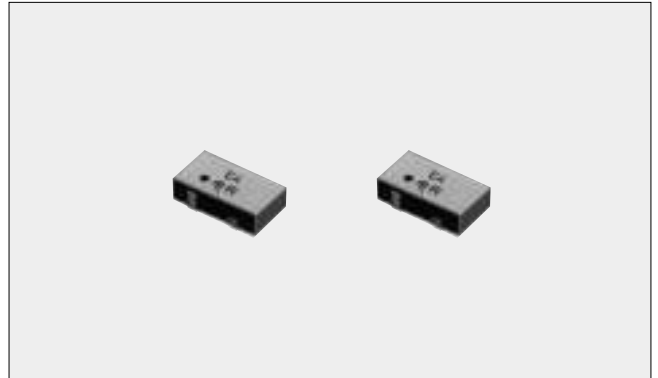
SMD Ceramic Filter for Communications Equipment **CFWC455 Series**

# Chip Ceramic Filter for Automatic Insertion and Reflow Soldering

The CFWC455 series consist of 6 ceramic elements. The filters are recommended for digital communication applications and are perfect in hand held phones.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 3.0mm maximum thickness, and have a small mounting area (11.5X7.5mm) enable flexible PCB design.
4. The filters are wide bandwidth, flat G.D.T. within pass band.
5. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C

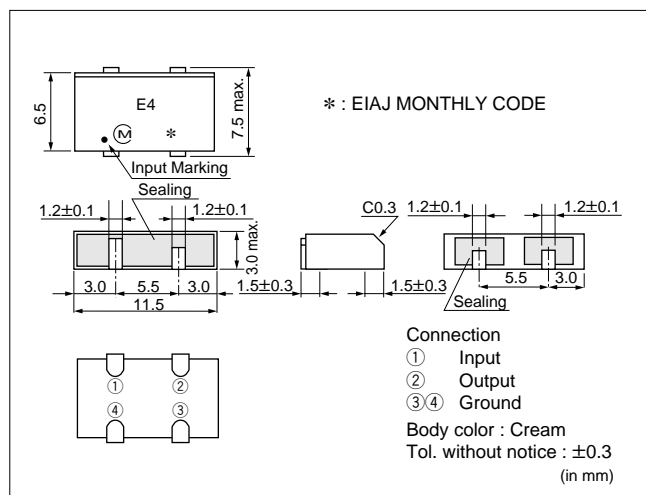


## ■SPECIFICATIONS

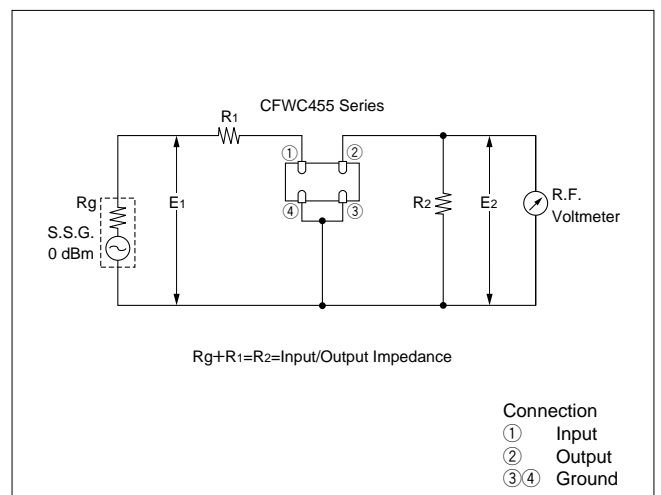
Part Number	Character-istics	Nominal Center Frequency(fn) (kHz)	3dB Bandwidth (from fn) (kHz)	50dB Bandwidth (from fn) (kHz)	Stop Band Attenuation		Spurious Response within 0.1-1.0MHz (dB)	Insertion Loss (at fn) (dB)	Ripple (dB)	G.D.T. Ripple Deviation (μ sec.)		Input /Output Impedance (kΩ)
					within fn ±18-±33 (dB)	within fn ±100kHz (dB)						
CFWC455E1		455	±6.5min.	±15.0max.	55min.	50min.	20min.	4.0max.	(±6.5) 3.0max.	-	-	1.5
CFWC455E4		455	±6.5min.	±15.5max.	55min.	50min.	20min.	4.0max.	(±6.5) 2.0max.	(±3kHz) 20max.	(±5kHz) 50max.	1.5

Note : For tape and reel packaging, the suffix is "-TC". For example, CFWC455E1-TC.

## ■DIMENSIONS

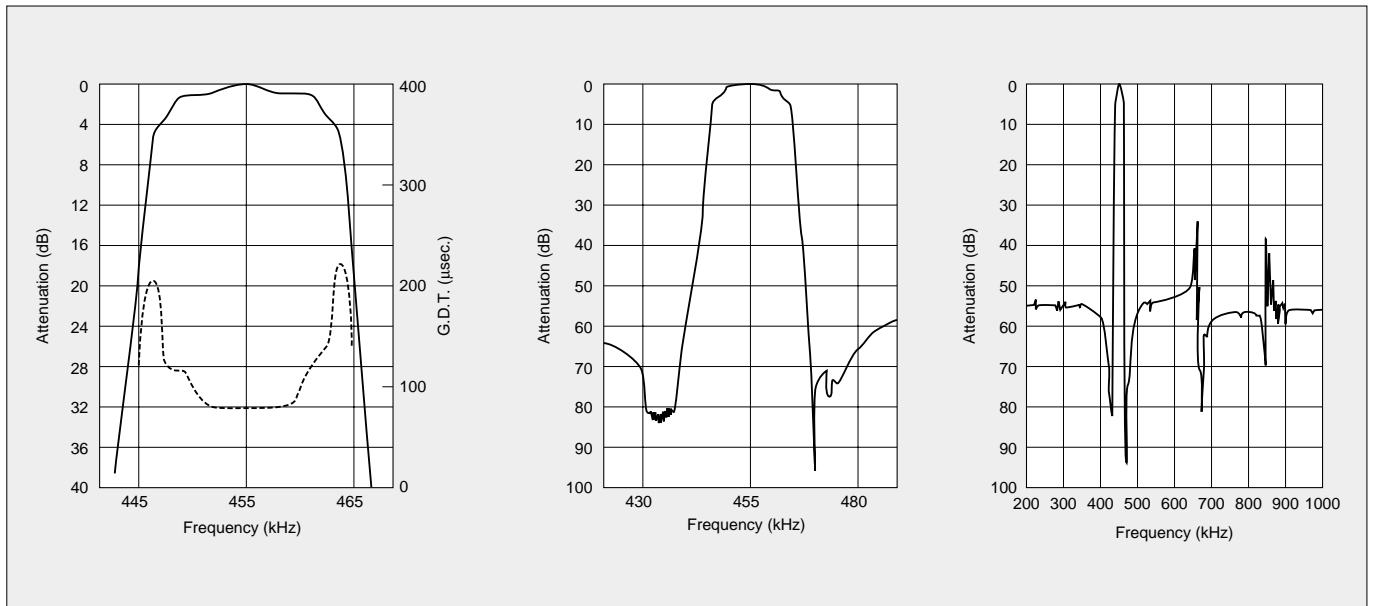


## ■TEST CIRCUIT



Note : To take best advantage of safety features of ceramic filters, connect B type filter's output to IF amplifier though DC cut capacitor. Avoid to apply direct current output of B type filter.

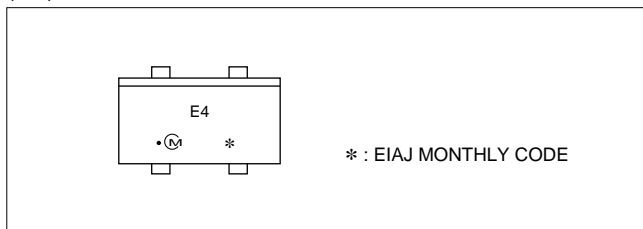
**■FREQUENCY CHARACTERISTICS (CFWC455E4)**



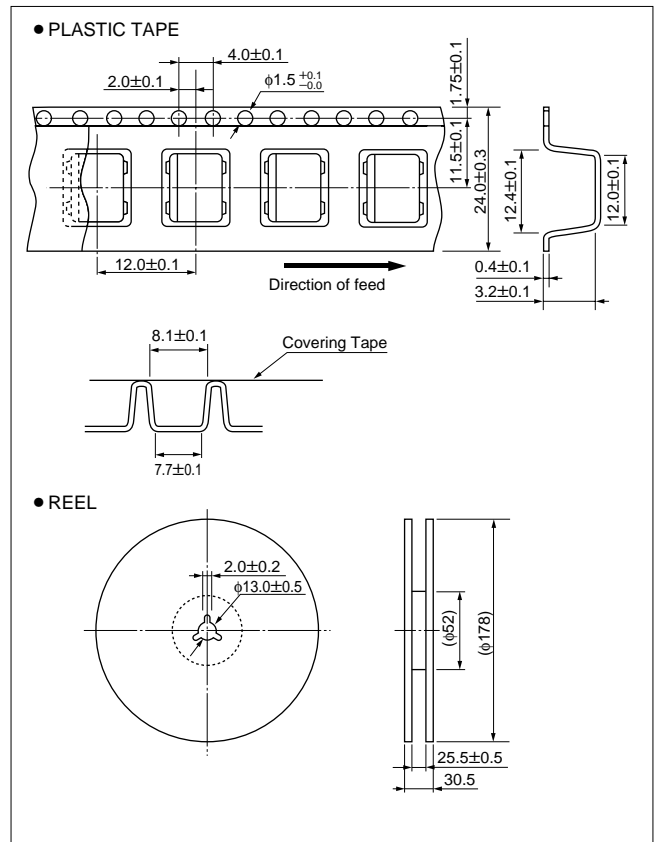
**■MARKING**

Part Number	Marking
CFWC455E1	E1
CFWC455E4	E4

(Ex.) CFWC455E4



**■DIMENSIONS**



(in mm)

- The chips are arrayed in the same direction. The marked part number is faced on the covering tape side.
- Marking on ceramic filters are observed on the covering tape side.
- Quantity per 1 reel : 350 pcs.
- The label is placed on the side surface of reel. It indicates Murata part number, user's part number, quantity and inspection number.



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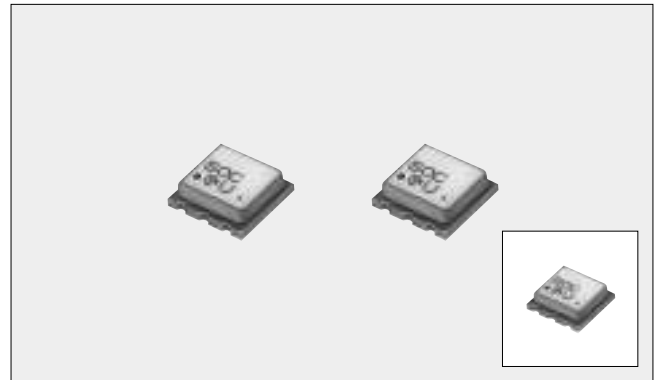
Ultra Small Package SMD Ceramic Filter for Communications Equipment **CFUXC450C100H Series**

# Chip Ceramic Filter for Automatic Insertion and Reflow Soldering

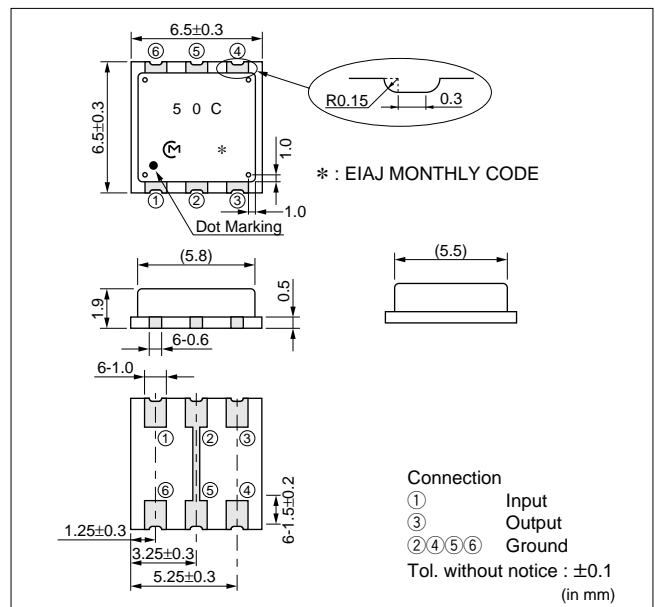
CFUXC Series are very small and high-efficiency surface mount, ladder type 450/455 kHz ceramic filters (CERAFIL®) for IF section. Compared to our previous compact surface mounted 6-element product, this ceramic filter has been significantly downsized to approximately one-third the original volume and reduced to less than 2 mm in height. As for electrical performance, this product, which consists of 4 elements, provides stop band attenuation equipment to that of our previous 6-element product. The input/output impedance characteristics are also equivalent to those of the previous product, and spurious responses in the vicinity of the passing band can now be eliminated. This allows mobile telecommunications equipment manufacturers to easily design the periphery of the IF section and thus greatly enhance the interference suppression capability of the equipment. In addition, this ceramic filter provides flatter group delay time characteristics than the previous product, and will effectively work as a component for data transmission in digital mobile telecommunications systems.

## ■FEATURES

1. Compact, thin, and lightweight (6.5X6.5X 1.9mm and lightest:225 mg).
2. Out-of-band attenuation is increased and spurious responses are greatly decreased.
3. Group delay time characteristics are flattened.
4. Surface mountable, and reflow soldering can be used for mounting.



## ■DIMENSIONS

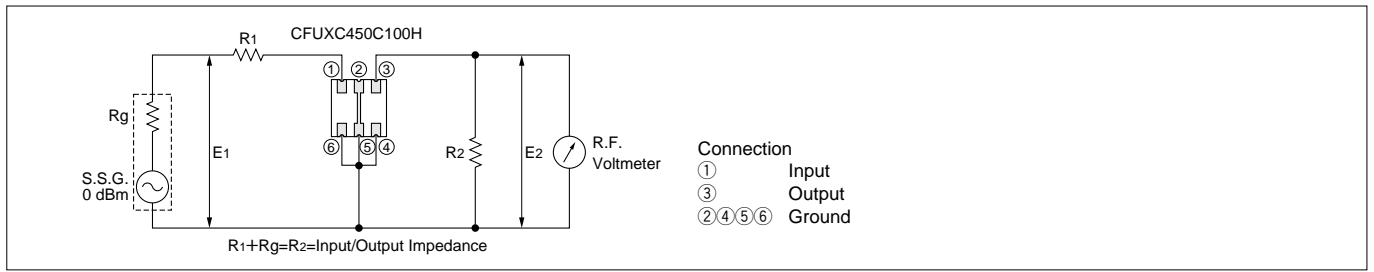


## ■SPECIFICATIONS

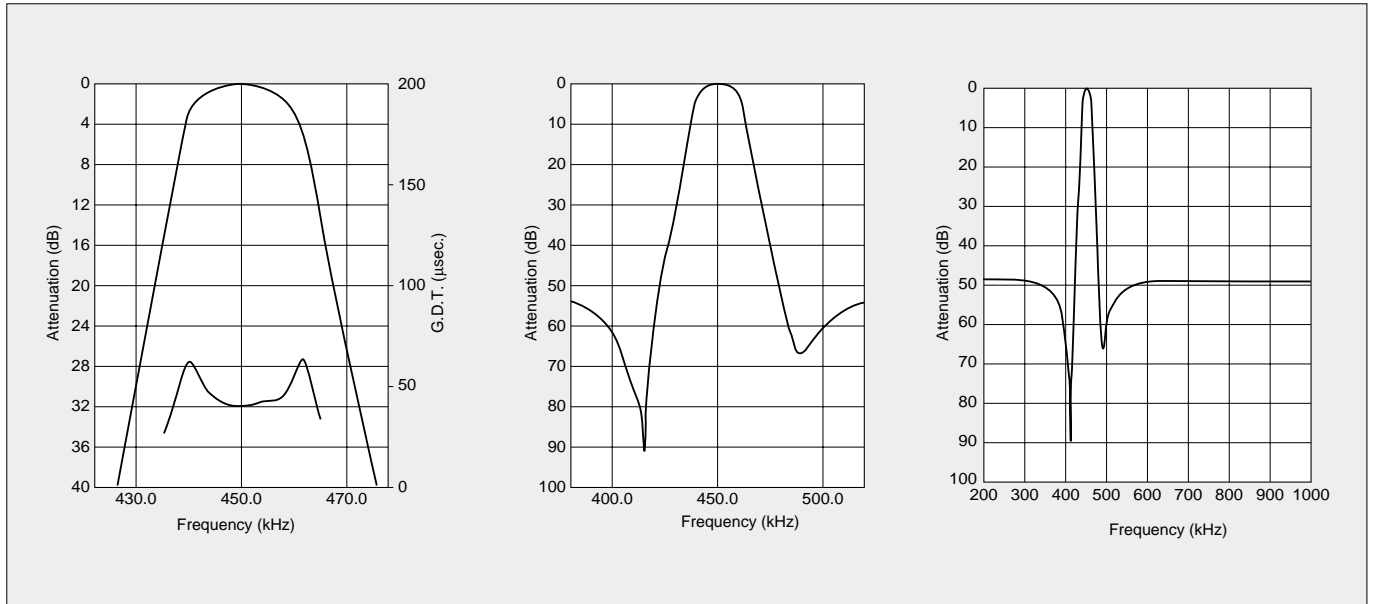
Character-istics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (from 450kHz) (kHz)	50dB Bandwidth (from 450kHz) (kHz)	Stop Band Attenuation			Spurious Response (within 0.1-1.0MHz) (dB)	Insertion Loss (at 450kHz) (dB)	Ripple (dB)	Absolute G.D.T. (at 450kHz) (μ sec.)	G.D.T. Ripple Deviation (μ sec.)	Input /Output Impedance (kΩ)
				at 450±25kHz (dB)	within 450±40-±50kHz (dB)	at 450±100kHz (dB)						
CFUXC450C100H	450	±9.0 to ±12.0	±35max.	30min.	55min.	47min.	40min.	6.0max.	(±10.5kHz) 0.5max.	within 40±8	(±10.5kHz) 27max.	2.0

Note : For tape and reel packaging, the suffix is "-TC01". For example, CFUX450C100H-TC01.

■TEST CIRCUIT



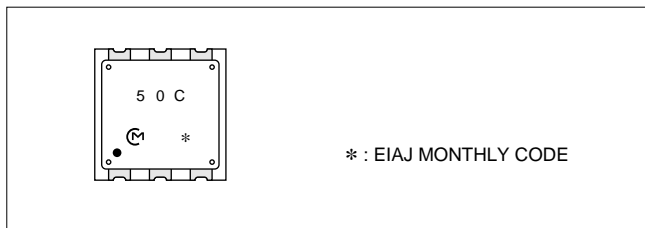
■FREQUENCY CHARACTERISTICS (CFUXC450C100H)



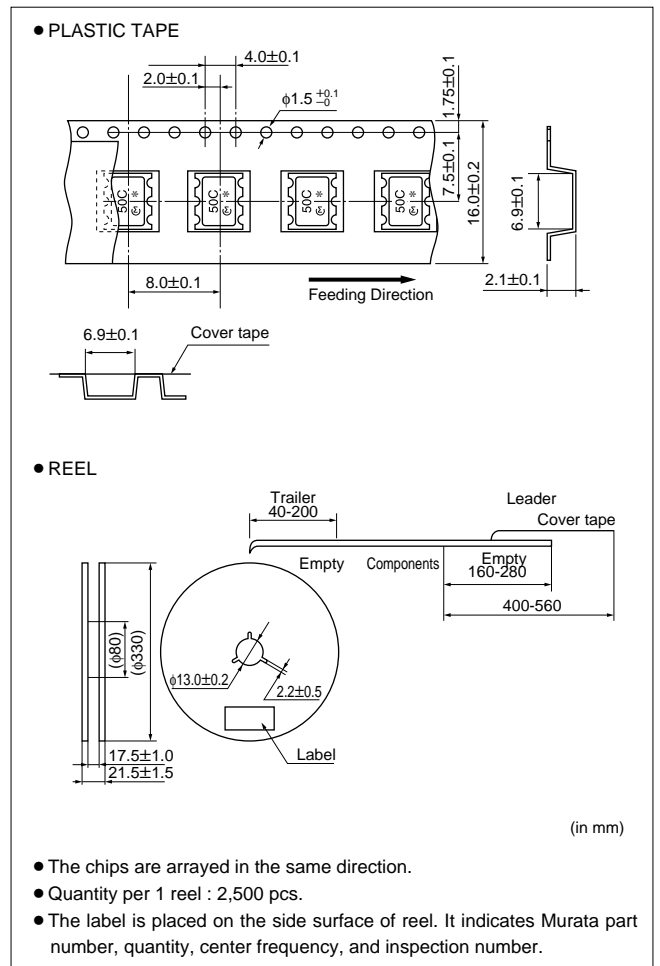
■MARKING

Part Number	Marking
CFUXC450C100H	50C

(Ex.) CFUXC450C100H



■DIMENSIONS





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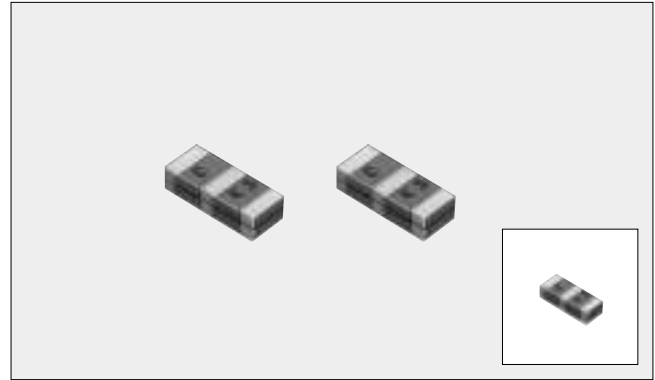
SMD Type Ceramic Filter for Communications Equipment **CFEC10.8M□** Series

# Chip Ceramic for Automatic Insertion and Reflow Soldering in Smaller Package

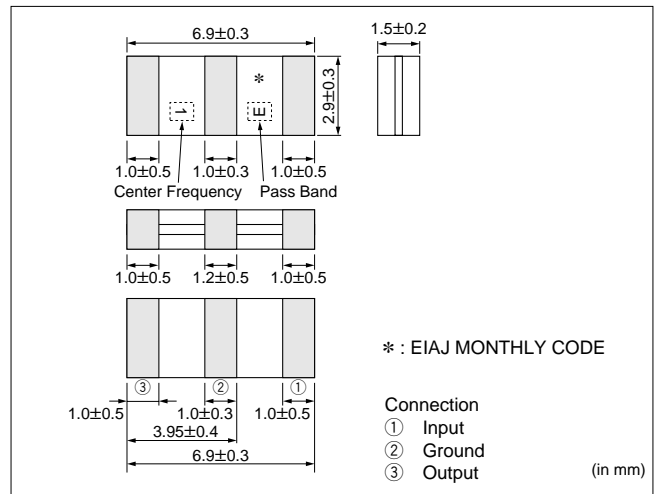
The CFEC10.8M□ series are small, high performance and super thin (1.5mm) filters. Piezoelectric element is connected in the sandwich shape by heat resistant substrate. The filters exhibit flat G.D.T. characteristic in pass band. The filters are recommended for digital communication applications and are perfect in hand held cellular phones, pocket cordless phones, etc.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. They are slim, at only 1.5mm thickness, and have a small mounting area (6.9X2.9mm) enabling flexible PCB design.
3. The pass bandwidth ranges from ±110kHz to ±170kHz. Types with 10.7, 10.75, 10.8MHz of center frequency are available.
4. Operating temperature range : -10°C to +50°C  
Storage temperature range : -40°C to +85°C



## ■DIMENSIONS



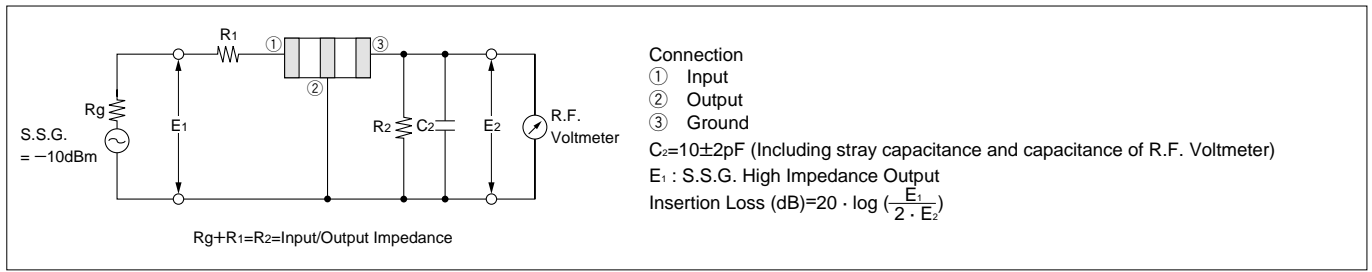
## ■SPECIFICATIONS

Characteristics Part Number	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth from fn (kHz)	20dB Bandwidth from fn (kHz)max.	Stop Band Attenuation Fn±500kHz (dB)min.	Stop Band Attenuation Fn±1.2MHz (dB)min.	Insertion Loss at fn (dB)max.	Ripple fn±100kHz (dB)max.	G.D.T. Deviation fn±100kHz (μ sec.)max.	Absolute G.P.T. at fn (μ sec.)	Input /Output Impedance (Ω)
CFEC10.8MK1	10.800	±110-±150	±310	37	35	6	0.5	1.5	3.0±1.0	330
CFEC10.8MG1	10.800	±135-±180	±350	32	35	6	0.5	1.2	2.6±1.0	330

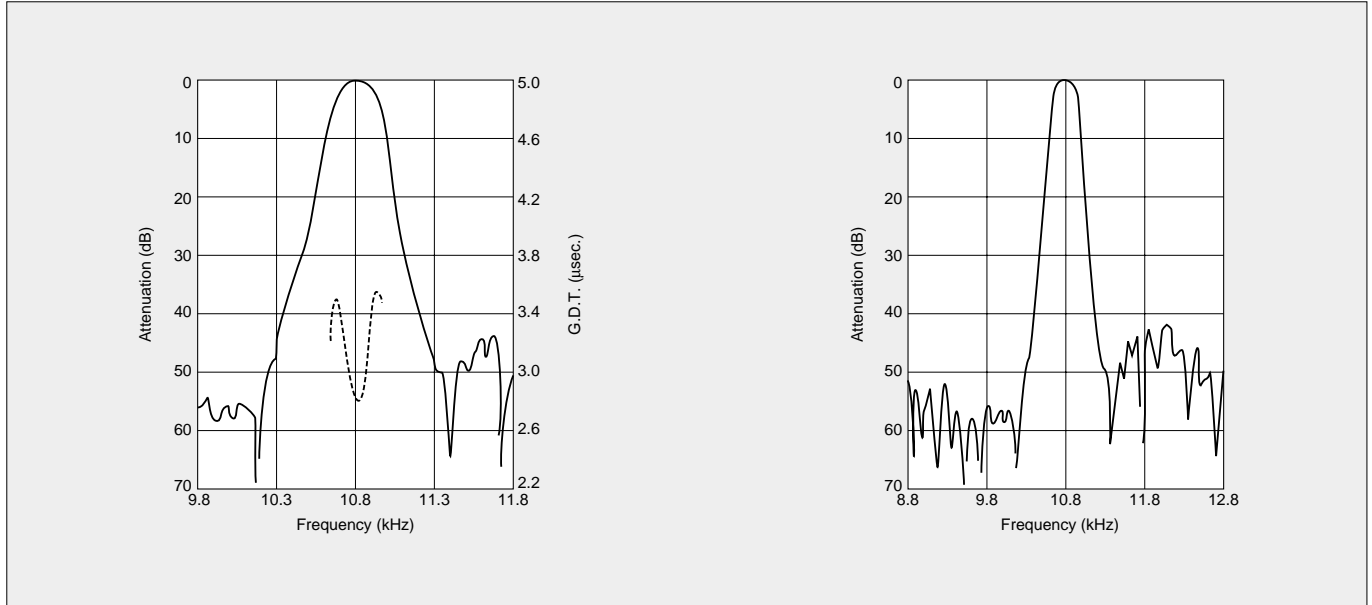
Characteristics Part Number	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth from fn (kHz)min.	20dB Bandwidth from fn (kHz)max.	Spurious 9-12MHz (dB)min.	Insertion Loss at fn (dB)max.	Ripple (dB)max.	G.D.T. Deviation (μ sec.)max.	Input /Output Impedance (Ω)
CFEC10.8ME11	10.800	±150	±420	25	5	fn±110kHz 1	fn±110kHz 1.5	330
CFEC10.8MD11	10.800	±170	±450	25	5	fn±170kHz 1	fn±170kHz 2.0	600

Note : For tape and reel packaging, the suffix is "TC". For example, CFEC10.8MK1-TC.  
Types with 10.7, 10.75, 10.8MHz of nominal center frequency are available.

■ TEST CIRCUIT



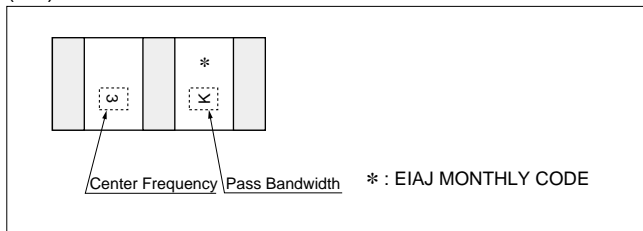
■ FREQUENCY CHARACTERISTICS (CFEC10.8MK1)



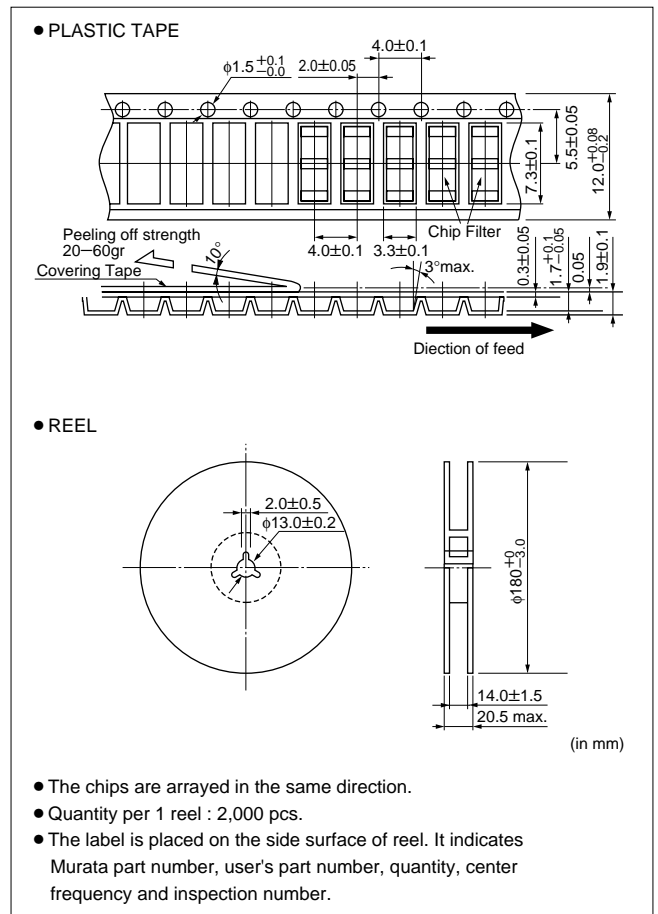
■ MARKING

Part Number	Marking	
	Center Frequency	Pass Bandwidth
CFEC10.8MK1	3	K
CFEC10.8MG1	3	G
CFEC10.8ME11	3	E
CFEC10.8MD11	3	D

(Ex.) CFEC10.8MK1



■ DIMENSIONS





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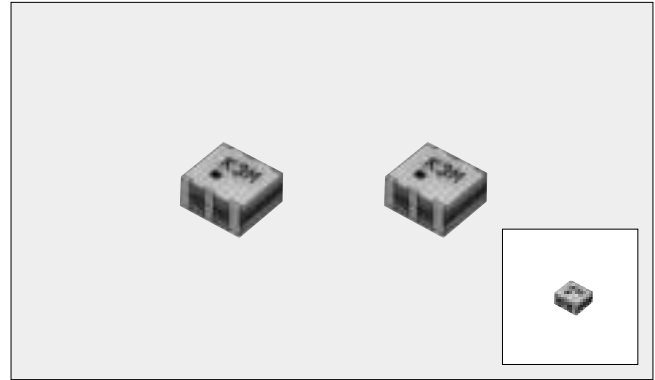
SMD Ceramic Filter for Communications Equipment **CFECS10.8M□** Series

# Chip Ceramic for Automatic Insertion and Reflow Soldering in Ultra Small Package

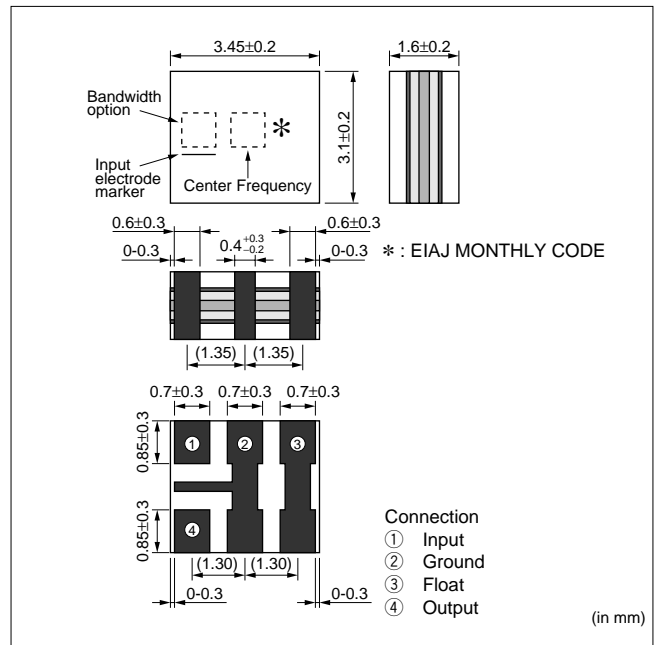
The CFECS10.8M□ series are small, high performance and super thin (1.6mm) filters. Piezoelectric element is connected in the sandwich shape by heat resistant substrate. The filters exhibit flat G.D.T. characteristic in pass band. The filters are recommended for digital communication applications and are perfect in hand held cellular phones, pocket cordless phones, etc.

## ■FEATURES

1. The filters are mountable by automatic placers.
2. They are slim, at only 1.6mm thickness, and have a small mounting area (3.5×3.1mm) enabling flexible PCB design.
3. Operating temperature range : -10 to +50°C  
Storage temperature range : -40 to +85°C



## ■DIMENSIONS



- \*1. Please pay attention to the input-output terminal direction.
- \*2. The signal line shall be sure to be connected to float terminal.

## ■SPECIFICATIONS

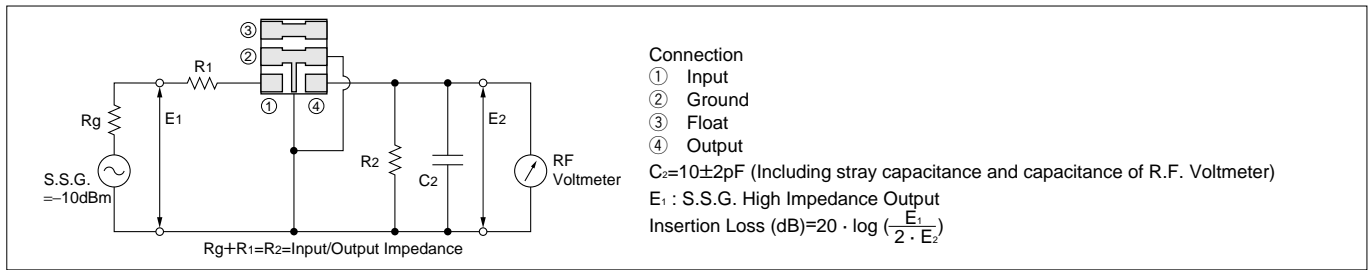
Characteristics	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth from fn (kHz) min.	20dB Bandwidth from fn (kHz)max.	Stop Band Attenuation Fn±500kHz (dB)min.	Stop Band Attenuation Fn±1.2MHz (dB)min.	Insertion Loss at fn (dB)max.	Ripple fn±100kHz (dB)max.	G.D.T. Deviation fn±100kHz (μ sec.)max.	Absolute G.P.T. at fn (μ sec.)	Input /Output Impedance (Ω)	
Part Number	CFECS10.8MK1	10.800	±110	±310	35	30	6	0.5	1.5	2.8±1.0	330

Characteristics	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth from fn (kHz)min.	20dB Bandwidth from fn (kHz)max.	Spurious 9-12MHz (dB)min.	Insertion Loss at fn (dB)max.	Ripple (dB)max.	G.D.T. Deviation (μ sec.)max.	Input /Output Impedance (Ω)	
Part Number	CFECS10.8ME11	10.800	±150	±420	25	5	fn±110kHz 1	fn±110kHz 1.5	330

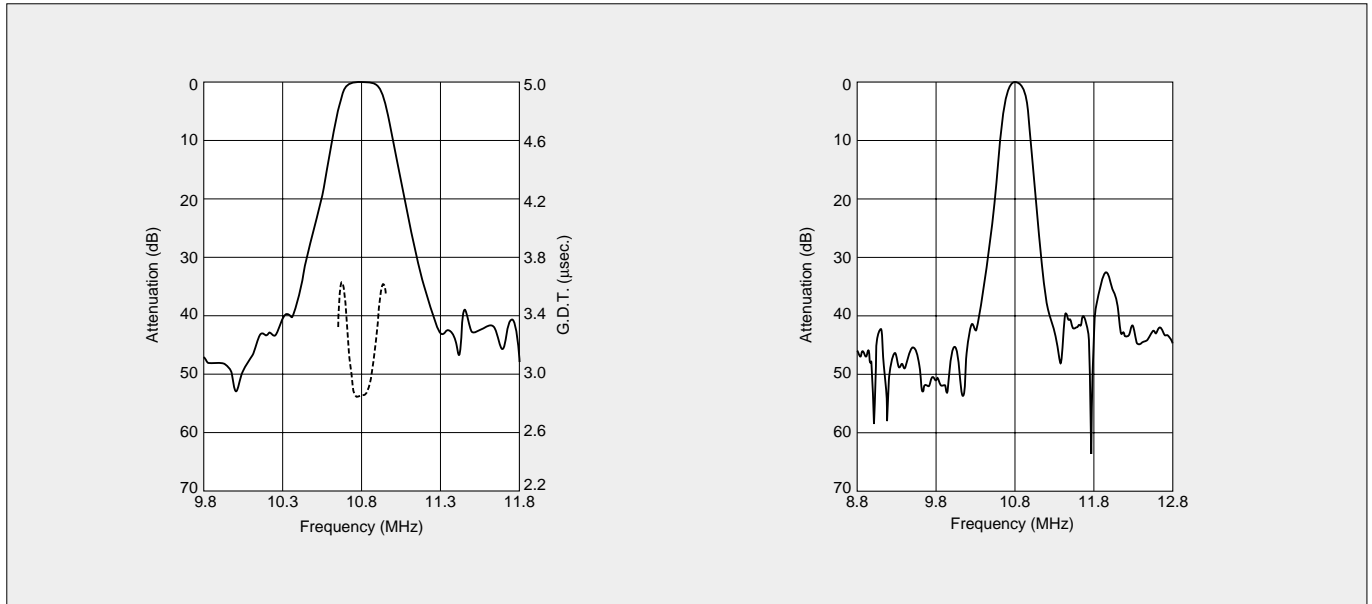
Note : For tape and reel packaging, the suffix is "-TC". For example, CFECS10.8MK1-TC.  
Types with 10.75, 10.8MHz of nominal center frequency are available.



■ TEST CIRCUIT



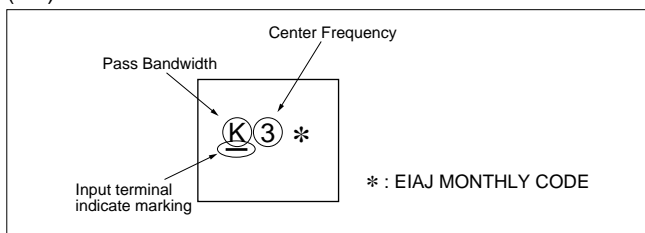
■ FREQUENCY CHARACTERISTICS (CFECS10.8MK1)



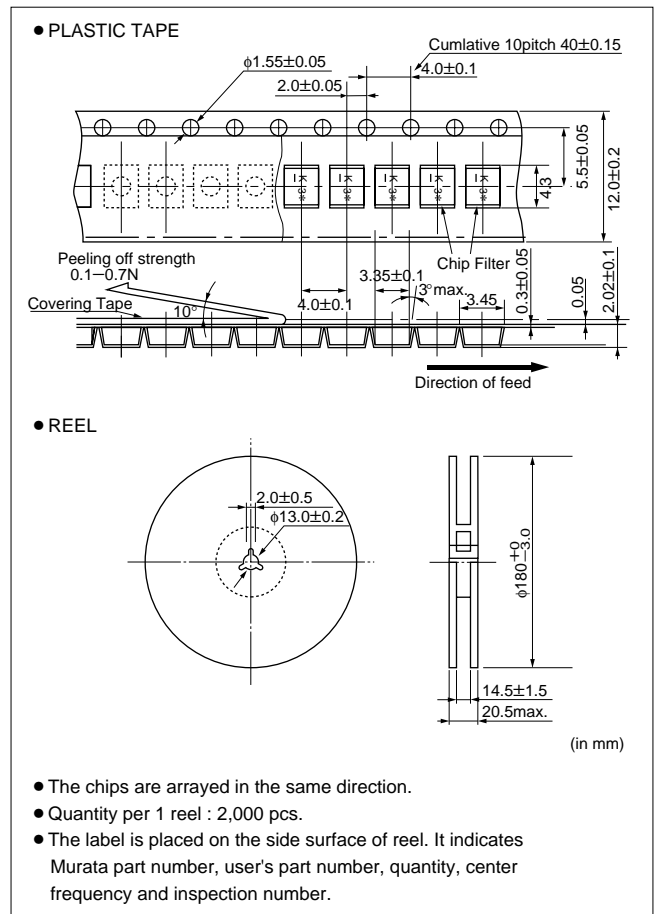
■ MARKING

Part Number	Marking	
	Center Frequency	Pass Bandwidth
CFECS10.8MK1	3	K
CFECS10.8ME11	3	E

(Ex.) CFECS10.8MK1



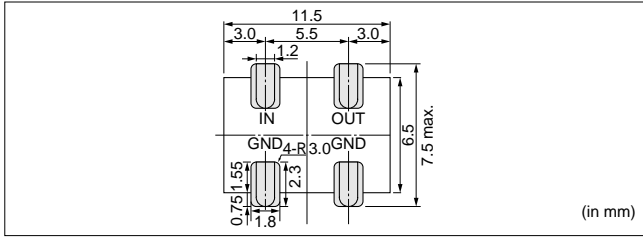
■ DIMENSIONS



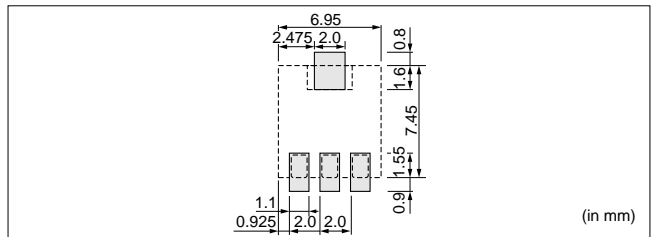
**SMD Type Ceramic Filter for Communications Equipment Applications**

**STANDARD LAND DIMENSIONS**

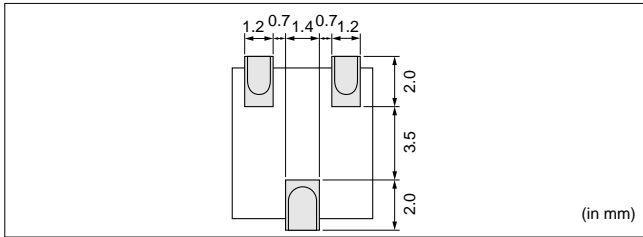
● CFWC455 Type



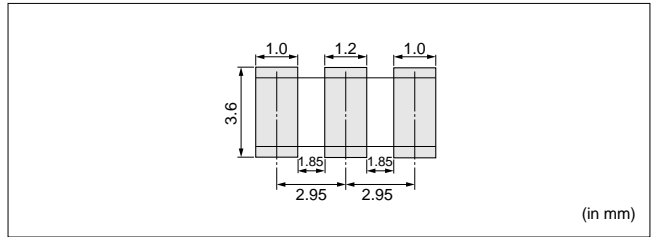
● SFPC455 Type



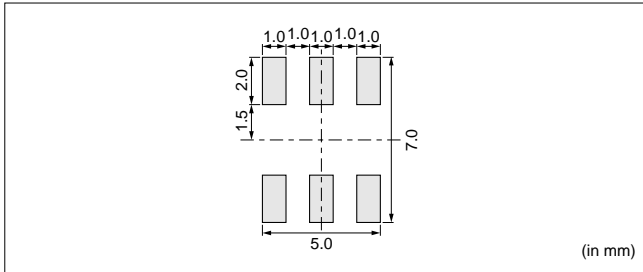
● CFUCG/SFGCG455 (KMFC626 Series) Type



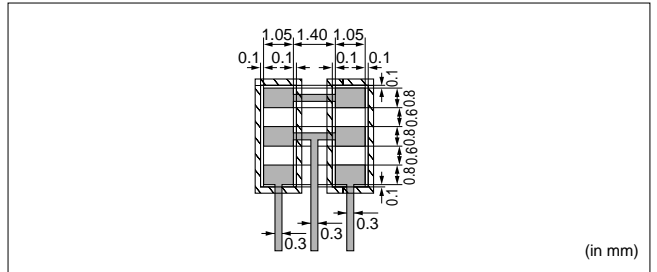
● CFEC10.8M□ Type



● CFUXC450C100H Type



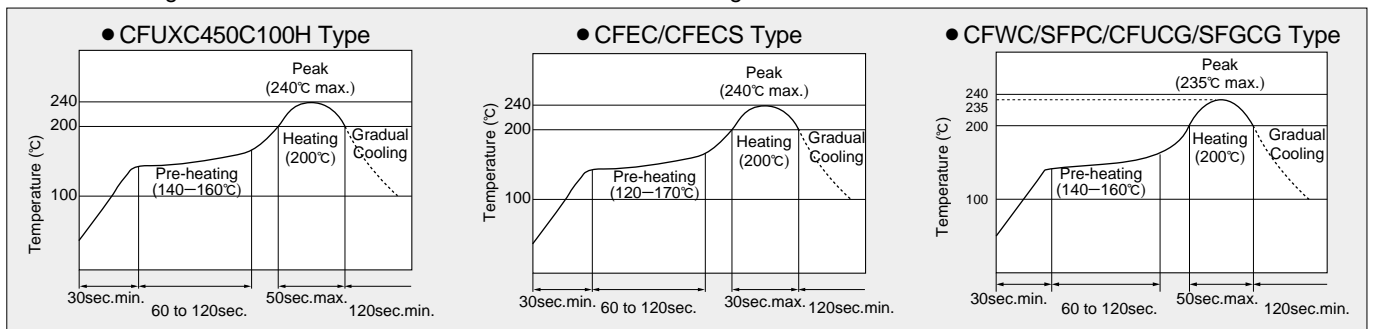
● CF ECS10.8M□ Type



**SOLDERING CONDITIONS**

(1) Reflow Soldering

Reflow soldering should be carried out one time with standard soldering conditions below.



(2) Soldering with Iron

Soldering conditions : Soldering iron temperature  $350 \pm 5^\circ\text{C}$   
 (CF ECS type :  $280 \pm 5^\circ\text{C}$ )  
 Soldering time  $3 \pm 1$  seconds.

**CLEANING CONDITIONS**

In case of SMD type ceramic filter, washing after reflow soldering shall be allowed only when the components temperature is cooled down to room temperature.

(\*Please avoid using ultrasonic cleaning. For washing liquid, please consult with us to avoid possible damage during washing process.)

Please contact us concerning cleaning method before use. For protection of ozone layer, we also investigate the non ODC cleaning process for our devices. For more details, please contact us before use.



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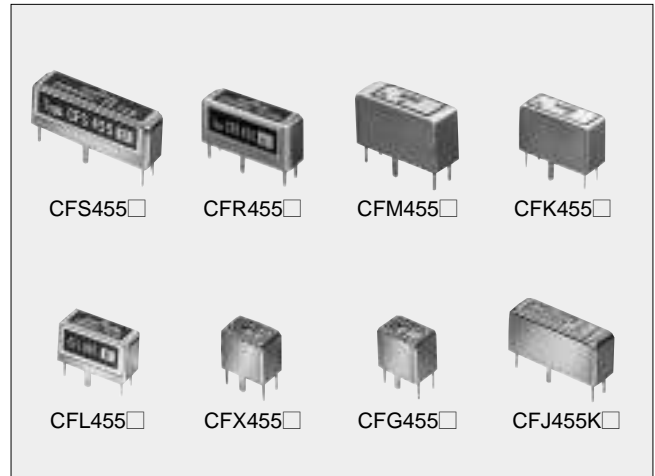
Ceramic Filter for Communications Equipment **CF□455 Series**

# High Performance Ceramic Filters for Various Types of Radio Equipment

CF□ series ceramic filters are high-performance filters, which consist of piezoelectric elements connected in a ladder form. They can be widely used as intermediate-frequency filters in various high-class receivers, SSB communications equipment, mobile radio set.

## ■FEATURES

1. High selectivity.
2. Stable operation in a wide temperature range.
3. Variety of bandwidths available to suit your needs.
4. Operating temperature range : -20 to +80°C  
Storage temperature range : -40 to +85°C



CFS455□	High selectivity type filter using 15 ceramic elements.
CFR455□	11 ceramic elements used. The characteristic standard of this filter located between CFS455□ and CFM455□.
CFM455□	Economic ceramic filter using 9 ceramic elements.
CFK455□	Miniature but having characteristics equivalent to CFS455□. Most suitable for portable radios which are required to be miniaturized.
CFL455□	Another miniature type. Characteristics are equivalent to CFR455□ and the size is the same as CFK455□. Enables immediate improvement of characteristics.
CFX455□	One of the smallest of our ceramic filters. It is provided with characteristics equivalent to CFL455□. Perfect for portable radios and particularly, pagers.
CFG455□	The other of our smallest filters. Characteristics equivalent to CFM455□. Perfect for receivers and radio equipment which require particular miniaturization.
CFJ455K□	Most suitable type for SSB communications for which narrow bands are particularly needed.

## ■ SPECIFICATIONS

### ● CFS455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	80dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance ( $\Omega$ )
CFS455A	455	±13	±17.5	3	±30	70	50	4	1500
CFS455B	455	±10	±15	3	±25	70	50	4	1500
CFS455C	455	± 9	±13	3	±23	70	50	4	1500
CFS455D	455	± 7	±10	3	±20	70	50	4	1500
CFS455E	455	± 5.5	± 8	3	±15	70	50	6	1500
CFS455E10	455	± 5	± 7.5	3	±12.5	70	50	6	1500
CFS455F	455	± 4.2	± 6	3	±12	70	50	6	2000
CFS455G	455	—	± 4	3	± 9	70	50	6	2000
CFS455H	455	—	± 3	3	± 7.5	70	50	7	2000
CFS455I	455	—	± 2	3	± 5	70	50	8	2000
CFS455J	455	—	± 1.5	3	± 4.5	60	50	8	2000

### ● CFR455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	70dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance ( $\Omega$ )
CFR455A	455	±13	±17.5	3	±30	60	40	4	1000
CFR455B	455	±10	±15	3	±25	60	40	4	1000
CFR455C	455	± 9	±13	3	±23	60	40	4	1000
CFR455D	455	± 7	±10	3	±20	60	40	4	1500
CFR455E	455	± 5.5	± 8	3	±16	55	40	6	1500
CFR455F	455	± 4.2	± 6	3	±12	55	40	6	2000
CFR455G	455	—	± 4	3	±10	55	40	6	2000
CFR455H	455	—	± 3	3	±7.5	55	40	7	2000
CFR455I	455	—	± 2	3	± 5	55	40	8	2000
CFR455J	455	—	± 1.5	3	± 4.5	55	40	8	2000

### ● CFM455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	60dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance ( $\Omega$ )
CFM455A	455	±13	±17.5	3	±30	50	30	3	1000
CFM455B	455	±10	±15	3	±25	50	30	3	1000
CFM455C	455	± 9	±13	3	±23	50	30	3	1000
CFM455D	455	± 7	±10	3	±20	50	30	3	1500
CFM455E	455	± 5.5	±8	3	±16	45	30	5	1500
CFM455F	455	± 4.2	±6	3	±12	45	30	6	2000
CFM455G	455	—	±4	3	±10	45	30	6	2000
CFM455H	455	—	±3	3	± 7.5	45	30	6	2000
CFM455I	455	—	±2	3	± 5	45	30	7	2000

### ● CFK455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	70dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance ( $\Omega$ )
CFK455B	455	±10	±15	3	±25	80	50	4	1000
CFK455C	455	± 9	±13	3	±23	80	50	4	1000
CFK455D	455	± 7	±10	3	±20	80	50	4	1500
CFK455E	455	± 5.5	± 8	3	±16	80	50	6	1500
CFK455E10	455	± 5.0	± 7.5	3	±12.5	80	50	6	1500
CFK455F	455	± 4.2	± 6	3	±12	80	50	6	2000
CFK455G	455	—	± 4	3	±10	80	50	6	2000
CFK455H	455	—	± 3	3	± 7.5	80	50	7	2000
CFK455I	455	—	± 2	3	± 5	70	50	8	2000
CFK455J	455	—	± 1.5	3	± 4.5	70	50	8	2000

## ● CFL455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	70dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFL455B	455	±10	±15	3	±25	60	40	4	1000
CFL455C	455	± 9	±13	3	±23	60	40	4	1000
CFL455D	455	± 7	±10	3	±20	60	40	4	1500
CFL455E	455	± 5.5	± 8	3	±16	60	40	6	1500
CFL455E10	455	± 5.0	± 7	3	±12.5	60	40	6	1500
CFL455F	455	± 4.2	± 6	3	±12	60	40	6	1500
CFL455G	455	—	± 4	3	±10	60	40	6	1500
CFL455H	455	—	± 3	3	± 7.5	60	40	7	1500
CFL455I	455	—	± 2	3	± 5	60	40	8	2000

## ● CFX455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	70dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFX455B	455	±10	±15	3	±25	70	40	4	1000
CFX455C	455	± 9	±13	3	±23	70	40	4	1000
CFX455D	455	± 7	±10	3	±20	70	40	4	1500
CFX455E	455	± 5.5	± 8	3	±16	70	40	6	1500
CFX455E10	455	± 5.0	± 7.5	3	±12.5	70	40	6	1500
CFX455F	455	± 4.2	± 6	3	±12	70	50	6	1500
CFX455G	455	—	± 4	3	±10	70	50	6	1500
CFX455H	455	—	± 3	3	± 7.5	70	50	7	1500
CFX455I	455	—	± 2	3	± 5	70	50	8	2000
CFX455J	455	—	± 1.5	3	± 4.5	70	50	8	2000

## ● CFG455□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	60dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFG455B	455	±10	±15	3	±25	50	25	4	1000
CFG455C	455	± 9	±13	3	±23	50	25	4	1000
CFG455D	455	± 7	±10	3	±20	50	25	4	1500
CFG455E	455	± 5.5	± 8	3	±16	50	25	6	1500
CFG455E10	455	± 5.0	± 7.0	3	±12.5	50	25	6	1500
CFG455F	455	± 4.2	± 6	3	±12	50	25	6	1500
CFG455G	455	—	± 4	3	±10	50	25	6	1500
CFG455H	455	—	± 3	3	± 7.5	50	25	6	1500
CFG455I	455	—	± 2	3	± 5	50	25	6	2000
CFG455J	455	—	± 1.5	3	± 4.5	50	25	8	2000

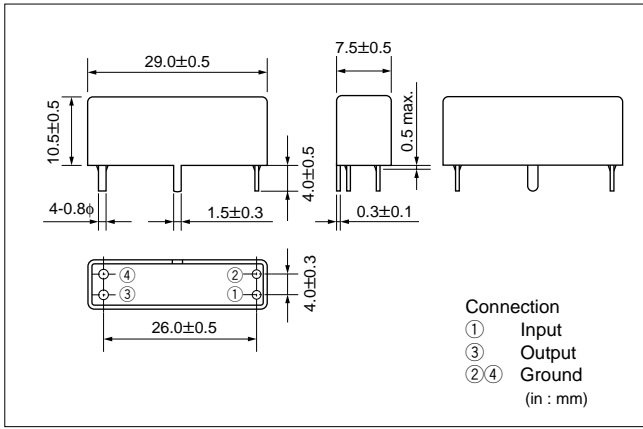
## ● CFJ455K□

Characteristics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB) max.	60dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Spurious 0.1—1MHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFJ455K5	455	—	2.4 (Total)	2	4.5 (Total)	—	60 ( 40 at 600 —700kHz)	6	2000
CFJ455K14	455	—	±1.1— ±1.3	2	4.5 (Total)	—	60 ( 40 at 600 —750kHz)	7	2000
CFJ455K8	455	—	1.0 (Total)	1.5	3.0 (Total)	60	—	8	2000

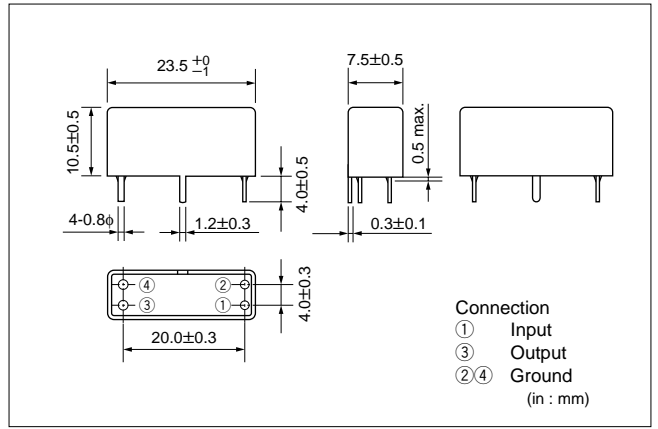
1. Operating temperature range is -20°C to +80°C.
2. Aging variation of frequency is within 0.4% over 10 years.
3. Ripple definition range is within the 3 dB bandwidth mentioned in the standards list whenever the 3 dB bandwidth standard is provided.  
It is within a 6 dB bandwidth mentioned in the standards list whenever 3 dB bandwidth is not provided.

■ DIMENSIONS

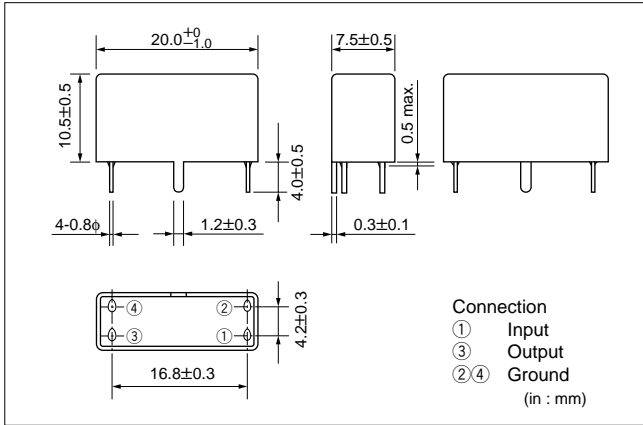
● CFS455□



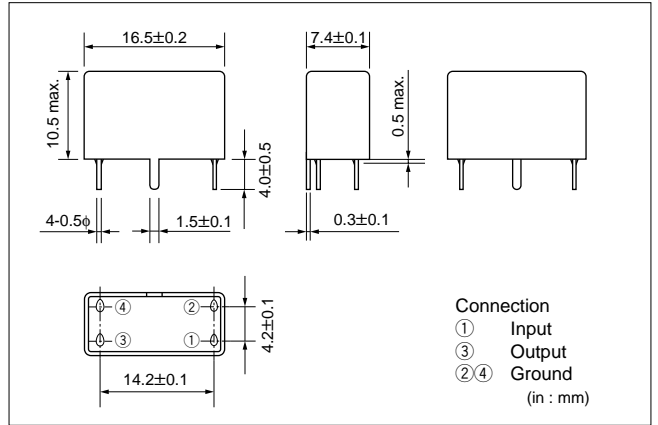
● CFR455□



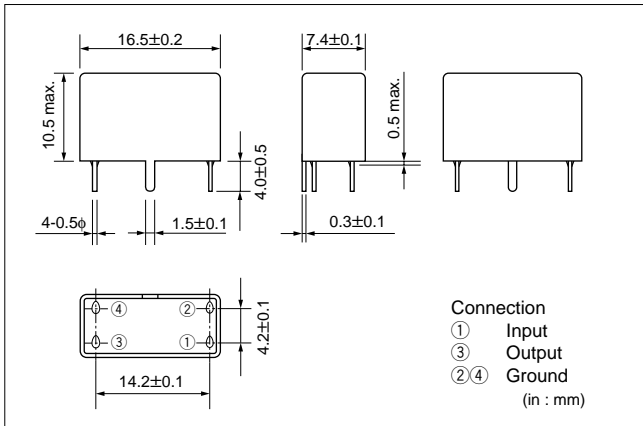
● CFM455□



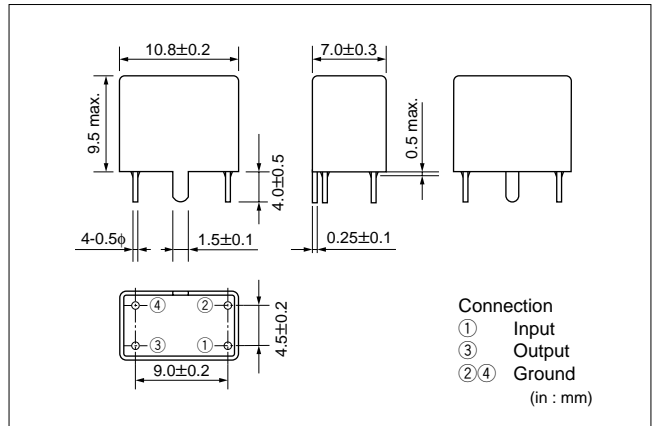
● CFK455□



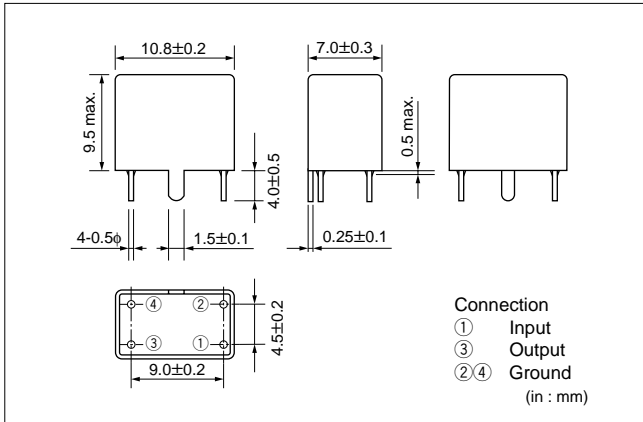
● CFL455□



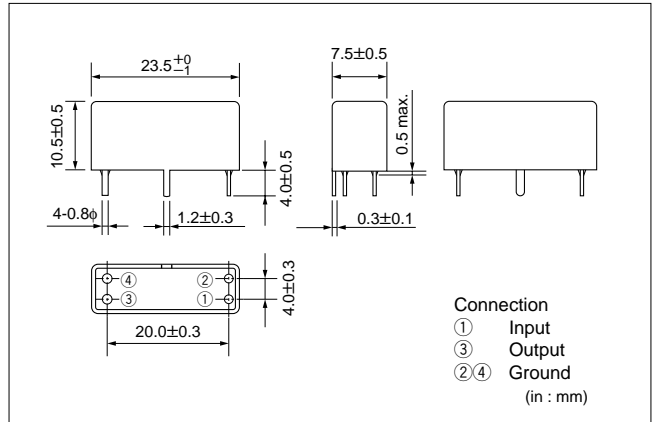
● CFX455□



● CFG455□

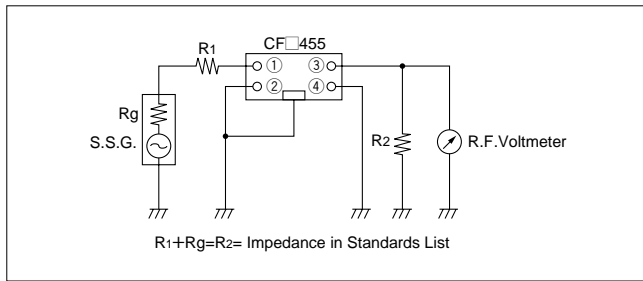


● CFJ455K□



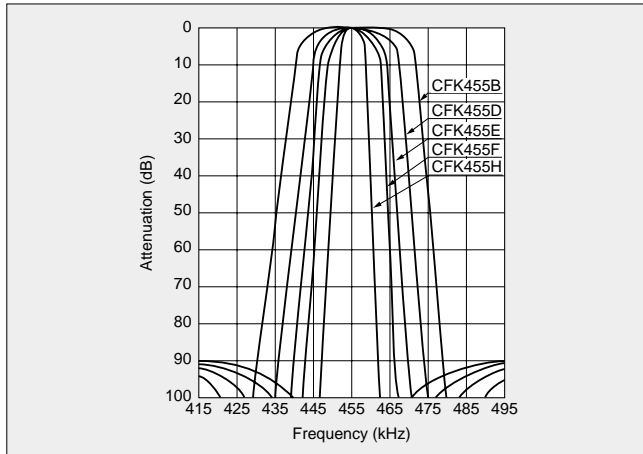
**TEST CIRCUIT**

- Measuring Circuit Diagram of the CF□455□ Series

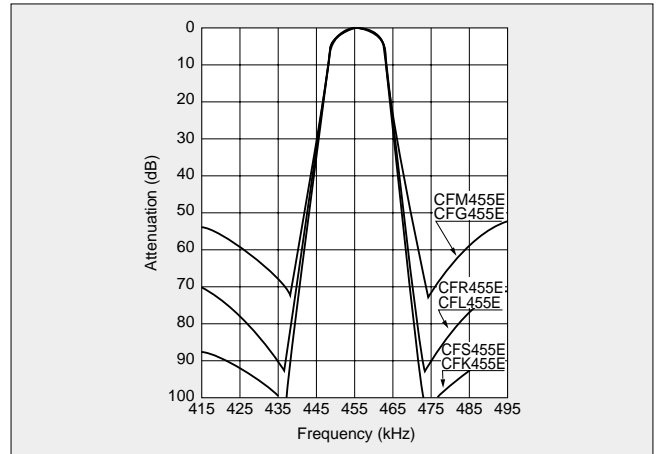


**EXAMPLES OF CHARACTERISTICS**

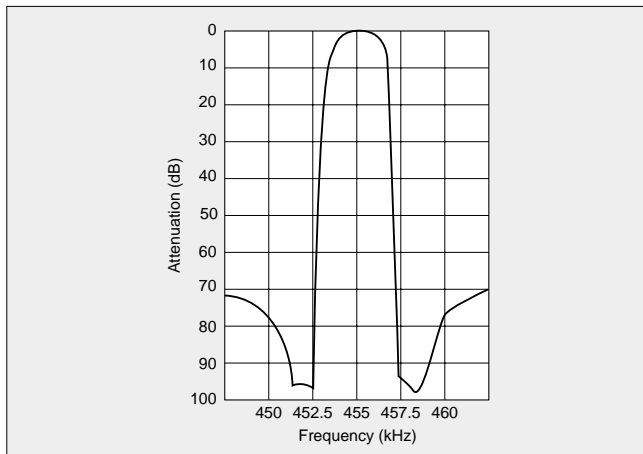
- Frequency Characteristics of the CFK455□ Series



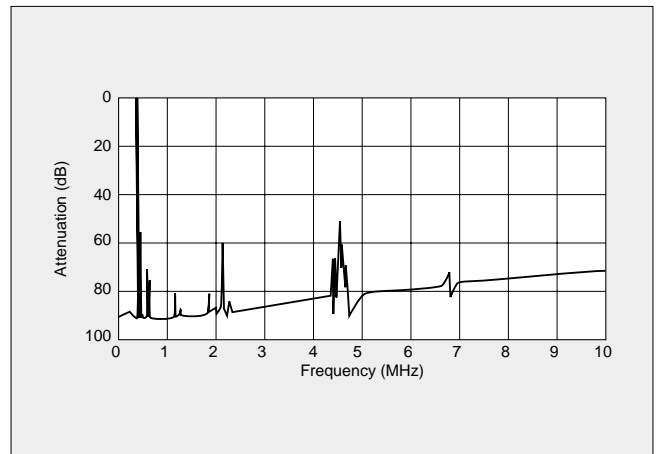
- Frequency Characteristics Comparison of the CF□455E Series



- Frequency Characteristics of CFJ455K5



- Spurious Response of CFS455E





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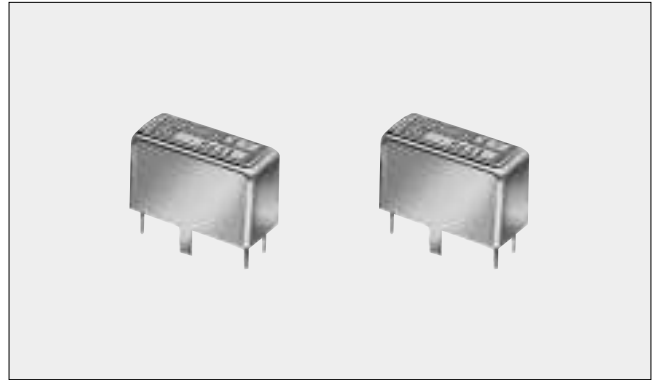
Ceramic Filter for Communications Equipment **CFKR455 Series**

# Low Insertion Loss, G.D.T. Flat Type Metal Cased Ceramic Filter for Digital Communications

The CFKR455□ is high-selectivity type ceramic filter with a metal-case and 11-elements. Insertion loss is low, and group delay characteristics are excellent. Recommended for digital communications or cellular phones.

■FEATURES

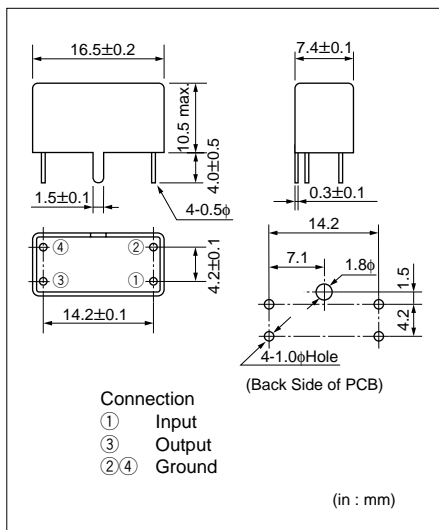
1. Because of the low insertion loss, these are suitable for narrow bandwidth.
2. Favorable group delay characteristics can be obtained in the pass bandwidth.
3. High selectivity. Attenuation is 60dB min.
4. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C



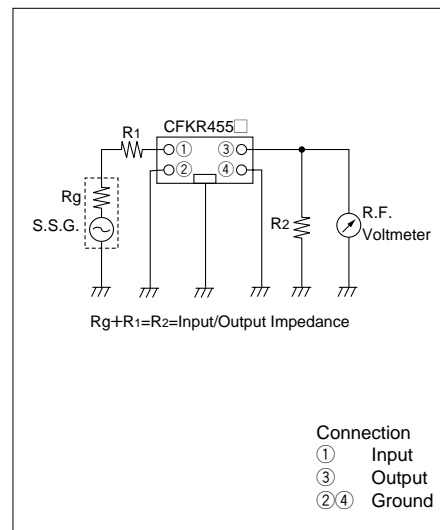
■SPECIFICATIONS

Character-istics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz)min.	6dB Bandwidth (kHz)min.	Stop Bandwidth (kHz)max.	Attenuation 455±100kHz (dB)min.	Insertion Loss (dB)max.	G.D.T. Deviation ( μ sec.)max.	Input/Output Impedance (Ω)
CFKR455E1	455	±5.8	—	±17.0 (70dB B.W.)	70	4	40 (±6kHz)	1500
CFKR455G1	455	±3.0	±4.0	±11.5 (60dB B.W.)	70	6	35 (±4kHz)	1500
CFKR455H3	455	—	±3.5	±11.2 (60dB B.W.)	60	6	25 (±3.5kHz)	1500

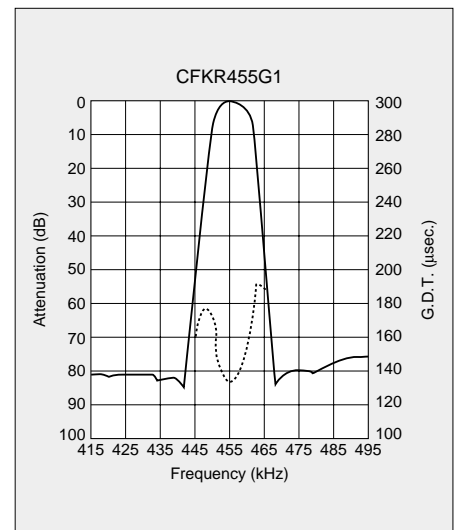
■DIMENSIONS



■TEST CIRCUIT



■FREQUENCY CHARACTERISTICS







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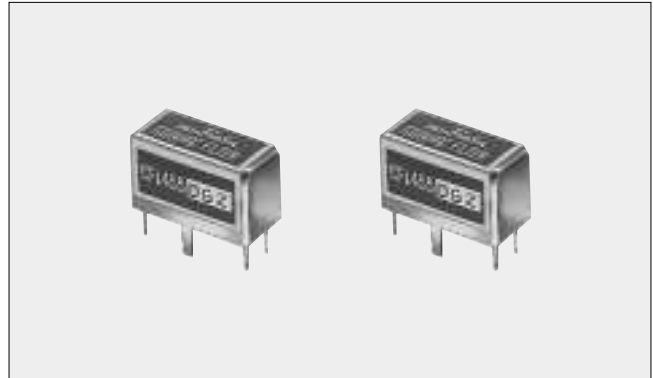
Ceramic Filter for Communications Equipment **CFL455□G Series**

# G.D.T. Flat Type, Metal cased Ceramic Filter for Digital Communications

The CFL455□G is high-selectivity type ceramic filter with a metal-case and 9-elements. Wide bandwidths can be covered, and group-delay characteristics are excellent. Recommended for digital communications or cellular phones.

## FEATURES

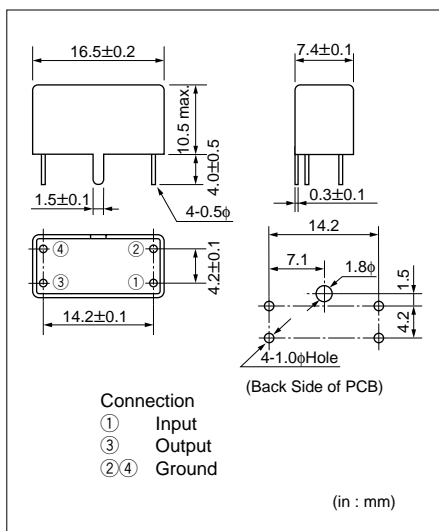
1. Suitable for wide bandwidths.  
Filters with pass bandwidths of about 40 to 15kHz are available.
2. Favorable group delay characteristics can be obtained in the pass bandwidth.
3. High selectivity. Attenuation is 60dB min.
4. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C



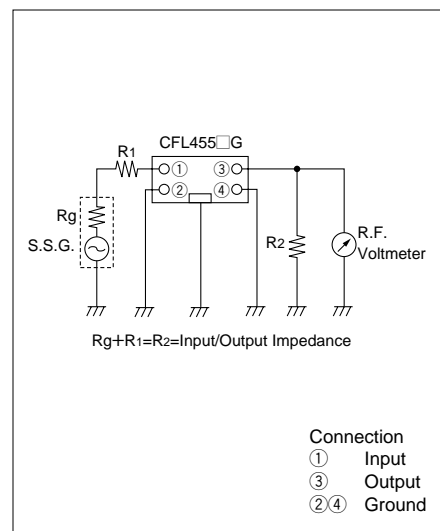
## SPECIFICATIONS

Character-istics Part Number	Center Frequency (kHz)	3dB Bandwidth (kHz)min.	6dB Bandwidth (kHz)min.	60dB Bandwidth (kHz)max.	Attenuation 455±100kHz (dB)min.	Spurious 0.1-1MHz (dB)min.	Insertion Loss (dB)max.	G.D.T. Deviation (μ sec.)max.	Input/Output Impedance (Ω)
CFL455AG2	455±1.0	—	±17.5-±19.5	48dB min. (±29kHz)	65 (±40kHz)	40	7.5	40 (±15kHz)	1000
CFL455BG5	455 Nominal	±10.5	±13.5	±27.5	60	30	10	25 (±10.5kHz)	1000
CFL455CG1	455 Nominal	± 9.5	±12	±25.5	60	30	10	35 (± 9.5kHz)	1000
CFL455DG2	455 Nominal	± 7	± 9	±21	60	30	11	35 (± 7kHz)	1000
CFL455EG1	455 Nominal	± 5	± 7	±18	60	30	13	30 (± 5kHz)	1500

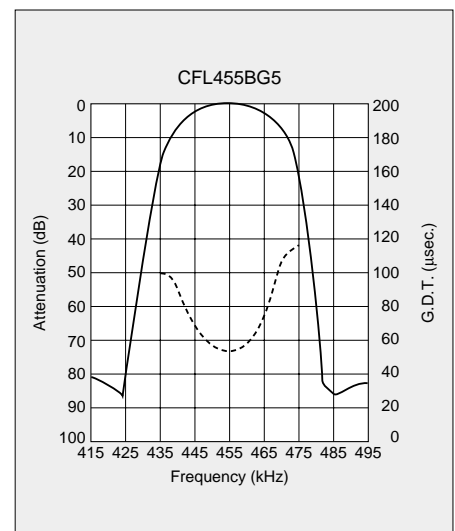
## DIMENSIONS



## TEST CIRCUIT



## FREQUENCY CHARACTERISTICS





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**Ceramic Filter for Communications Equipment CFUS455 Series**

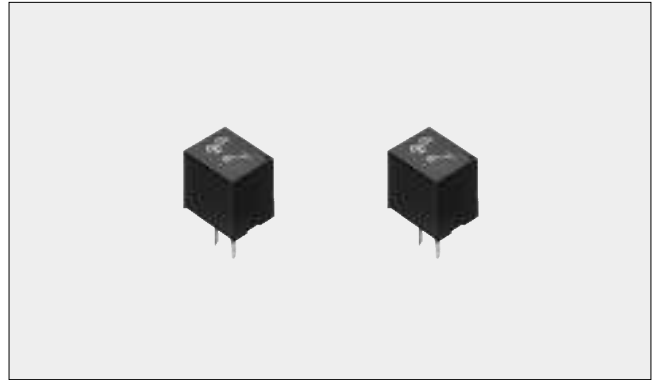
# Resin Molded, High Selectivity Type Ceramic Filter (4-Element)

Ceramic Filter CFUS455 series are high selectivity ceramic filters which consist of 4 ceramic elements connected in a ladder form.

They are recommended for use as filters for transceivers or auxiliary filters for high-class transceivers.

**FEATURES**

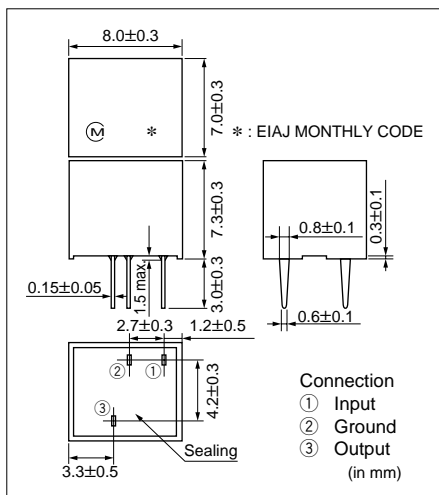
1. High selectivity.
2. The pass bandwidths from 30kHz to 4kHz are available.
3. Easily mountable onto printed boards.
4. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C



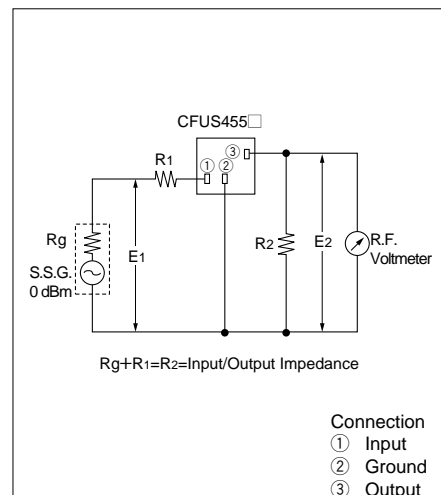
**SPECIFICATIONS**

Characteristics Part Number	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFUS455B	455±2	±15	±30	27	4	1500
CFUS455C	455±2	±12.5	±24	27	4	1500
CFUS455D	455±1.5	±10	±20	27	4	1500
CFUS455E	455±1.5	± 7.5	±15	27	6	1500
CFUS455F	455±1.5	± 6	±12.5	27	6	2000
CFUS455G	455±1	± 4.5	±10	25	6	2000
CFUS455HT	455±1	± 3	± 9	35	6	2000

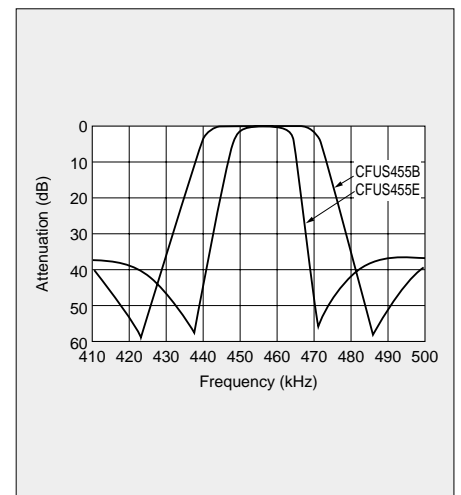
**DIMENSIONS**



**TEST CIRCUIT**



**FREQUENCY CHARACTERISTICS**



Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.  
Avoid directly applying a direct current to output of ceramic filters (between ③ and ②).



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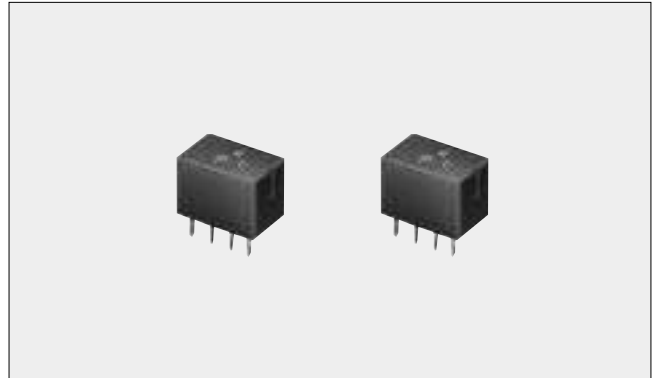
Ceramic Filter for Communications Equipment **CFWS455 Series**

# Resin Molded, High Selectivity Low Profile Type Ceramic Filter (6-Element)

Ceramic filter CFWS455□ series are low profile high selectivity ceramic filters which use 6 elements in ladder form. They have the same electric characteristics as CFW455□ series, best suitable to high-class transceivers, cordless telephones and amateur radios.

## ■FEATURES

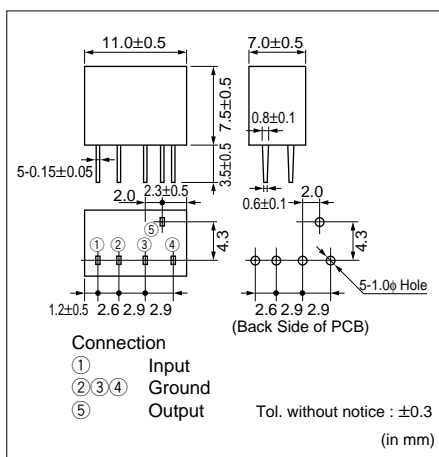
1. Low profile, high selectivity.
2. Available bandwidths B to I as standard.
3. Easily mountable on an any PC boards.
4. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C



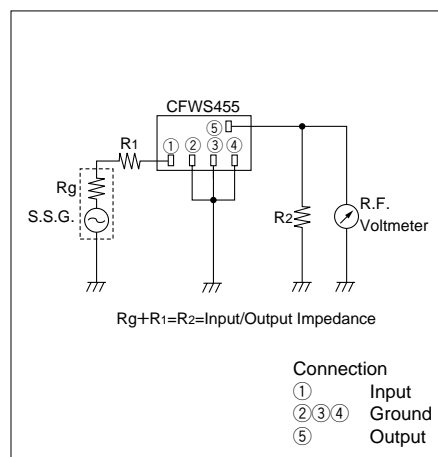
## ■SPECIFICATIONS

Part Number	Character-istics	Nominal Center Frequency (kHz)	6dB Bandwidth (kHz)min.	Ripple (dB)max.	50dB Bandwidth (kHz)max.	Attenuation 455±100kHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFWS455B		455	±15	3	±30	35	4	1500
CFWS455C		455	±12.5	3	±24	35	4	1500
CFWS455D		455	±10	3	±20	35	4	1500
CFWS455E		455	± 7.5	3	±15	35	6	1500
CFWS455F		455	± 6	3	±12.5	35	6	2000
CFWS455G		455	± 4.5	2	±10	35	6	2000
CFWS455HT		455	± 3	2	± 9	60	6	2000
CFWS455IT		455	± 2	2	± 7.5	60	6	2000

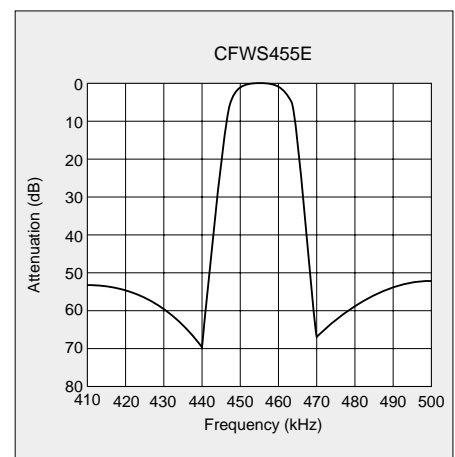
## ■DIMENSIONS



## ■TEST CIRCUIT



## ■FREQUENCY CHARACTERISTICS



Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.  
Avoid directly applying a direct current to output of ceramic filters (between ⑤ and ②,③,④).



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Miniature Ceramic Filter for Communications Equipment **CF□M455 Series**

# Miniature High Selectivity Ceramic Filter for Radio Equipment

CF□M455□ series ceramic filters are miniature, high-performance ceramic filters composed of piezoelectric elements connected in a ladder form.

These filters, with only 6.3mm high, are 60% the volume of conventional types, They are well suited for miniaturizing various kinds of communications equipment, pocket pagers, car radios, cordless telephones and Mobile telephones.

## ■FEATURES

1. Miniature, high selectivity.
2. 4 elements, 6 elements, 7 elements and 9 elements types are all available, making selection easy in accordance with desired selectivity.
3. A variety of bandwidths are available.
4. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C



## ■SPECIFICATIONS

### ●CFUM455□

Characteristics Part Number	Nominal Center Frequency (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFUM455B	455	±15	±30	27	4	1500
CFUM455C	455	±12.5	±24	27	4	1500
CFUM455D	455	±10	±20	27	4	1500
CFUM455E	455	± 7.5	±15	27	6	1500
CFUM455F	455	± 6	±12.5	27	6	2000
CFUM455G	455	± 4.5	±10	25	6	2000
CFUM455H	455	± 3	± 9	35	6	2000
CFUM455I	455	± 2	± 7.5	35	7	2000

●CFUM455□ series filters are 4-element ceramic filters and miniature versions of CFUS455□ series.

### ●CFWM455□

Characteristics Part Number	Nominal Center Frequency (kHz)	6dB Bandwidth (kHz) min.	50dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFWM455B	455	±15	±30	35	4	1500
CFWM455C	455	±12.5	±24	35	4	1500
CFWM455D	455	±10	±20	35	4	1500
CFWM455E	455	± 7.5	±15	35	6	1500
CFWM455F	455	± 6	±12.5	35	6	2000
CFWM455G	455	± 4.5	±10	35	6	2000
CFWM455H	455	± 3	± 9	55	6	2000
CFWM455I	455	± 2	± 7.5	55	7	2000

●CFWM455□ series filters are 6-element ceramic filters and miniature version of CFWS455□ series.

## ● CFVM455□

Character- istics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB)max.	60dB Bandwidth (kHz) max.	Attenuation (dB) min.	Spurious Response (dB)min.	Insertion Loss (dB) max.	Input/Output Impedance ( $\Omega$ )
CFVM455B	455	$\pm 10$	$\pm 15$	3	$\pm 25$	50	25	4	1000
CFVM455C	455	$\pm 9$	$\pm 13$	3	$\pm 23$	50	25	4	1000
CFVM455D	455	$\pm 7$	$\pm 10$	3	$\pm 20$	50	25	4	1500
CFVM455E	455	$\pm 5.5$	$\pm 8$	3	$\pm 16$	50	25	6	1500
CFVM455E10	455	$\pm 5.0$	$\pm 7.0$	3	$\pm 12.5$	50	25	6	1500
CFVM455F	455	$\pm 4.2$	$\pm 6$	3	$\pm 12$	50	25	6	1500
CFVM455G	455	—	$\pm 4$	3	$\pm 10$	50	25	6	1500
CFVM455H	455	—	$\pm 3$	3	$\pm 7.5$	50	25	6	1500

● CFVM455□ series filters are 7-element.

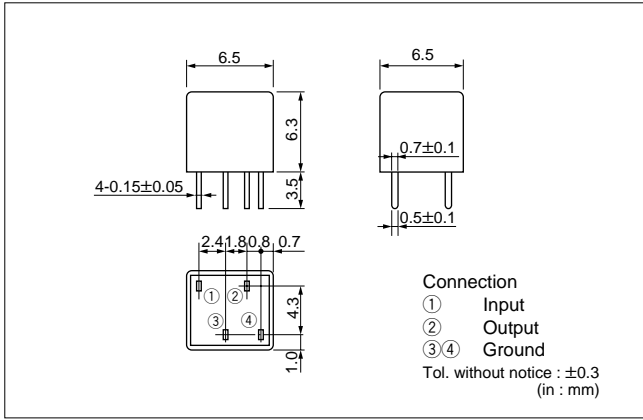
## ● CFZM455□

Character- istics Part Number	Nominal Center Frequency (kHz)	3dB Bandwidth (kHz) min.	6dB Bandwidth (kHz) min.	Ripple (dB)max.	70dB Bandwidth (kHz) max.	Attenuation (dB) min.	Spurious Response (dB)min.	Insertion Loss (dB) max.	Input/Output Impedance ( $\Omega$ )
CFZM455B	455	$\pm 10$	$\pm 15$	3	$\pm 25$	70	40	4	1000
CFZM455C	455	$\pm 9$	$\pm 13$	3	$\pm 23$	70	40	4	1000
CFZM455D	455	$\pm 7$	$\pm 10$	3	$\pm 20$	70	40	4	1500
CFZM455E	455	$\pm 5.5$	$\pm 8$	3	$\pm 16$	70	40	6	1500
CFZM455E10	455	$\pm 5.0$	$\pm 7.5$	3	$\pm 12.5$	70	40	6	1500
CFZM455F	455	$\pm 4.2$	$\pm 6$	3	$\pm 12$	70	50	6	1500
CFZM455G	455	—	$\pm 4$	3	$\pm 10$	70	50	6	1500
CFZM455H	455	—	$\pm 3$	3	$\pm 7.5$	70	50	7	1500

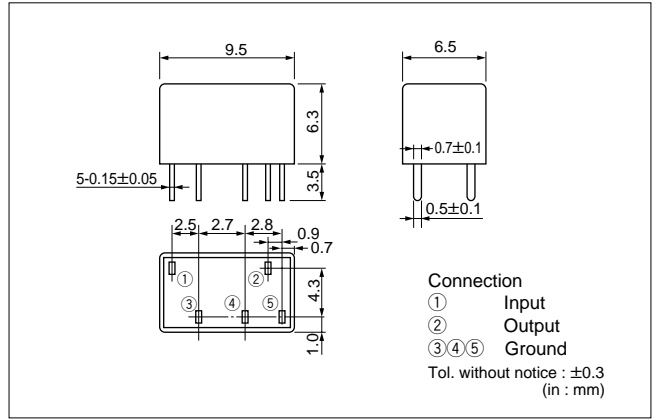
● CFZM455□ series filters are 9-element ceramic filters and miniature versions of metal-case type CFX455□ series.  
They are excellent for high-class equipment.

■ DIMENSIONS

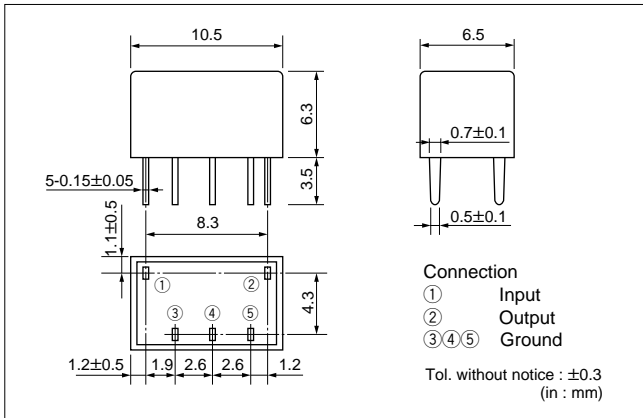
● CFUM455□



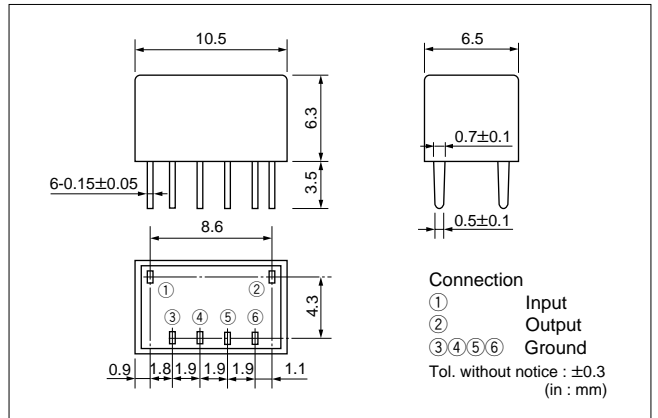
● CFWM455□



● CFVM455□

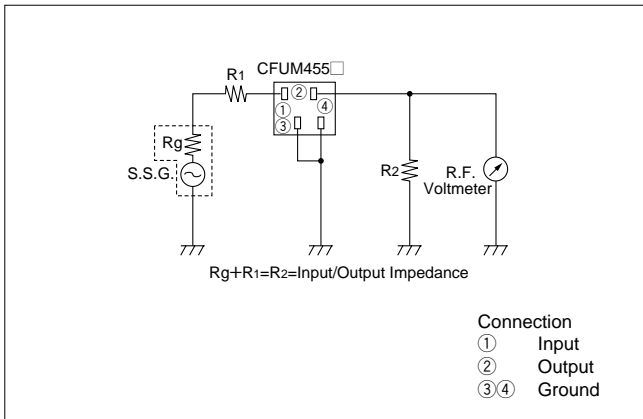


● CFZM455□

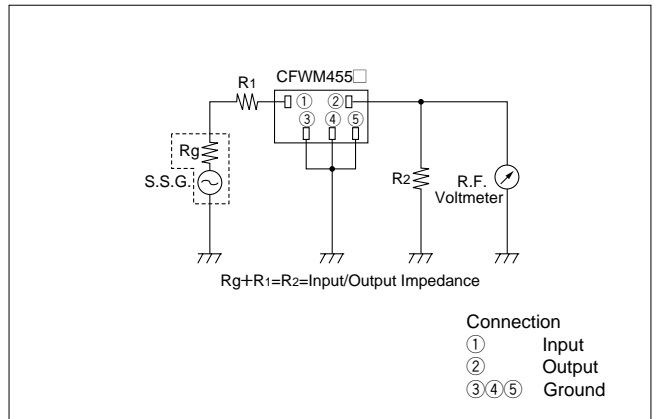


■ TEST CIRCUIT

● CFUM455□

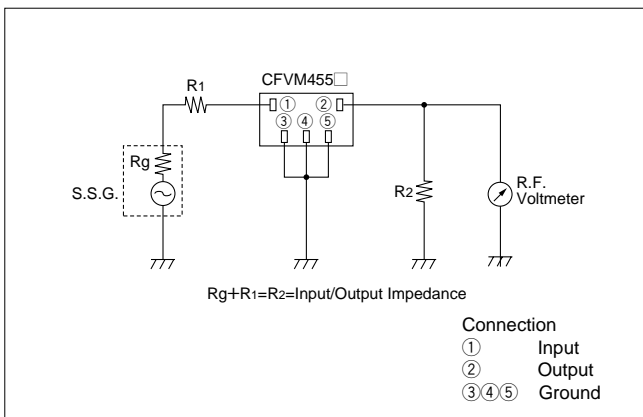


● CFWM455□

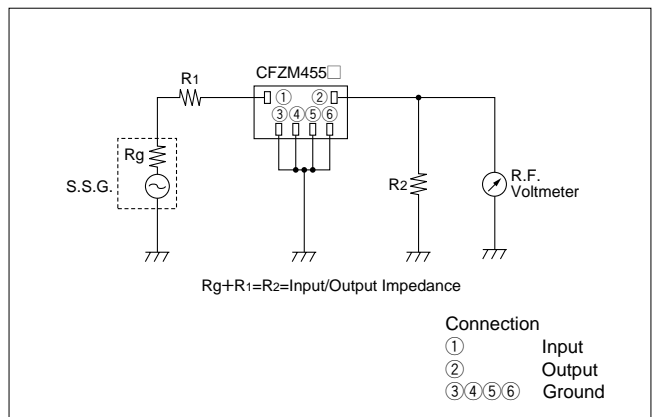


Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.  
 Avoid directly applying a direct current to output end of ceramic filters.

● CFVM455□

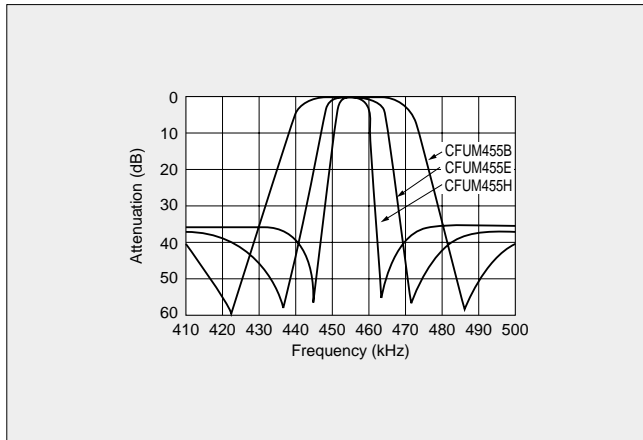


● CFZM455□

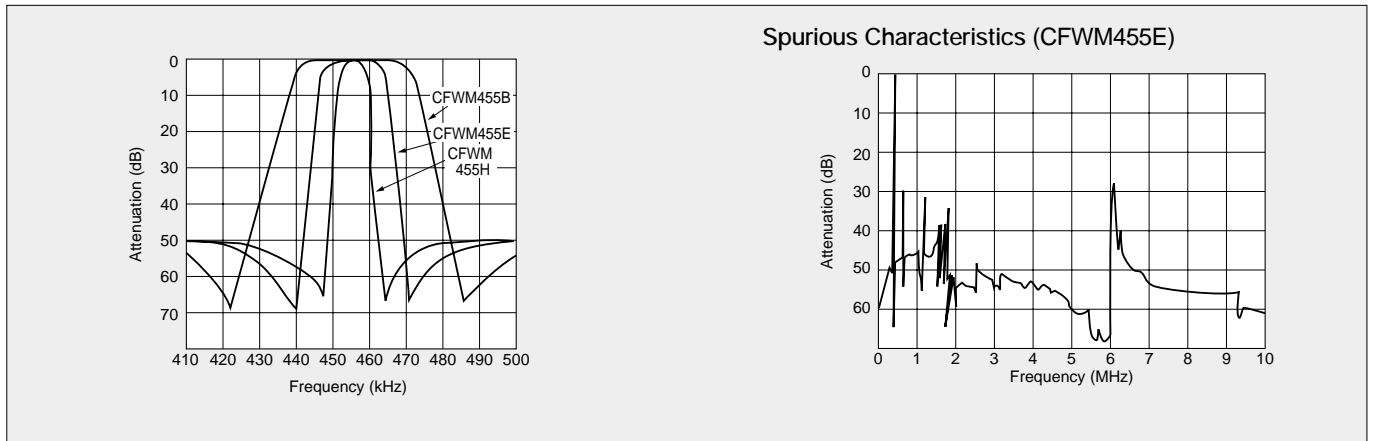


### ■ FREQUENCY CHARACTERISTICS

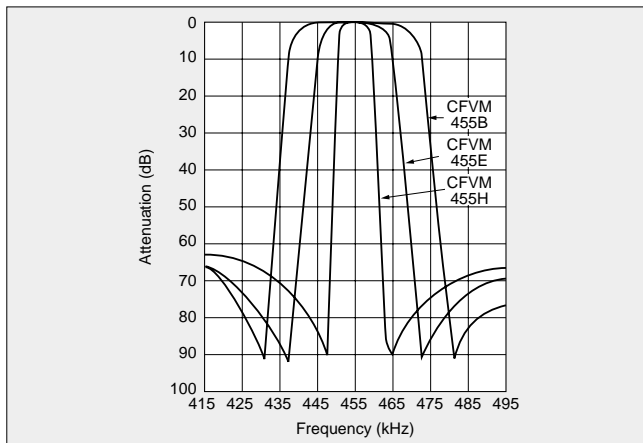
#### ● CFUM455□



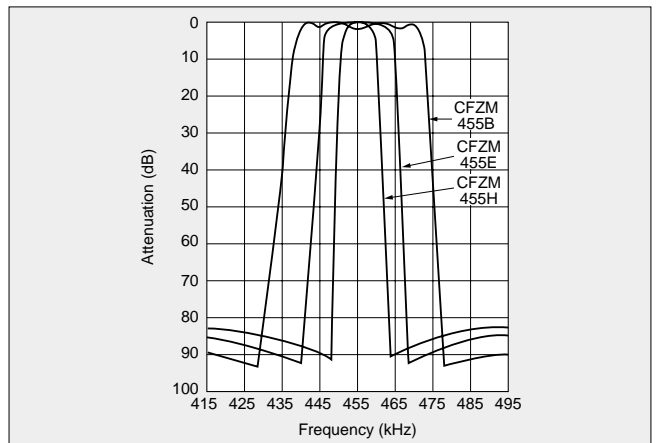
#### ● CFWM455□



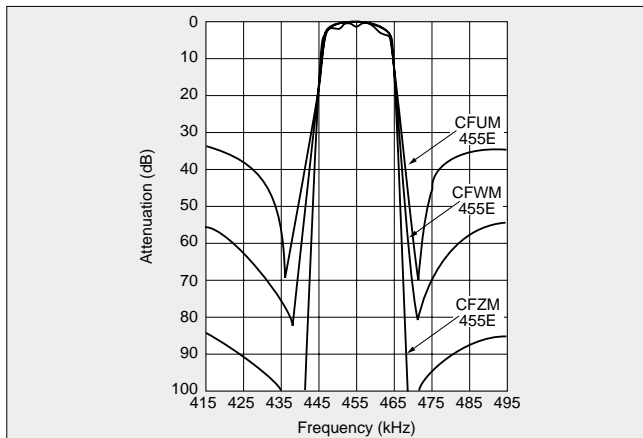
#### ● CFVM455□



#### ● CFZM455□



#### ● Comparison of CFUM, CFWM and CFZM Characteristics





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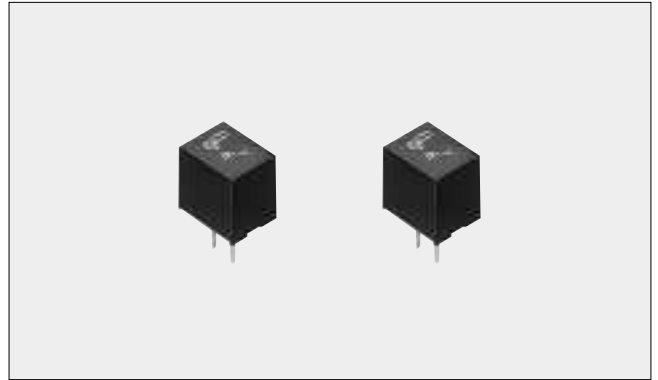
Ceramic Filter for Communications Equipment **CFUS455□Y Series**

# Resin Molded, G.D.T. Flat Type Ceramic Filter

CFUS455□Y series are high selectivity ceramic filters, which consist of 4 ceramic elements connected in a ladder form. Most suitable for digital communications and cellular phones because of their improved G.D.T. characteristics.

## ■FEATURES

1. High selectivity.
2. A variety of bandwidth available.
3. Excellent G.D.T. characteristics are available within pass bandwidth.
4. Easily mounted on a printed circuit board.
5. Operating temperature range :  $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$   
Storage temperature range :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

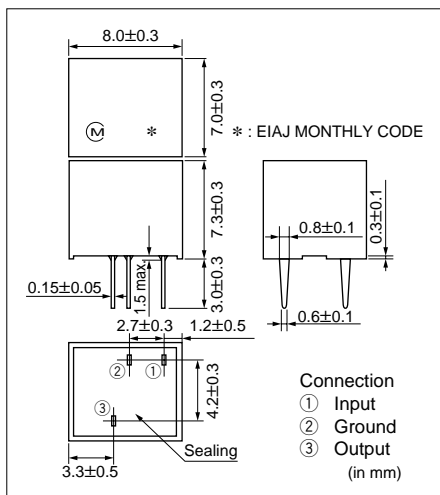


## ■SPECIFICATIONS

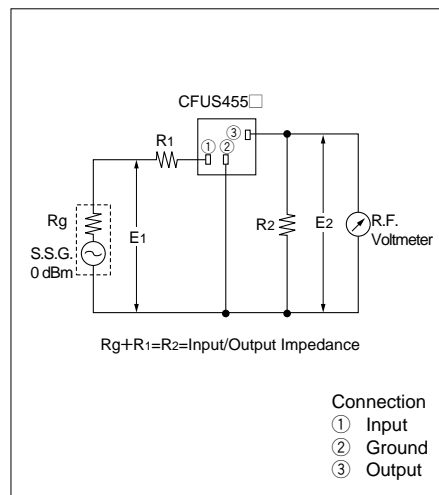
Part Number	Character-istics	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB)min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)	G.D.T.Deviation (μ sec.) *
CFUS455BY		455±1.5	±15	±35	25	5	1500	[15] (±10kHz)
CFUS455CY		455±1.5	±12.5	±30	25	6	1500	[15] (± 8kHz)
CFUS455DY		455±1.0	±10	±25	23	7	1500	[20] (± 7kHz)
CFUS455EY		455±1.0	± 7.5	±20	23	8	1500	[20] (± 5kHz)
CFUS455FY		455±1.0	± 6	±17.5	23	9	2000	[20] (± 4kHz)
CFUS455GY		455±1.0	± 4.5	±15	23	10	2000	[20] (± 3kHz)

\*Typical value.

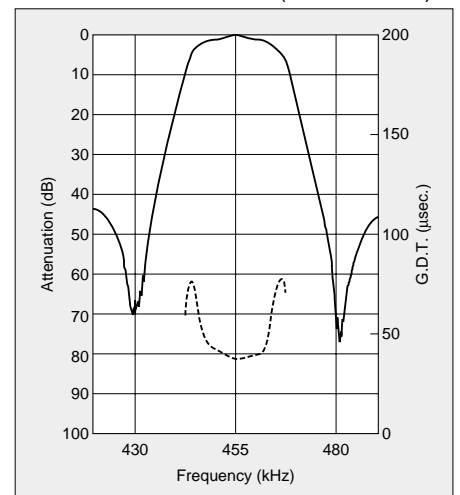
## ■DIMENSIONS



## ■TEST CIRCUIT



## ■CHARACTERISTICS (CFUS455DY)



Note : To take best advantage of safety features of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor. Avoid directly applying a direct current to output end of ceramic filters (between ③ and ②).





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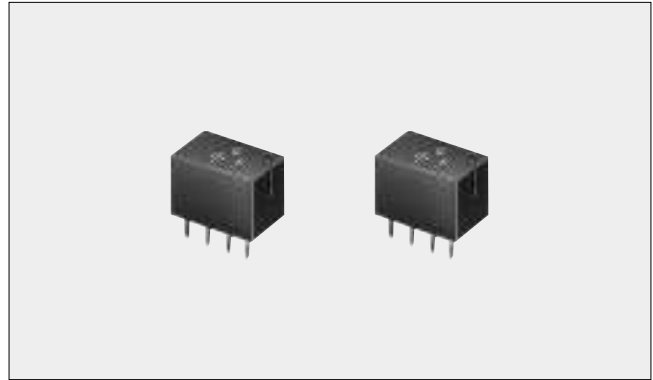
Ceramic Filter for Communications Equipment **CFWS455□Y Series**

# Resin Molded, G.D.T. Flat Type Ceramic Filter

CFWS455□Y series are high selectivity ceramic filters, which consist of 6 ceramic elements connected in a ladder form. Most suitable for digital communications and mobile telephones because of their improved G.D.T. characteristics.

## ■FEATURES

1. High selectivity.
2. A variety of bandwidth are available.
3. Excellent G.D.T. characteristics are available within pass bandwidth.
4. Easily mounted on a printed circuit board.
5. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C

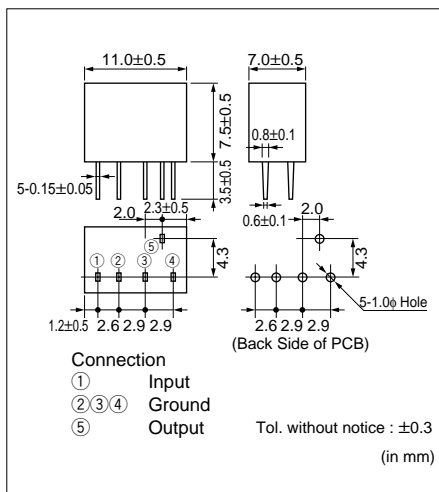


## ■SPECIFICATIONS

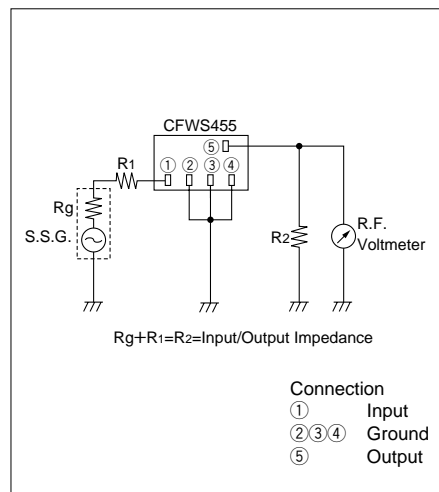
Character-istics Part Number	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	50dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB)min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)	G.D.T.Deviation (μ sec.) *
CFWS455BY	455±1.5	±15	±35	35	6	1500	[30] (±10kHz)
CFWS455CY	455±1.5	±12.5	±30	35	7	1500	[30] (± 8kHz)
CFWS455DY	455±1.0	±10	±25	35	8	1500	[30] (± 7kHz)
CFWS455EY	455±1.0	± 7.5	±20	35	9	1500	[30] (± 5kHz)
CFWS455FY	455±1.0	± 6	±17.5	35	10	2000	[40] (± 4kHz)
CFWS455GY	455±1.0	± 4.5	±15	35	13	2000	[40] (± 3kHz)

\*Typical value.

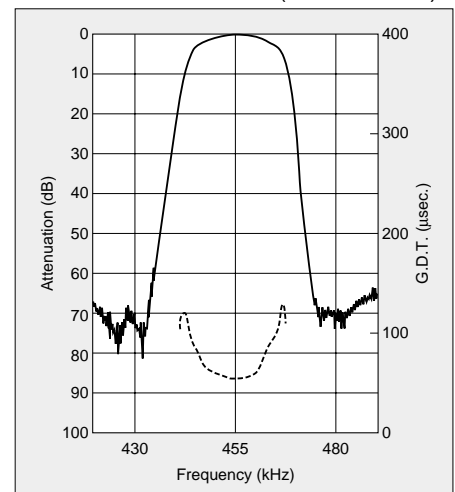
## ■DIMENSIONS



## ■TEST CIRCUIT



## ■CHARACTERISTICS (CFWS455DY)



Note : To take best advantage of safety features of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor. Avoid directly applying a direct current to output end of ceramic filters (between ⑤ and ②,③,④).



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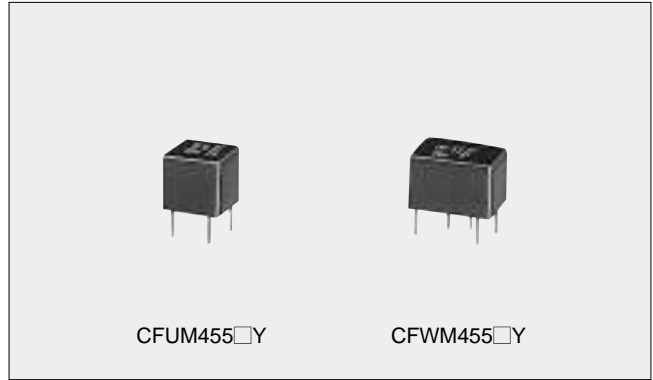
Ceramic Filter for Communications Equipment **CFUM/CFWM455□Y Series**

# Miniature, G.D.T. Flat Type Ceramic Filter

Ceramic filter CFUM/CFWM455□Y series are miniature and high-performance filters. These filters, with only 6.3mm high, are 60% the volume of conventional types (CFUS/CFWS series). Well suited for miniaturizing the communications equipment, especially for a cellular phone.

### ■FEATURES

1. Miniature, flat G.D.T. characteristics.
2. Suitable for a cellular phone.
3. A variety of bandwidth are available.
4. Operating temperature range : -20°C to +80°C  
Storage temperature range : -40°C to +85°C



### ■SPECIFICATIONS

#### ● CFUM455□Y

Character-istics Part Number	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	40dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB)min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)	G.D.T.Deviation (μ sec.)
CFUM455BY	455±1.5	±15	±35	25	5	1500	[15] (±10kHz)
CFUM455CY	455±1.5	±12.5	±30	25	6	1500	[15] (± 8kHz)
CFUM455DY	455±1.0	±10	±25	23	7	1500	[20] (± 7kHz)
CFUM455EY	455±1.0	± 7.5	±20	23	8	1500	[20] (± 5kHz)
CFUM455FY	455±1.0	± 6	±17.5	23	9	2000	[20] (± 4kHz)
CFUM455GY	455±1.0	± 4.5	±15	23	10	2000	[20] (± 3kHz)

● CFUM455□Y series filters are 4-element ceramic filters and miniature type of CFUS455□Y series.

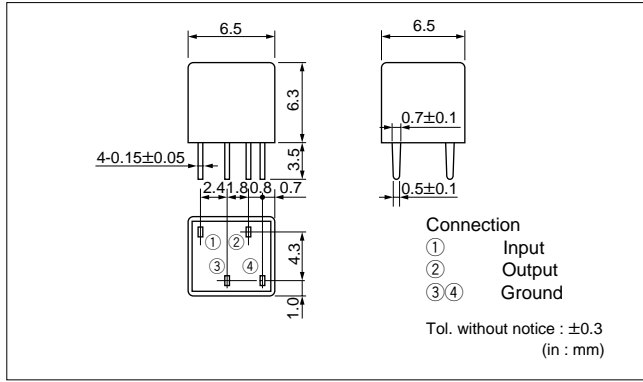
#### ● CFWM455□Y

Character-istics Part Number	Center Frequency (kHz)	6dB Bandwidth (kHz) min.	50dB Bandwidth (kHz) max.	Attenuation 455±100kHz (dB)min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)	G.D.T.Deviation (μ sec.)
CFWM455BY	455±1.5	±15	±35	35	6	1500	[30] (±10kHz)
CFWM455CY	455±1.5	±12.5	±30	35	7	1500	[30] (± 8kHz)
CFWM455DY	455±1.0	±10	±25	35	8	1500	[30] (± 7kHz)
CFWM455EY	455±1.0	± 7.5	±20	35	9	1500	[30] (± 5kHz)
CFWM455FY	455±1.0	± 6	±17.5	35	10	2000	[40] (± 4kHz)
CFWM455GY	455±1.0	± 4.5	±15.0	35	13	2000	[40] (± 3kHz)

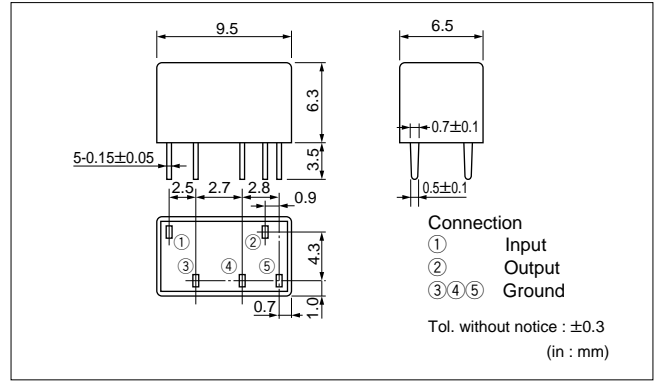
● CFWM455□Y series filters are 6-element ceramic filters and miniature type of CFWS455□Y series.

**■ DIMENSIONS**

● CFUM455□Y

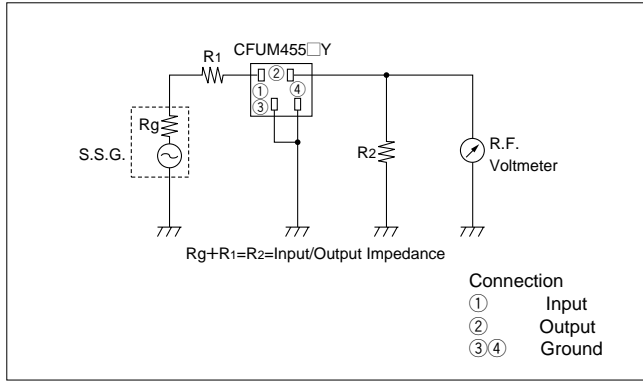


● CFWM455□Y

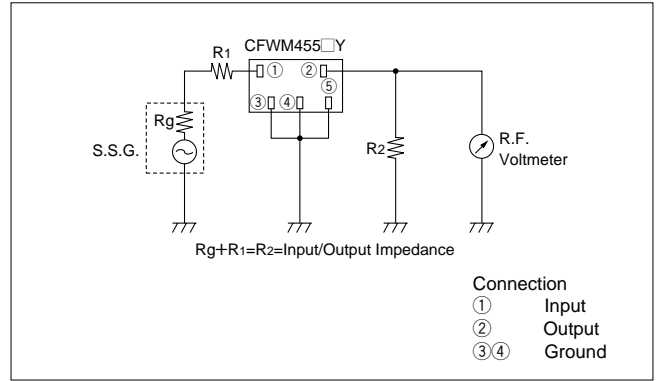


**■ TEST CIRCUITS**

● CFUM455□Y



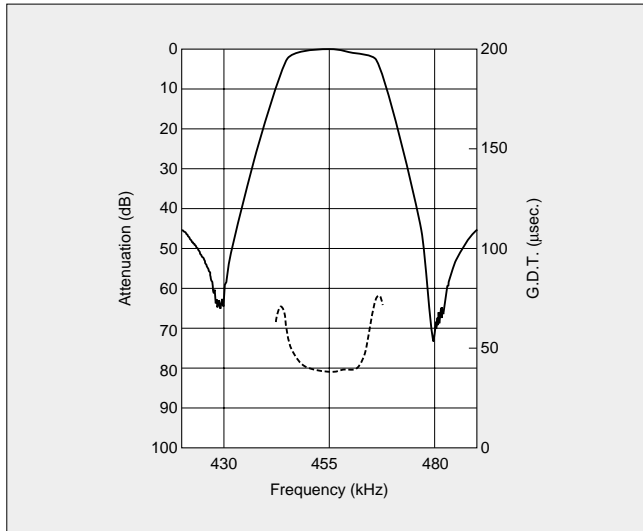
● CFWM455□Y



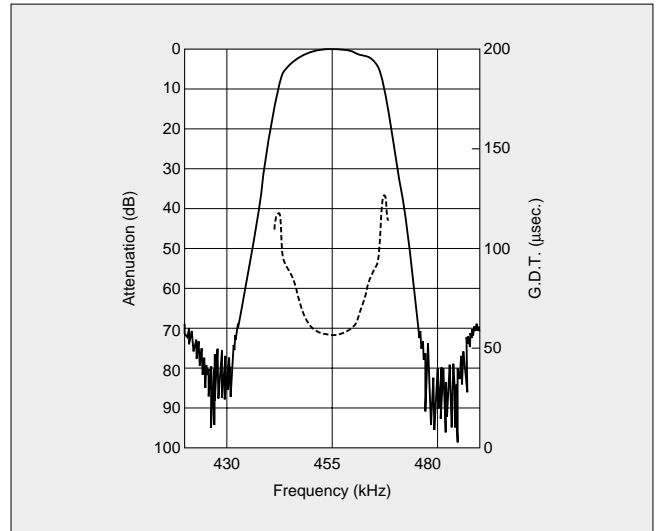
Note : To take best advantage of safety features of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.  
Avoid directly applying a direct current to output end of ceramic filters.

**■ FREQUENCY CHARACTERISTICS**

● CFUM455DY



● CFWM455DY





# DISCRIMINATOR



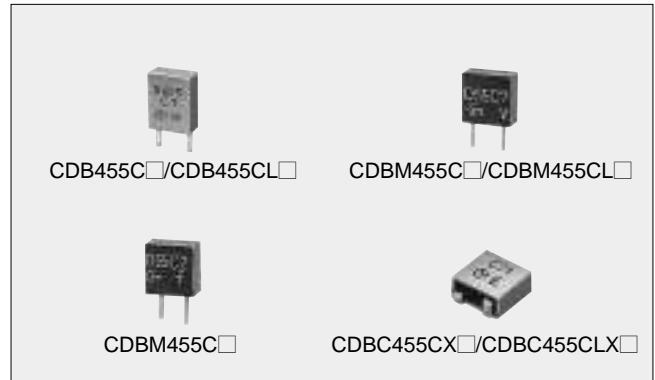
Ceramic Discriminator for Communications Equipment

## High Performance Ceramic Discriminator for Various Mobile Communication Equipment

Ceramic discriminator consists of wide band piezoelectric resonator. It is ideal for mobile communication equipments due to its small size and light weight. Standard line include products for wide range of application, from cordless telephone to cellular telephone, making non-adjustment and shrinking of the detection circuit possible.

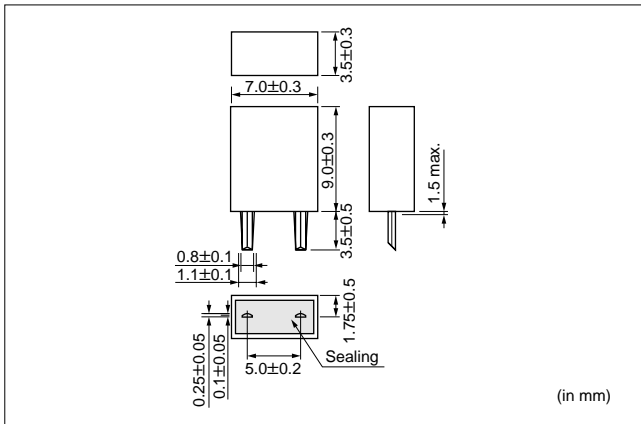
### FEATURES

1. Small in size and light weight.
2. Realize non-adjustment in detection circuit.
3. High sensitivity and stability.
4. Wide range of standard products are available for various ICs.
5. Operating temperature range :  $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$   
Storage temperature range :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

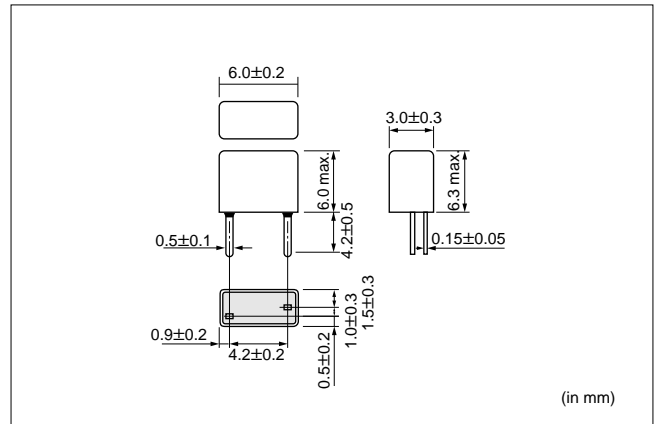


### DIMENSIONS

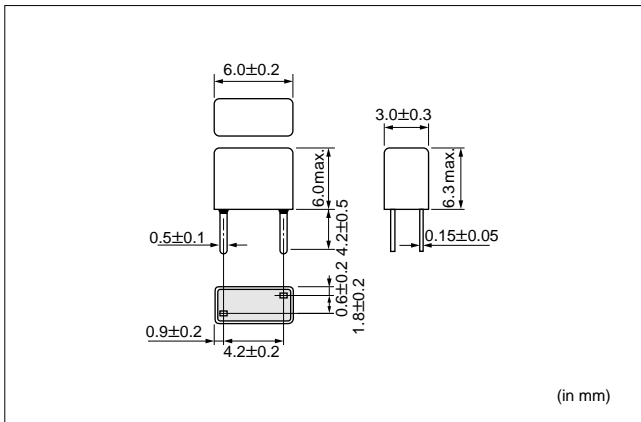
#### • CDB455C□/CDB455CL□



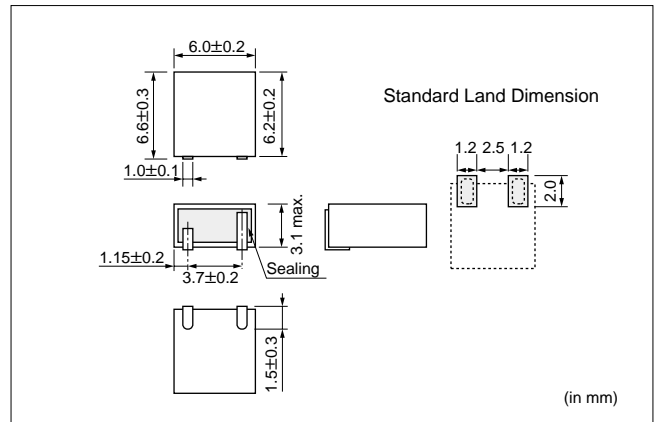
#### • CDBM455C□/CDBM455CL□



#### • CDBM455C□



#### • CDBC455CX□/CDBC455CLX□



\*Refer to the IC list in the next page for suffix number in □.

**■ ELECTRICAL CHARACTERISTICS**

● Impedance Curve Specification

Character-istics Part Number	Resonant Frequency (Fr)	Antiresonant Frequency (Fa)	$\Delta F(Fa-Fr)$	Resonant Resistance (R1)	Capacitance (C)	I C	Application
CDBM455C2	447±1.5kHz (  Z =2.05kΩ)		463±1.5kHz (  Z =10.0kΩ)		140pF±20%	TA8104	Pager
CDBC455CX2	447±1.5kHz (  Z =0.80kΩ)		463±1.5kHz (  Z =3.65kΩ)		280pF±20%		
CDB455C3	—	455 ±1.5kHz	48±5.0kHz	70Ωmax.	600pF±20%	CXA1184M	Pager
CDBM455C3	—	455 ±1.5kHz	46±5.0kHz	70Ωmax.	550pF±20%		
CDBM455C4	—	470 ±1.0kHz	43±2.0kHz	300Ωmax.	140pF±20%	LA8610	Pager
CDB455C10	429±2kHz	—	51±5.0kHz	70Ωmax.	580pF±20%	TA8103F	Cordless Telephone
CDBM455C10	429±2kHz	—	51±5.0kHz	70Ωmax.	580pF±20%		
CDBM455C15	—	463.5±1kHz	43±2.0kHz	300Ωmax.	140pF±20%	CXA1183M	Cordless Telephone
CDBM455C25	—	465 ±1.5kHz	45±4.0kHz	300Ωmax.	135pF±20%	CXA1484	Pager
CDBM455C31	447±1.5kHz (  Z =2.05kΩ)		463±1.5kHz (  Z =10.0kΩ)		140pF±20%	TA31141	Pager
CDBC455CX31	447±1.5kHz (  Z =0.80kΩ)		463±1.5kHz (  Z =3.65kΩ)		280pF±20%		
CDBM455C33	—	465±1.5kHz	45±4.0kHz	300Ωmax.	135pF±20%	CXA1474	Pager

● Recovered Audio Curve Specification

Character-istics Part Number	Recovered Audio 3dB Bandwidth (from 455kHz)	Recovered Audio Output (at 455kHz)	Distortion		I C	Application
			at 455kHz	within 455±8kHz		
CDB455C7	±4.0kHzmin.	340±60mV	2.5%max.	—	MC3357	Cordless Telephone, Communications Equipment
CDBM455C7	±4.0kHzmin.	340±60mV	3.0%max.	—		
CDBC455CX7	±4.0kHzmin.	350±60mV	3.0%max.	—		
CDB455C9	±5.0kHzmin.	100mVmin.	1.5%max.	—	NE604N	Cordless Telephone, Cellular Phone, Communications Equipment
CDBM455C9	±5.0kHzmin.	100mVmin.	1.5%max.	—		
CDBC455CX9	±4.0kHzmin.	120±40mV	1.5%max.	—		
CDB455CL9	±15.0kHzmin.	70±20mV	1.5%max.	3.5%max.		
CDBM455CL9	±15.0kHzmin.	70±20mV	1.5%max.	3.5%max.	CXA1003BM	Cellular Phone, Communications Equipment
CDB455C13A	±4.0kHzmin.	350±50mV	3.0%max.	—		
CDBM455C13A	±4.0kHzmin.	350±50mV	3.0%max.	—		
CDBC455CX13	±4.0kHzmin.	330±50mV	4.0%max.	—		
CDB455CL13	±15.0kHzmin.	110±30mV	1.5%max.	5.0%max.		
CDBM455CL13	±15.0kHzmin.	110±30mV	1.5%max.	5.0%max.	MC3372	Cellular Phone, Cordless Telephone, Communications Equipment
CDBC455CLX13	±13.0kHzmin.	120±30mV	1.5%max.	5.0%max.		
CDB455C16	±4.0kHzmin.	185±40mV	2.0%max.	—		
CDBM455C16	±4.0kHzmin.	185±40mV	2.0%max.	—	MC3371	Cordless Telephone, Communications Equipment
CDBC455CX16	±4.0kHzmin.	175±40mV	2.0%max.	—		
CDBM455C18	±3.0kHzmin.	180±40mV	2.0%max.	—	TA31132	Cordless Telephone, Cellular Phone, Communications Equipment
CDB455C21	±4.0kHzmin.	55±20mV	2.0%max.	—		
CDBM455C21	±4.0kHzmin.	55±20mV	2.0%max.	—		
CDBC455CX21	±4.0kHzmin.	55±20mV	2.0%max.	—		
CDB455CL21	±13.0kHzmin.	65±20mV	2.5%max.	5.0%max.		
CDBM455CL21	±13.0kHzmin.	65±20mV	2.5%max.	5.0%max.		
CDBC455CLX21	±11.0kHzmin.	75±25mV	2.5%max.	5.0%max.	TA31136	Cordless Telephone, Communications Equipment
CDB455C24	±4.0kHzmin.	100±40mV	2.0%max.	—		
CDBM455C24	±4.0kHzmin.	100±40mV	2.0%max.	—		
CDBC455CX24	±4.0kHzmin.	100±40mV	2.0%max.	—	TK10487	Cordless Telephone, Communications Equipment
CDB455C27	±4.0kHzmin.	100±40mV	2.0%max.	—		
CDBM455C27	±4.0kHzmin.	100±40mV	2.0%max.	—		
CDBC455CX27	±4.0kHzmin.	90±30mV	2.0%max.	—	TA31142	Pager
CDB455C28	±4.0kHzmin.	40±20mV	3.0%max.	—		
CDBM455C28	±4.0kHzmin.	40±20mV	3.0%max.	—		
CDBC455CX28	±4.0kHzmin.	40±20mV	3.0%max.	—		

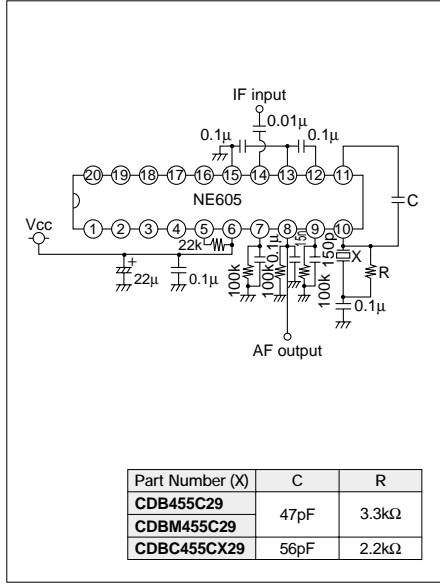
Character- istics Part Number	Recovered Audio 3dB Bandwidth (from 455kHz)	Recovered Audio Output (at 455kHz)	Distortion		I C	Application
			at 455kHz	within 455±8kHz		
CDB455C29	±4.0kHzmin.	125±30mV	2.5%max.	—	NE605	Cordless Telephone, Communications Equipment
CDBM455C29	±4.0kHzmin.	125±30mV	2.5%max.	—		
CDBC455CX29	±4.0kHzmin.	100±30mV	2.5%max.	—		
CDB455C30	±4.0kHzmin.	90±30mV	2.0%max.	—	TK14501	Telephone, Communications Equipment
CDBM455C30	±4.0kHzmin.	90±30mV	2.0%max.	—		
CDBC455CX30	±4.0kHzmin.	80±20mV	2.0%max.	—		
CDB455C32	±4.0kHzmin.	40±20mV	3.0%max.	—	TA31143	Pager
CDBM455C32	±4.0kHzmin.	40±20mV	3.0%max.	—		
CDBC455CX32	±4.0kHzmin.	40±20mV	3.0%max.	—		
CDB455C34	±4.0kHzmin.	65±20mV	2.5%max.	—	MC13136	Cordless Telephone, Communications Equipment
CDBM455C34	±4.0kHzmin.	65±20mV	2.5%max.	—		
CDB455C35	±4.0kHzmin.	100±40mV	2.5%max.	—	TK10930	Cordless Telephone, Communications Equipment
CDBM455C35	±4.0kHzmin.	100±40mV	2.5%max.	—		
CDBC455CX35	±4.0kHzmin.	100±40mV	2.5%max.	—		
CDBM455C36	±3.5kHzmin.	100±25mV	3.5%max.	—	NE (SA) 606	Cordless Telephone, Cellular Phone
CDBC455CLX36	±13.0kHzmin.	90±30mV	2.5%max.	5.0%max.	NE (SA) 616	
CDBM455C39	±4.0kHzmin.	85±20mV	2.5%max.	—	NE (SA) 607/617	Cordless Telephone
CDBC455CLX39	±11.0kHzmin.	130±20mV	2.5%max.	7.0%max.	NE607/617	
CDBM455C40	±4.0kHzmin.	40±20mV	3.0%max.	—	TA31145	Pager
CDBC455CX40	±4.0kHzmin.	40±20mV	3.5%max.	—		
CDB455C42	±4.0kHzmin.	40±15mV	3.0%max.	—	TK14590/14591	Pager
CDBM455C42	±4.0kHzmin.	40±15mV	3.0%max.	—		
CDBM455C49	±4.0kHzmin.	45±10mV	3.0%max.	—	MC3361	Cordless Telephone
CDBC455CX49	±4.0kHzmin.	45±10mV	3.0%max.	—		
CDBM455C50	±4.0kHzmin.	64±6.4mV	4.0%max.	—	CXA3117	Pager
CDBC455CX50	±4.0kHzmin.	64±6.4mV	4.0%max.	—		

● S Curve Specification

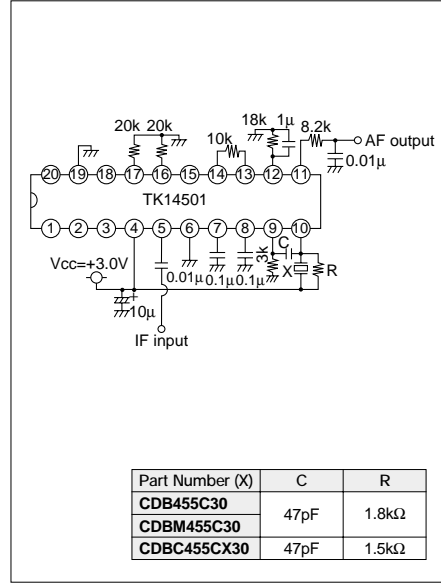
Character- istics Part Number	Nominal Center Frequency	S Curve Characteristics i ) Output Voltage at 450kHz	S Curve Characteristics ii ) Difference Voltage Between at 450-4.8kHz and at 450+4.8kHz	I C	Application
CDBM455C47	455kHz	140±20mV	150±15mV	TA31147	Pager
CDBC455CX47	455kHz	130±20mV	150±15mV		
CDBM455C54	455kHz	165±20mV	170±20mV	TA31149	Pager
CDBC455CX54	455kHz	165±20mV	170±20mV		



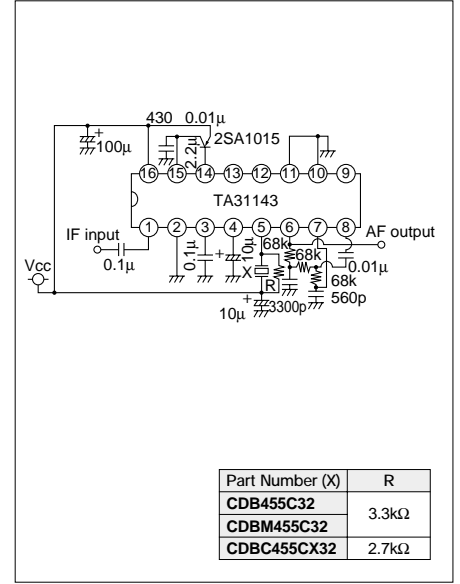
NE605



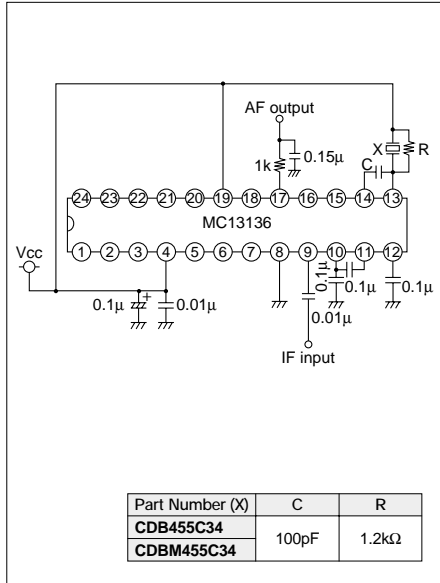
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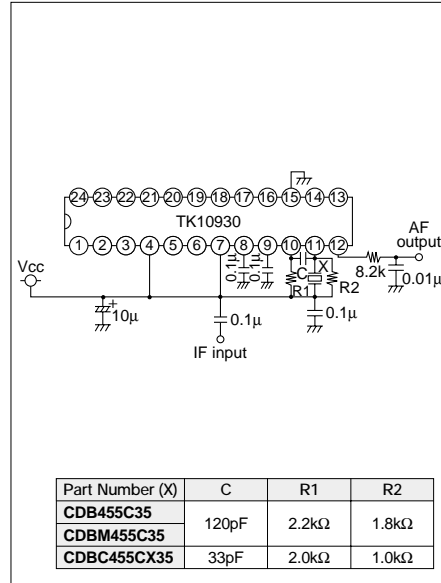
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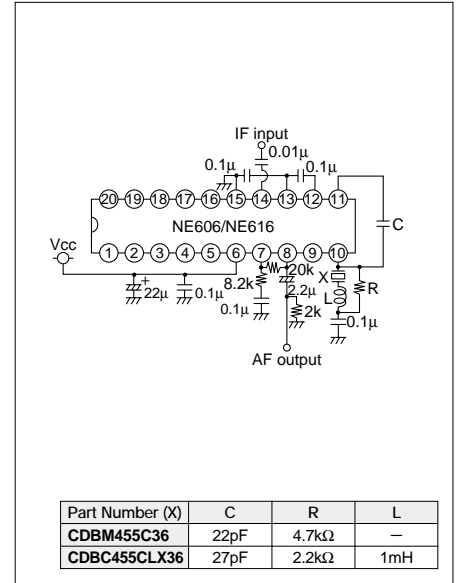
MC13136



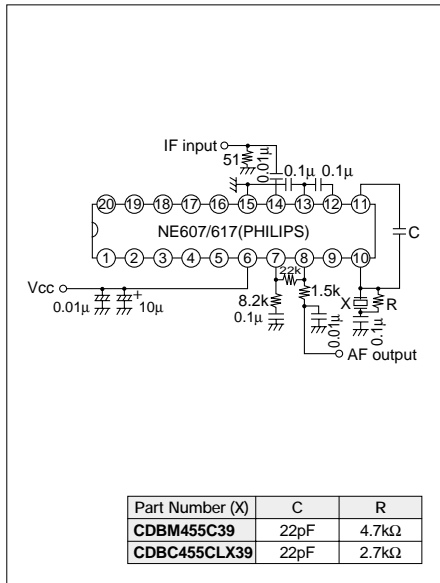
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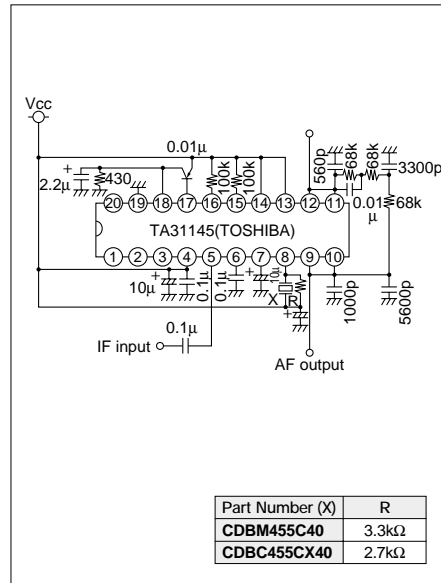
NE (SA) 606/616



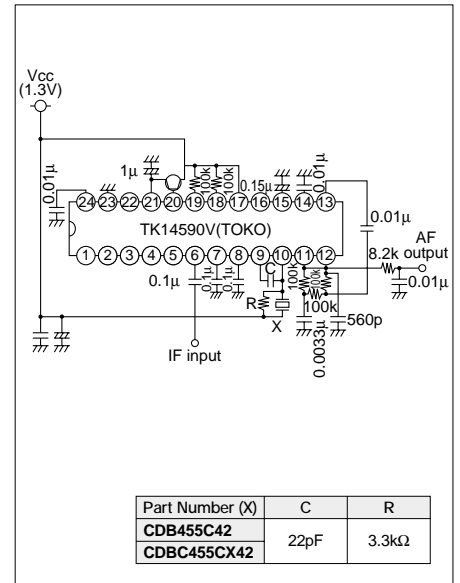
NE (SA) 607/617



TA31145

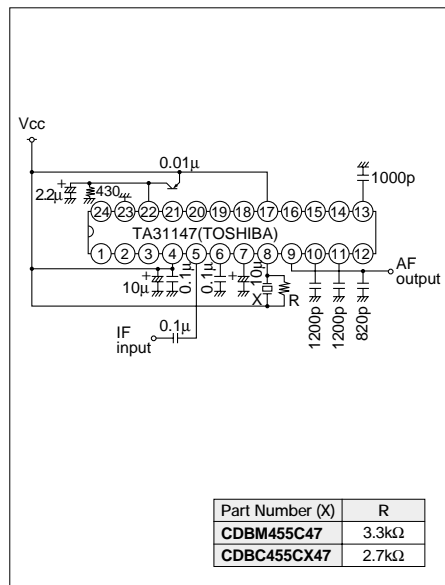


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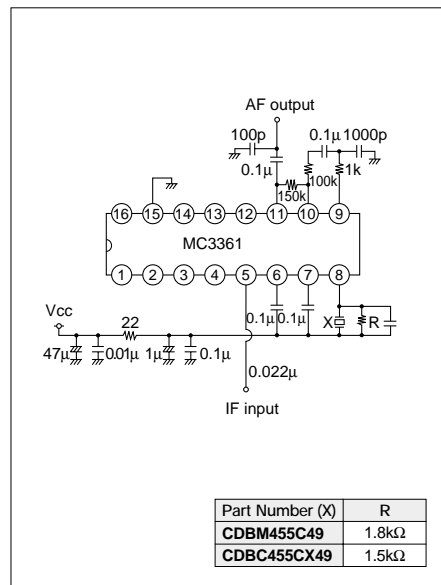




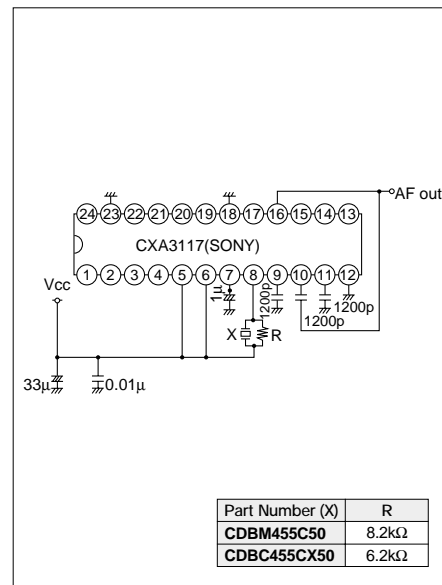
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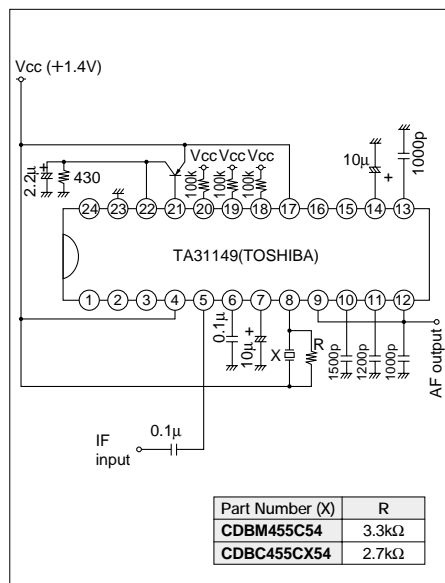
MC3361



CXA3117



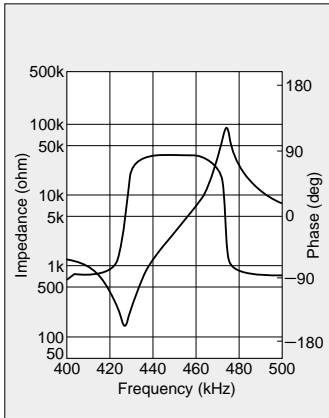
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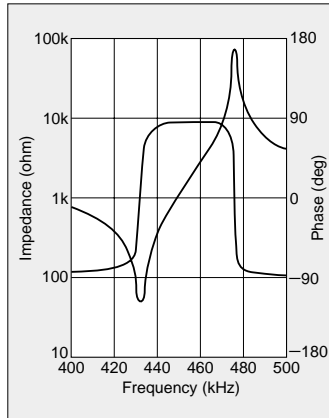
### ■ FREQUENCY CHARACTERISTICS

#### ● Impedance Curve Specification

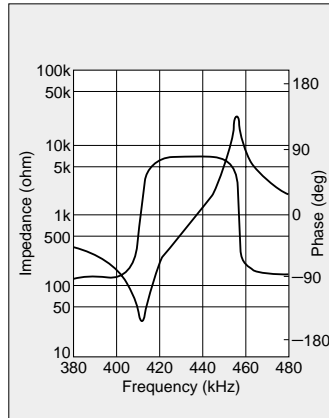
CDBM455C2



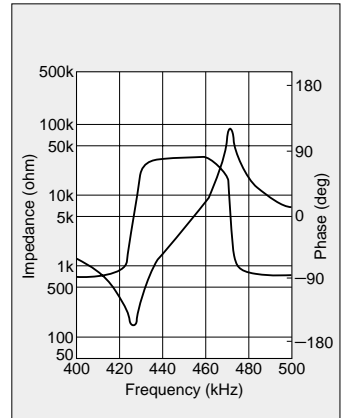
CDBC455CX2



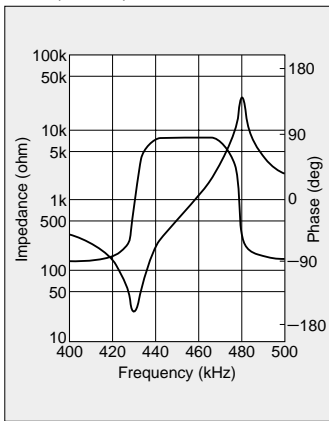
CDB (CDBM) 455C3



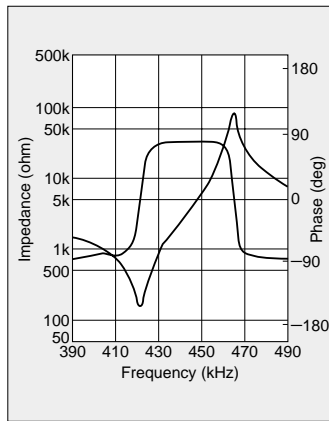
CDBM455C4



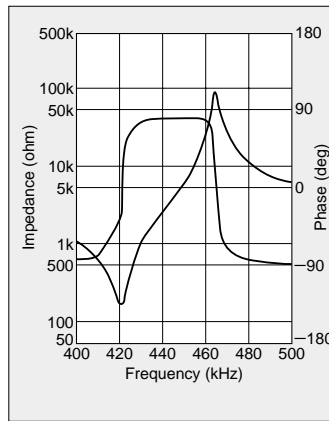
CDB (CDBM) 455C10



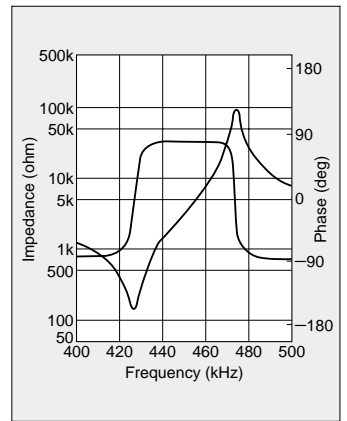
CDBM455C15



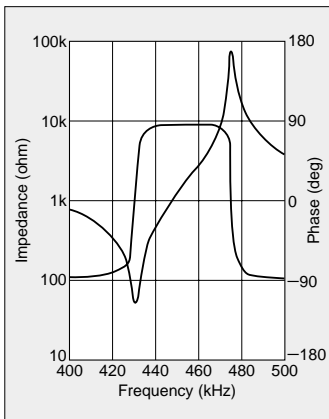
CDBM455C25



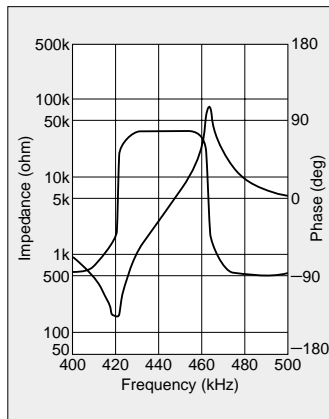
CDBM455C31



CDBC455CX31

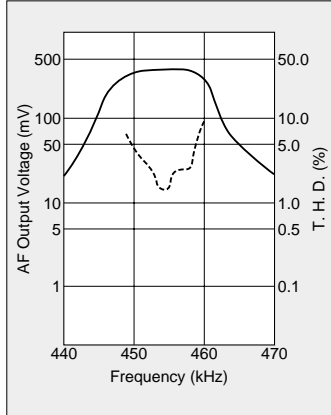


CDBM455C33

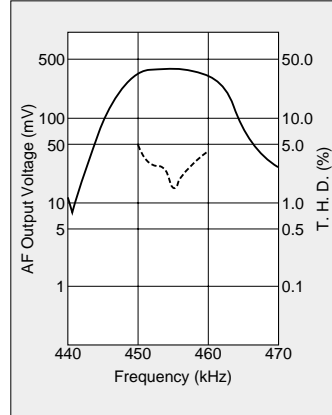


● Recovered Audio Curve Specification

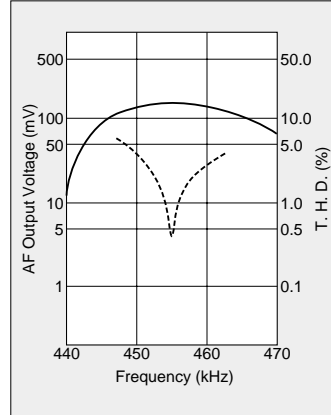
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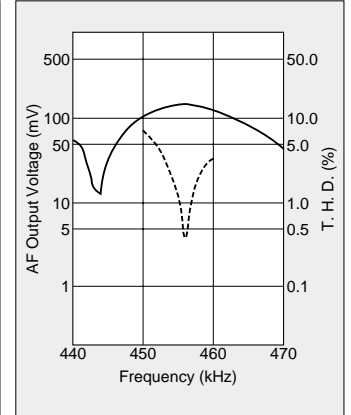
CDBC455CX7/MC3357



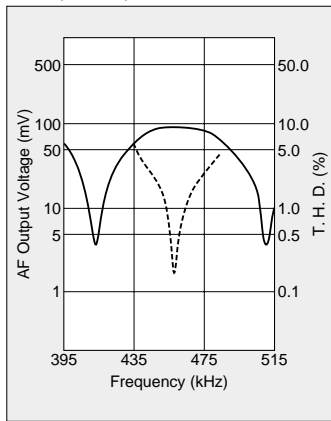
CDB (CDBM) 455C9/NE604



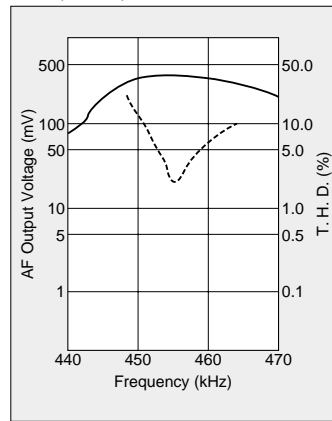
CDBC455CX9/NE604



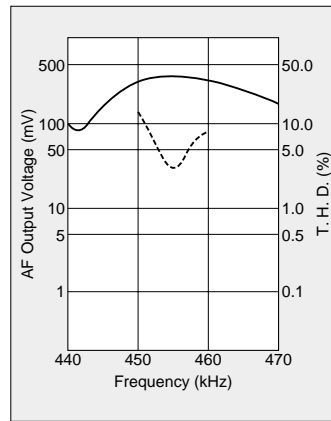
CDB (CDBM) 455CL9/NE604



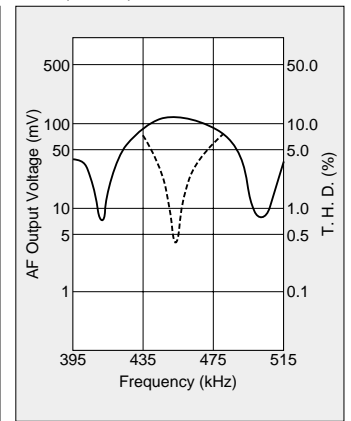
CDB (CDBM) 455C13A/CXA1003BM



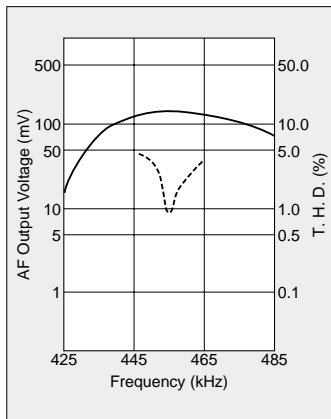
CDBC455CX13/CXA1003BM



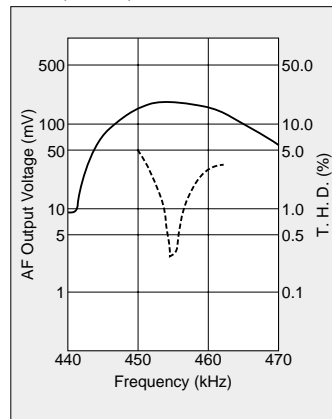
CDB (CDBM) 455CL13/CXA1003BM



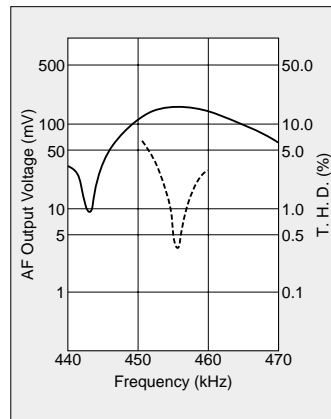
CDBC455CLX13/CXA1003BM



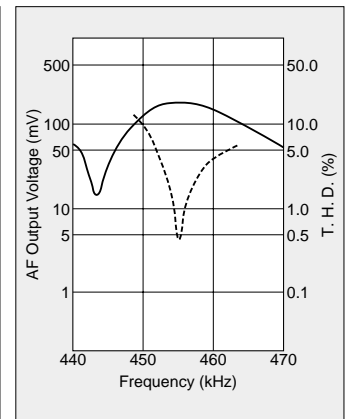
CDB (CDBM) 455C16/MC3372



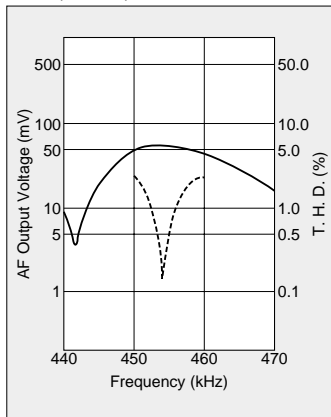
CDBC455CX16/MC3372



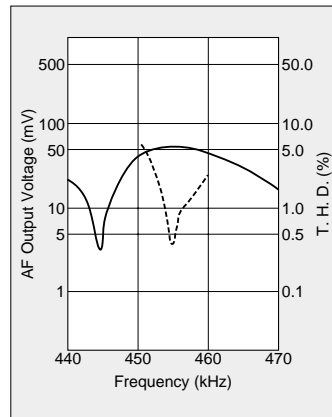
CDBM455C18/MC3371



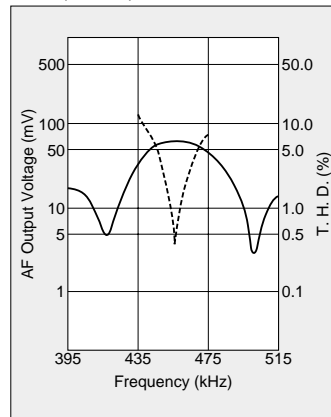
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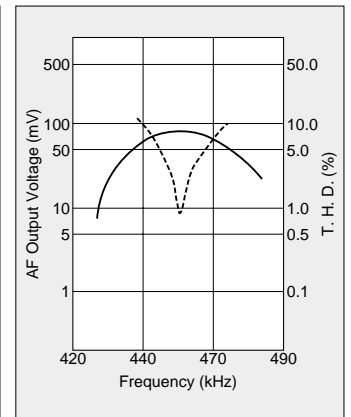
CDBC455CX21/TA31132



CDB (CDBM) 455CL21/TA31132

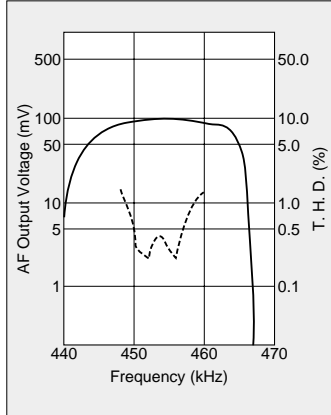


CDBC455CLX21/TA31132

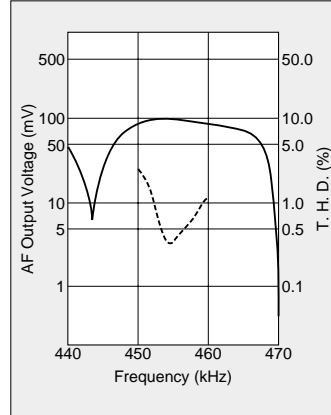


● Recovered Audio Curve Specification

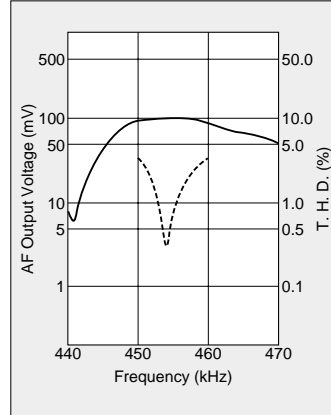
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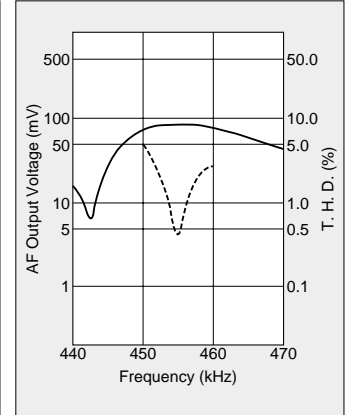
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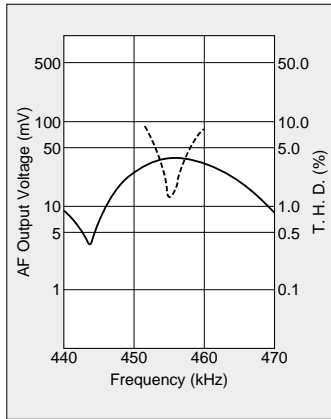
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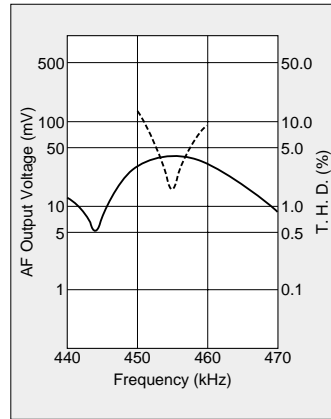
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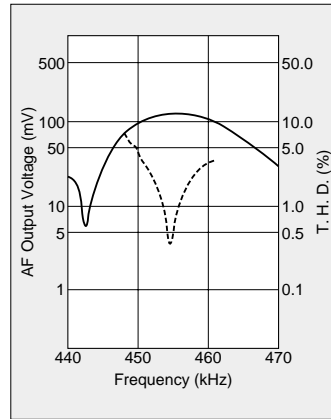
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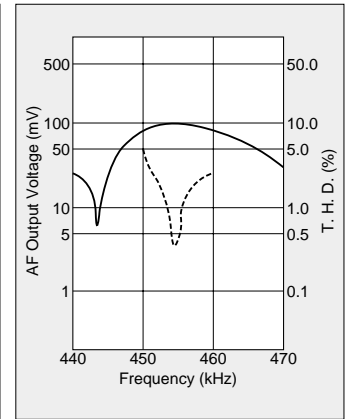
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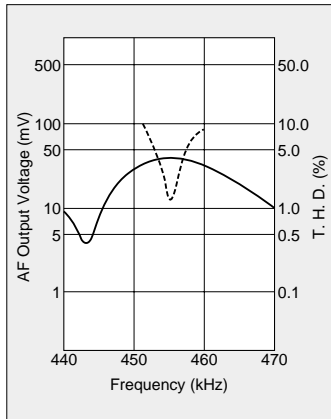
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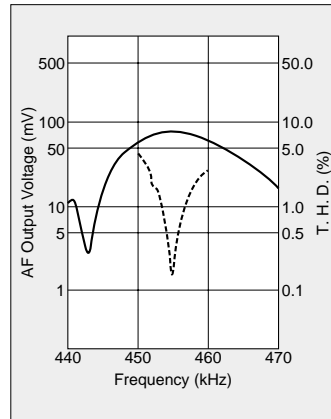
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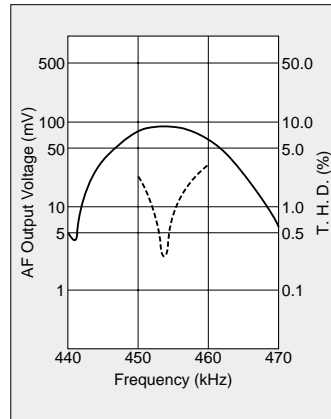
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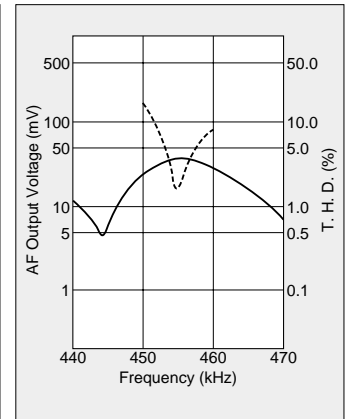
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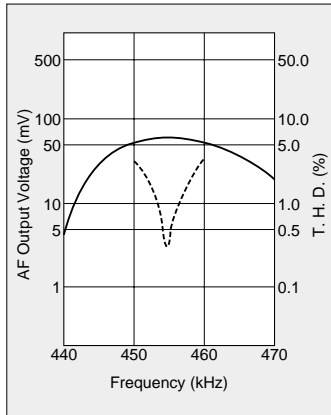
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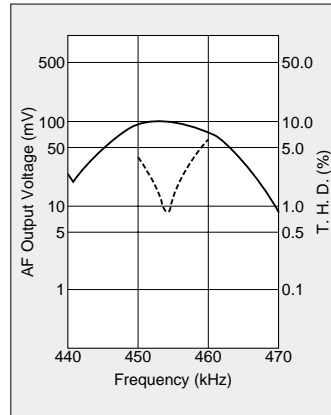
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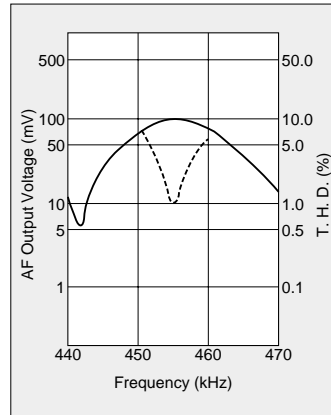
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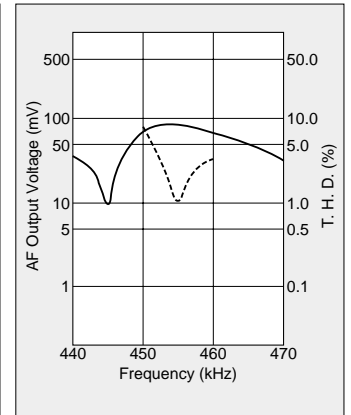
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CDBC455CX35/TK10930

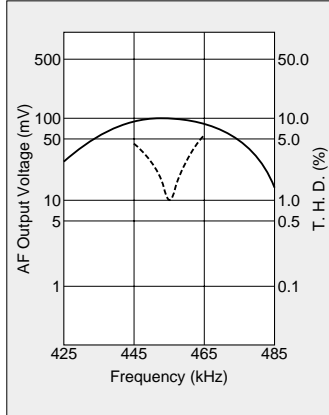


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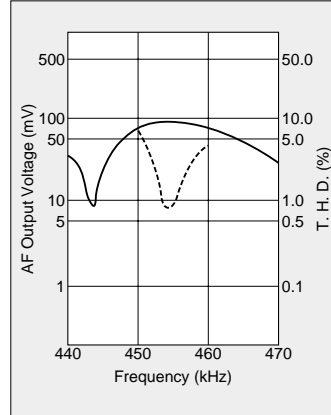


● Recovered Audio Curve Specification

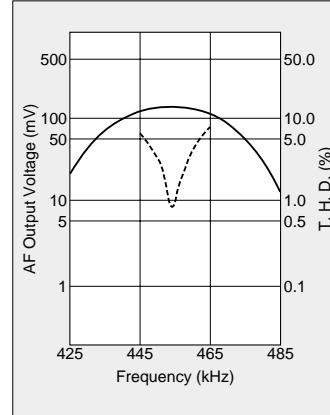
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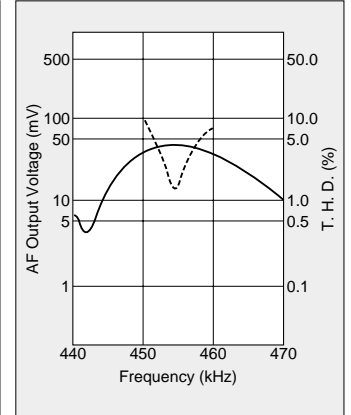
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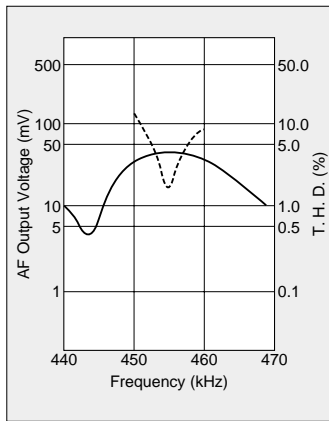
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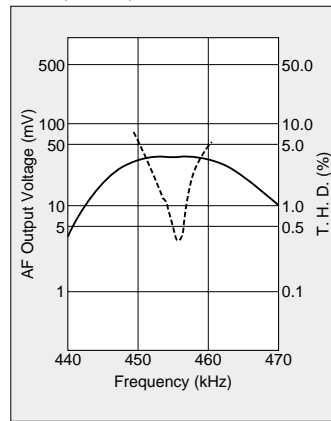
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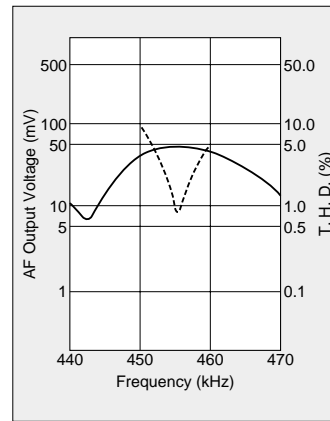
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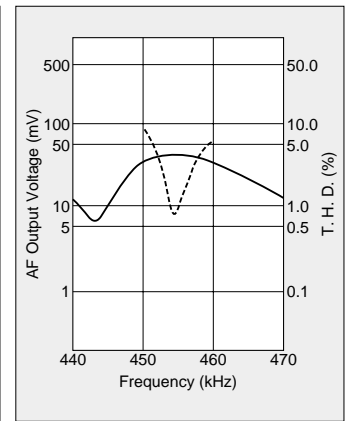
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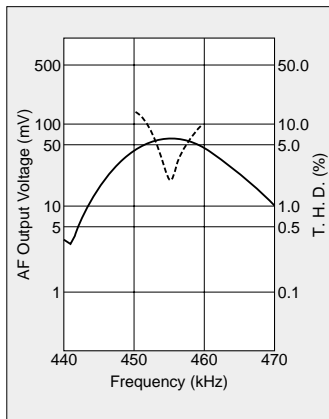
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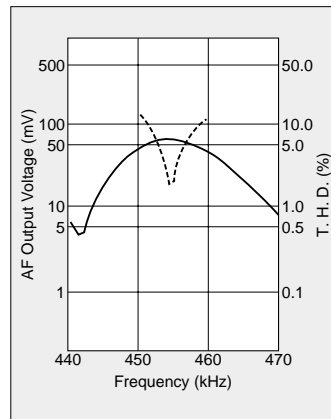
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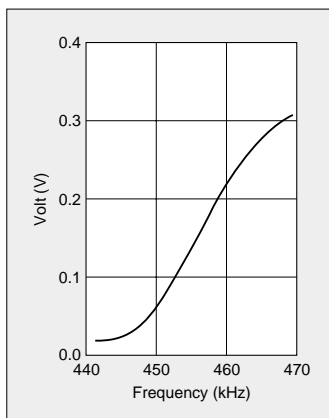


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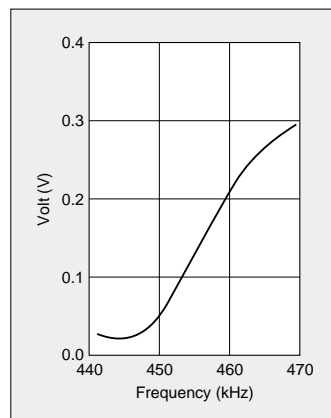


● S Curve Specification

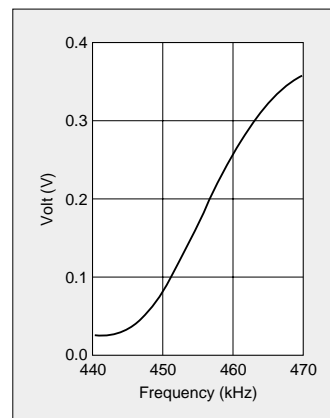
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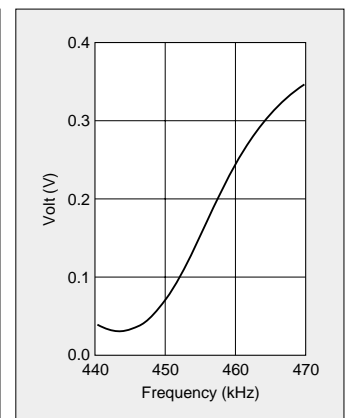
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CDBM455C54/TA31149



CDBC455CX54/TA31149



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**2. Please contact our sales representatives or product engineers before using our products listed in this catalog for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property, or when intending to use one of our products for other applications than specified in this catalog.**

- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Power plant equipment
- ⑤ Medical equipment
- ⑥ Transportation equipment (vehicles, trains, ships, etc.)
- ⑦ Traffic signal equipment
- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed in the above

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