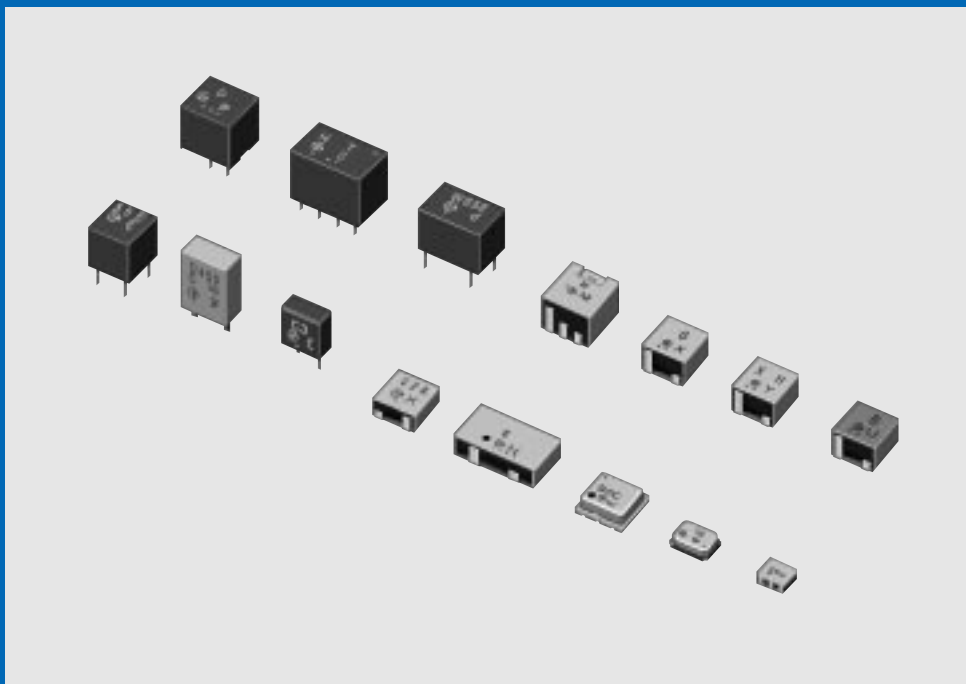


Ceramic Filters(CERAFIL[®])/Ceramic Discriminators for Communications Equipment

CERAMIC FILTERS/
CERAMIC
DISCRIMINATORS FOR
COMMUNICATIONS
EQUIPMENT



muRata *Innovator
in Electronics*

Murata
Manufacturing Co., Ltd.

Cat.No.P05E-10

CONTENTS

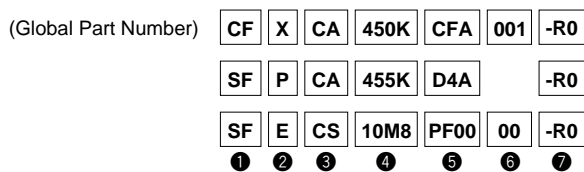
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Part Numbering	_____	2
Products Guide	_____	4
1 CERAFIL® kHz SMD Type CFXC_Series	_____	5
2 CERAFIL® kHz SMD Type SFPCA Series	_____	7
3 CERAFIL® kHz SMD Type CFUCG Series	_____	9
4 CERAFIL® kHz SMD Type CFUCG_X Series	_____	11
5 CERAFIL® kHz SMD Type CFUCF Series	_____	13
6 CERAFIL® kHz SMD Type CFWCA Series	_____	15
7 CERAFIL® kHz SMD Type CFWCA_Y Series	_____	17
kHz SMD Type CERAFIL® Notice	_____	19
8 CERAFIL® MHz SMD Type SF ECS10M8 Series	_____	21
MHz SMD Type CERAFIL® Notice	_____	23
SMD Type CERAFIL® Standard Land Pattern Dimensions	_____	24
kHz SMD Type CERAFIL® Packaging	_____	25
MHz SMD Type CERAFIL® Packaging	_____	28
9 CERAFIL® Plastic Case General Use CFULA_A Series	_____	29
10 CERAFIL® Plastic Case Miniaturized Type CFWLA_A Series	_____	31
11 CERAFIL® Plastic Case Miniaturized Type CFULB_A Series	_____	33
12 CERAFIL® Plastic Case General Use CFWLB_A Series	_____	35
13 CERAFIL® Plastic Case Group Delay Flat Type CFULA_Y Series	_____	37
14 CERAFIL® Plastic Case Group Delay Flat Type CFWLA_Y Series	_____	39
15 CERAFIL® Plastic Case Group Delay Flat Type Miniaturized Type CFULB_Y Series	_____	41
16 CERAFIL® Plastic Case Group Delay Flat Type CFWLB_Y Series	_____	43
Plastic Case Type CERAFIL® Minimum Quantity/Notice	_____	45
17 Discriminators for Communication Equipment	_____	46
CDBC B Series Notice	_____	62
CDBC B Series Standard Land Pattern Dimensions/Packaging	_____	63
Ceramic Discriminators Notice	_____	64

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 If you have any questions about details, inquire at your usual Murata sales office or distributor.

Ceramic Filters (CERAFIL[®]) for IF



① Product ID

② Oscillating/Element

Product ID	Oscillating/Element
CF	U 4 Elements Area Expansion mode
	W 6 Elements Area Expansion mode
	X 4 Elements Length mode
SF	P 4 Elements Area Expansion mode
	E 2 Elements Thickness Expansion mode
	S 2 Elements Thickness Shear mode
	J 4 Elements Thickness Shear mode

CERAFIL[®] for Communication Equipment

③ Structure/Size

Code	Structure/Size
C□	Chip Type
L□	Lead Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "kHz", it is expressed by three figures plus "K". If the unit is "MHz", a decimal point is expressed by the capital letter "M".

⑤ Product Specification

Code	Product Specification
CFA	Three alphabets express pass band width, center frequency tolerance and design type.

⑥ Individual Specification

Code	Individual Specification Code
001	Expressed by three-digit alphanumerics.

⑦ Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping ø=180mm
-R1	Plastic Taping ø=330mm
-M0	Magazine

Magazine cassette is applied to lead type and plastic taping to chip type.

Ceramic Discriminators for IF

(Global Part Number)

CD	B	LB	450K	C	A	X	16	-B0
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID

Product ID	
CD	Ceramic Discriminators

② Oscillating

Code	Oscillating
B	Area Expansion mode

③ Structure/Size

Code	Structure/Size
C □	Chip Type
L □	Lead Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

⑤ Detection

Code	Detection
C	Quadrature Detection

⑥ Application

Code	Application
A	Standard
L	Application with coil

⑦ Element Type

Code	Element Type
X	Low-capacitance
Y	High-capacitance

⑧ IC

Code	IC
16	Applicable IC Control code

⑨ Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping ø=180mm
-R1	Plastic Taping ø=330mm
-M0	Magazine

Magazine cassette is applied to lead type and plastic taping to chip type. With non-standard products, one alphabet indicating "Individual Specification" is added between "⑧ Applicable IC" and "⑨ Package Specification code".

Products Guide

●SMD Type (MHz)

Type	Series	Features	Application
Ceramic Package	SFECS10M8 □	<ul style="list-style-type: none"> •Single type. •3dB bandwidth is available in $\pm 110\text{kHz}$, $\pm 135\text{kHz}$ and $\pm 150\text{kHz}$. •Types with 10.8MHz of center frequencies is available. 	PHS

●SMD Type (kHz)

Type	Applications	General Use											Attenuation (dB) min.	
		AMPS	PDC	PAGER CORDLESS	TACS CORDLESS	AM	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H	J	K	L		
		± 17.5	± 15	± 12.5	± 10	± 7.5	± 6	± 4.5	± 3	± 2	± 1.5	± 1		
High Selectivity Series (Plastic Case Type)	SFPCA455K □ (4 Elements)	-	-	-	●	●	●	●	●	-	-	-	27 (G to H ; 25)	
	CFUCG455K □ (4 Elements)	-	-	-	●	●	●	●	●	-	-	-	27 (G ; 25)	
Narrow Bandwidth GDT Flat Type Miniature Series (Plastic Case Type)	CFUCG455K □X (4 Elements)	-	-	-	●	●	●	●	●	-	-	-	27 (G to H ; 25)	
GDT Flat Type Miniature Series (Plastic Case Type)	CFUCF455K □ (4 Elements)	●	●	●	●	●	-	-	-	-	-	-	25 (D to E ; 23)	
GDT Flat Type High Selectivity SMD Series (Plastic Case Type)	CFWCA450KBFY (6 Elements)	-	●	-	-	-	-	-	-	-	-	-	45	
High Selectivity SMD Series (Plastic Case Type)	CFWCA450K □ (6 Elements)	-	●	-	●	●	●	●	-	-	-	-	50	
Ultra Small Package Series (Cap Package)	CFXCA (4 Elements)	-	●	●	-	-	-	-	-	-	-	-	47	
	CFXCD (4 Elements)	-	-	●	-	-	-	-	-	-	-	-	47	

●Lead Type

Type	Applications	General Use											Attenuation (dB) min.	
		AMPS	PDC	PAGER CORDLESS	TACS CORDLESS	AM	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H	J	K	L		
		± 17.5	± 15	± 12.5	± 10	± 7.5	± 6	± 4.5	± 3	± 2	± 1.5	± 1		
High Selectivity Low Profile Series	CFULA455K □ (4 Elements)	-	●	●	●	●	●	●	●	●	-	-	27 (G ; 25) (H, J ; 35)	
	CFWLA455K □ (6 Elements)	-	●	●	●	●	●	●	●	●	-	-	35 (H, J ; 60)	
High Selectivity Miniature Series	CFULB455K □ (4 Elements)	-	●	●	●	●	●	●	●	●	-	-	27 (G ; 25) (H, J ; 35)	
	CFWLB455K □ (6 Elements)	-	●	●	●	●	●	●	●	●	-	-	35 (H, J ; 65)	
GDT Flat Type Series	CFULA455K □Y (4 Elements)	-	●	●	●	●	●	●	-	-	-	-	25 (G ; 25) (D to F ; 23) (G ; 20)	
	CFWLA455K □Y (6 Elements)	●	●	●	●	●	●	●	-	-	-	-	35	
GDT Flat Type Miniature Series	CFULB455K □Y (4 Elements)	-	●	●	●	●	●	●	-	-	-	-	25 (D to F ; 23) (G ; 20)	
	CFWLB455K □Y (6 Elements)	●	●	●	●	●	●	●	-	-	-	-	35	

Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment



CERAFIL® kHz SMD Type CFXC_Series

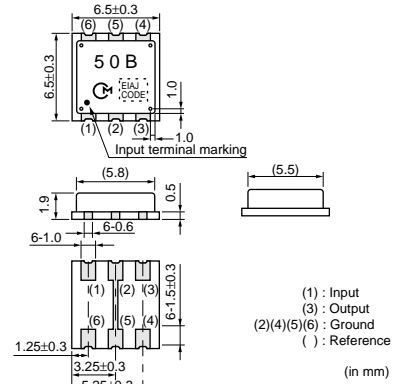
CFXC_ series are very small and high-efficiency surface mount, ladder type 450/455 kHz ceramic filters "CERAFIL" for IF section.

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.

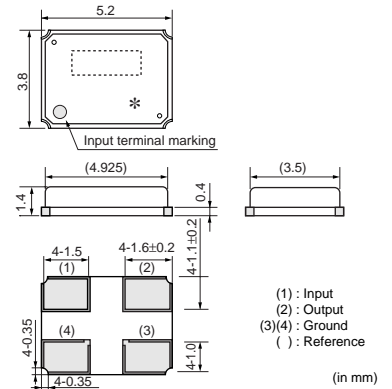
As for electrical performance, this product, which consists of 4 elements, provides stop band attenuation equivalent to that of our previous 6-element product. The input/output impedance characteristics are also equivalent to those of the previous product, and spurious responses in the vicinity of the 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.



CFXCA Series



CFXCD Series



■ Features

1. Compact, thin, and lightweight.
(Size : CFXCA450KBFA-R1:6.5x6.5x1.9mm
CFXCD450KCFA-R1:5.2x3.8x1.4mm
Weight: CFXCA series:225mg
CFXCD series: 75mg)
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.

■ Applications

1. IF filters for PDCs.
2. IF filters for various types of pagers.
3. IF filters for various types of analog and digital cellular telephones.
4. IF filters for radio communication circuits applicable for PDA or PCMCIA.
5. IF filters for other general mobile wireless equipment

Part Number	Nominal Center Frequency (fn) (kHz)	3dB Bandwidth (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Stop Band Att.(2) (dB)	Stop Band Att.(3) (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)
CFXCA450KBFA-R1	450	-	fn±15.0 min.	fn±50.0 max. [within 50dB]	47 min. [within fn±100 kHz]	-	-	6.0 max. [at fn]	0.5 max. [within fn±10.0 kHz]	15 max. [within fn±10.0 kHz]
CFXCD450KCFA-R1	450	fn±9.0 to ±12.0kHz max.	-	fn±35.0 max. [within 50dB]	30 min. [within fn ± 25kHz]	55 min. [within fn ± 40kHz to ± 50kHz]	47 min. [within fn ± 100kHz]	6.0 max. [at fn]	0.5 max. [within fn ± 10.5kHz]	27 max. [within fn ± 10.5kHz]

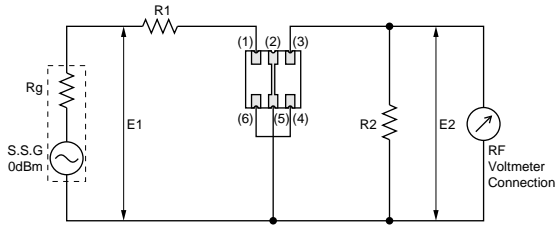
Spurious:40dB [within 0.1 to 1.0MHz]

Input/Output Impedance:2000 ohm

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor.Avoid applying a direct current to the output of ceramic filters.

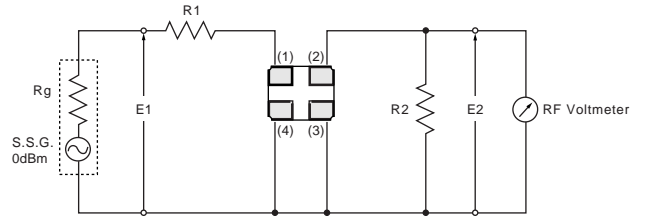
■ Test Circuit

CFXCA Series



(1) : Input
(3) : Output
(2)(4)(5)(6) : Ground
R1+Rg=R2=Input/Output Impedance
E1 : S.S.G Output voltage

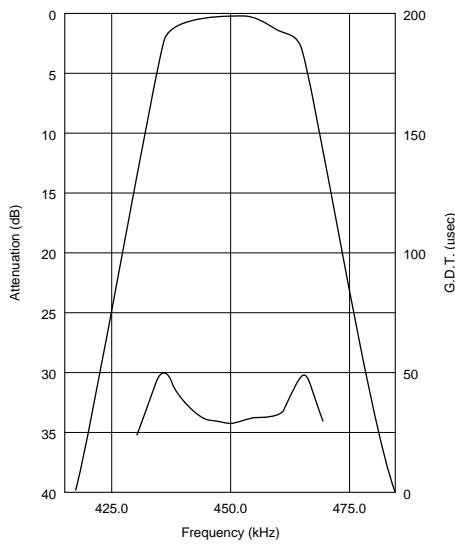
CFXCD Series



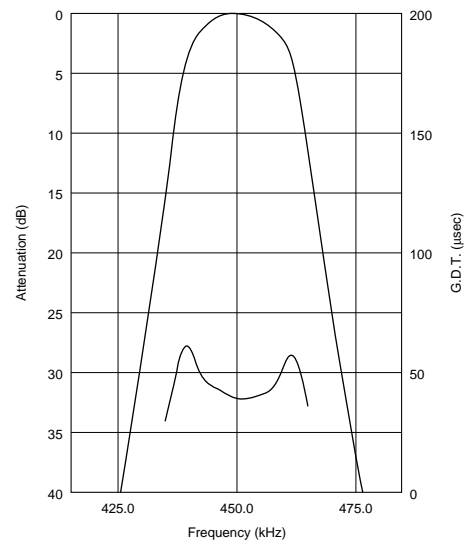
R1 + Rg = R2 = Input/Output Impedance
E1 : S.S.G. Output Voltage
(1) Input
(2) Output
(3)(4) Ground

■ Frequency Characteristics

CFXCA450KBFA-R1



CFXCD450KCFA-R1



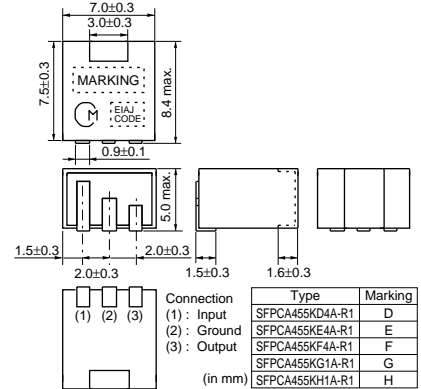
Ceramic Filters(CERAFIL[®])/Ceramic Discriminators for Communications Equipment **muRata**

CERAFIL[®] kHz SMD Type SFPCA Series

2

The SFPCA 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.



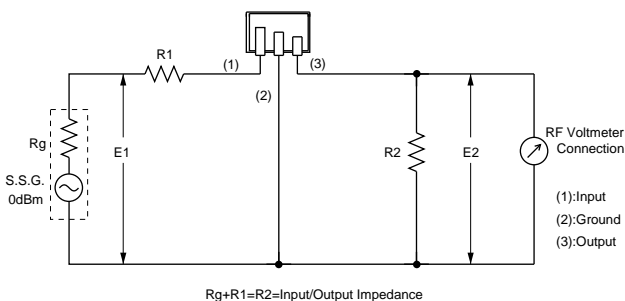
■ Features

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 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

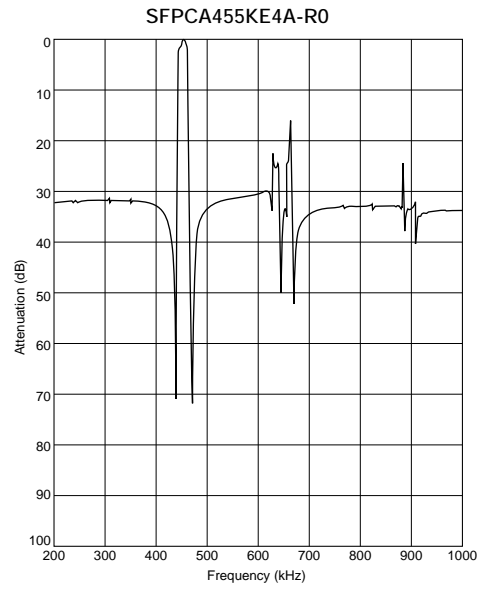
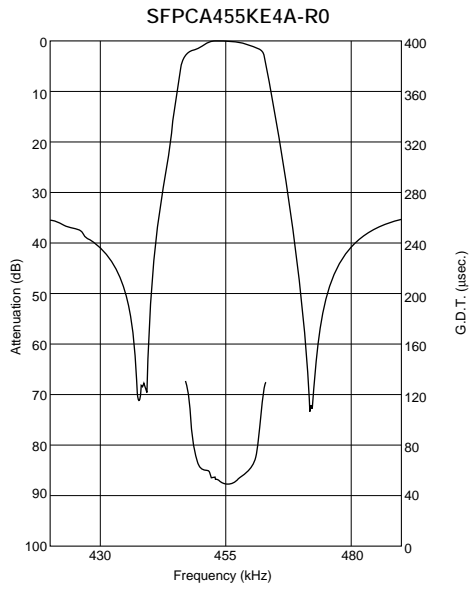
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
SFPCA455KD4A-R1	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	2.0 max. [within fn±7kHz]	1500
SFPCA455KE4A-R1	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±5kHz]	1500
SFPCA455KF4A-R1	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±4kHz]	1500
SFPCA455KG1A-R1	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±3kHz]	1500
SFPCA455KH1A-R1	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±2kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
(fn) means nominal center frequency 455kHz.

■ Test Circuit



Frequency Characteristics



2

Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment

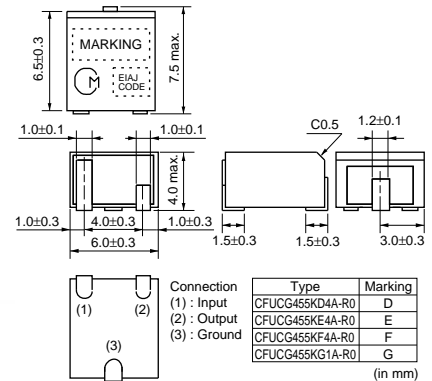


CERAFIL® kHz SMD Type CFUCG Series

The CFUCG 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

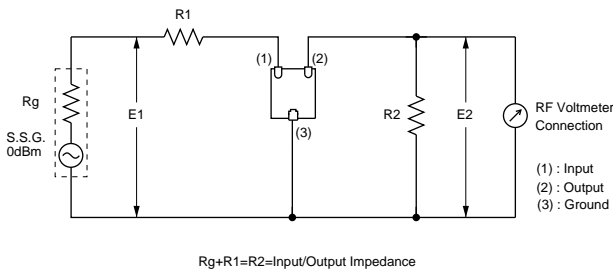
1. The filters are mountable by automatic placers.
2. The filters can be reflow soldered and withstand washing.
3. They are slim, at only 4.0mm maximum thickness, and have a small mounting area (7.5x6.0mm) enabling flexible PCB design.
4. The bandwidth ranges from D to G.
5. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)



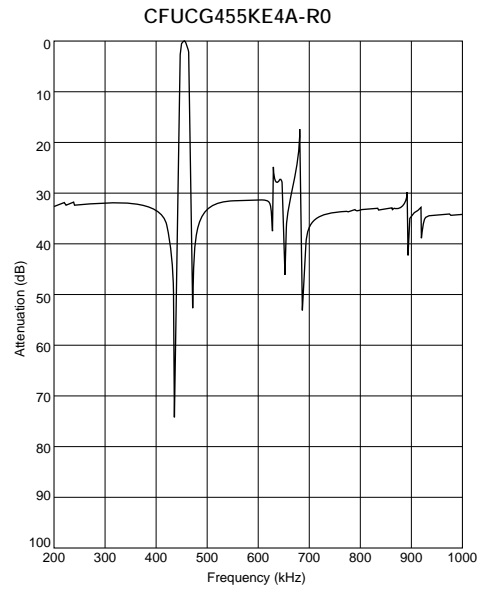
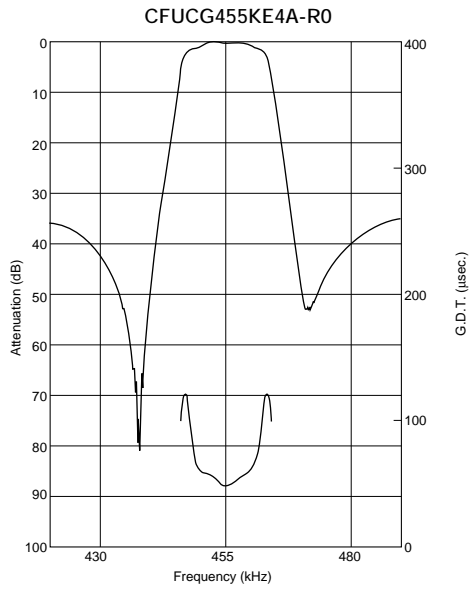
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFUCG455KD4A-R0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	2.0 max. [within fn±7kHz]	1500
CFUCG455KE4A-R0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±5kHz]	1500
CFUCG455KF4A-R0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±4kHz]	1500
CFUCG455KG1A-R0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±3kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
(fn) means nominal center frequency 455kHz.

■ Test Circuit



Frequency Characteristics



3

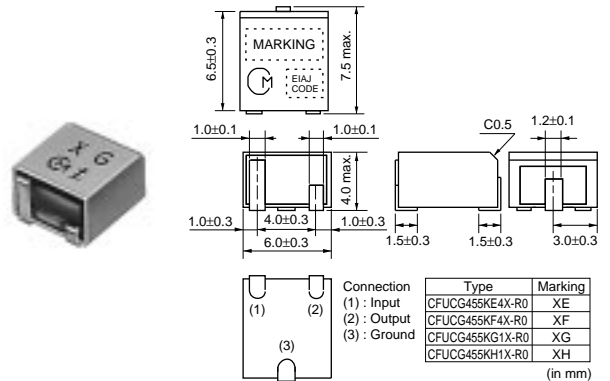
Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment **muRata**

CERAFIL® kHz SMD Type CFUCG_X Series

The CFUCG_X series comprises small, high performance, thin (4.0mm) filters consisting of 4 ceramic elements. The filters exhibit an extremely flat GDT 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 (7.5x6.0mm) enabling flexible PCB design.
4. The bandwidth ranges from E to H.
5. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

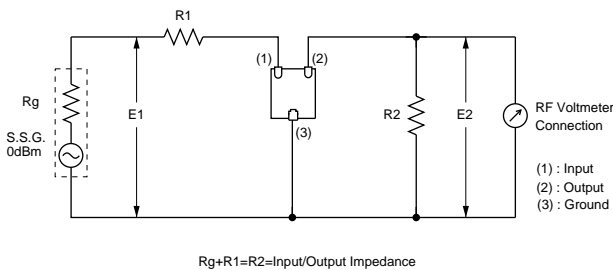


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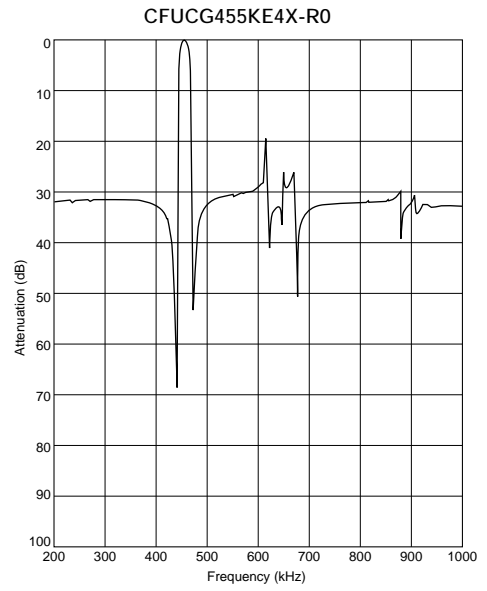
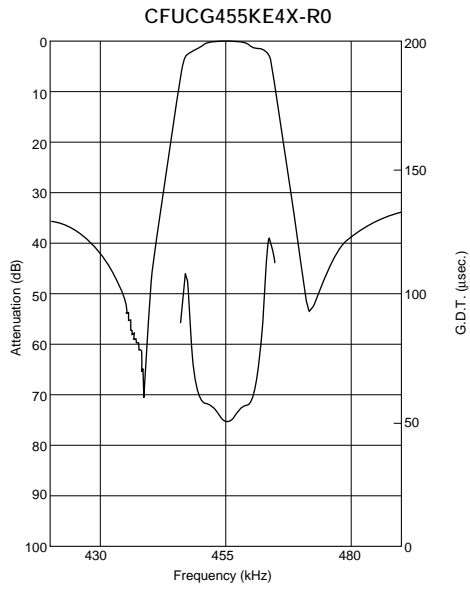
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFUCG455KE4X-R0	455.0 ±1.5kHz	fn±7.5 min.	fn±17.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±5kHz]	25.0 max. [within fn±5kHz]	1500
CFUCG455KF4X-R0	455.0 ±1.5kHz	fn±6.0 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±4kHz]	25.0 max. [within fn±4kHz]	1500
CFUCG455KG1X-R0	455.0 ±1.0kHz	fn±4.5 min.	fn±12.5 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±3kHz]	25.0 max. [within fn±3kHz]	1500
CFUCG455KH1X-R0	455.0 ±1.0kHz	fn±3.0 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	1.0 max. [within fn±2kHz]	25.0 max. [within fn±2kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

■ Test Circuit



Frequency Characteristics



Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment

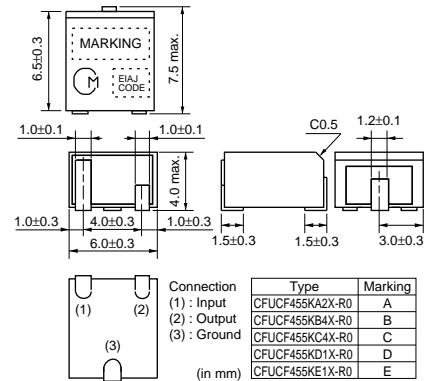


CERAFIL® kHz SMD Type CFUCF Series

The CFUCF series comprises small, high performance, thin (4.0mm) filters consisting of 4 ceramic elements. The filters exhibit an extremely flat GDT 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 (7.5x6.0mm) enabling flexible PCB design.
4. The bandwidth ranges from A to E.
5. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

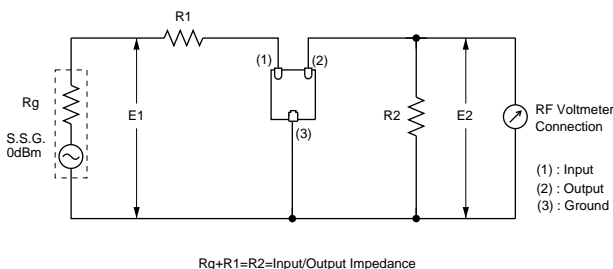


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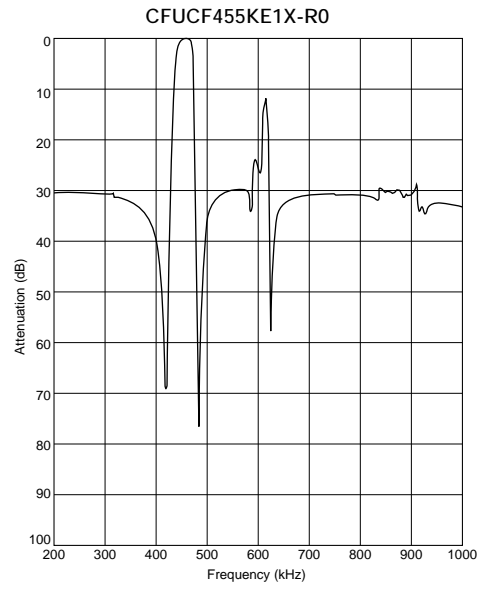
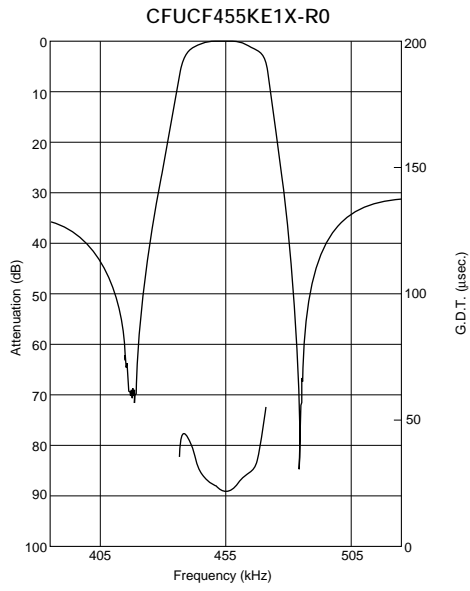
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFUCF455KA2X-R0	455.0 ±2.0kHz	fn±17.5 min.	fn±40.0 max. [within 40dB]	25 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1.0 max. [within fn±12kHz]	15.0 max. [within fn±12kHz]	1000
CFUCF455KB4X-R0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	1.0 max. [within fn±10kHz]	15.0 max. [within fn±10kHz]	1000
CFUCF455KC4X-R0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±8kHz]	15.0 max. [within fn±8kHz]	1000
CFUCF455KD1X-R0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	1.0 max. [within fn±7kHz]	20.0 max. [within fn±7kHz]	1500
CFUCF455KE1X-R0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	1.0 max. [within fn±5kHz]	20.0 max. [within fn±5kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

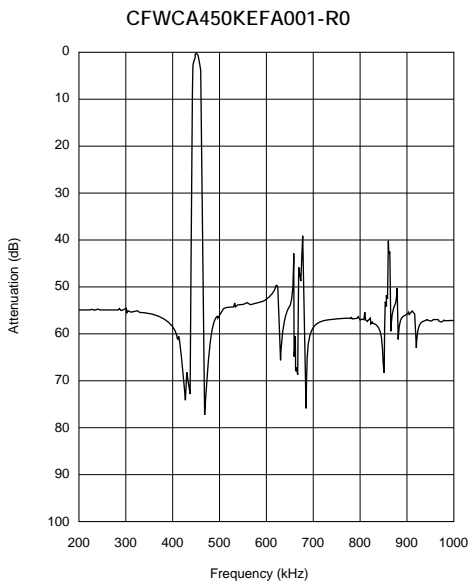
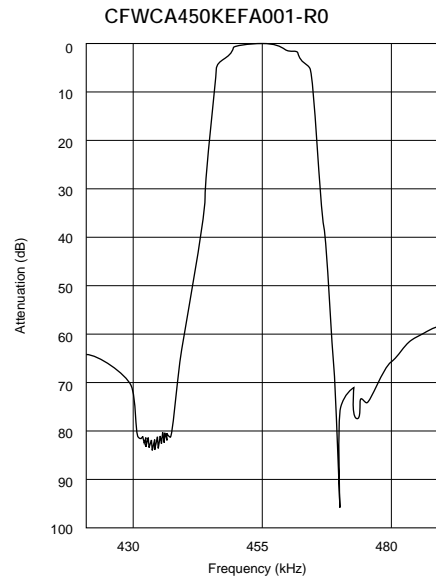
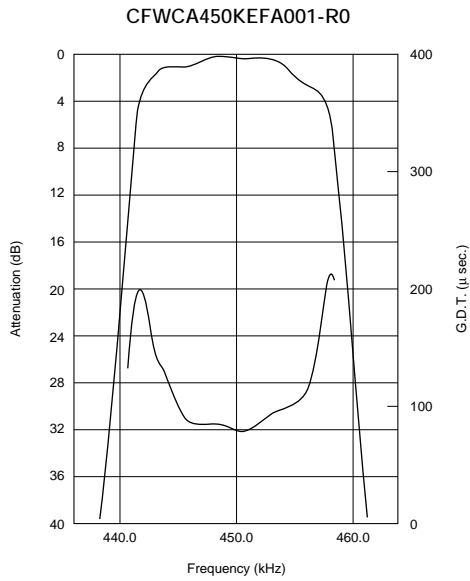
■ Test Circuit



■ Frequency Characteristics



Frequency Characteristics



Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment

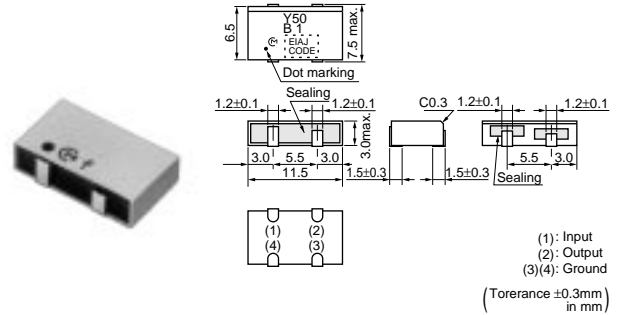


CERAFIL® kHz SMD Type CFWCA_Y Series

The CFWCA_Y series comprises small, high performance, thin (3.0mm) filters consisting of 6 ceramic elements. The filters are recommend for digital communication applications and are perfect in hand held cellular phones.

■ Features

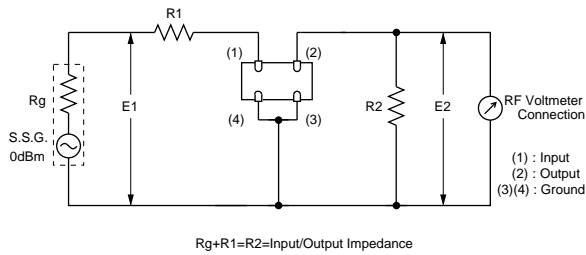
1. The filters are mountable by automatic placers, and can be reflow soldered, and withstand washing.
2. They are slim, at only 3.0mm maximum thickness.
3. The filters are wide bandwidth, flat GDT within pass band.
4. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)



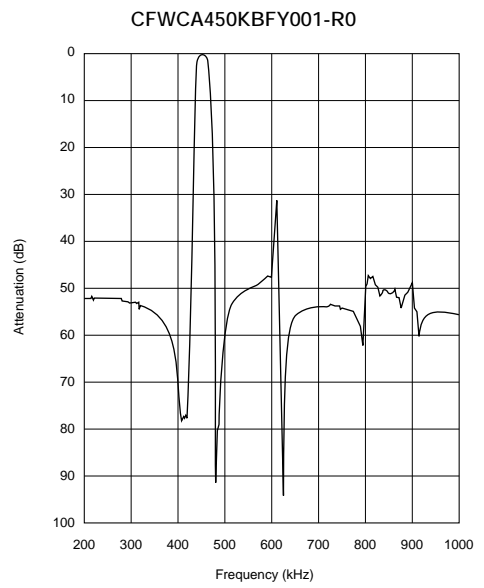
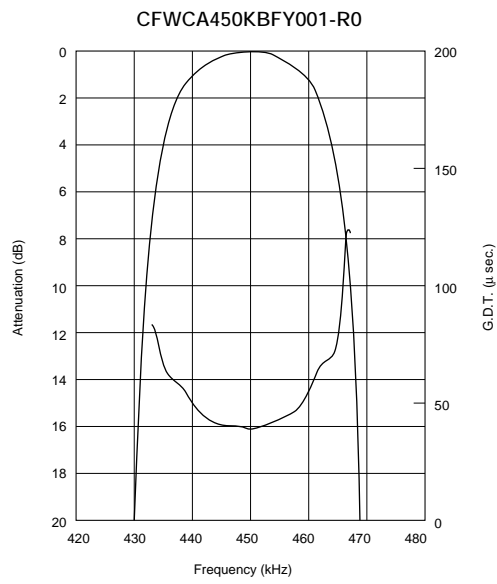
Part Number	Nominal Center Frequency (fn) (kHz)	3dB Bandwidth (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Spurious Response (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWCA450KBFY001-R0	450	fn±11.5 min.	fn±13.0 min.	fn±30.0 max. [within 50dB]	45 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	20 min. [within 0.1 to 1.0MHz]	30.0 max. [within fn±10.0kHz]	1000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

■ Test Circuit



Frequency Characteristics



kHz SMD Type CERAFIL® Notice

■ CFXC_ Series Notice (Soldering and Mounting)

1. Standard Reflow Soldering Condition

(1) Reflow

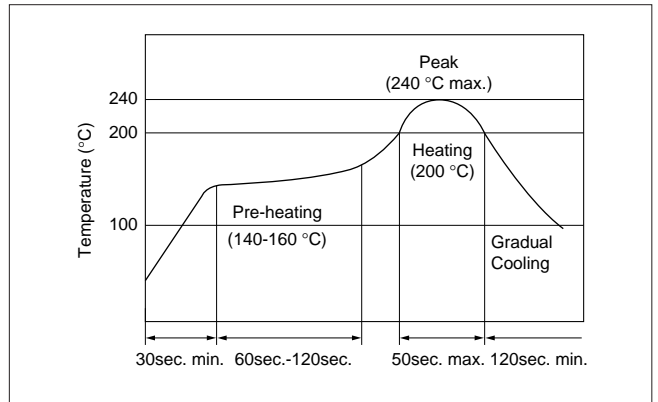
Filter is soldered twice within the following temperature condition and then being placed in natural condition for 24 hours.

(2) Soldering Iron

Electrode is directly contacted with the tip of soldering iron of +350±5°C for 3±1 seconds, and then being placed in natural condition for 24 hours.

2. Wash

The component cannot be withstand washing.



■ SFPCA/CFUCG/CFUCF Series Notice (Soldering and Mounting)

1. Standard Reflow Soldering Condition

(1) Reflow

Filter is soldered one time within the following temperature condition and then being placed in natural condition for 24 hours.

(2) Soldering Iron

Electrode is directly with the tip of soldering iron of +350 ±5°C for 3±1 seconds, and then being placed in natural condition for 24hours.

2. Wash

(1) Cleaning Solvent

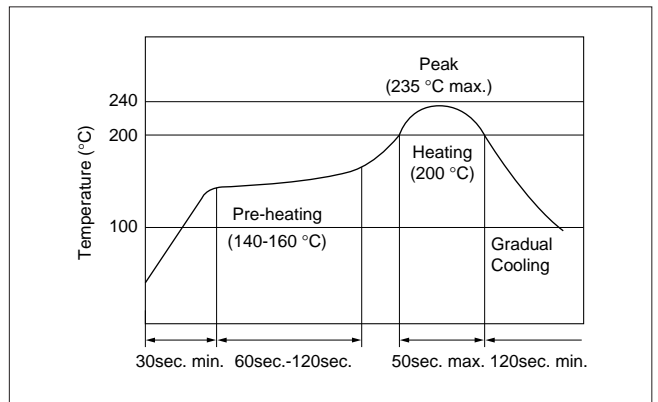
CFC alternatives(HCFC Series), Isopropyl Alcohol(IPA), Water(Demineralized Water), Cleaning Water Solution(Cleanthrough-750H, Pine Alha 100S), Silicon(Technocare FRW)

(2) Cleaning Conditions

- Immersion Wash
2 minutes max. in above solvent at +60°C max.
- Shower or Rinse Wash
2 minutes max. in above solvent at +60°C max.

(3) Notice

- When components are immersed in solvent, be sure to maintain the temperature of components below the temperature of solvent.
- Please do not use ultrasonic cleaning.
- Total washing time should be within 4minutes.
- Please ensure the component is thoroughly evaluated in your application circuit.
- Please do not use chlorine, petroleum and alkali cleaning solvent.
- If you plan to use any other type of solvents, please consult with Murata or MURata representative prior to using.



Continued on the following page.

kHz SMD Type CERAFIL® Notice

Continued from the preceding page.

CFWCA Series Notice (Soldering and Mounting)

1. Standard Reflow Soldering Condition

(1) Reflow

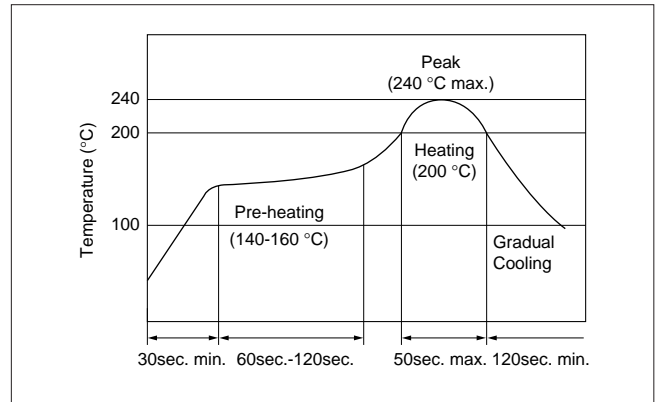
Filter is soldered once within the following temperature condition and then being placed in natural condition for 24 hours.

(2) Soldering Iron

Electrode is directly contacted with the tip of soldering iron of $+350\pm 5^{\circ}\text{C}$ for 3 ± 1 seconds, and then being placed in natural condition for 24hours.

2. Wash

The component cannot be withstand washing.



Notice (Handling)

CFXC_/CFWCA Series

1. The component will be damaged when an excessive stress is applied.
2. Use coupling capacitors to prevent applying D.C. voltage between input-ground, output-ground of "CERAFIL" as D.C. current may harm the component.
3. Do not clean or wash the component as it's not hermetically sealed.
4. Do not apply conformal coating onto the component as it's not hermetically sealed.
5. Do not use strong acidity flux, more than 0.2wt% chlorine content, in re-flow soldering.

Notice (Handling)

SFPCA/CFUCG/CFUCF Series

1. The component will be damaged when an excessive stress is applied.
2. Use coupling capacitors to prevent applying D.C. voltage between input-ground, output-ground of "CERAFIL" as D.C. current may harm the component.
3. In the case that the component is cleaned, confirm no reliability degradation is created.
4. In case of covering filter with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.
5. Do not use strong acidity flux, more than 0.2wt% chlorine content, in re-flow soldering.
6. The product, packed in the moisture-proof bag (dry pack), is sensitive to moisture. The following treatment is required before applying re-flow soldering, to avoid package cracks or reliability degradation caused by thermal stress. When unpacked, store the component in an atmosphere of below 25C. and below 65% R.H., and solder within 48 hours.

Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment



CERAFIL® MHz SMD Type SF ECS10M8 Series

The SF ECS10M8 series are small, high performance and super thin (1.4mm) filters. Piezoelectric element is connected in the sandwich shape by heat resistant substrate.

The filters exhibit flat GDT characteristic in pass band.

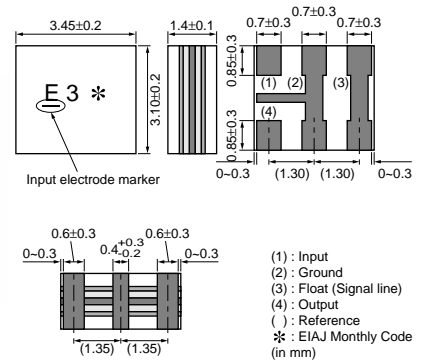
The filters are recommended for digital communication applications and are perfect in hand held cellular phones, pocket cordless phones, etc.

■ Features

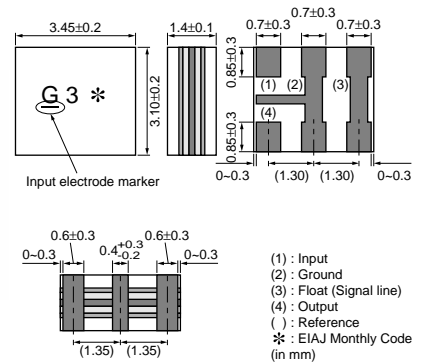
1. The filters are mountable by automatic placers.
2. They are slim, at only 1.4mm thickness, and have a small mounting area (3.5x3.1mm²) enabling flexible PCB design.
3. Types with 10.7 / 10.75 / 10.8MHz of center frequency are available.
4. Operating temperature range : -10 to +50 (degree C)
Storage temperature range : -40 to +85 (degree C)



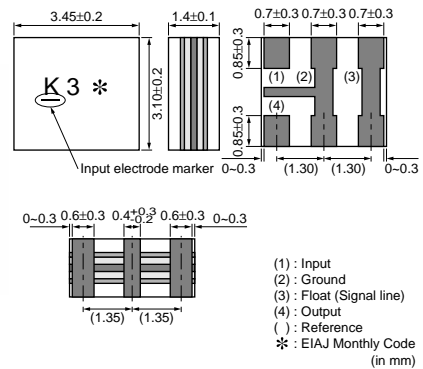
SF ECS10M8SF00-R0



SF ECS10M8RF00-R0



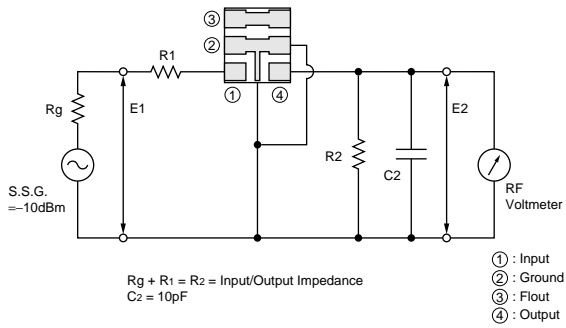
SF ECS10M8PF00-R0



Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Insertion Loss (dB)	Ripple (dB)	Spurious Response (dB)	GDT Deviation (μs)	Absolute GDT (μs)	Input/Output Impedance (ohm)
SF ECS10M8PF00-R0	10.800	fn±110 min.	fn±310 max. [within 20dB]	6.0 max. [at fn]	0.5 max. [fn±100kHz]	-	1.5 max. [fn±100kHz]	2.8±1.0 [at fn]	330
SF ECS10M8RF00-R0	10.800	fn±135 min.	fn±350 max. [within 20dB]	6.0 max. [at fn]	0.5 max. [within fn±100kHz]	-	1.2 max. [within fn±100kHz]	2.6±1.0 [at fn]	330
SF ECS10M8SF00-R0	10.800	fn±150 min.	fn±420 max. [within 20dB]	5.0 max. [at fn]	1.0 max. [within fn±110kHz]	25 min. [within 9 to 12 MHz]	1.5 max. [within fn±110kHz]	-	330

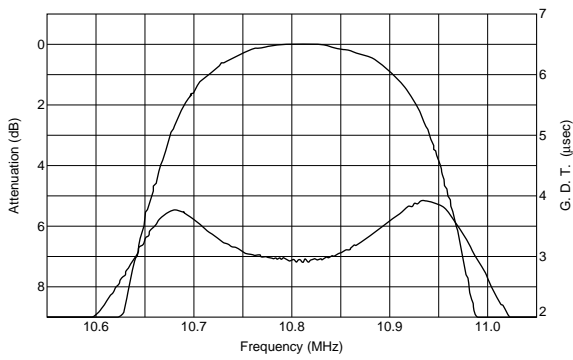
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

Test Circuit

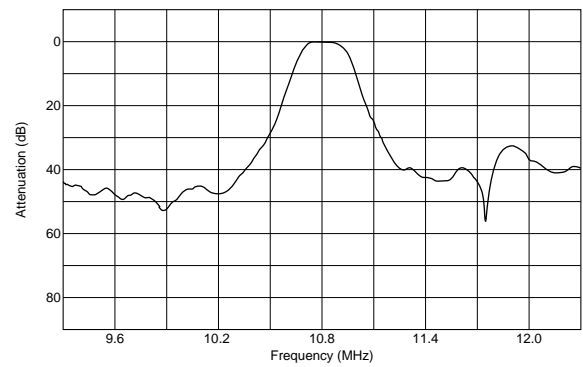


Frequency Characteristics

SF ECS10M8PF00-R0



SF ECS10M8PF00-R0



MHz SMD Type CERAFIL® Notice

■ Notice (Soldering and Mounting)

1. Standard Reflow Soldering Condition

(1) Reflow

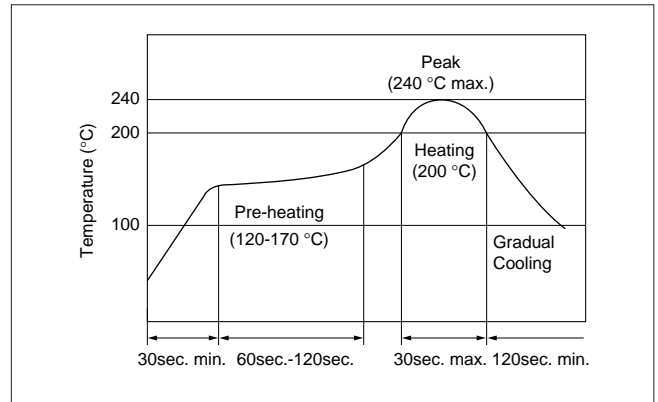
Filter is soldered twice within the following temperature condition and then being placed in natural condition for 24_{-0}^{+1} hours.

(2) Soldering Iron

Filter is soldering at $+280\pm 5^{\circ}\text{C}$ for 3 ± 1 seconds and the being placed in natural condition for 24 hours. The soldering iron shall not touch the filter while soldering.

2. Wash

The component cannot be withstand washing.

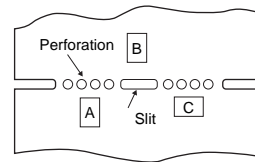


■ Notice (Handling)

1. The component will be damaged when an excessive stress is applied.
2. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
3. Design layout of components on the PC board to minimize the stress imposed on the warp or flexure of the board.
4. After installing chips, if solder is excessively applied to the circuit board, mechanical stress will cause destruction resistance characteristics to lower. To prevent this, be extremely careful in determining shape and dimension before designing the circuit board diagram.
5. When the positioning claws and pick up nozzle are worn, the load is applied to the chip while positioning is concentrated to one positioning accuracy, etc. Careful checking and maintenance are necessary to prevent unexpected trouble.
6. When correcting chips with a soldering iron, the tip of the soldering iron should not directly touch the chip component. Depending on the soldering conditions, the effective area of terminations may be reduced. The use of solder containing Ag should be done to prevent the electrode erosion.
7. Do not clean or wash the component as it is not hermetically sealed.
8. In case of covering discriminator with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.
9. Do not use strong acidity flux, more than 0.2wt% chlorine content, in re-flow soldering.
10. Accurate test circuit values are required to measure electrical characteristics.

It may be a cause of mis-correlation if there is any deviation, especially stray capacitance, from the test circuit in the specification.

[Component layout close to board]



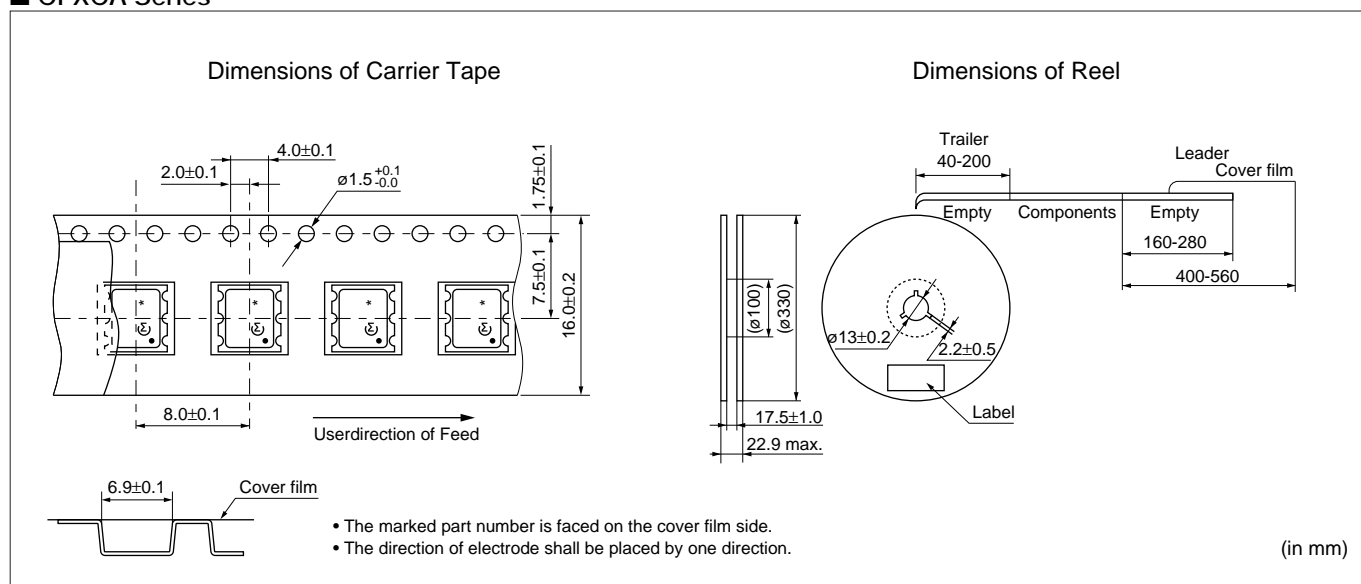
Susceptibility to stress is in the order of; A>C>B

kHz SMD Type CERAFIL® Packaging

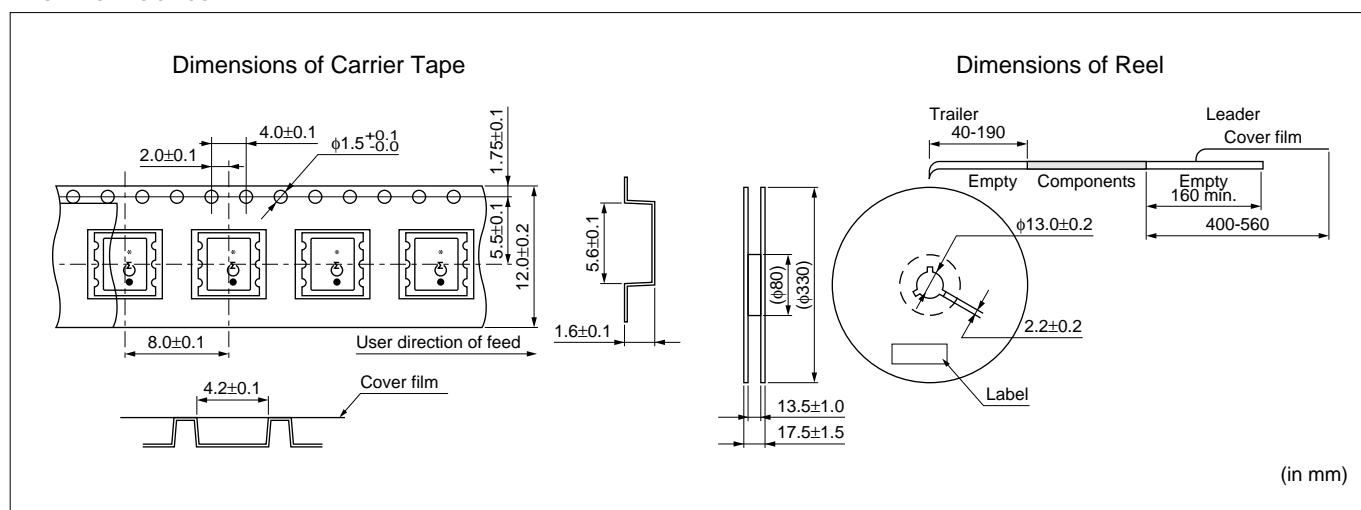
Minimum Quantity

Part Number	ø180mm	ø330mm
CFXC□		2,500
SFPCA		1,000
CFUCG	450	
CFUCF	450	
CFWCA	350	

CFXCA Series



CFXCD Series

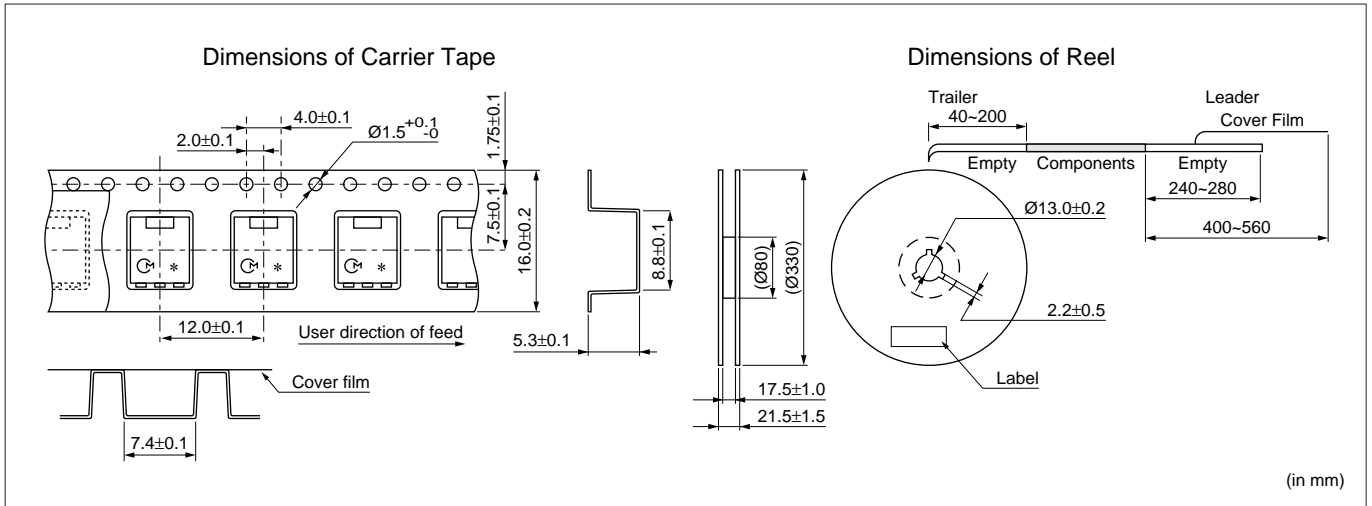


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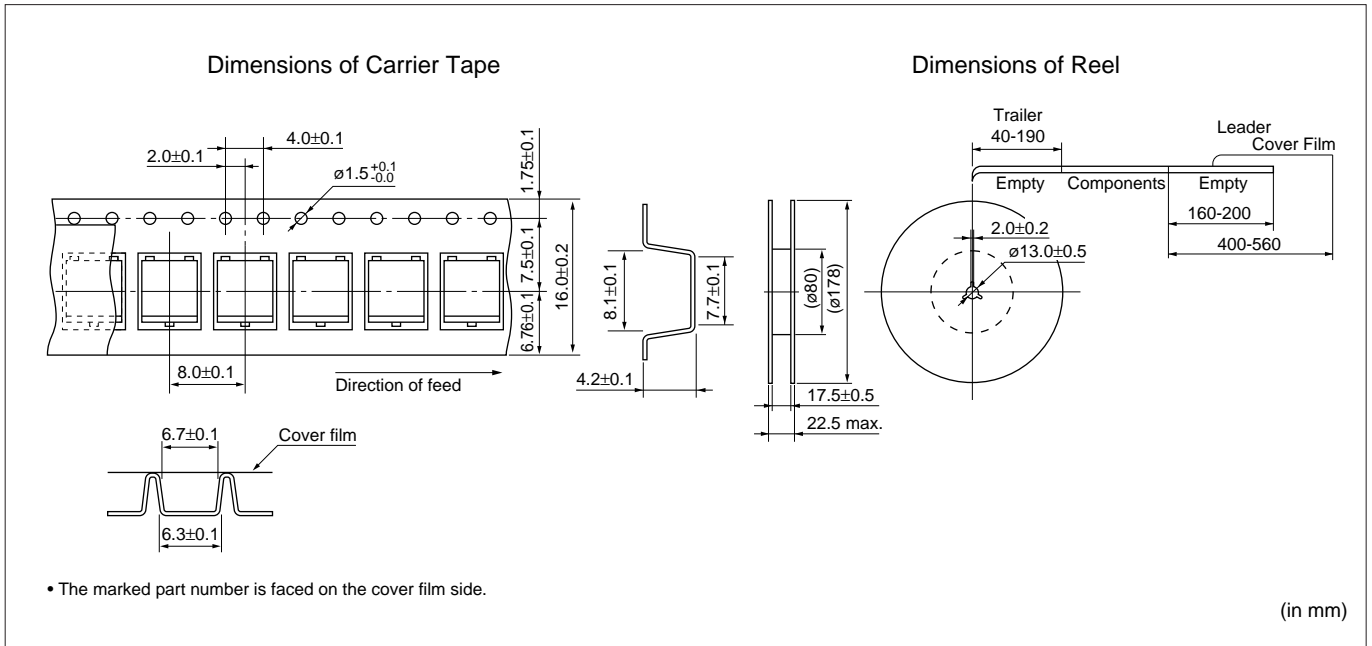
kHz SMD Type CERAFIL® Packaging

Continued from the preceding page.

■ SFPCA Series



■ CFUCG/CFUCF Series

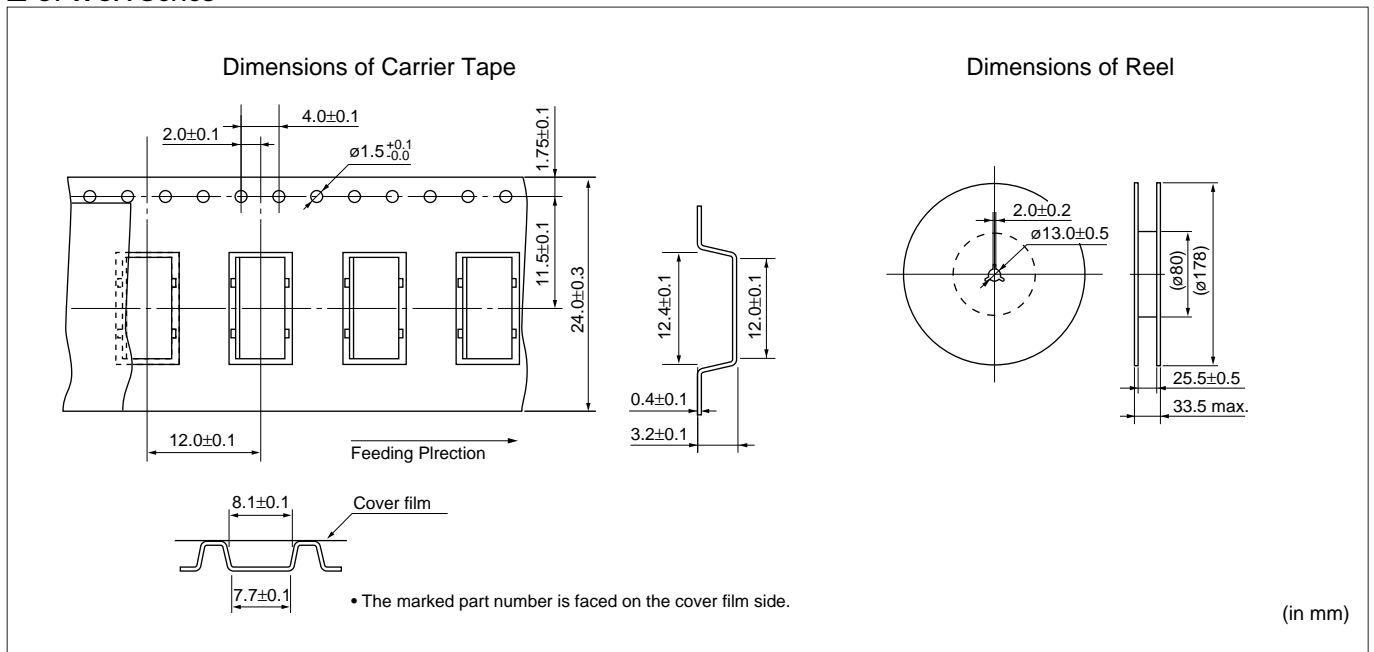


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kHz SMD Type CERAFIL® Packaging

Continued from the preceding page.

CFWCA Series

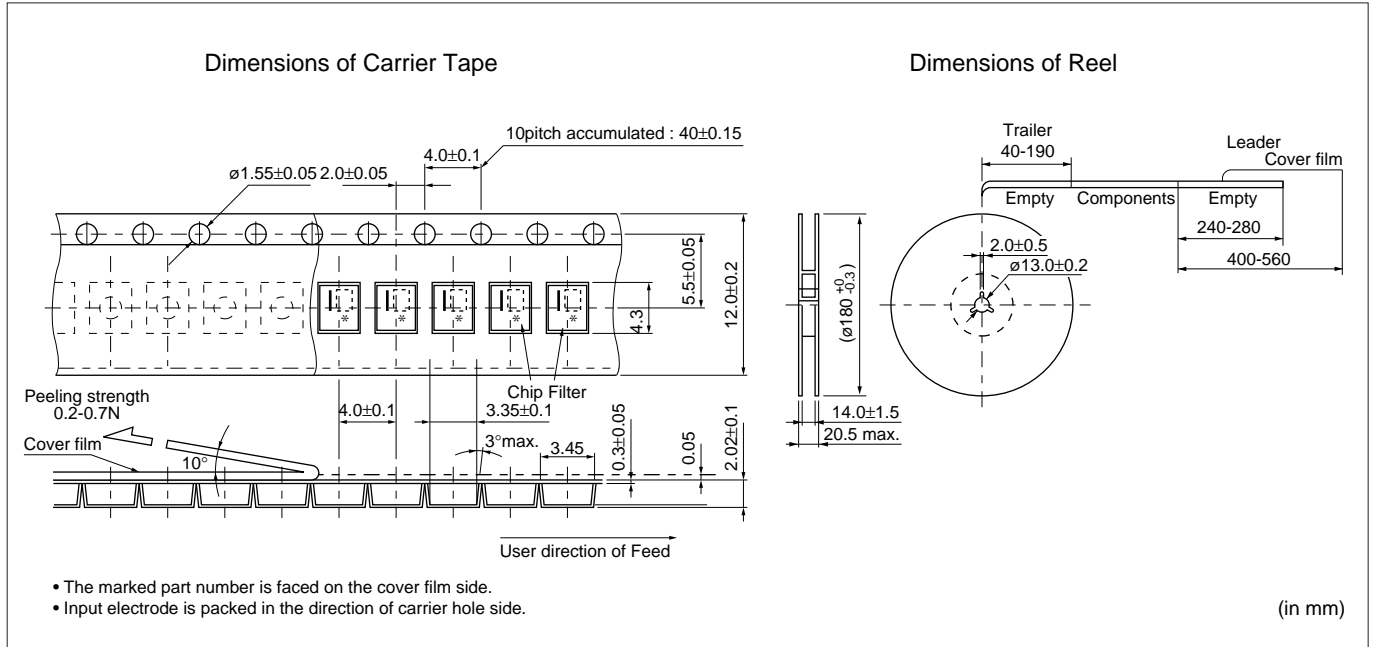


MHz SMD Type CERAFIL[®] Packaging

■ Minimum Quantity

Part Number	ø180mm	ø330mm
SFECS	2,000	

■ SFECS Series



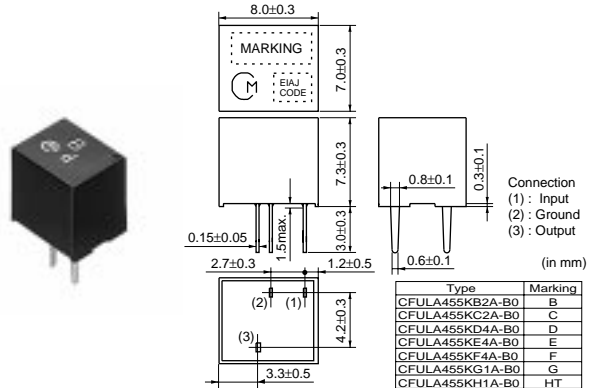
Ceramic Filters(CERAFIL[®])/Ceramic Discriminators for Communications Equipment **muRata**

CERAFIL[®] Plastic Case General Use CFULA_A Series

CFULA_A 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 GDT characteristics.

■ Features

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

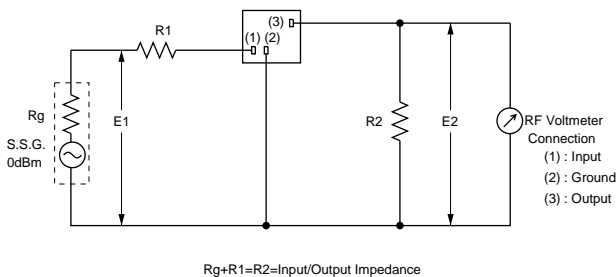


Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFULA455KB2A-B0	455.0 ±2.0kHz	fn±15.0 min.	fn±30.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KC2A-B0	455.0 ±2.0kHz	fn±12.5 min.	fn±24.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KD4A-B0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn ± 100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KE4A-B0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFULA455KF4A-B0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULA455KG1A-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn ± 100kHz]	6.0 max. [at minimum loss point]	2000
CFULA455KH1A-B0	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000

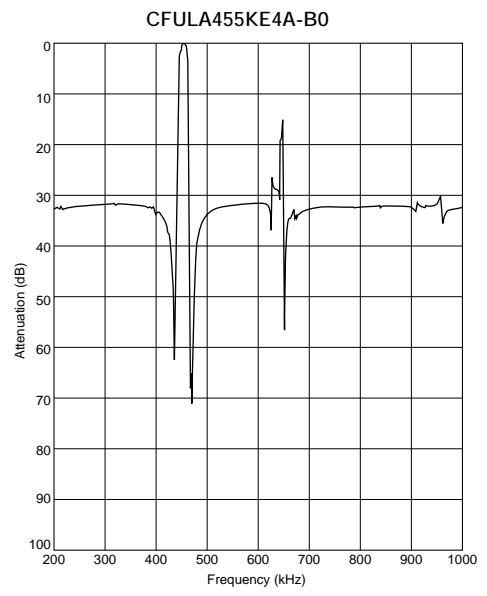
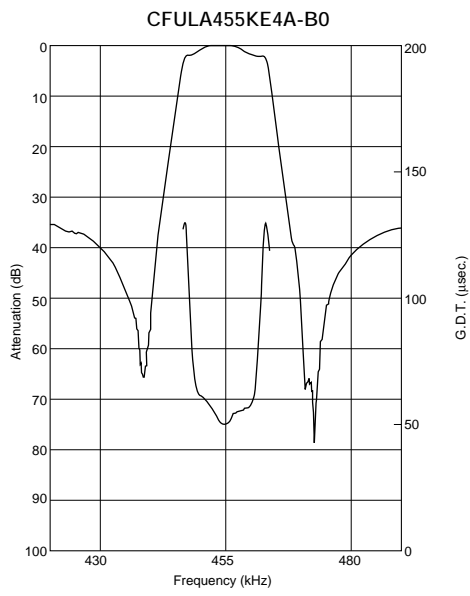
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

■ Test Circuit



■ Frequency Characteristics



Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment **muRata**

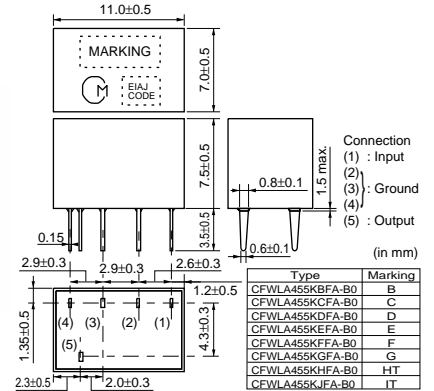
CERAFIL® Plastic Case Miniaturized Type CFWLA_A Series

Ceramic filter CFWLA_A series are low profile high selectivity ceramic filters which use 6 elements in ladder form.

They are best suitable to high-class transceivers, cordless telephones and amateur radios.

■ Features

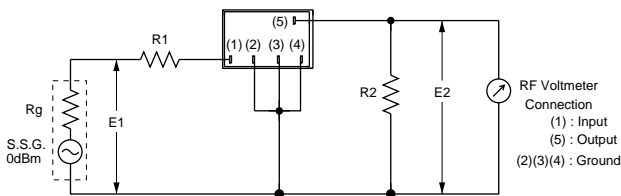
1. Low profile, high selectivity.
2. Available bandwidths are B to I as standard.
3. Easily mountable on any PC board.
4. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)



Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFWLA455KBFA-B0	455	fn±15.0 min.	fn±30.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±10kHz]	1500
CFWLA455KCFA-B0	455	fn±12.5 min.	fn±24.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±8kHz]	1500
CFWLA455KDFA-B0	455	fn±10.0 min.	fn±20.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±7kHz]	1500
CFWLA455KEFA-B0	455	fn±7.5 min.	fn±15.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	3.0 max. [within fn±5kHz]	1500
CFWLA455KFFA-B0	455	fn±6.0 min.	fn±12.5 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	3.0 max. [within fn±4kHz]	2000
CFWLA455KGFA-B0	455	fn±4.5 min.	fn±10.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2.0 max. [within fn±3kHz]	2000
CFWLA455KHFA-B0	455	fn±3.0 min.	fn±9.0 max. [within 50dB]	60 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2.0 max. [within fn±2kHz]	2000
CFWLA455KJFA-B0	455	fn±2.0 min.	fn±7.5 max. [within 50dB]	60 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	2.0 max. [within fn±1.5kHz]	2000

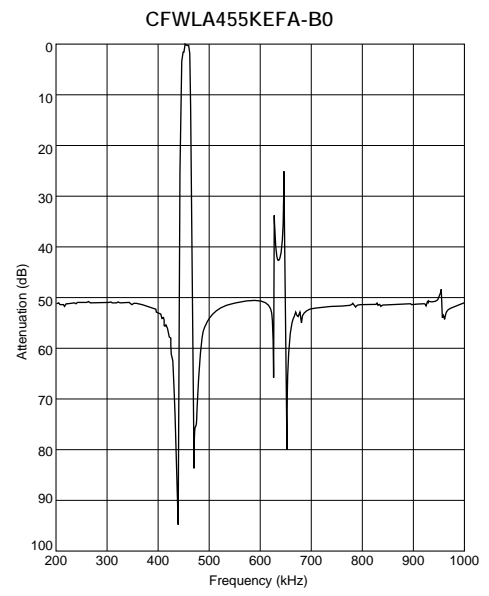
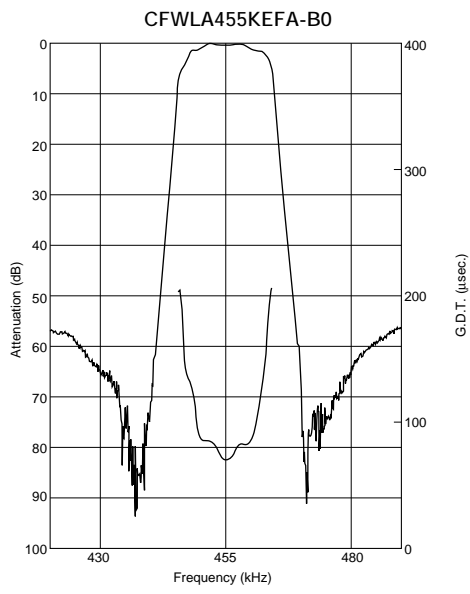
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

■ Test Circuit



$R_g + R_1 = R_2 = \text{Input/Output Impedance}$

■ Frequency Characteristics



Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment

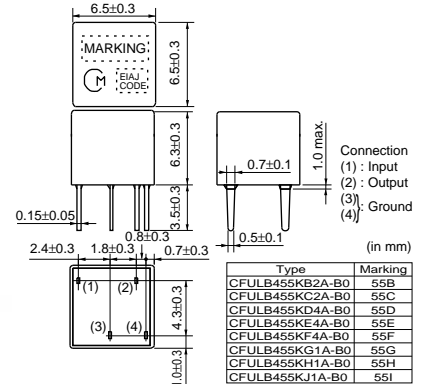


CERAFIL® Plastic Case Miniaturized Type CFULB_A Series

CFULB_A 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 65% the volume of conventional types. (CFULA455K_A series)

They are well suited for miniaturizing various kinds of communications equipment, pocket pagers, car radios, cordless telephones and mobile telephones.



■ Features

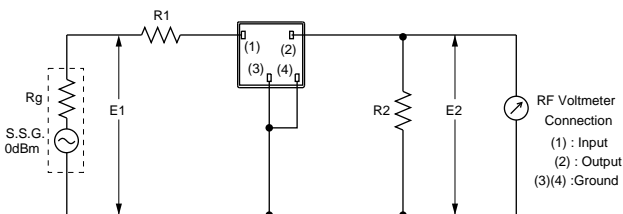
1. Miniature and high selectivity.
2. A variety of bandwidths are available.
3. Operating temperature range : -20 to +80 (degree C)
 Storage temperature range : -40 to +85 (degree C)

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFULB455KB2A-B0	455.0 ±2.0kHz	fn±15.0 min.	fn±30.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KC2A-B0	455.0 ±2.0kHz	fn±12.5 min.	fn±24.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KD4A-B0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KE4A-B0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFULB455KF4A-B0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KG1A-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KH1A-B0	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KJ1A-B0	455.0 ±1.0kHz	fn±2.0 min.	fn±7.5 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
 (fn) means nominal center frequency 455kHz.

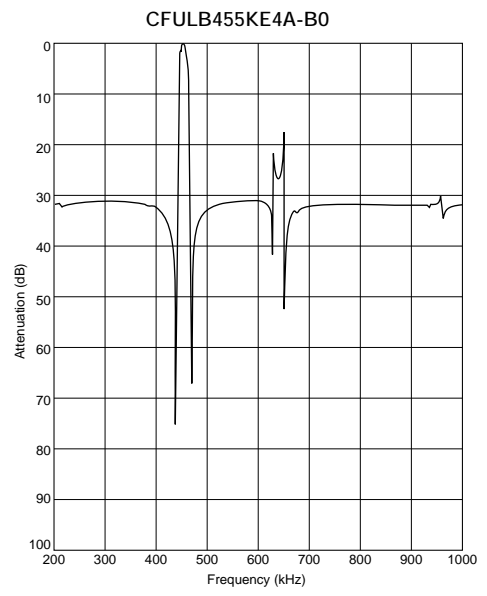
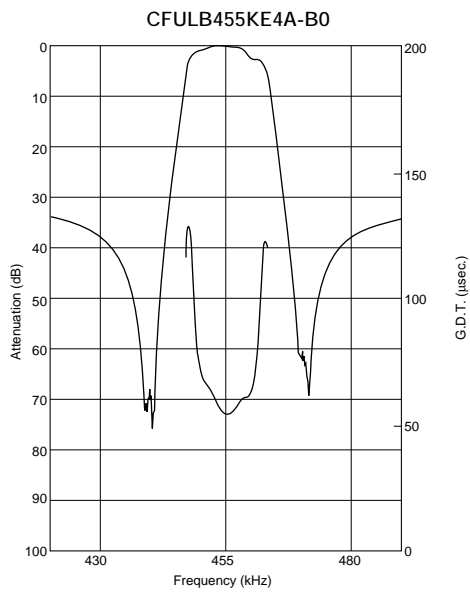
The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

■ Test Circuit



$R_g + R_1 = R_2 = \text{Input/Output Impedance}$

■ Frequency Characteristics

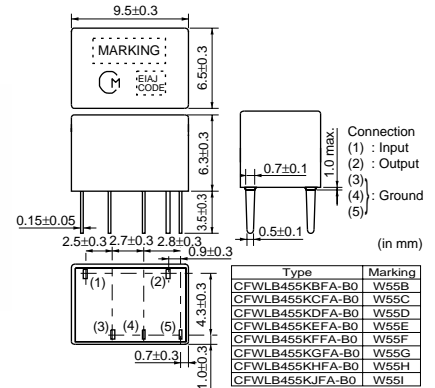


Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment

CERAFIL® Plastic Case General Use CFWLB_A Series

CFWLB_A 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 67% the volume of conventional types. (CFWLB_A series)
They are well suited for miniaturizing various kinds of communications equipment, pocket pagers, pagers, car radios, cordless telephones and mobile telephones.



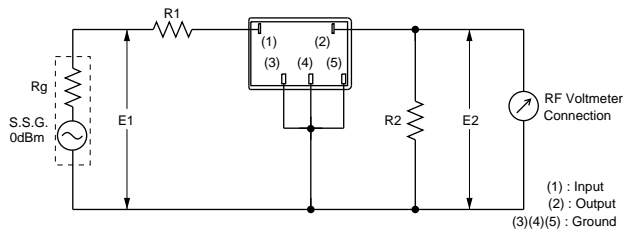
■ Features

1. Miniature and high selectivity.
2. A variety of bandwidths are available.
3. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFWLB455KBFA-B0	455	fn±15.0 min.	fn±30.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KCFA-B0	455	fn±12.5 min.	fn±24.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KDFA-B0	455	fn±10.0 min.	fn±20.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KEFA-B0	455	fn±7.5 min.	fn±15.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFWLB455KEFA004-B0	455	fn±7.5 min.	fn±15.0 max. [within 60dB]	60 min. [within fn±15kHz to 30kHz]	5.0 max. [at fn]	1500
CFWLB455KFFA-B0	455	fn±6.0 min.	fn±12.5 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KGFA-B0	455	fn±4.5 min.	fn±10.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KHFA-B0	455	fn±3.0 min.	fn±9.0 max. [within 50dB]	55 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KJFA-B0	455	fn±2.0 min.	fn±7.0 max. [within 50dB]	55 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	2000

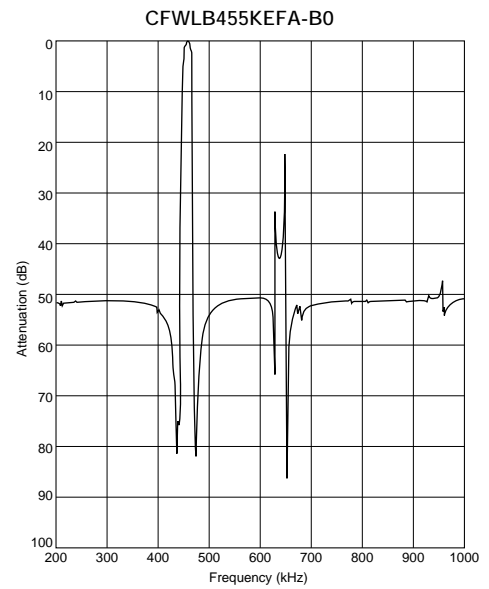
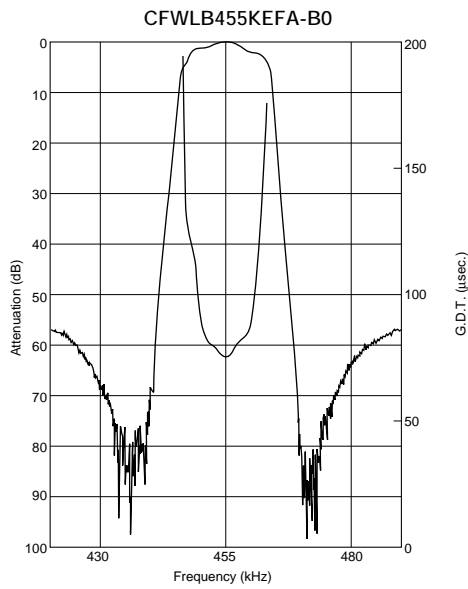
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

Test Circuit



$R_g + R_1 = R_2 = \text{Input/Output Impedance}$

Frequency Characteristics



Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment

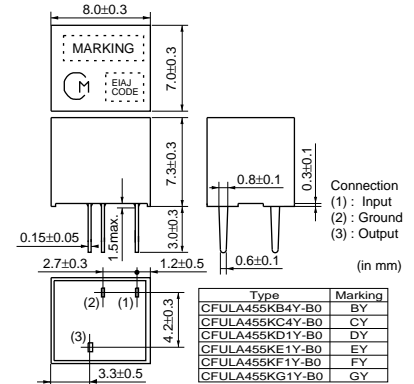


CERAFIL® Plastic Case Group Delay Flat Type CFULA_Y Series

CFULA_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 GDT characteristics.

■ Features

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



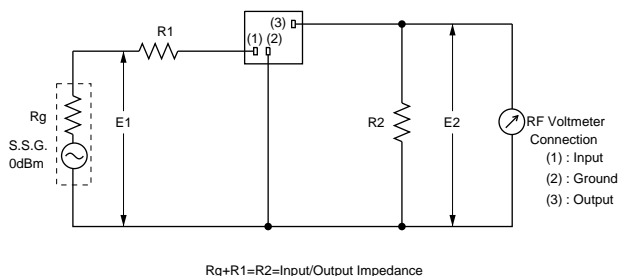
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFULA455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	15.0 max. [within fn±10kHz]	1500
CFULA455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	15.0 max. [within fn±8kHz]	1500
CFULA455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	20.0 max. [within fn±7kHz]	1500
CFULA455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	20.0 max. [within fn±5kHz]	1500
CFULA455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 40dB]	23 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	20.0 max. [within fn±4kHz]	2000
CFULA455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 40dB]	23 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	20.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

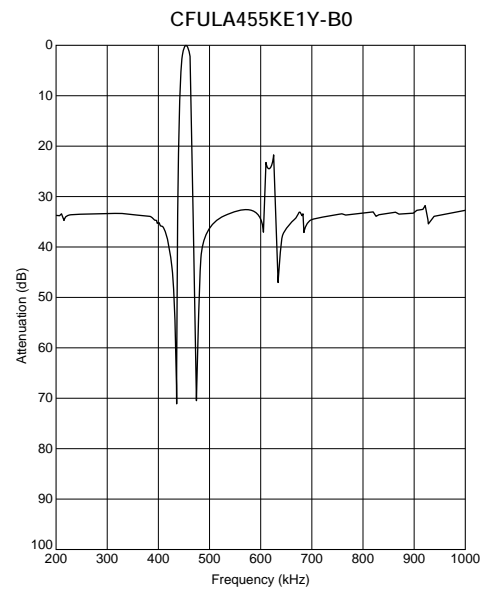
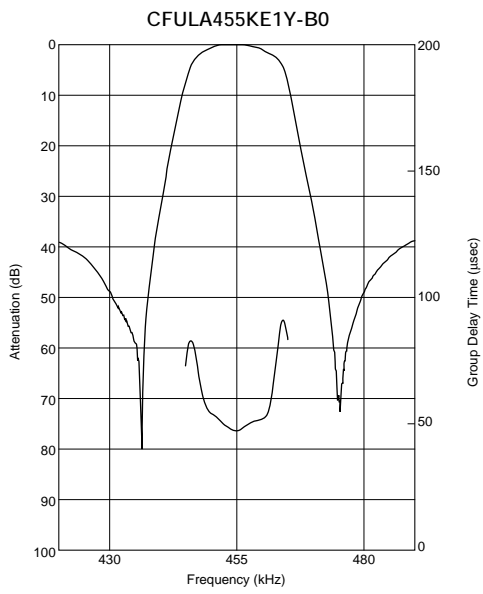
(fn) means nominal center frequency 455kHz.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

■ Test Circuit



■ Frequency Characteristics



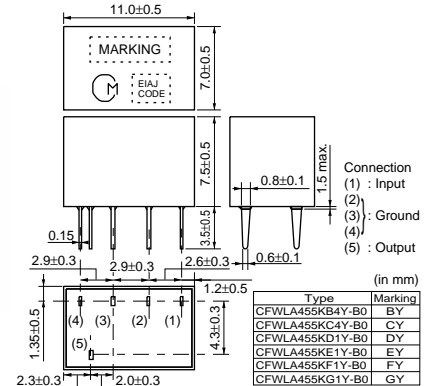
Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment



CERAFIL® Plastic Case Group Delay Flat Type CFWLA_Y Series

CFWLA_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 GDT characteristics.



■ Features

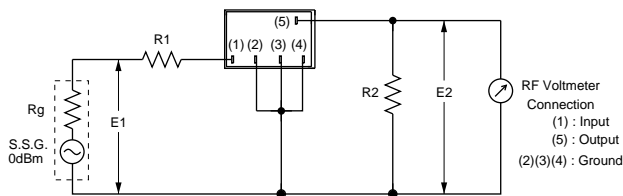
1. High selectivity.
2. A variety of bandwidths are available.
3. Excellent GDT characteristics are available within pass bandwidth.
4. Easily mounted on a printed circuit board
5. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWLA455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 50dB]	40 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	30.0 max. [within fn±10kHz]	1500
CFWLA455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 50dB]	40 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	30.0 max. [within fn±8kHz]	1500
CFWLA455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 50dB]	40 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	30.0 max. [within fn±7kHz]	1500
CFWLA455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 50dB]	40 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	30.0 max. [within fn±5kHz]	1500
CFWLA455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 50dB]	40 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	40.0 max. [within fn±4kHz]	2000
CFWLA455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 50dB]	40 min. [within fn±100kHz]	11.0 max. [at minimum loss point]	40.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

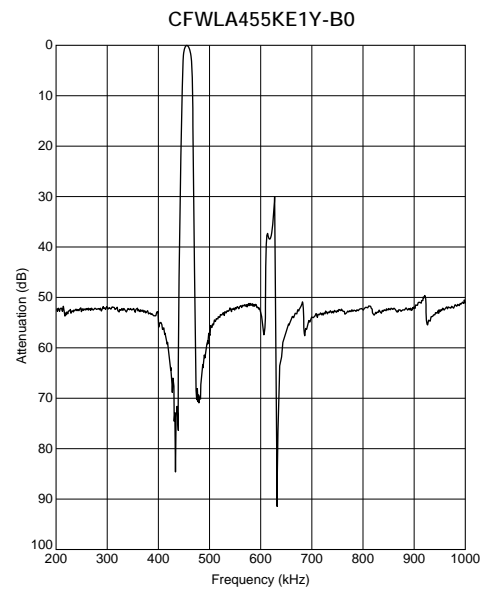
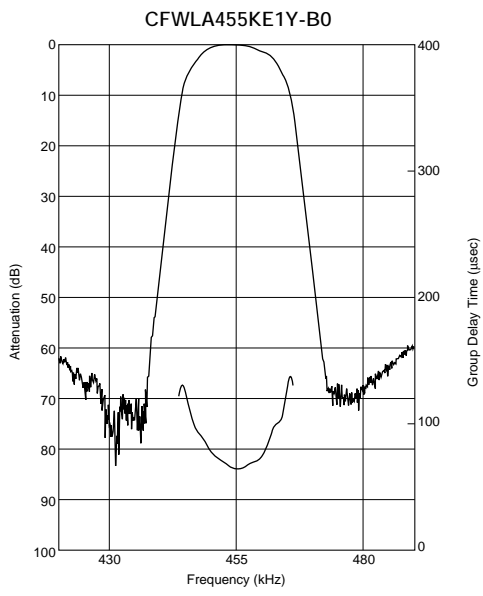
The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

■ Test Circuit



$R_g + R_1 = R_2 = \text{Input/Output Impedance}$

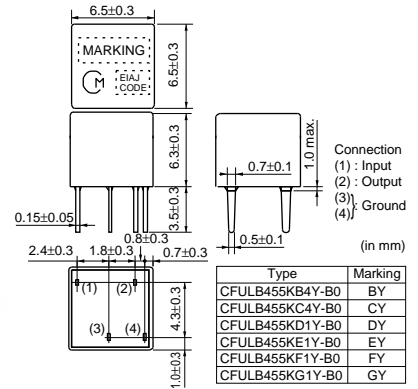
■ Frequency Characteristics



Ceramic Filters(CERAFIL[®])/Ceramic Discriminators for Communications Equipment **muRata**

CERAFIL[®] Plastic Case Group Delay Flat Type Miniaturized Type CFULB_Y Series

Ceramic filter CFULB_Y series are miniature and high performance filters. These filters, with only 6.3mm high, are 65% the volume of conventional types (CFULA455K_Y series). Well suited for miniaturizing the communications equipment, especially for a cellular phone.



■ Features

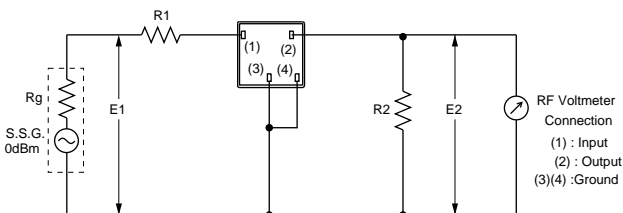
1. Miniature, flat GDT characteristics.
2. Suitable for a cellular phone.
3. A variety of band width are available.
4. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFULB455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	15.0 max. [within fn±10kHz]	1500
CFULB455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	15.0 max. [within fn±8kHz]	1500
CFULB455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	20.0 max. [within fn±7kHz]	1500
CFULB455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	20.0 max. [within fn±5kHz]	1500
CFULB455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 40dB]	23 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	20.0 max. [within fn±4kHz]	2000
CFULB455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 40dB]	23 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	20.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

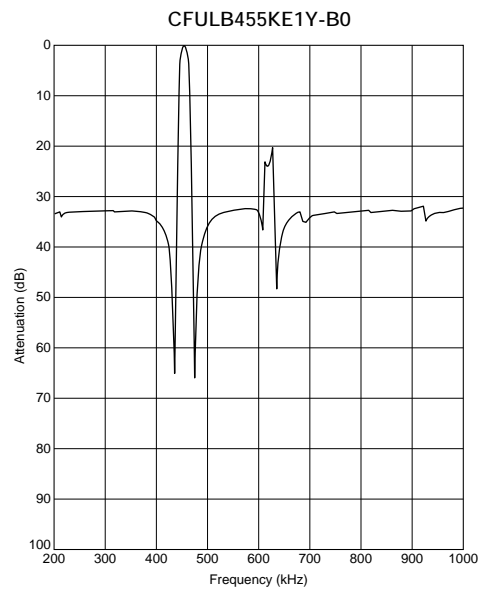
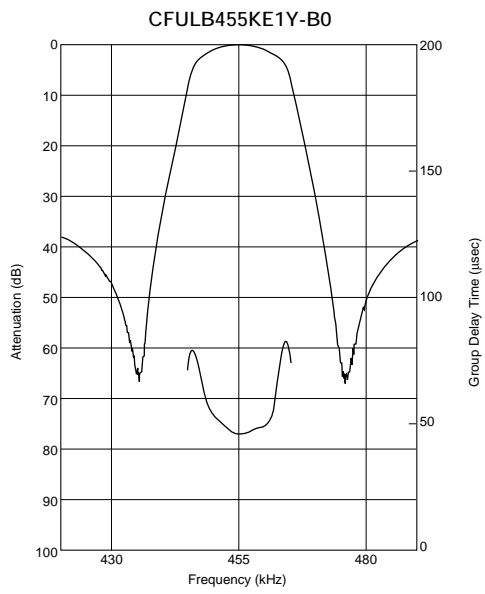
The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog. CFULB455K_Y series filters are 4-element ceramic filters and miniature versions of CFULA455K_Y series.

■ Test Circuit



Rg+R1=R2=Input/Output Impedance

Frequency Characteristics

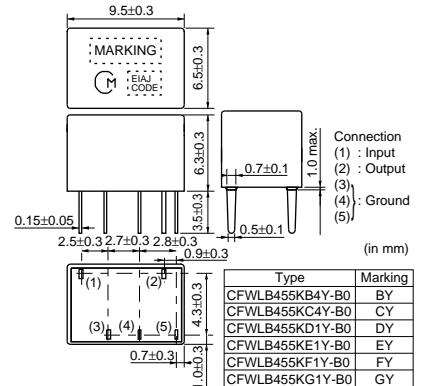


Ceramic Filters(CERAFIL[®])/Ceramic Discriminators for Communications Equipment **muRata**

CERAFIL[®] Plastic Case Group Delay Flat Type CFWLB_Y Series

Ceramic filter CFWLB_Y series are miniature and high-performance filters. These filters, with only 6.3mm high, are 67% the volume of conventional types (CFWLA455K_Y series).

Well suited for miniaturizing the communications equipment, especially for a cellular phone.



■ Features

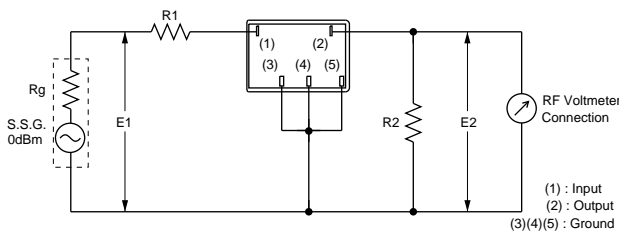
1. Miniature, flat GDT characteristics.
2. Suitable for a cellular phone.
3. A variety of band width are available.
4. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWLB455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 50dB]	40 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	30.0 max. [within fn±10kHz]	1500
CFWLB455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 50dB]	40 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	30.0 max. [within fn±8kHz]	1500
CFWLB455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 50dB]	40 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	30.0 max. [within fn±7kHz]	1500
CFWLB455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 50dB]	40 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	30.0 max. [within fn±5kHz]	1500
CFWLB455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 50dB]	40 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	40.0 max. [within fn±4kHz]	2000
CFWLB455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 50dB]	40 min. [within fn±100kHz]	11.0 max. [at minimum loss point]	40.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

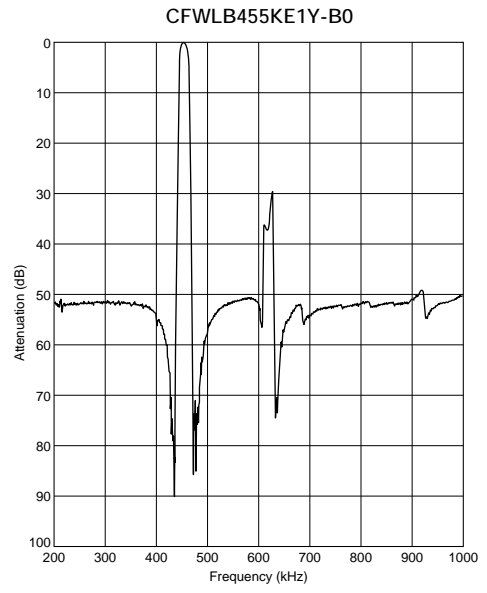
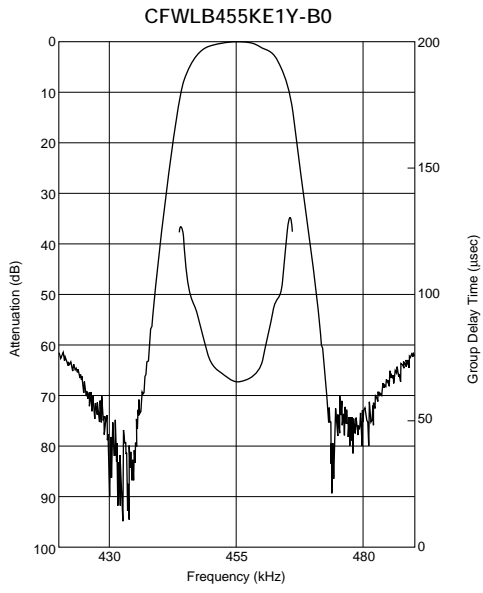
The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog. CFWLB455K_Y series filters are 4-element ceramic filters and miniature versions of CFWLA455K_Y series.

■ Test Circuit



$R_g + R_1 = R_2 = \text{Input/Output Impedance}$

■ Frequency Characteristics



Plastic Case Type CERAFIL[®] Minimum Quantity/Notice

■ Minimum Quantity

CFULA Series : Bulk 200pcs./Bag, 50pcs./Magazine
CFULB Series : Bulk 250pcs./Bag, 80pcs./Magazine
CFWLA Series : Bulk 150pcs./Bag, 50pcs./Magazine
CFWLB_A Series: Bulk 150pcs./Bag, 55pcs./Magazine
CFWLB_Y Series: Bulk 150pcs./Bag, 50pcs./Magazine

■ Notice (Handling)

1. Do not use this product with bend. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. The component will be damaged when an excessive stress is applied.
3. All kinds of re-flow soldering must not be applied on the component.
4. Do not clean or wash the component as it is not hermetically sealed.
5. Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.
6. In case of covering filter with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.
7. Accurate test circuit values are required to measure electrical characteristics.
It may be a cause of mis-correlation if there is any deviation, especially stray capacitance, from the test circuit in the specification.
8. Use coupling capacitors to prevent applying D.C. voltage between input-ground, output-ground of "CERAFIL" as D.C. current may harm the component.

Ceramic Filters(CERAFIL®)/Ceramic Discriminators for Communications Equipment



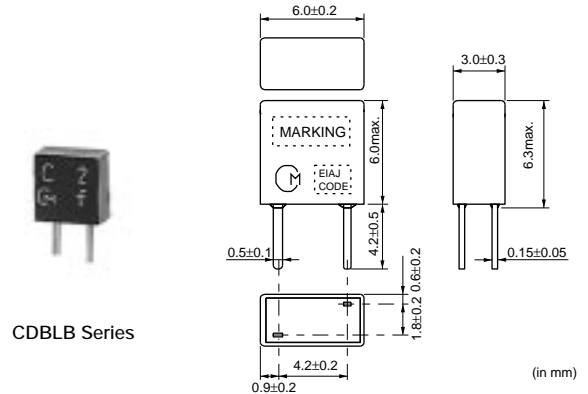
Discriminators for Communication Equipment

Specified by Impedance Characteristics 1

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 telecom to cellular telephone, making non-adjustment and shrinking of the detection circuit possible.

■ Features

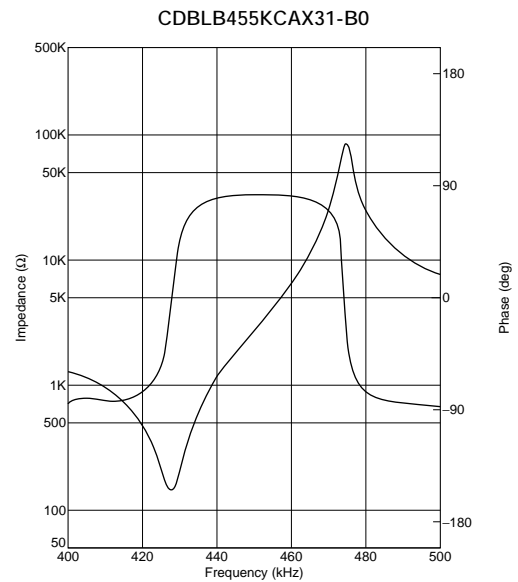
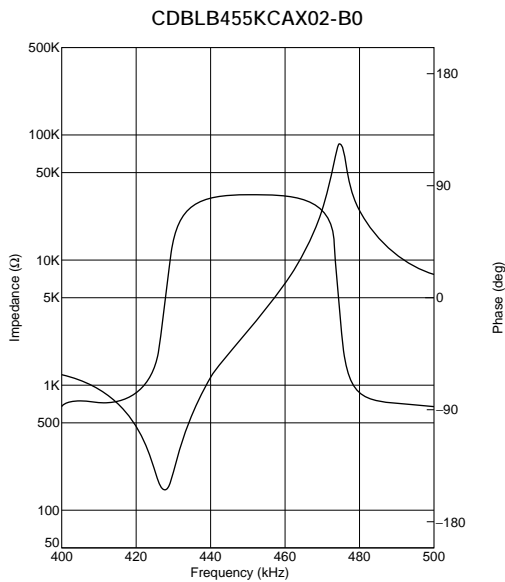
1. Small in size and light weight.
2. Realize no-adjustment in detection circuit.
3. High sensitivity and stability.
4. Wide range of standard products are available for various ICs.
5. Operating temperature range : -20 to +80 (degree C)
 Storage temperature range : -40 to +85 (degree C)



CDBLB Series

Part Number	Center Frequency (fn) (kHz)	Inclination of Impedance Curve(1)	Inclination of Impedance Curve(2)	Capacitance (C)	IC	IC Maker	Type
CDBLB455KCAX02-B0	455	447.0±1.5kHz(at Z =2.05kohm)	463.0±1.5kHz(at Z =10.0kohm)	140pF±20%	TA8104F	TOSHIBA	PLASTIC
CDBLB455KCAX31-B0	455	447.0±1.5kHz(at Z =2.05kohm)	463.0±1.5kHz(at Z =10.0kohm)	140pF±20%	TA31141	TOSHIBA	PLASTIC

■ Impedance Curve Specification 1



Specified by Impedance Characteristics 2

Ceramic discriminator consists of wide band piezoelectric resonator.

It is ideal for mobile communication equipments due to its small size and light weight.

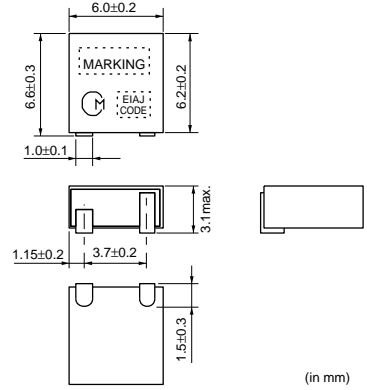
Standard line include products for wide range of application, from cordless telecom to cellular telephone, making non-adjustment and shrinking of the detection circuit possible.

■ Features

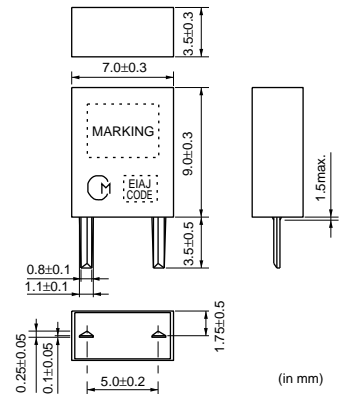
1. Small in size and light weight.
2. Realize no-adjustment in detection circuit.
3. High sensitivity and stability.
4. Wide range of standard products are available for various ICs.
5. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)



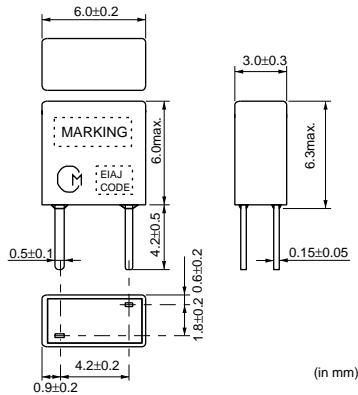
CDBC Series



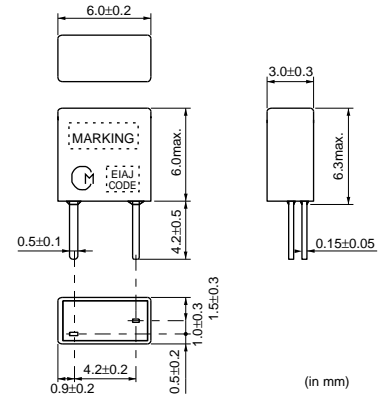
CDBLA Series



CDBLB_CAX Series

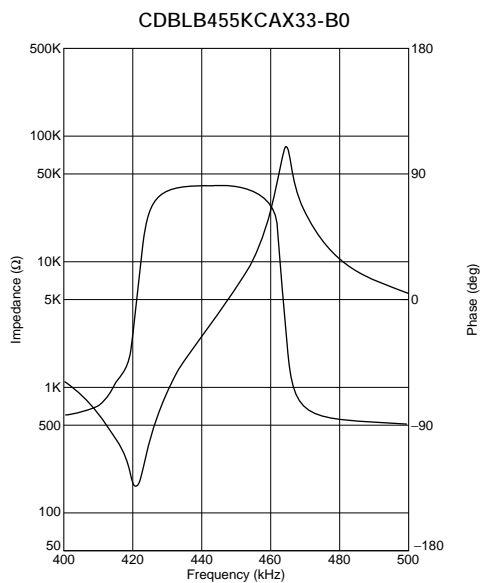
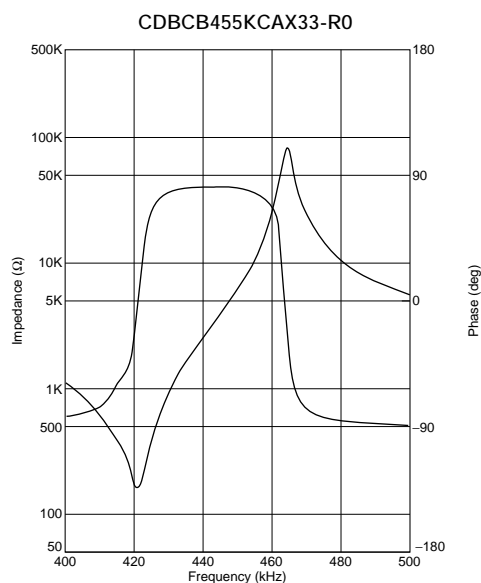
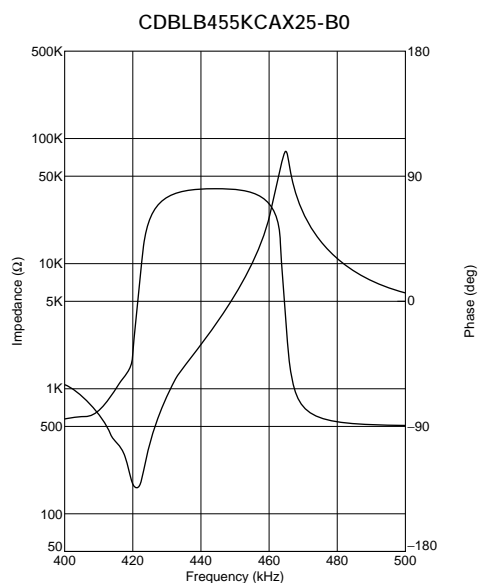
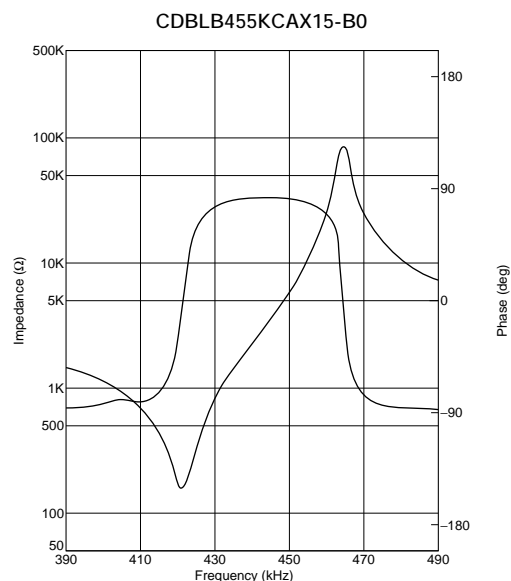
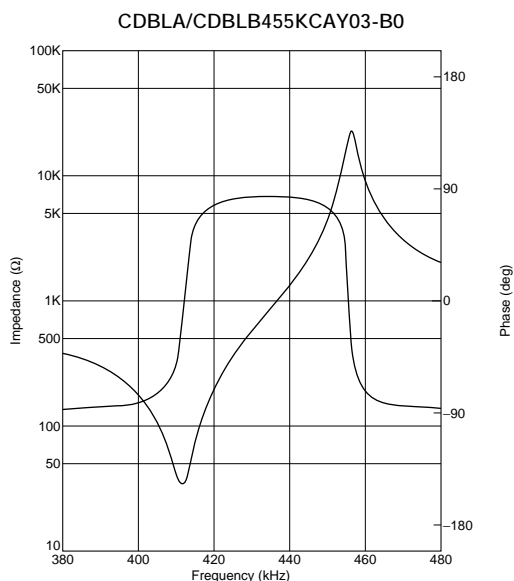


CDBLB_CAY Series



Part Number	Center Frequency (fn) (kHz)	Anti-resonant Frequency (Fa)	Delta F (Fa-Fr)	Resonant Resistance (R)	Capacitance (C)	IC	IC Maker	Type
CDBC455KCAX33-R0	455	458.0±1.5kHz	42±4.0kHz	300ohm max.	280pF±20%	CXA1474	SONY	SMD
CDBLA455KCAY03-B0	-	455.0±1.5kHz	48±5.0kHz	70ohm max.	600pF±20%	CXA1184	SONY	PLASTIC
CDBLB455KCAY03-B0	-	455.0±1.5kHz	46±5.0kHz	70ohm max.	550pF±20%	CXA1184M	SONY	PLASTIC
CDBLB455KCAX15-B0	455	463.5±1.0kHz	43±2.0kHz	300ohm max.	140pF±20%	CXA1183M	SONY	PLASTIC
CDBLB455KCAX25-B0	455	465.0±1.5kHz	45±4.0kHz	300ohm max.	135pF±20%	CXA1484	SONY	PLASTIC
CDBLB455KCAX33-B0	455	465.0±1.5kHz	45±4.0kHz	300ohm max.	135pF±20%	CXA1474	SONY	PLASTIC

Impedance Curve Specification 2



Specified by Recovered Audio Characteristics

Ceramic discriminator consists of wide band piezoelectric resonator.

It is ideal for mobile communication equipments due to its small size and light weight.

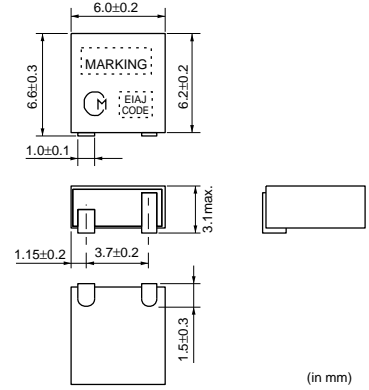
Standard line include products for wide range of application, from cordless telecom to cellular telephone, making non-adjustment and shrinking of the detection circuit possible.

■ Features

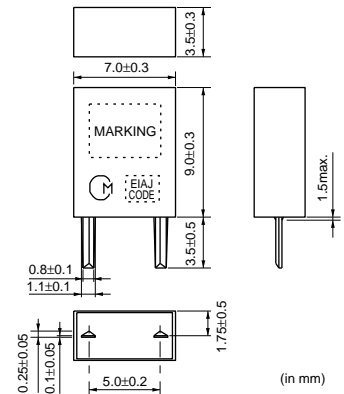
1. Small in size and light weight.
2. Realize no-adjustment in detection circuit.
3. High sensitivity and stability.
4. Wide range of standard products are available for various ICs.
5. Operating temperature range : -20 to +80 (degree C)
Storage temperature range : -40 to +85 (degree C)



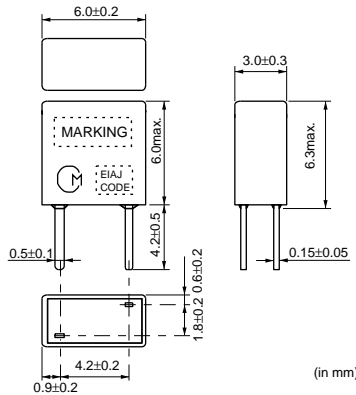
CDBC Series



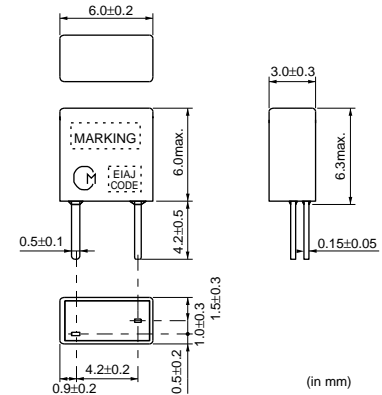
CDBLA Series



CDBLB_CAX Series



CDBLB_CAY/CLY Series



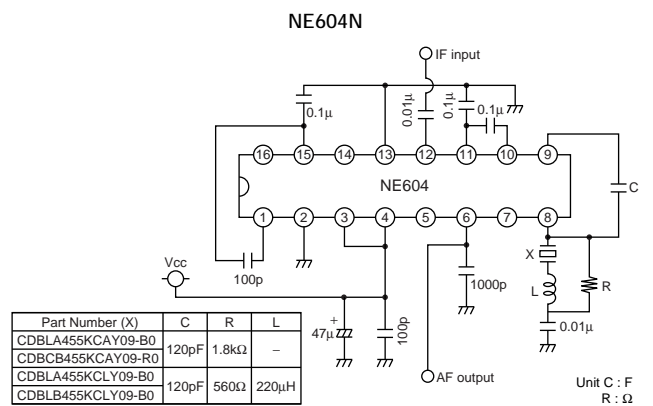
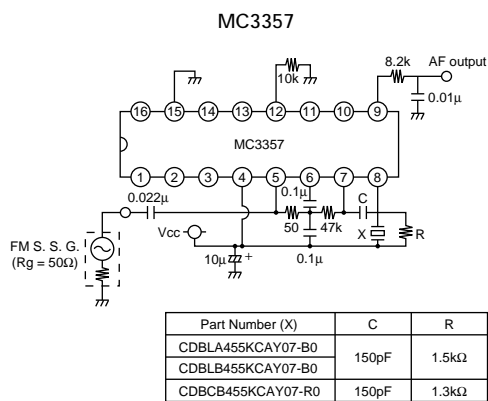
Part Number	Center Frequency (fn) (kHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (at fn) (%)	Distortion (fn±8kHz) (%)	IC	IC Maker	Type
CDBC455KCAY07-R0	455	fn±4.0 min.	350 ±60 mV	3.0 max.	-	MC3357	MOTOROLA	SMD
CDBC455KCAY09-R0	455	fn±4.0 min.	120 ±40 mV	1.5 max.	-	NE604N	SIGNETICS	SMD
CDBC455KCAY13-R0	455	fn±4.0 min.	330 ±50 mV	4.0 max.	-	CXA1003BM	SONY	SMD
CDBC455KCAY16-R0	455	fn±4.0 min.	175 ±40 mV	2.0 max.	-	MC3372	MOTOROLA	SMD
CDBC455KCAY21-R0	455	fn±4.0 min.	55 ±20 mV	2.0 max.	-	TA31132	TOSHIBA	SMD
CDBC455KCAY24-R0	455	fn±4.0 min.	100 ±40 mV	2.0 max.	-	TA31136	TOSHIBA	SMD
CDBC455KCAY27-R0	455	fn±4.0 min.	90 ±30 mV	2.0 max.	-	TK10487	TOKO	SMD
CDBC455KCAY28-R0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31142F	TOSHIBA	SMD
CDBC455KCAY29-R0	455	fn±4.0 min.	100 ±30 mV	2.5 max.	-	NE605	SIGNETICS	SMD
CDBC455KCAY32-R0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31143	TOSHIBA	SMD
CDBC455KCAY35-R0	455	fn±4.0 min.	100 ±40 mV	2.5 max.	-	TK10930	TOKO	SMD
CDBC455KCAY40-R0	455	fn±4.0 min.	40 ±20 mV	3.5 max.	-	TA31145	TOSHIBA	SMD
CDBC455KCAY49-R0	455	fn±4.0 min.	45 ±10 mV	3.0 max.	-	MC3361	MOTOROLA	SMD
CDBC455KCAY50-R0	455	fn±4.0 min.	64 ±6.4 mV	4.0 max.	-	CXA3117N	SONY	SMD
CDBC455KCLX36-R0	455	fn±13.0 min.	90 ±30 mV	2.5 max.	5.0 max.	NE(SA)606/NE(SA)616	SIGNETICS	SMD
CDBC455KCLX39-R0	455	fn±11.0 min.	130 ±20 mV	2.5 max.	7.0 max.	NE607/NE617	PHILIPS	SMD

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Part Number	Center Frequency (fn) (kHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (at fn) (%)	Distortion (fn±8kHz) (%)	IC	IC Maker	Type
CDBC455KCLY13-R0	455	fn±13.0 min.	120 ±30 mV	1.5 max.	5.0 max.	CXA1003BM	SONY	SMD
CDBC455KCLY21-R0	455	fn±11.0 min.	75 ±25 mV	2.5 max.	5.0 max.	TA31132	TOSHIBA	SMD
CDBLA455KAY07-B0	455	fn±4.0 min.	340 ±60 mV	2.5 max.	-	MC3357	MOTOROLA	PLASTIC
CDBLA455KAY09-B0	455	fn±5.0 min.	100 min.	1.5 max.	-	NE604N	SIGNETICS	PLASTIC
CDBLA455KAY13A-B0	455	fn±4.0 min.	350 ±50 mV	3.0 max.	-	CXA1003BM	SONY	PLASTIC
CDBLA455KAY16-B0	455	fn±4.0 min.	185 ±40 mV	2.0 max.	-	MC3372	MOTOROLA	PLASTIC
CDBLA455KAY24-B0	455	fn±4.0 min.	100 ±40 mV	2.0 max.	-	TA31136	TOSHIBA	PLASTIC
CDBLA455KAY28-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31142	TOSHIBA	PLASTIC
CDBLA455KAY34-B0	455	fn±4.0 min.	65 ±20 mV	2.5 max.	-	MC13136	MOTOROLA	PLASTIC
CDBLA455KAY42-B0	455	fn±4.0 min.	40 ±15 mV	3.0 max.	-	TK14590/TK14591	TOKO	PLASTIC
CDBLA455KCLY09-B0	455	fn±15.0 min.	70 ±20 mV	1.5 max.	3.5 max.	NE604N	SIGNETICS	PLASTIC
CDBLA455KCLY13-B0	455	fn±15.0 min.	110 ±30 mV	1.5 max.	5.0 max.	CXA1003BM	SONY	PLASTIC
CDBLB455KAY07-B0	455	fn±4.0 min.	340 ±60 mV	3.0 max.	-	MC3357	MOTOROLA	PLASTIC
CDBLB455KAY13A-B0	455	fn±4.0 min.	350 ±50 mV	3.0 max.	-	CXA1003BM	SONY	PLASTIC
CDBLB455KAY21-B0	455	fn±4.0 min.	55 ±20 mV	2.0 max.	-	TA31132	TOSHIBA	PLASTIC
CDBLB455KAY24-B0	455	fn±4.0 min.	100 ±40 mV	2.0 max.	-	TA31136	TOSHIBA	PLASTIC
CDBLB455KAY28-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31142FN	TOSHIBA	PLASTIC
CDBLB455KAY32-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31143	TOSHIBA	PLASTIC
CDBLB455KAY34-B0	455	fn±4.0 min.	65 ±20 mV	2.5 max.	-	MC13136	MOTOROLA	PLASTIC
CDBLB455KAY40-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31145	TOSHIBA	PLASTIC
CDBLB455KAY42-B0	455	fn±4.0 min.	40 ±15 mV	3.0 max.	-	TK14590/TK14591	TOKO	PLASTIC
CDBLB455KAY49-B0	455	fn±4.0 min.	45 ±10 mV	3.0 max.	-	MC3361	MOTOROLA	PLASTIC
CDBLB455KAY50-B0	455	fn±4.0 min.	64 ±6.4 mV	4.0 max.	-	CXA3117N	SONY	PLASTIC
CDBLB455KCLY09-B0	455	fn±15.0 min.	70 ±20 mV	1.5 max.	3.5 max.	NE604N	SIGNETICS	PLASTIC
CDBLB455KCLY13-B0	455	fn±15.0 min.	110 ±30 mV	1.5 max.	5.0 max.	CXA1003BM	SONY	PLASTIC
CDBLB455KCLY21-B0	455	fn±13.0 min.	65 ±20 mV	2.5 max.	5.0 max.	TA31132	TOSHIBA	PLASTIC
CDBLB455KAX16-B0	455	fn±4.0 min.	185 ±40 mV	2.0 max.	-	MC3372	MOTOROLA	PLASTIC
CDBLB455KAX18-B0	455	fn±3.0 min.	180 ±40 mV	2.0 max.	-	MC3371	MOTOROLA	PLASTIC
CDBLB455KAX36-B0	455	fn±3.5 min.	100 ±25 mV	3.5 max.	-	NE606/616	SIGNETICS	PLASTIC

Test Circuit

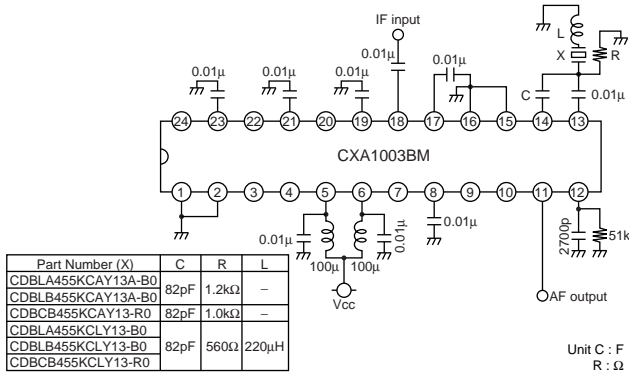


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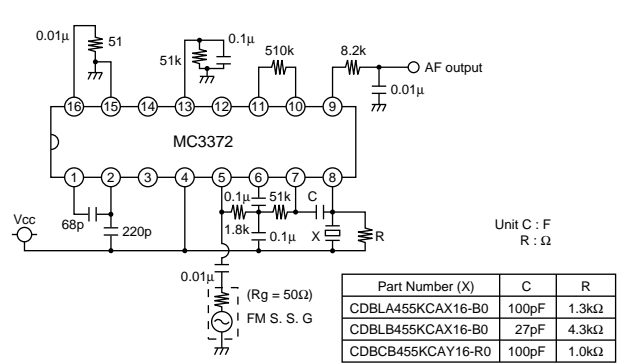
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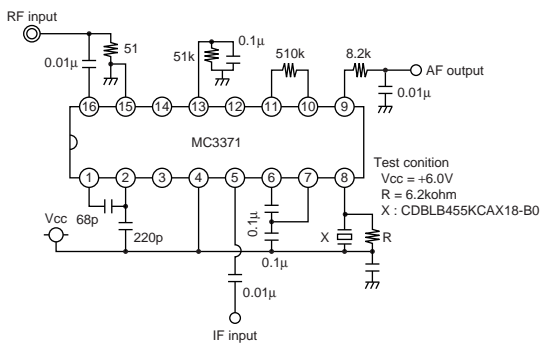
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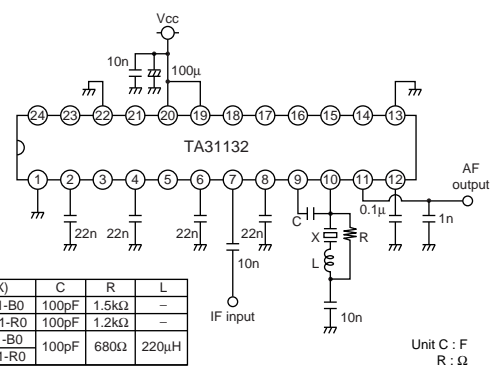
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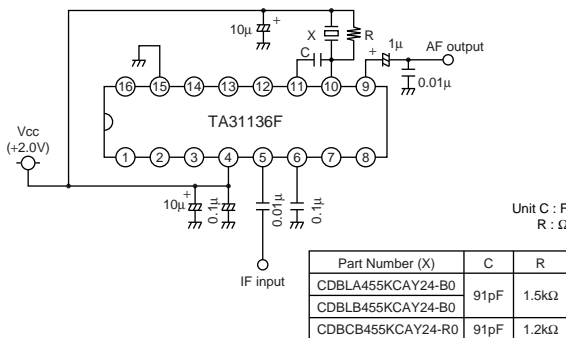
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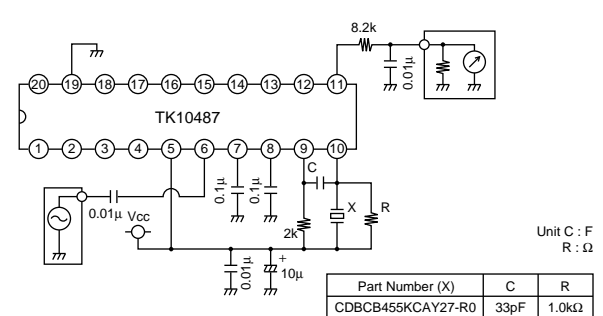
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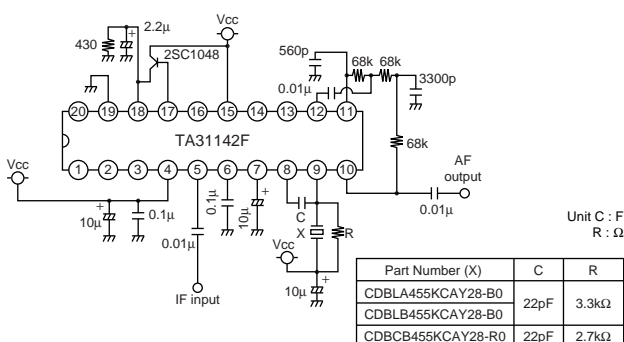
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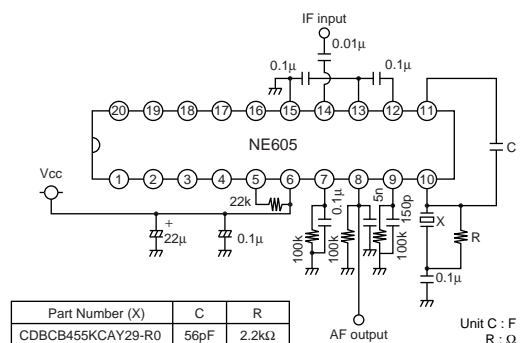
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TA31142F



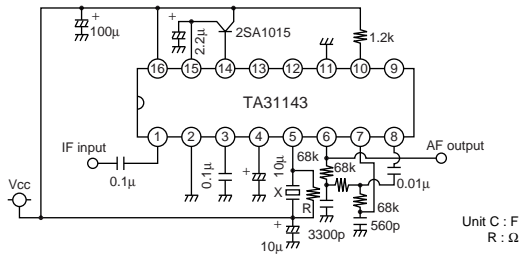
NE605



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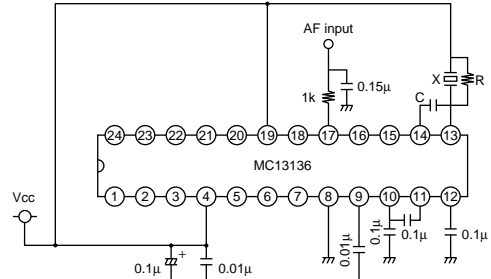
Test Circuit

TA31143



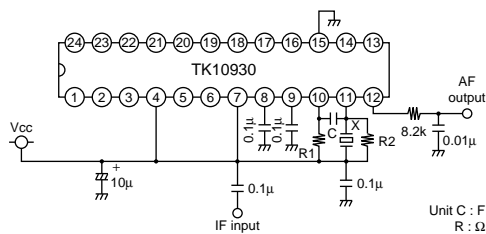
Part Number (X)	R
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CDBCB455KCAY32-R0	2.7kΩ

MC13136



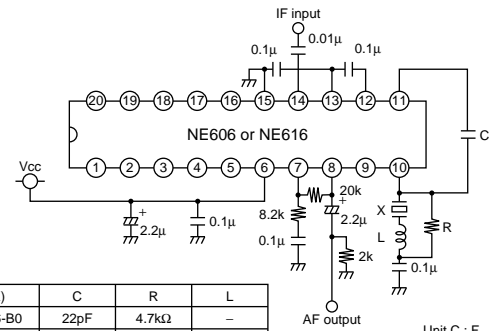
Part Number (X)	C	R
CDBLA455KCAY34-B0		
CDBLB455KCAY34-B0	100pF	1.2kΩ
CDBLB455KCAY34-B0		

TK10930



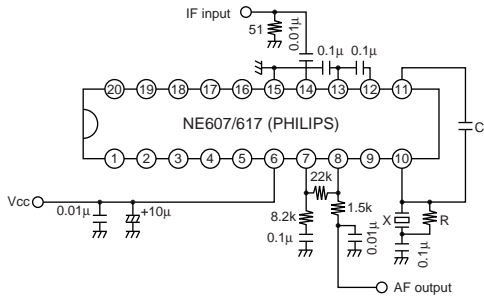
Part Number (X)	C	R1	R2
CDBCB455KCAY35-R0	33pF	2.0kΩ	1.0kΩ

NE(SA)606/616



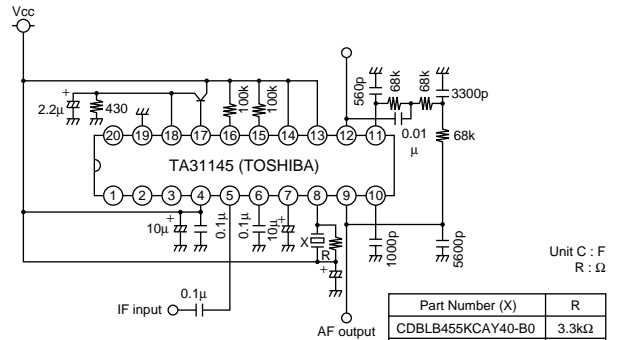
Part Number (X)	C	R	L
CDBLB455KCAX36-B0	22pF	4.7kΩ	-
CDBCB455KCAY36-R0	27pF	2.2kΩ	1mH

NE(SA)607/617



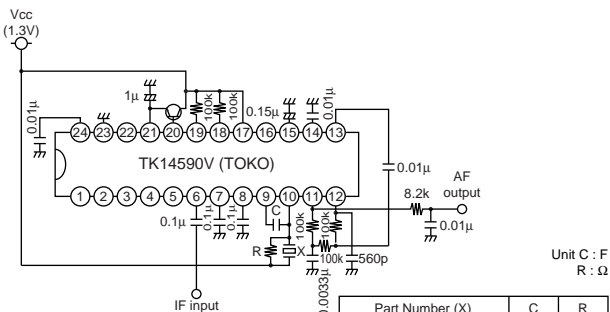
Part Number (X)	C	R
CDBCB455KCLX39-R0	22pF	2.7kΩ

TA31145



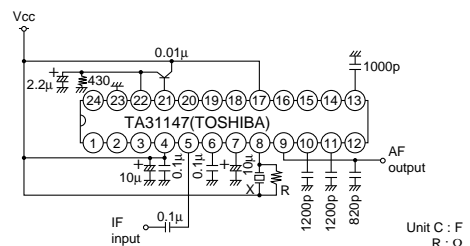
Part Number (X)	R
CDBLB455KCAY40-B0	3.3kΩ
CDBCB455KCAY40-R0	2.7kΩ

TK14590/14591



Part Number (X)	C	R
CDBLA455KCAY42-B0		3.3kΩ
CDBCB455KCAY42-R0	22pF	2.7kΩ

TA31147

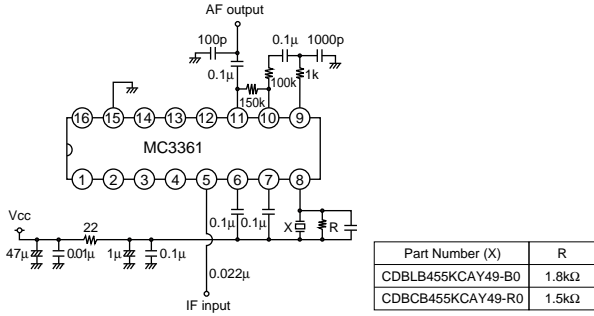


Part Number (X)	R
CDBLB455KCAY47-B0	3.3kΩ
CDBCB455KCAY47-R0	2.7kΩ

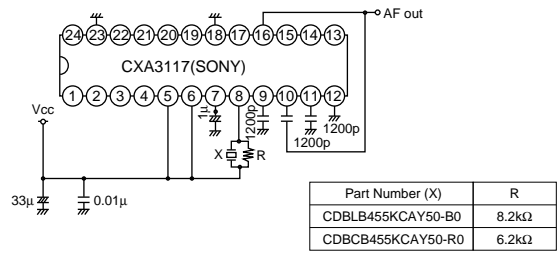
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Test Circuit

MC3361

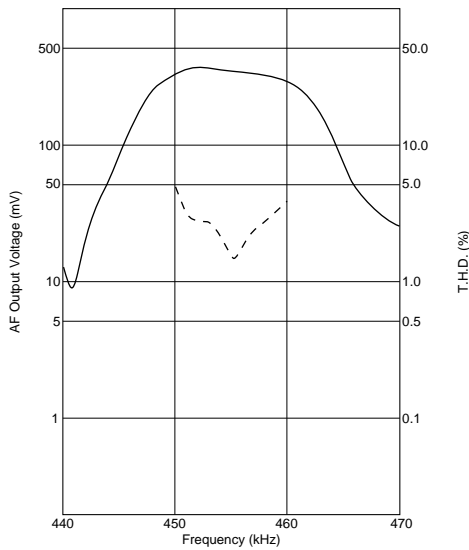


CXA3117

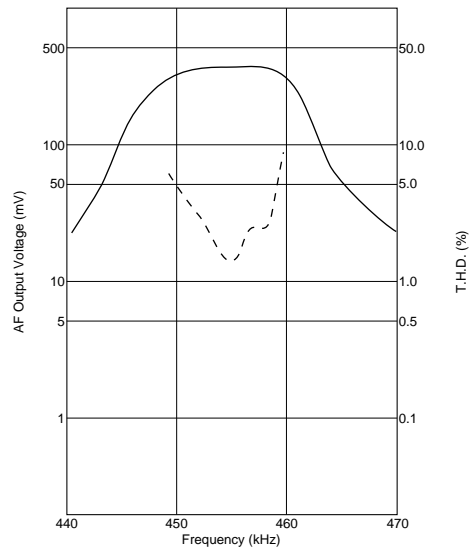


Recovered Audio Curve Specification

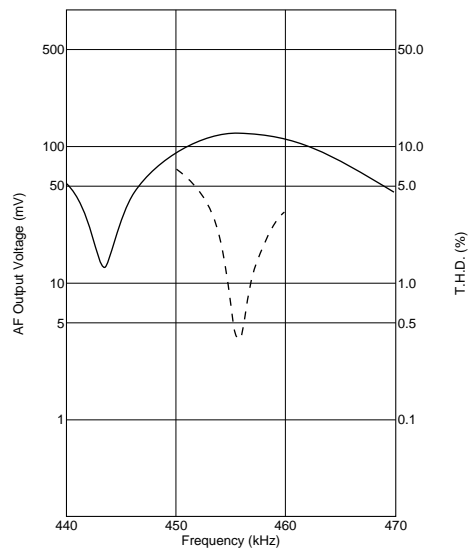
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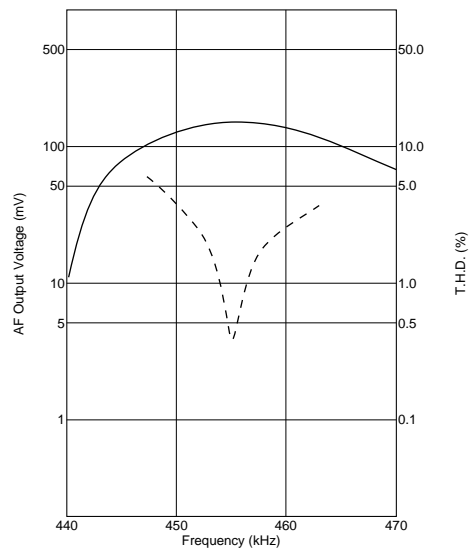
CDBLA/CDBLB455KCAY07-B0



CDBCB455KCAY09-R0



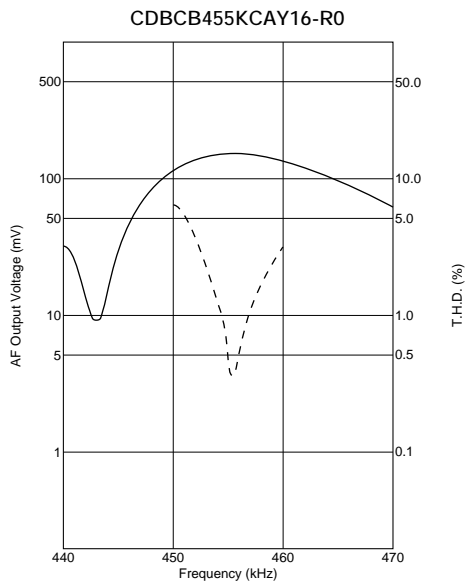
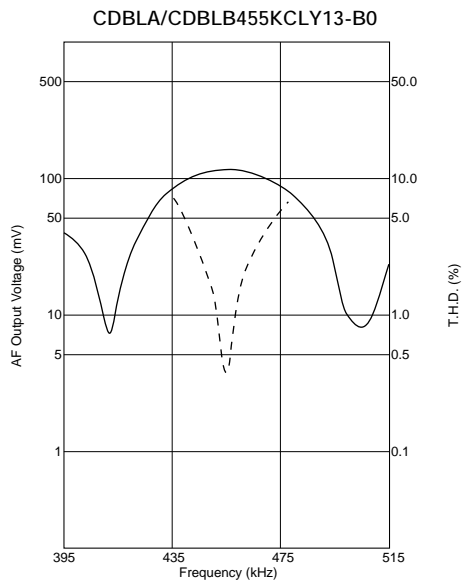
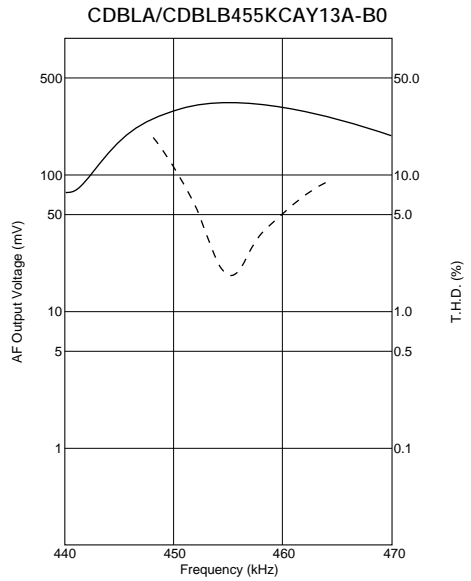
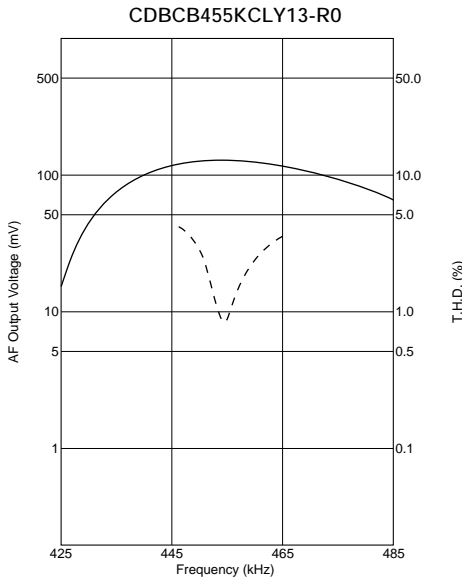
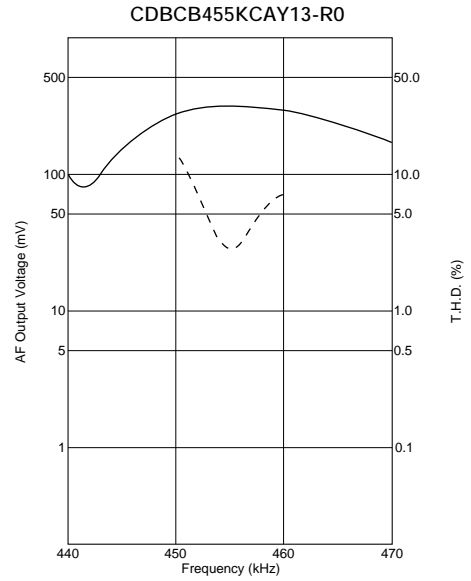
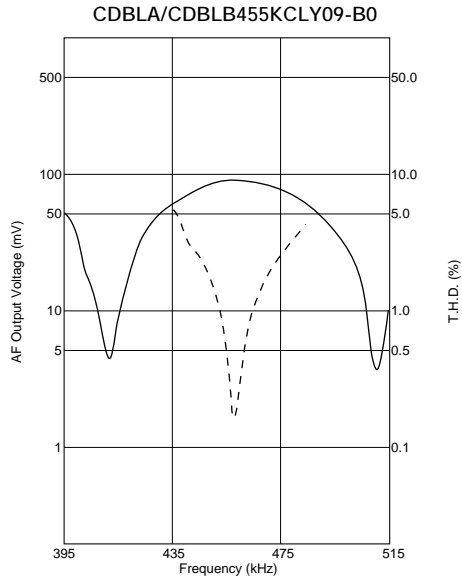
CDBLA455KCAY09-B0



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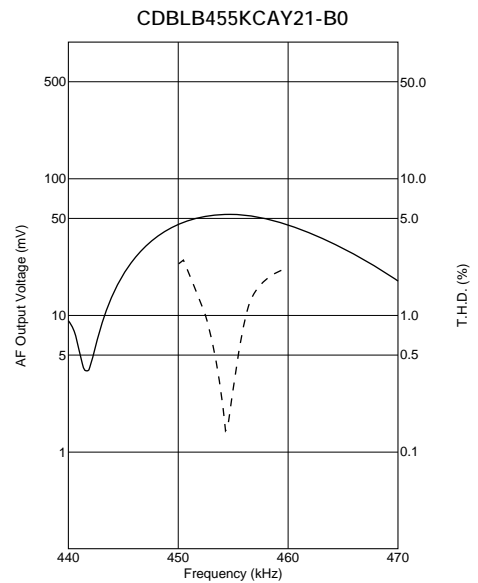
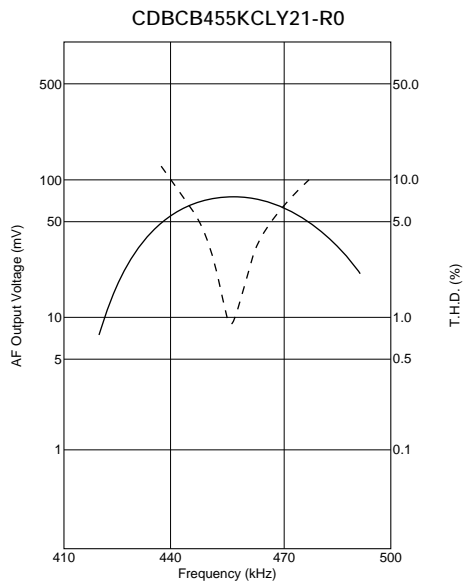
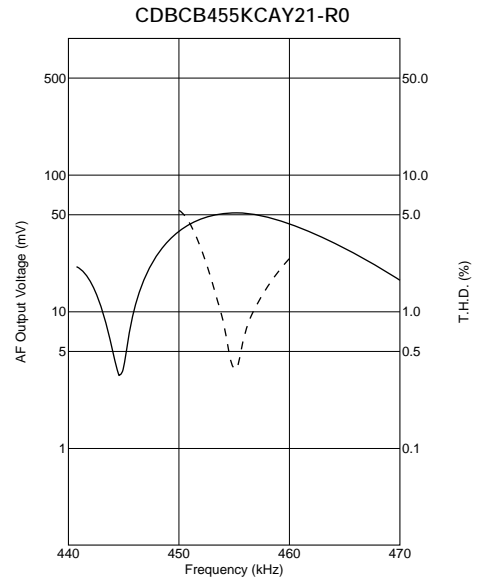
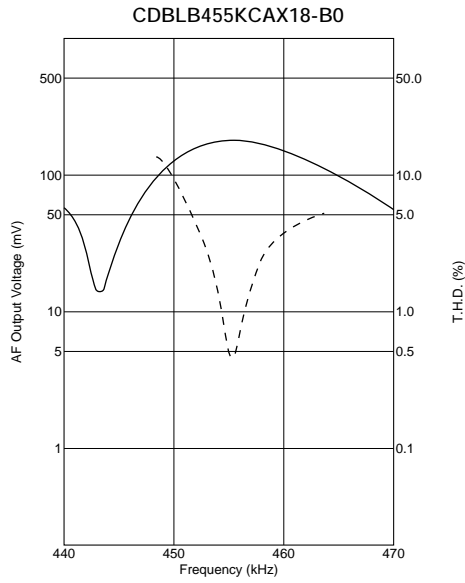
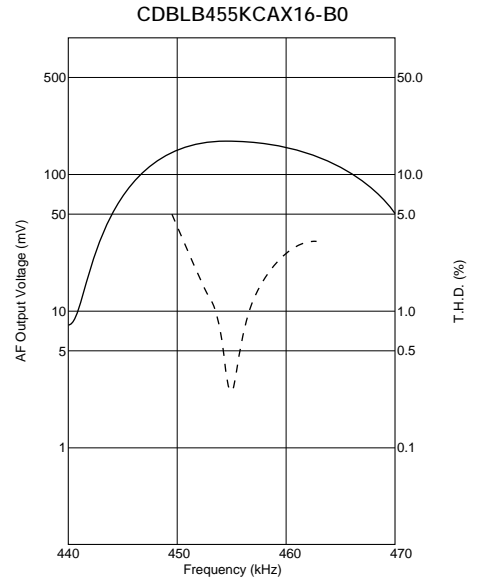
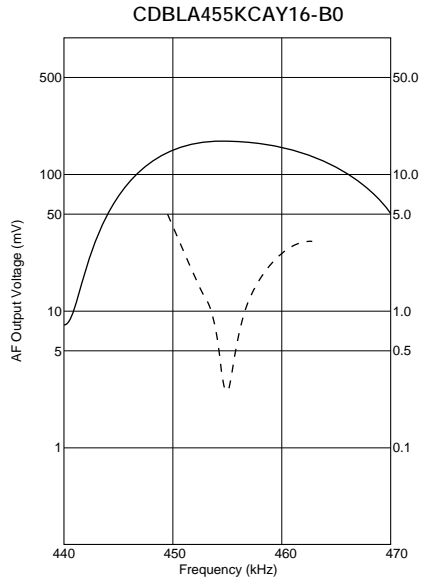
Recovered Audio Curve Specification



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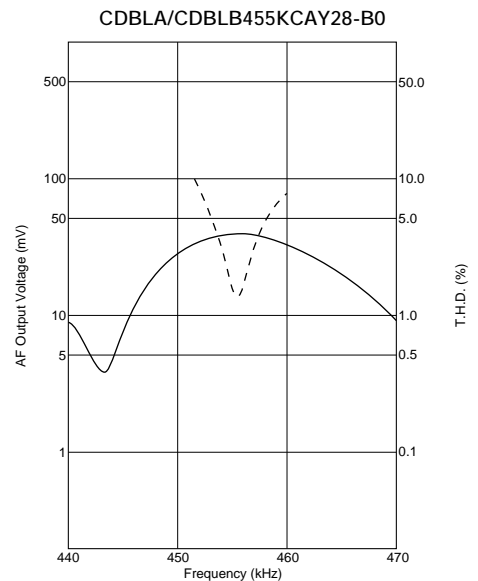
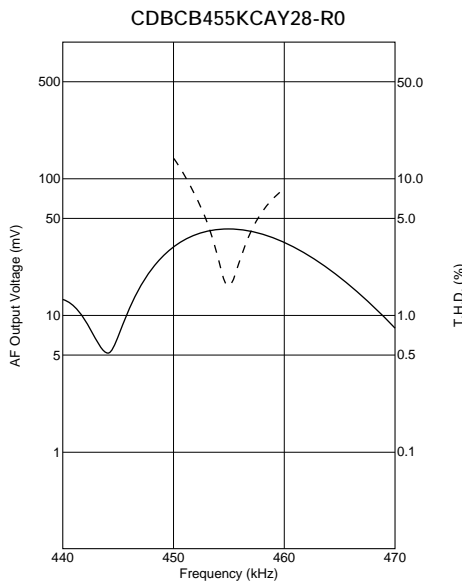
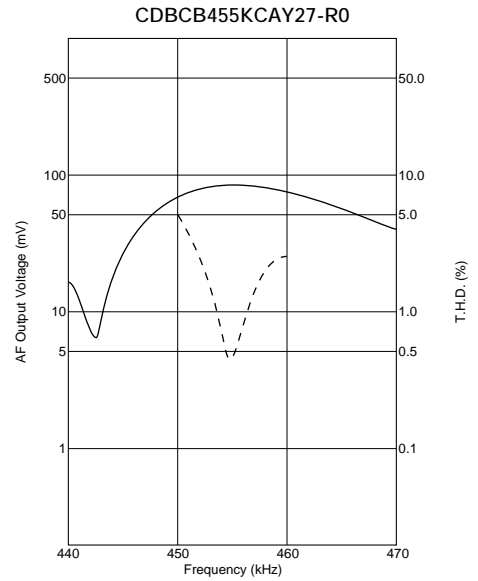
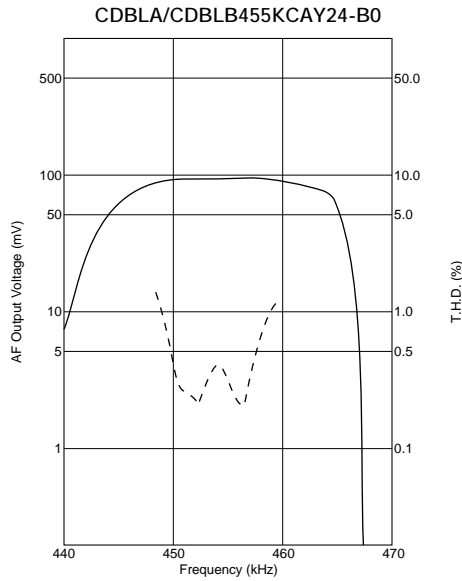
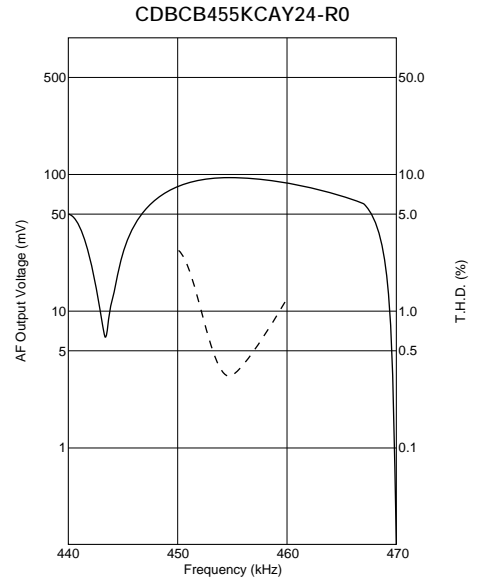
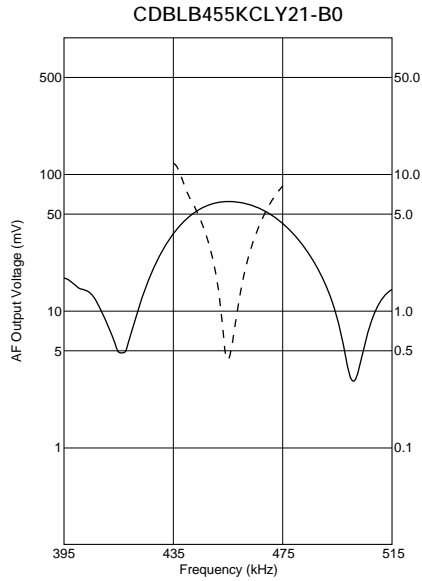
Recovered Audio Curve Specification



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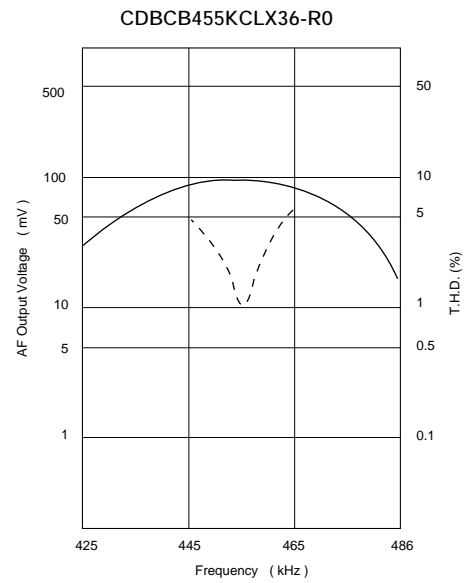
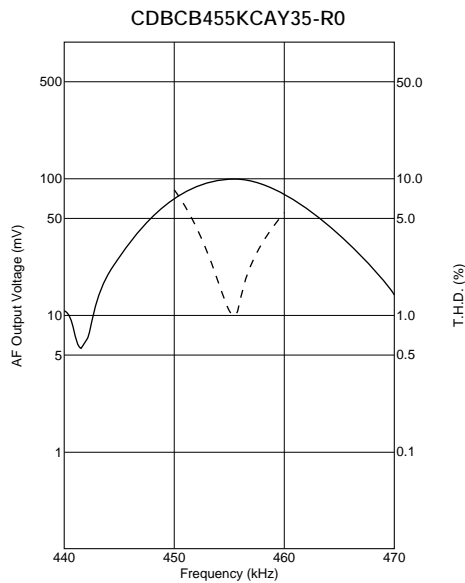
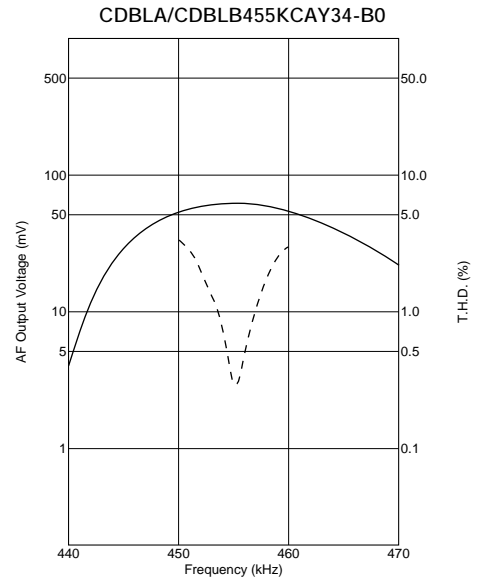
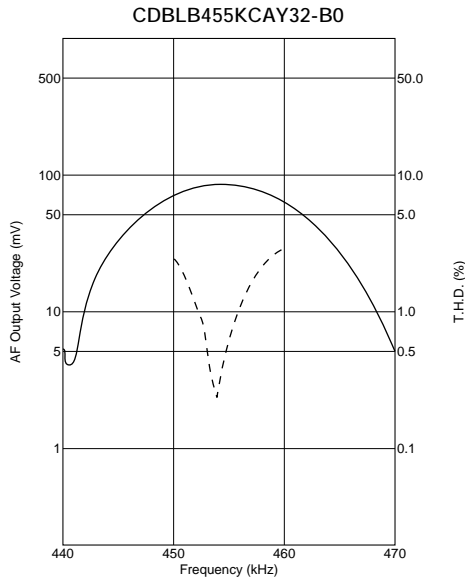
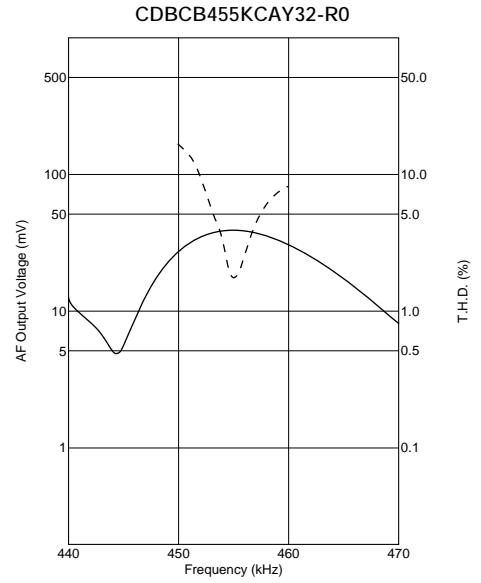
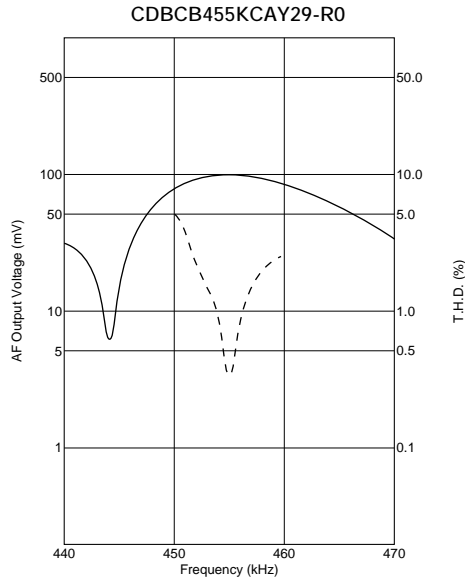
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Recovered Audio Curve Specification



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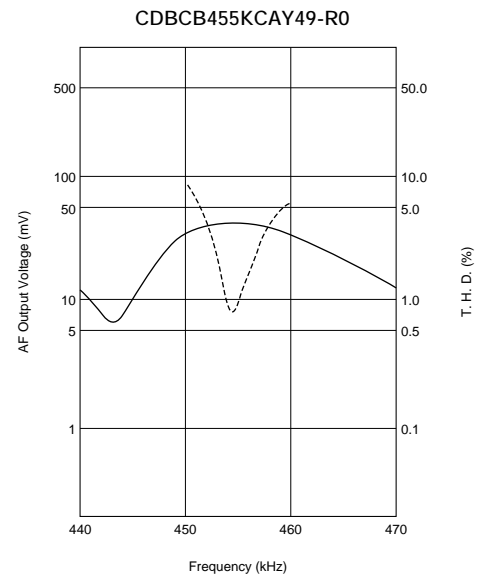
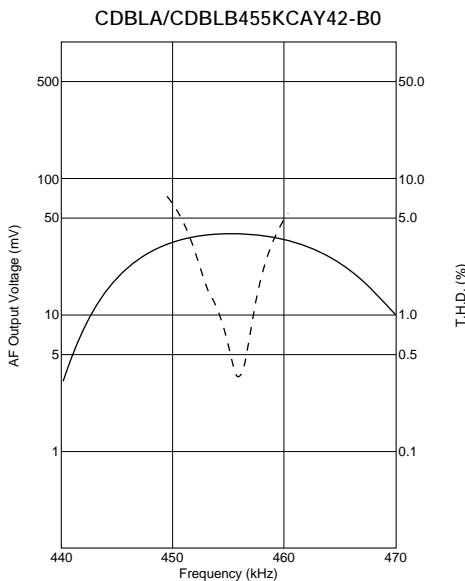
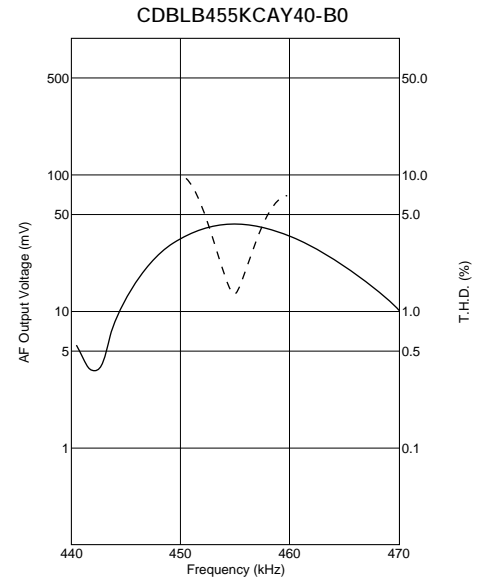
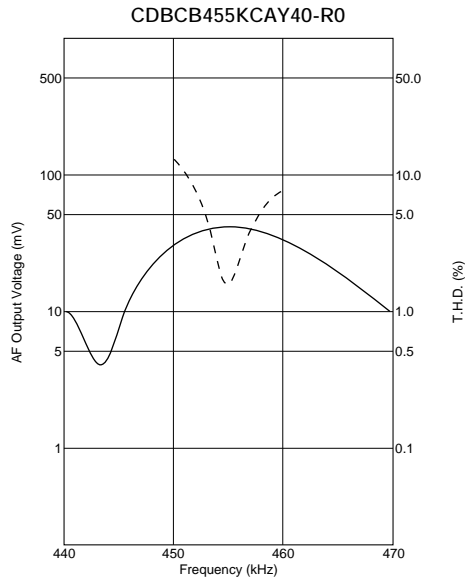
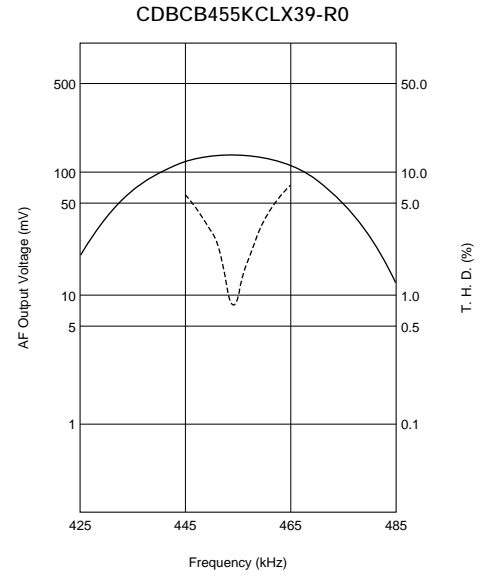
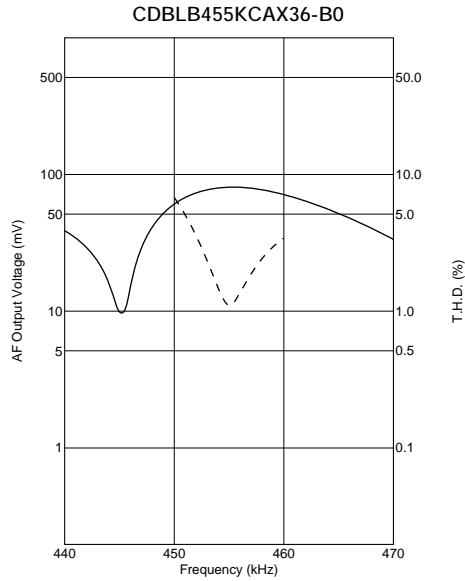
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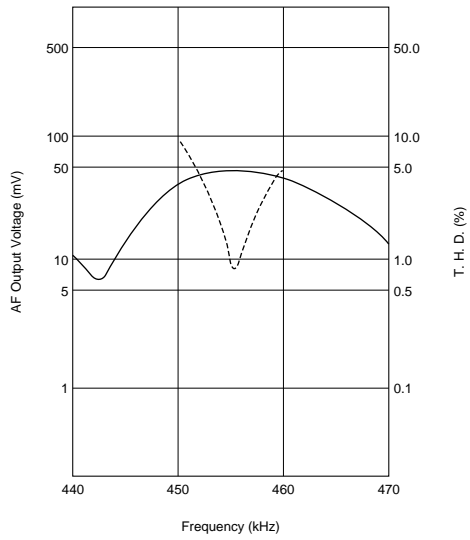
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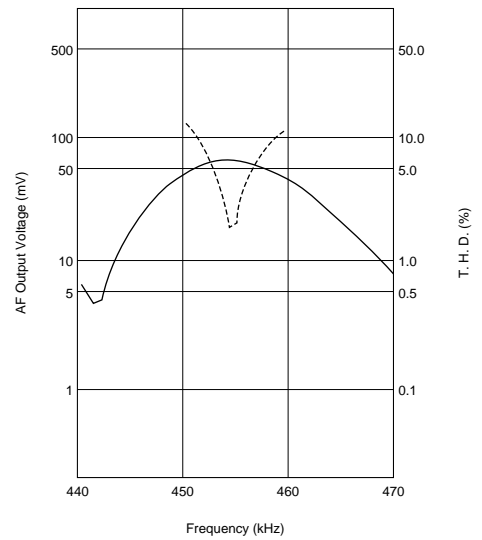
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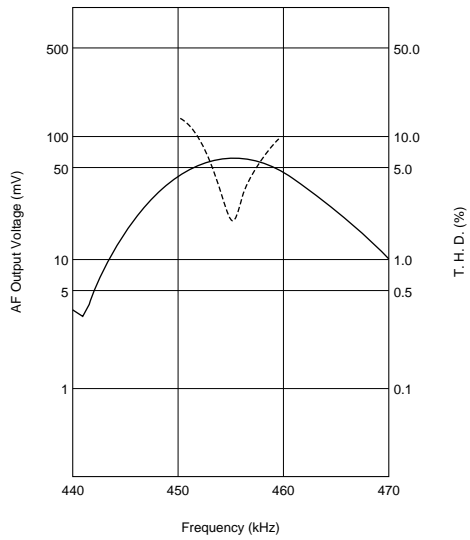
CDBLB455KCAY49-B0



CDBC455KCAY50-R0



CDBLB455KCAY50-B0



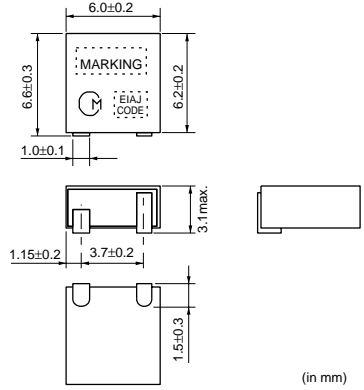
Specified by S Curve Characteristics

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 telecom to cellular telephone, making non-adjustment and shrinking of the detection circuit possible.

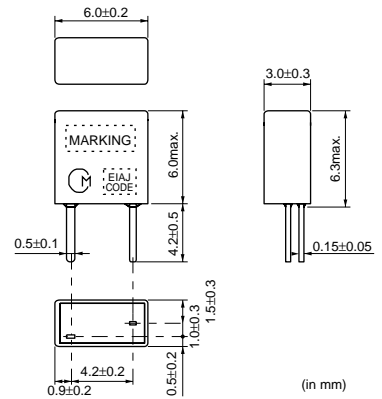
■ Features

1. Small in size and light weight.
2. Realize no-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 to +80 (degree C)
 Storage temperature range : -40 to +85 (degree C)

CDBC_B_CAY Series



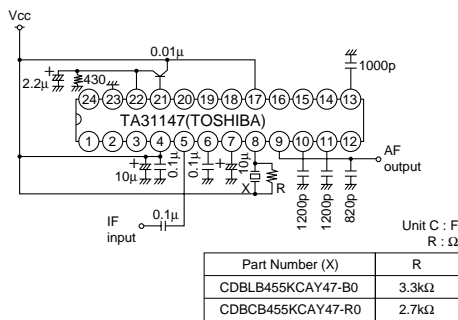
CDBLB_CAY Series



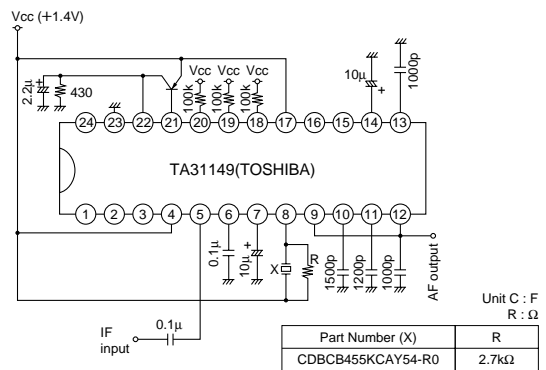
Part Number	Center Frequency (fn) (kHz)	S Curve(1) Output Volt.at fn (mV)	S Curve(2) at fn±4.8kHz (mV)	IC	IC Maker	Type
CDBC455KCAY47-R0	455	130 ±20mV	150 ±15mV	TA31147	TOSHIBA	SMD
CDBC455KCAY54-R0	455	165 ±20mV	170 ±20mV	TA31149	TOSHIBA	SMD
CDBLB455KCAY47-B0	455	140 ±20mV	150 ±15mV	TA31147	TOSHIBA	PLASTIC

■ Test Circuit

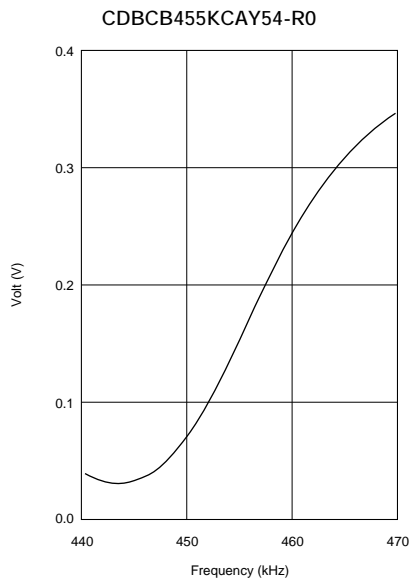
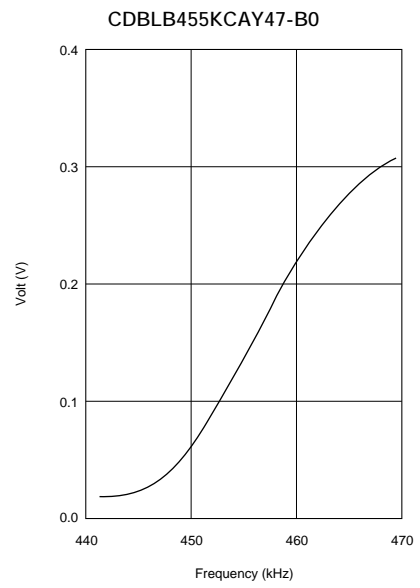
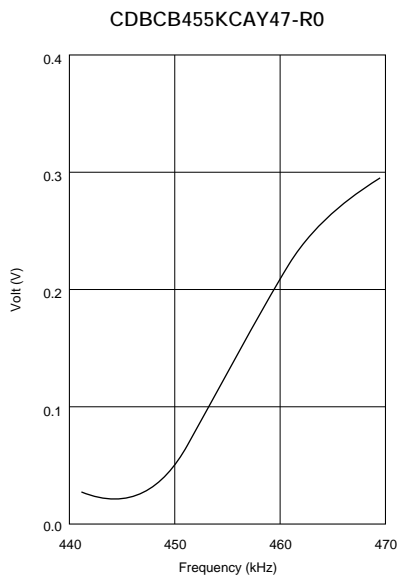
TA31147



TA31149



■ S Curve Specification



CDFCB Series Notice

■ Notice (Soldering and Mounting)

1. Standard Reflow Soldering Condition

(1) Reflow

Filter is soldered one time within the following temperature condition and then being placed in natural condition for 24 hours.

(2) Soldering Iron

Electrode is directly with the tip of soldering iron of +350 ±5°C for 3±1 seconds, and then being placed in natural condition for 24hours.

2. Wash

(1) Cleaning Solvent

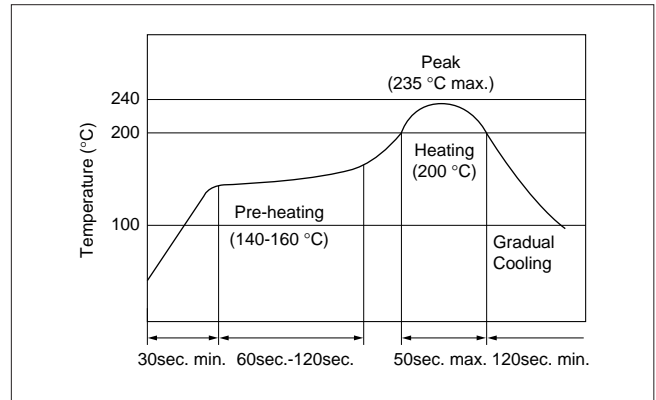
CFC alternatives(HCFC Series), Isopropyl Alcohol(IPA), Water(Demineralized Water),Cleaning Water Solution(Cleanthrough-750H,Pine Alha 100S), Silicon(Technocare FRW)

(2) Cleaning Conditions

- Immersion Wash
2 minutes max. in above solvent at +60°C max.
- Shower or Rinse Wash
2 minutes max. in above solvent at +60°C max.

(3) Notice

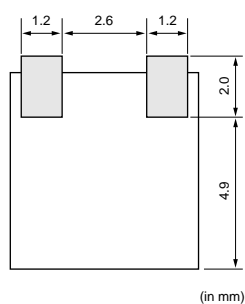
- When components are immersed in solvent, be sure to maintain the temperature of components below the temperature of solvent.
- Please do not use ultrasonic cleaning.
- Total washing time should be within 4minutes.
- Please ensure the component is thoroughly evaluated in your application circuit.
- Please do not use chlorine, petroleum and alkali cleaning solvent.
- If you plan to use any other type of solvents, please consult with Murata or MURata representative prior to using.



CDBC Series Standard Land Pattern Dimensions/Packaging

■ Standard Land Pattern Dimensions

CDBC Series

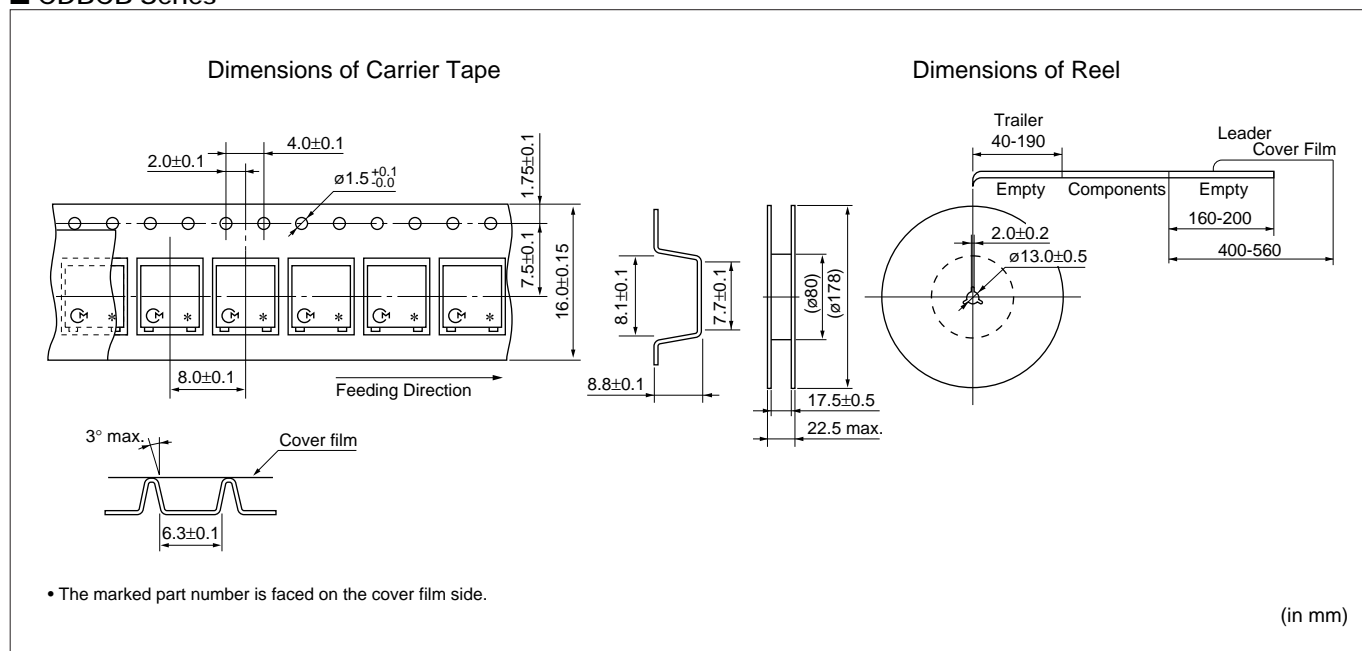


■ Minimum Quantity

CDBC Series : 180mm dia. reel 500pcs./Reel

CDBLA/CDBLB Series: Bulk 500pcs./Bag

■ CDBC Series



Ceramic Discriminators Notice

■ Notice (Handling)

CDBCB Series

1. The component will be damaged when an excessive stress is applied.
2. In the case that the component is cleaned, confirm no reliability degradation is created.
3. In case of covering filter with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.
4. Do not use strong acidity flux, more than 0.2wt% chlorine content, in re-flow soldering.

5. The product, packed in the moisture-proof bag (dry pack), is sensitive to moisture.

The following treatment is required before applying re-flow soldering, to avoid package cracks or reliability degradation caused by thermal stress.

When unpacked, store the component in an atmosphere of below 25C. and below 65%R.H., and solder within 48 hours.

■ Notice (Handling)

CDBLA/CDBLB Series

1. Do not use this product with bend. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. The component will be damaged when an excessive stress is applied.
3. All kinds of re-flow soldering must not be applied on the component.

4. Do not clean or wash the component as it is not hermetically sealed.

5. Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.

6. In case of covering discriminator with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.

⚠ Note:

1. Export Control

⟨For customers outside Japan⟩

Murata products should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destructive weapons (nuclear weapons, chemical or biological weapons, or missiles), or any other weapons.

⟨For customers in Japan⟩

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

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

3. Product specifications in this catalog are as of October 2001. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before your ordering. If there are any questions, please contact our sales representatives or product engineers.

4. Please read CAUTION and Notice in this catalog for safety. This catalog has only typical specifications. Therefore you are requested to approve our product specification or to transact the approval sheet for product specification, before your ordering.

5. Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or third party's intellectual property rights and other related rights in consideration of your using our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

6. None of ozone depleting substances (ODS) under the Montreal Protocol is used in manufacturing process of us.