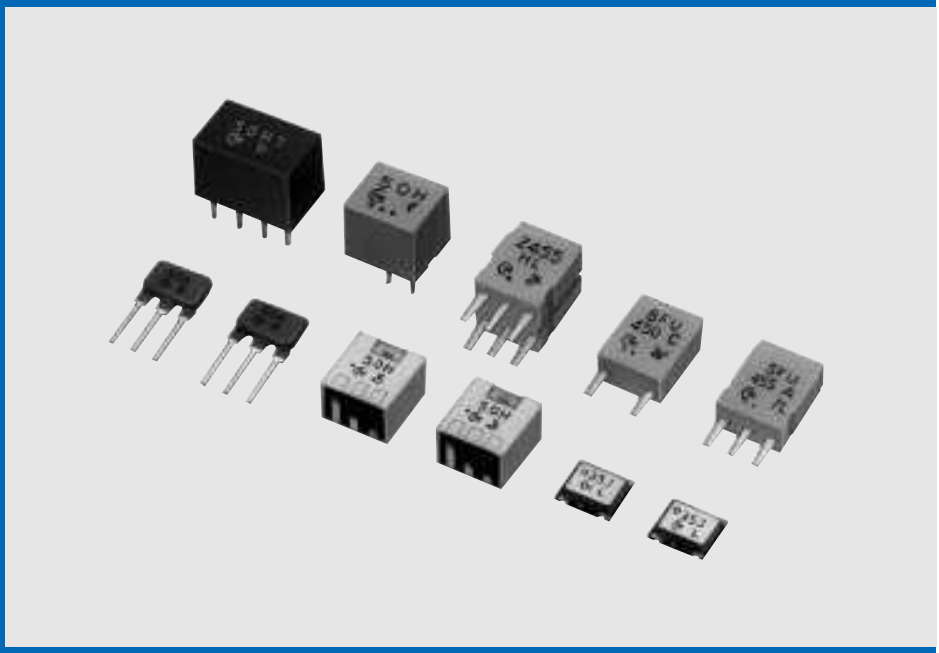
Ceramic Filters (CERAFIL®) for AM Receivers

CERAMIC FILTERS (CERAFIL®)



GLOBAL PART NUMBERS
JUNE 2001

Murata Manufacturing Co., Ltd.

Innovator in Electronics

Cat.No.P10E-5

CONTENTS

● 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.)

CERAFIL® for AM

(Global Part Number) PF ❶ | W ❷ | LA ❸ | 450K ❹ | P2A ❺ | -B0 ❻

❶Product ID

Product ID	
PF	Ceramic Filters
SF	Ceramic Filters
CF	Ceramic Filters

❷Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
S	1 Element Length mode
W	2 Elements Length mode
U	1 Element Area Expansion mode
Z	2 Elements Area Expansion mode
P	4 Elements Area Expansion mode

❸Structure/Size

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

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

❹Nominal Center Frequency

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

❺Product Specification

Code	Product Specification
P2A	Standard Type

□□**A** indicates standard type.

❻Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping (ø180mm)
-R1	Plastic Taping (ø330mm)
-A0	Radial Taping H_0=18mm
-M0	Magazine Cassette

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, three-digit alphanumerics indicating "Individual Specification" is added between "❺Product Specification" and "❻Packaging".

CERAFIL® for Search-stop Signal Detection

(Global Part Number) BF ❶ | U ❷ | LA ❸ | 450K ❹ | C ❺ | -B0 ❻

❶Product ID

Product ID	
BF	Resonator

❷Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
U	1 Element Area Expansion mode

❸Structure/Size

Code	Structure/Size
LA	Lead Type Standard

❹Nominal Center Frequency

Code	Nominal Center Frequency
450K	450kHz

❺Product Specification

Code	Product Specification
C□	Bandwidth

With standard type, □ is omitted.

❻Packaging

Code	Packaging
-B0	Bulk

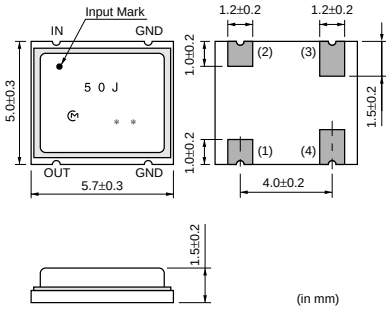
Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, "Individual Specification (serial number)" and "Lead Shape (Lead Bend : **B**)" are added between "❺Product Specification" and "❻Package Specification Code" upon specification.

Ceramic Filters (CERAFIL®) for AM Receivers

muRata

Chip Type PFWCC Series

PFWCC series for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability, and adjustment-free operation.
Additionally its easy matching with IC helps create an easy circuit design.
This is the most recommendable for portable radio with small package. Especially, reflowable with SMD package.



PFWCC450KS2A-B0

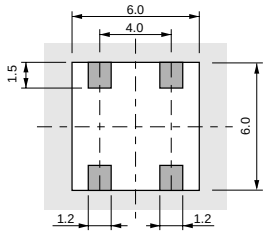
■ Features

1. Center frequency range between 450 and 470 kHz are available standard tolerance of is ±2 kHz.
2. For frequency synthesizers, center frequencies of 450, 459 and 468 kHz are available standard tolerance of ±1 kHz.

Part Number	Center Frequency (fo) (kHz)	3dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
PFWCC450KS2A-B0	450 ±2.0kHz	within 5.5 ±1.5kHz	17 min.[fo+9kHz]	17 min.[fo-9kHz]	6 max.	2

Center frequency(fo) is defined by the center of 3dB bandwidth.
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.

■ Standard Land Pattern Dimensions



The solder resist should be printed except for the land pattern on the P.C.B..

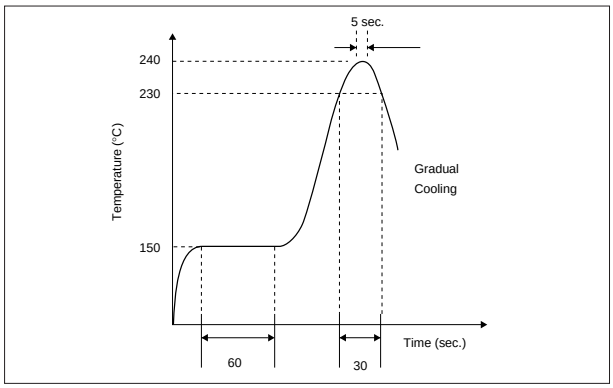
The material of P.C.B. is the epoxy resin of glass fabric base (t=0.8mm)

■ 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 4 hours.



(2) Soldering Iron

Lead terminal is directly contacted with the tip of soldering iron of +280±5°C for 3.0 seconds±0.5 seconds, and then being placed in natural condition for 4 hour.

2. Wash

The component cannot be withstand washing.

1

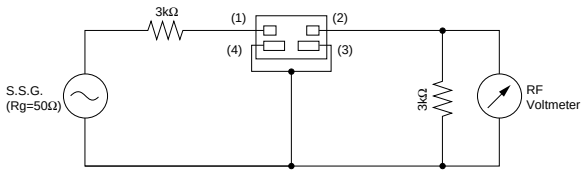
■ Recommended IFT

Item \ Type	7×7mm IFT			5×5mm IFT		
Winding Specification	(1)—(2)	(2)—(3)	(4)—(6)	(1)—(2)	(2)—(3)	(4)—(6)
S(3) (2) (1) (4)S (6) (Bottom view)	85T	67T	23T	84T	98T	33T
No load Qu	90			65		
Tuning Capacitance	180pF			180pF		

• Maching of CERAFIL®PFWLA series with IFT is decided by the IFT secondary side impedance, |Z2|. Set the |Z2| at about 4.2kΩ.

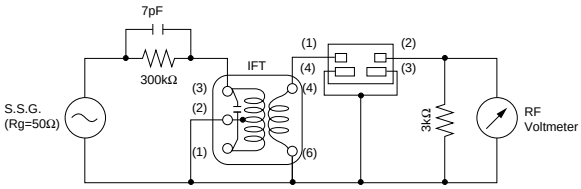
■ Test Circuit (CERAFIL® Only)

PFWCC Series



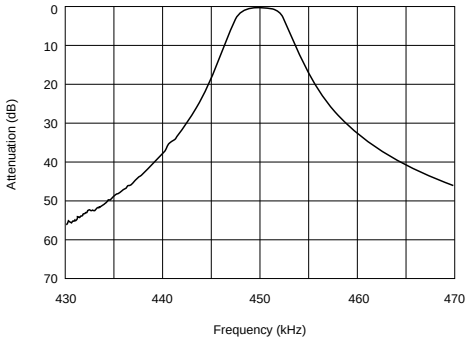
■ Test Circuit (CERAFIL® with IFT)

PFWCC Series



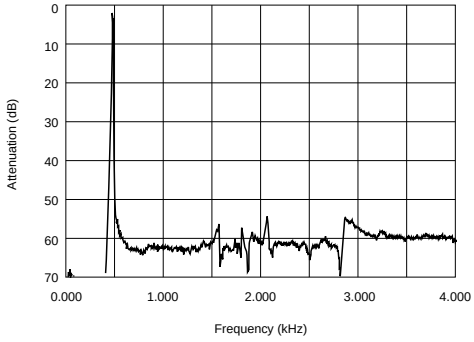
■ Selectivity Characteristics(Freq. Char. with IFT)

IFT+PFWCC450KS2A-B0



■ Sprious Characteristics(Freq. Char. with IFT)

IFT+PFWCC450KS2A-B0



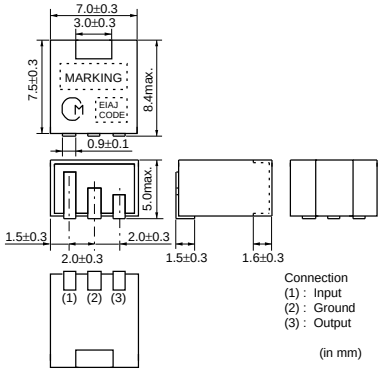
Ceramic Filters (CERAFIL®) for AM Receivers

muRata

Chip Type SFPCA Series

SFPCA series for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability and adjustment-free operation. Additionally its easy matching with IC helps create an easy circuit design.

SFPCA450K_



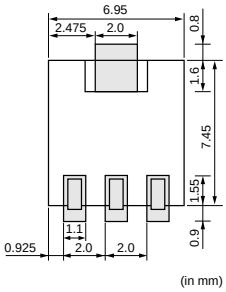
■ Features

1. The filters are mountable by automatic placers and can be reflow soldered and withstanding washing.
2. The filters are wide bandwidth and high selectivity. So they are suitable for car radio and multi band radio.

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
SFPCA450KH1A-R1	450 ±1.0kHz	fn±3.0 min.	40 min.[fn+9kHz]	40 min.[fn-9kHz]	6 max.	4
SFPCA450KG1A-R1	450 ±1.0kHz	fn±4.5 min.	40 min.[fn+10kHz]	40 min.[fn-10kHz]	6 max.	4
SFPCA450KF4A-R1	450 ±1.5kHz	fn±6.0 min.	40 min.[fn+12.5kHz]	40 min.[fn-12.5kHz]	6 max.	4

Center frequency(fo) is defined by the center of 6dB bandwidth.
(fn) means nominal center frequency.
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 the package page.

■ Standard Land Pattern Dimensions

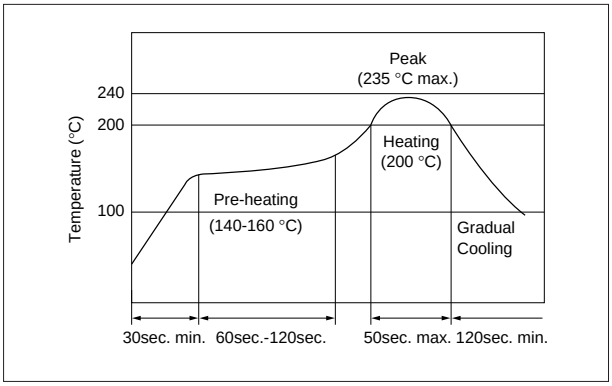


■ Notice (Soldering and Mounting)

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

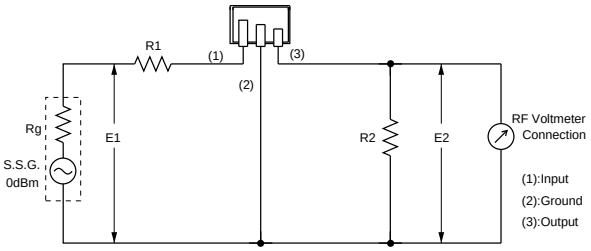
- When components are immersed in solvent, be sure to maintain the temperature of components below the temperature of solvent.
- Please do not use ultrasonic cleaning.
- Total washing time should be within 4minutes.
- Please ensure the component is thoroughly evaluated in your application circuit.
- 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.

■ Recommended IFT

Item \ Type	SFPCA		
Winding Specification	(1)—(2)	(2)—(3)	(4)—(6)
S(3) (2) (1) (4)S (6) (Bottom view)	60T	125T	28T
No load Qu	40		
Tuning Capacitance	180pF		

• Matching of CERAFIL®SFPCA series with IFT is decided by the Qu of IFT and IFT secondary side impedance, |Z2|. Set the QU at about 40 because a Qu value which is too high (e.g.,90) may produce ripple in the waveform. It is recommended to match the impedance of |Z2| with that of the CERAFIL®.

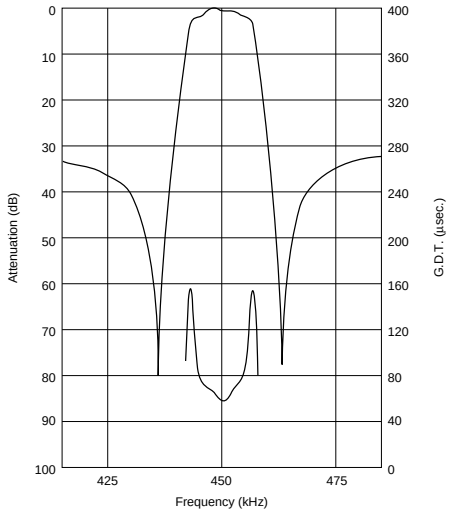
■ Test Circuit



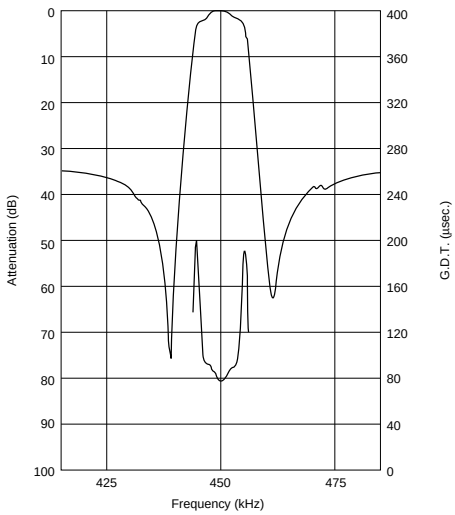
Rg+R1=R2=Input/Output Impedance

■ Frequency Characteristics

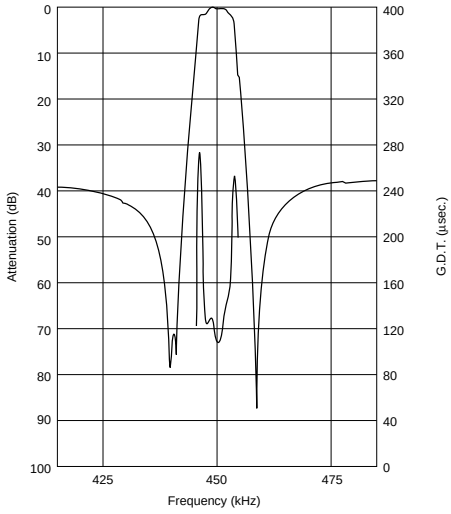
SFPCA450KF4A-R1



SFPCA450KG1A-R1



SFPCA450KH1A-R1



Ceramic Filters (CERAFIL®) for AM Receivers

SFULA/SFZLA Series

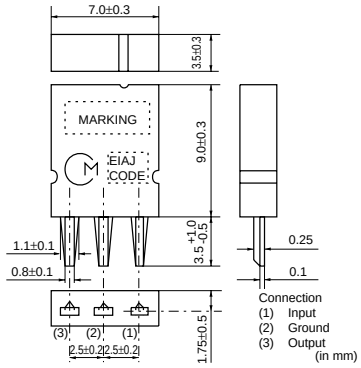
SFULA/SFZLA series for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability, and adjustment-free operation. Additionally its easy matching with IC helps create an easy circuit design.

3

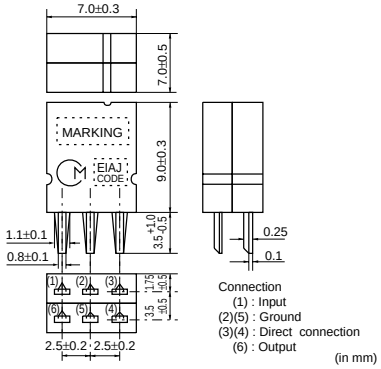
■ Features

1. Center frequency range between 450 to 470 kHz are available standard tolerance of is ±2 kHz.
2. For frequency synthesizers, center frequencies of 450, 459 and 468 kHz are available standard tolerance of ±1 kHz.

SFULA455K_



SFZLA455K_



Part Number	Center Frequency (fo) (kHz)	3dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
SFULA455KU2A-B0	455 ±2.0kHz	10.0 ±3.0kHz	4 min.[fo+10kHz]	6 min.[fo-10kHz]	5 max.	1
SFULA455KU2L-B0	462 ±2.0kHz	10.0 ±3.0kHz	4 min.[fo+10kHz]	6 min.[fo-10kHz]	5 max.	1
SFZLA455KN2L-B0	455.5 ±2.0kHz	4.0 ±1.0kHz	23 min.[fo+9kHz]	23 min.[fo-9kHz]	7 max.	2
SFZLA455KS2L-B0	456 ±2.0kHz	5.5 ±1.0kHz	18 min.[fo+9kHz]	18 min.[fo-9kHz]	7 max.	2
SFZLA455KT2L-B0	456 ±2.0kHz	7.0 ±1.0kHz	16 min.[fo+9kHz]	16 min.[fo-9kHz]	6 max.	2

Center frequency(fo) is defined by the center of 3dB bandwidth.
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

■ Frequency Characteristics

Part Number	6dB Band Width (kHz)	Selectivity		Input Level (at 0.6mV output) (dB)
		+9kHz off (dB)	-9kHz off (dB)	
IFT+SFULA455KU2L-B0	6.5	20	23	78
IFT+SFZLA455KN2L-B0	5.0	38		78
IFT+SFZLA455KS2L-B0	7.0	33		78
IFT+SFZLA455KT2L-B0	8.5	27		78

Typ. value

■ Recommended IFT (7x7)

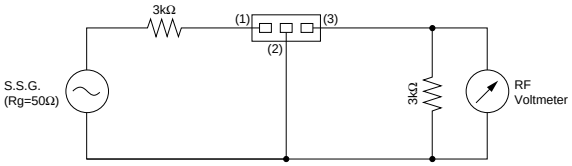
Item \ Type	SFULA□L			SFZLA□L		
Winding Specification	(1)—(2)	(2)—(3)	(4)—(6)	(1)—(2)	(2)—(3)	(4)—(6)
S(3) (2) (1) (4)S (6) (Bottom view)	70T	115T	7T	68T	84T	14T
No load Qu	105			90		
Tuning Capacitance	180pF			180pF		

• Maching of CERAFIL®SFULA/SFZLA series with IFT is decided by the IFT secondary side impedance, |Z2|. The design target values of |Z2| are :
For SFULA□L : 300Ω
For SFZLA□L : 1kΩ

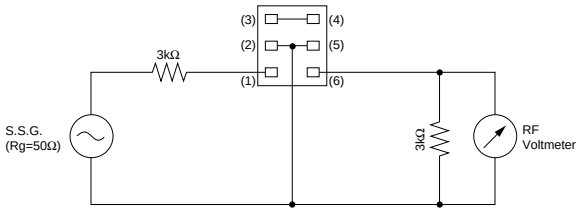
3

■ Test Circuit (CERAFIL® Only)

SFULA455K_

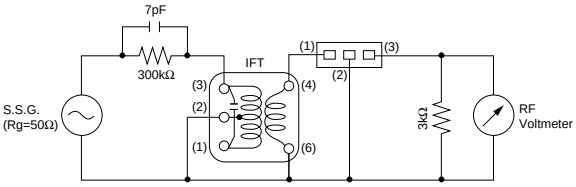


SFZLA455K_

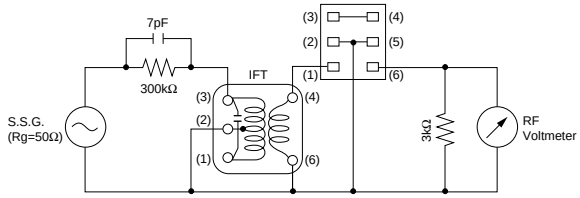


■ Test Circuit (CERAFIL® with IFT)

SFULA455K_

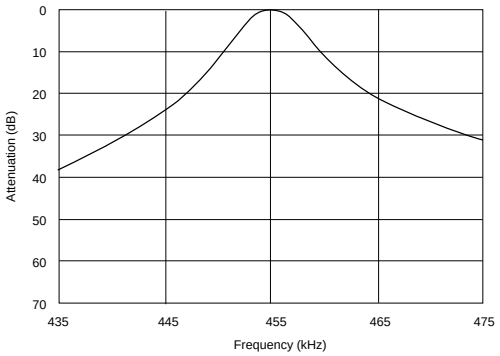


SFZLA455K_

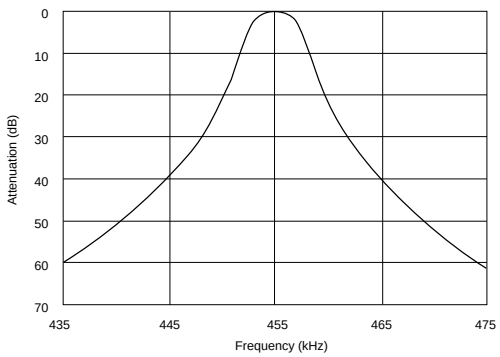


■ Selectivity Characteristics (Freq. Char. with IFT)

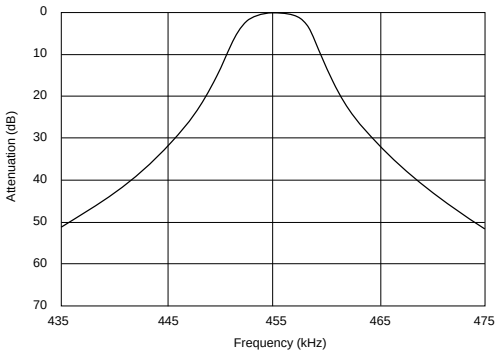
IFT+SFULA455KU2L-B0



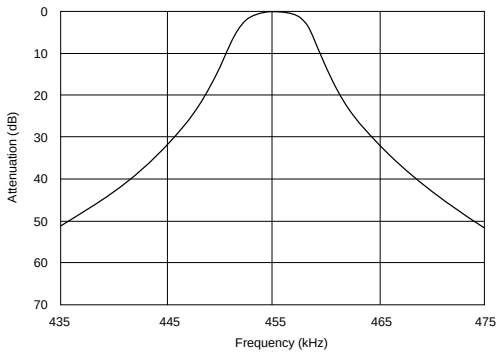
IFT+SFZLA455KN2L-B0



IFT+SFZLA455KS2L-B0

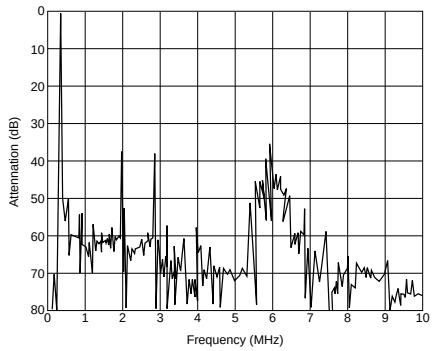


IFT+SFZLA455KT2L-B0

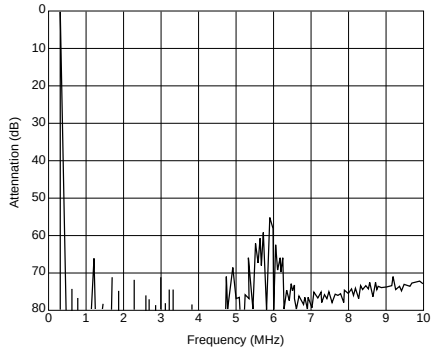


■ Sprious Characteristics (Freq. Char. with IFT)

IFT+SFULA455KU2L-B0



IFT+SFZLA455K_



Ceramic Filters (CERAFIL®) for AM Receivers

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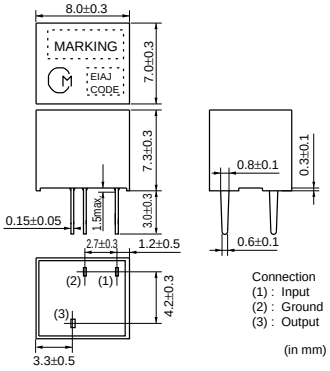
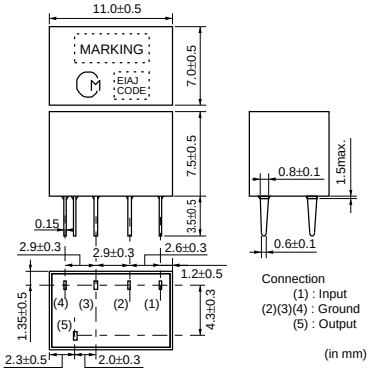
SFPLA/CFWLA Series

SFPLA/CFWLA series for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability, high attenuation, and adjustment-free operation. Additionally its easy matching with IC helps create an easy circuit design.
This is the most recommendable for car-stereo and all band radio with high attenuation.

SFPLA450K_



CFWLA450K_

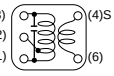


4

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
SFPLA450KJ1A-B0	450 ±1.0kHz	fn±2.0 min.	40 min.[fn+7.5kHz]	40 min.[fn-7.5kHz]	6 max.	4
SFPLA450KH1A-B0	450 ±1.0kHz	fn±3.0 min.	40 min.[fn+9kHz]	40 min.[fn-9kHz]	6 max.	4
CFWLA450KJFA-B0	450 (fn)	fn±2.0 min.	50 min.[fn+7.5kHz]	50 min.[fn-7.5kHz]	7 max.	6
CFWLA450KHFA-B0	450 (fn)	fn±3.0 min.	50 min.[fn+9kHz]	50 min.[fn-9kHz]	6 max.	6

Center frequency(fo) is defined by the center of 6dB bandwidth.
(fn) means nominal center frequency.
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 the package page.

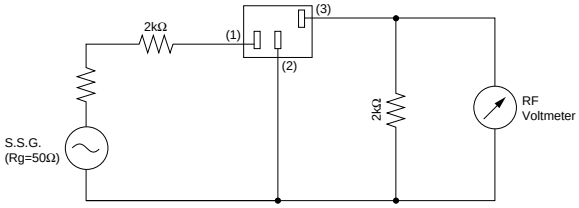
■ Recommended IFT (7x7)

Item \ Type	SFPLA/CFULA/CFWLA		
Winding Specification	(1)—(2)	(2)—(3)	(4)—(6)
 (Bottom view)	60T	125T	28T
No load Qu	40		
Tuning Capacitance	180pF		

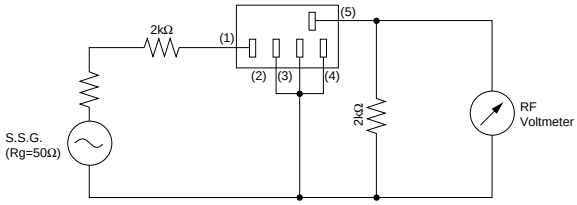
• Matching of CERAFIL®SFPLA/CFULA/CFWLA series with IFT is decided by the Qu of IFT and IFT secondary side impedance, |Z2|. Set the Qu at about 40 because a Qu value which is too high (e.g.,90) may produce ripple in the waveform. It is recommended to match the impedance of |Z2| with that of the CERAFIL®.

■ Test Circuit

SFPLA450KH1A-B0

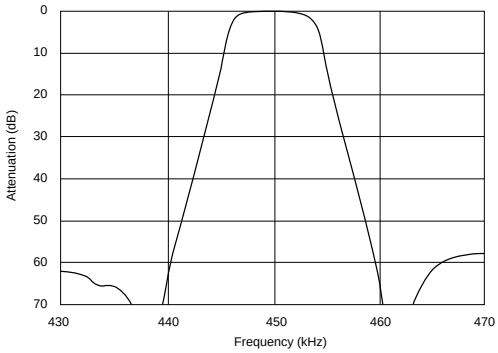


CFWLA450KHFA-B0

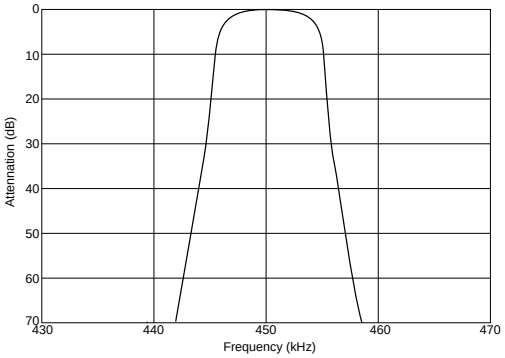


■ Selectivity Characteristics (Freq. Char. with IFT)

IFT+SFPLA450KH1A-B0

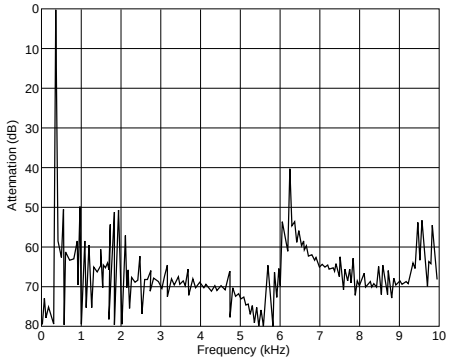


IFT+CFWLA450KHFA-B0

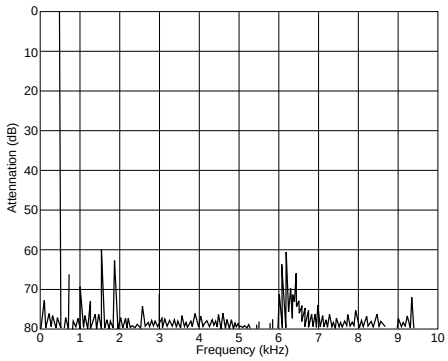


■ Sprious Characteristics (Freq. Char. with IFT)

IFT+SFPLA450KH1A-B0



IFT+CFWLA450KHFA-B0



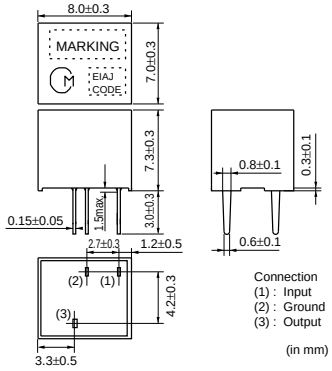
Ceramic Filters (CERAFIL®) for AM Receivers

muRata

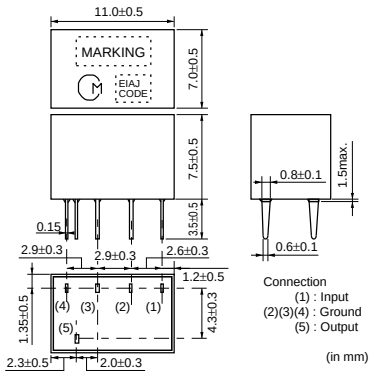
For AM Stereo Wide-Band Type SFPLA/CFULA/CFWLASeries

SFPLA/CFULA/CFWLA series for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability, high attenuation, and adjustment-free operation. Additionally its easy matching with IC helps create an easy circuit design.
Especially, CFULA/CFWLA-Y series is the frequency fidelity in the high sound area of an AM stereo will be improved with wide band, flat group delay time characteristics.

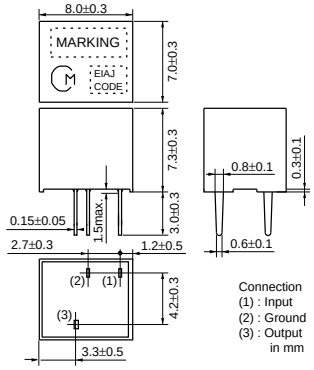
SFPLA Series



CFWLA Series



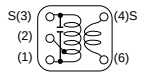
CFULA Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	GDT 20μsec. Bandwidth (kHz)	Elements
SFPLA450KG1A-B0	450 ±1.0kHz	fn±4.5 min.	30 min.[fn+9kHz]	30 min.[fn-9kHz]	6 max.	-	4
SFPLA450KF1A-B0	450 ±1.0kHz	fn±6.0 min.	40 min.[fn+12.5kHz]	40 min.[fn-12.5kHz]	6 max.	-	4
SFPLA450KE1A-B0	450 ±1.0kHz	fn±7.5 min.	40 min.[fn+15kHz]	40 min.[fn-15kHz]	6 max.	-	4
SFPLA450KD1A-B0	450 ±1.0kHz	fn±10.0 min.	40 min.[fn+20kHz]	40 min.[fn-20kHz]	4 max.	-	4
CFWLA450KGFA-B0	450 (fn)	fn±4.5 min.	50 min.[fn+10kHz]	50 min.[fn-10kHz]	6 max.	-	6
CFWLA450KFFA-B0	450 (fn)	fn±6.0 min.	50 min.[fn+12.5kHz]	50 min.[fn-12.5kHz]	6 max.	-	6
CFWLA450KEFA-B0	450 (fn)	fn±7.5 min.	50 min.[fn+15kHz]	50 min.[fn-15kHz]	6 max.	-	6
CFWLA450KDFA-B0	450 (fn)	fn±10.0 min.	50 min.[fn+20kHz]	50 min.[fn-20kHz]	4 max.	-	6
CFWLA450KG1Y-B0	450 ±1.0kHz	fn±4.5 min.	50 min.[fn+15kHz]	50 min.[fn-15kHz]	11 max.	fn±4.0	6
CFULA450KG1Y-B0	450 ±1.0kHz	fn±4.5 min.	40 min.[fn+15kHz]	40 min.[fn-15kHz]	10 max.	fn±4.5	4
CFWLA450KF1Y-B0	450 ±1.0kHz	fn±6.0 min.	50 min.[fn+17.5kHz]	50 min.[fn-17.5kHz]	10 max.	fn±5.0	6
CFULA450KF1Y-B0	450 ±1.0kHz	fn±6.0 min.	40 min.[fn+17.5kHz]	40 min.[fn-17.5kHz]	9 max.	fn±6.0	4
CFWLA450KD1Y-B0	450 ±1.0kHz	fn±10.0 min.	50 min.[fn+25kHz]	50 min.[fn-25kHz]	8 max.	fn±8.0	6
CFULA450KD1Y-B0	450 ±1.0kHz	fn±10.0 min.	40 min.[fn+25kHz]	40 min.[fn-25kHz]	7 max.	fn±9.0	4

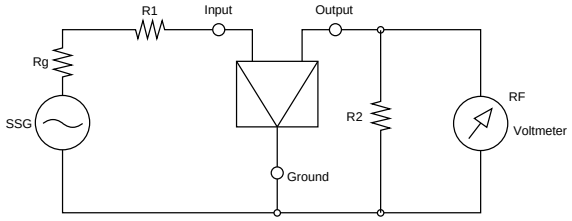
Center frequency(fo) is defined by the center of 6dB bandwidth.
(fn) means nominal center frequency.
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

■ Recommended IFT (7x7)

Item \ Type	SFPLA/CFULA/CFWLA		
Winding Specification	(1)—(2)	(2)—(3)	(4)—(6)
 (Bottom view)	60T	125T	28T
No load Qu	40		
Tuning Capacitance	180pF		

• Matching of CERAFIL®SFPLA/CFULA/CFWLA series with IFT is decided by the Qu of IFT and IFT secondary side impedance, |Z2|. Set the Qu at about 40 because a Qu value which is too high (e.g.,90) may produce ripple in the waveform. It is recommended to match the impedance of |Z2| with that of the CERAFIL®.

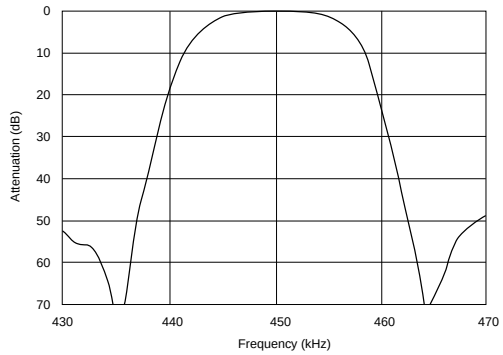
■ Test Circuit



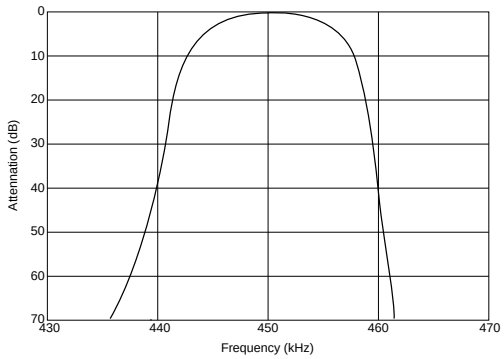
Rg+R1 =R2 : Input/Output Impedance

■ Freqeuncy Characteristics (with IFT)

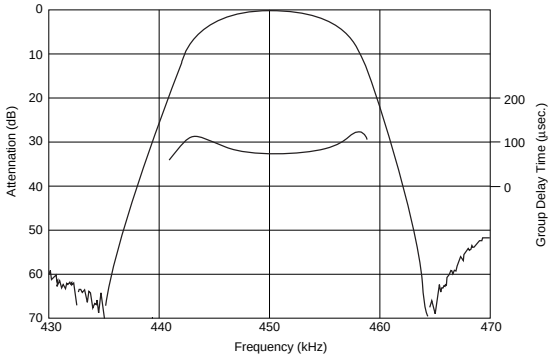
IFT+SFPLA450K_



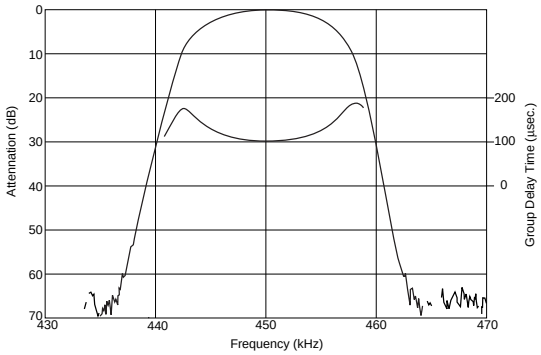
IFT+CFWLA450K_



IFT+CFULA450K_Y



IFT+CFWLA450K_Y



5

Ceramic Filters (CERAFIL®) for AM Receivers

muRata

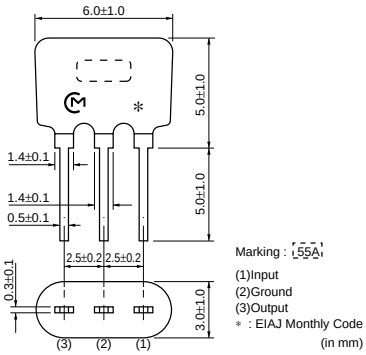
PFSLA/PFWLA Series

PFSLA/PFWLA series for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability, and adjustment-free operation.
Additionally its easy matching with IC helps create an easy circuit design.
This is the most recommendable for portable radio with small package. Especially,

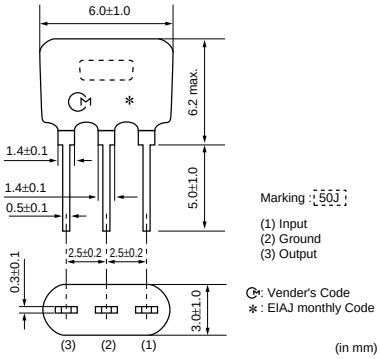
■ Features

1. Center frequency range between 450 to 470 kHz are available standard tolerance of is ±2 kHz.
2. For frequency synthesizers, center frequencies of 450, 459 and 468 kHz are available standard tolerance of ±1 kHz.

PFSLA455KP2A-B0



PFWLA450KS2A-B0



Part Number	Center Frequency (fo) (kHz)	3dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
PFSLA455KP2A-B0	455 ±2.0kHz	within 4.5 ±1.5kHz	8 min.[fo+9kHz]	8 min.[fo-9kHz]	5 max.	1
PFWLA450KP2A-B0	450 ±2.0kHz	within 4.5 ±1.5kHz	19 min.[fo+9kHz]	19 min.[fo-9kHz]	7 max.	2
PFWLA450KS2A-B0	450 ±2.0kHz	within 5.5 ±1.5kHz	17 min.[fo+9kHz]	17 min.[fo-9kHz]	6 max.	2

Center frequency(fo) is defined by the center of 3dB bandwidth.
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

6

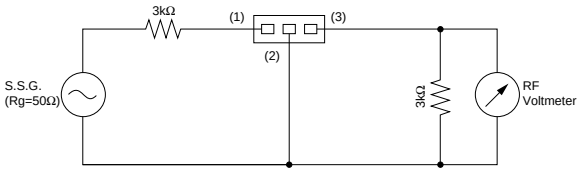
■ Recommended IFT

Item \ Type	7×7mm IFT			5×5mm IFT		
Winding Specification	(1)—(2)	(2)—(3)	(4)—(6)	(1)—(2)	(2)—(3)	(4)—(6)
S(3) (2) (1) (4)S (6) (Bottom view)	85T	67T	23T	84T	98T	33T
No load Qu	90			65		
Tuning Capacitance	180pF			180pF		

• Maching of CERAFIL®PFWLA series with IFT is decided by the IFT secondary side impedance, |Z2|. Set the |Z2| at about 4.2kΩ.

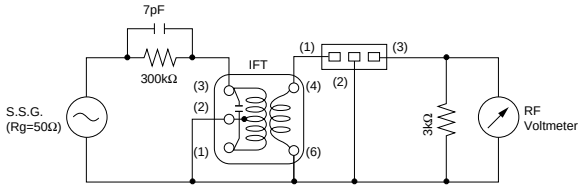
■ Test Circuit (CERAFIL® Only)

PFSLA/PFWLA Series



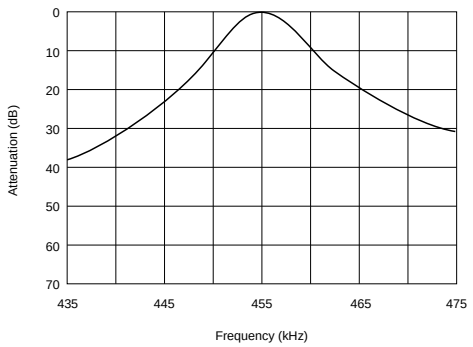
■ Test Circuit (CERAFIL® with IFT)

PFSLA/PFWLA Series

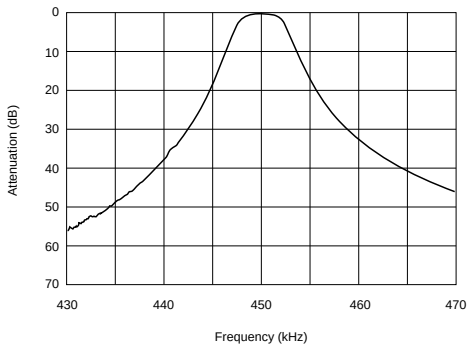


■ Selectivity Characteristics(Freq. Char. with IFT)

IFT+PFSLA455KP2A-B0

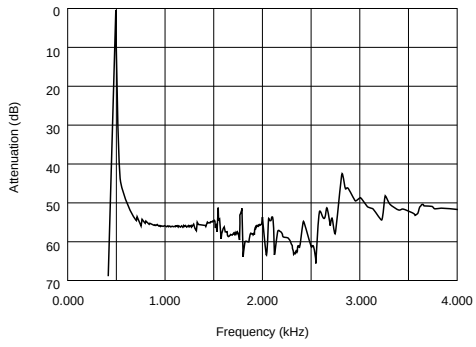


IFT+PFWLA450KS2A-B0

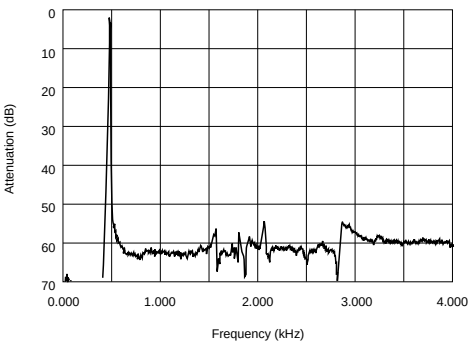


■ Sprious Characteristics(Freq. Char. with IFT)

IFT+PFSLA455KP2A-B0



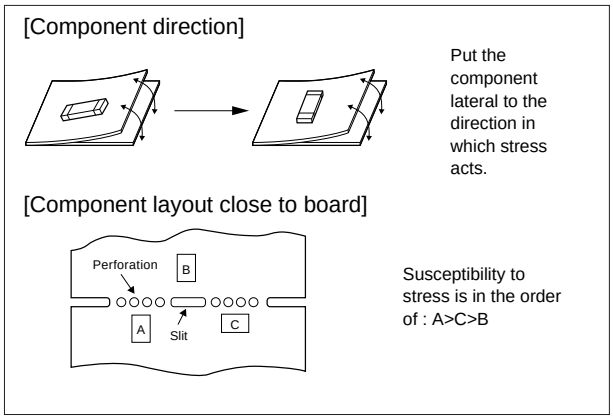
IFT+PFWLA450KS2A-B0



AM CERAFIL® Notice (Handling)

■ Chip Type PFWCC Series

1. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. Design layout of components on the PC board to minimize the stress imposed on the warp or flexure of the board.
3. 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 extremly careful in determining shape and dimension before designing the circuit board diagram.



■ Chip Type SFPCA Series

1. The component will be damaged when an excessive stress is applied.
2. Use coupling capacitors to prevent applying D.C. oltage 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 25 C. and below 65% R.H., and solder within 48 hours.

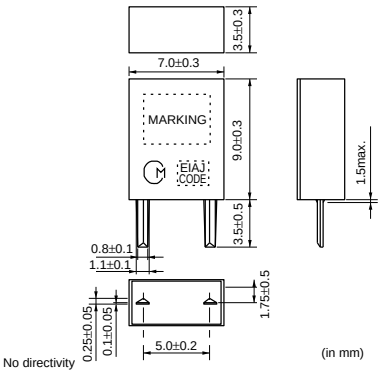
■ Lead Type

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®) for AM Receivers

CERAFIL® for Search-stop Signal Detection

BFULA series are narrow bandwidth filters. This filter is used in the application which detects the carrier peak with a narrow bandwidth amplifier ; electronic tuner as a stop signal detector.



■ Features

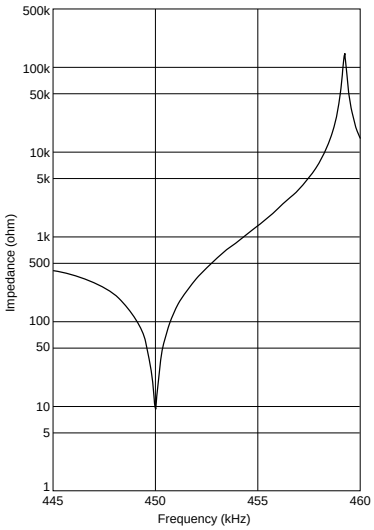
Most suitable for IC Station Detectors (SD).

Part Number	Resonant Frequency (Fr) (kHz)	Delta F (Fa-Fr) (kHz)	Resonant Resistance (ohm)	Capacitance (pF)
BFULA450KC-B0	450 ±1.0kHz	within 14.0 ±2.0kHz	20 max.	360 ±20%
BFULA450KC004-B0	450 ±0.8kHz	within 9.0 ±2.0kHz	30 max.	360 ±20%
BFULA450KK003-B0	450 ±1.0kHz	within 27.5 ±4.5kHz	30 max.	550 ±20%

fa-fr means difference between the anti-resonant frequency and the resonant frequency.

■ Impedance Characteristics

BFULA450KC004-B0



7

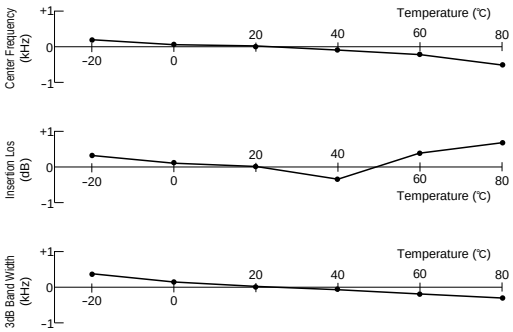
CERAFIL® for Search-stop Signal Detection Notice(Handling)

■ Notice (Handling)

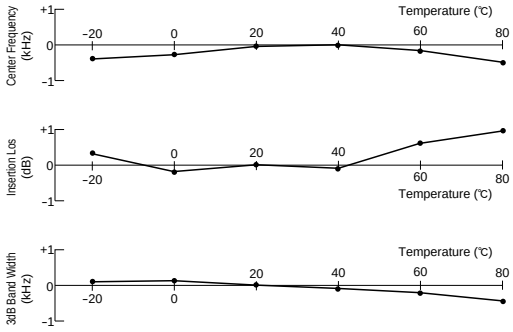
1. Do not use this product with bend. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. The component will be damaged when an excessive stress is applied.
3. All kinds of re-flow soldering must not be applied on the component.
4. Do not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

SF/PF Series Temperature Characteristics

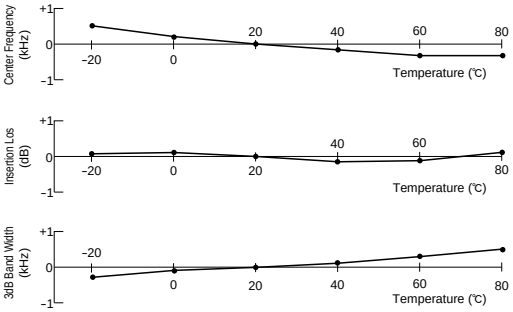
■ SFZLA455KS2L-B0



■ SFPLA450KH1A-B0

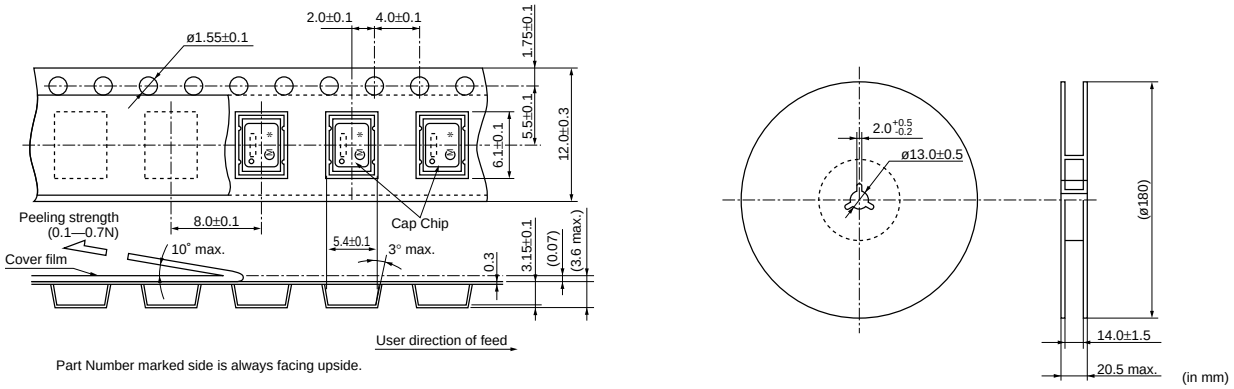


■ PFWLA450KS2A-B0

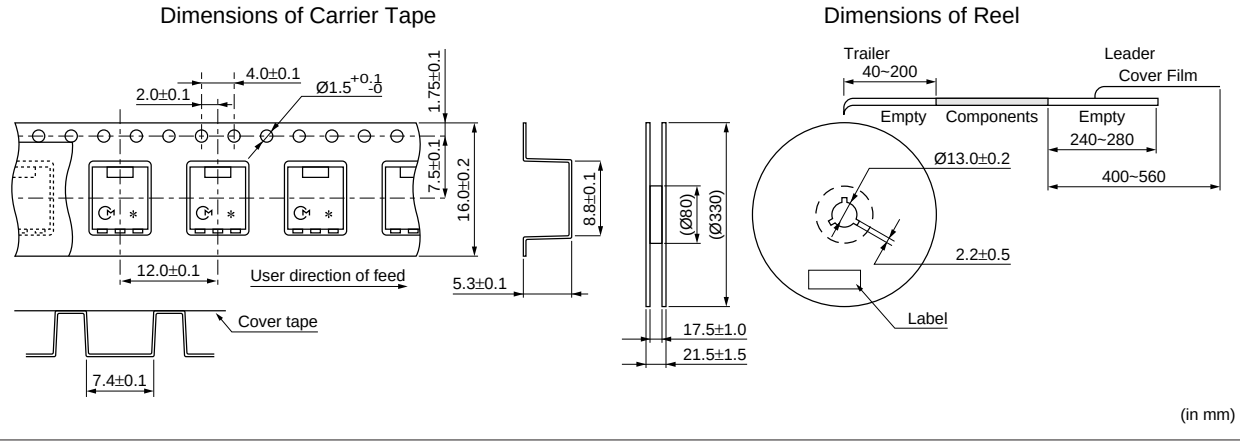


SF/PF Series Packaging

■ PFWCC Series



■ SFPCA Series

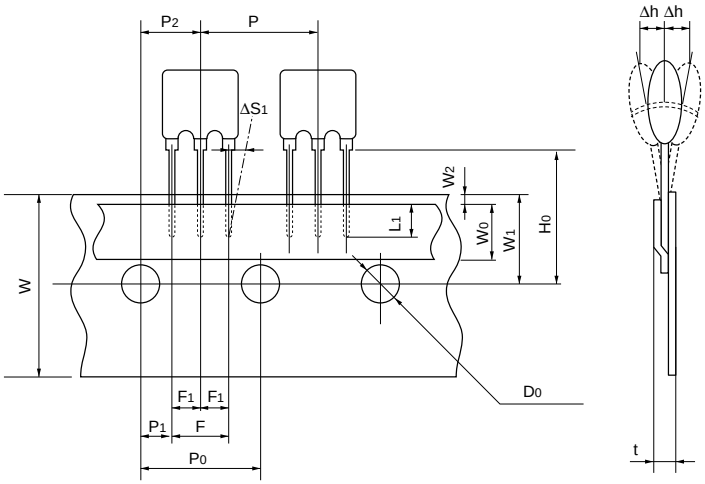


Continued on the following page.

SF/PF Series Packaging

Continued from the preceding page.

■ PFSLA/PFWLA Series



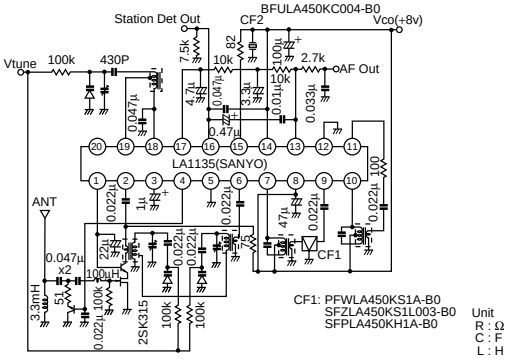
Item	Code	Dimensions	Tolerance	Note
Lead length under the hold down tape	L_1	3.0 min.		
Pitch of component	P	12.7	±0.5	
Pitch of sprocket hole (1)	P_0	12.7	±0.2	
Length from hole center to lead	P_1	3.85	±0.5	
Length from hole center to component center	P_2	6.35	±0.5	
Lead spacing (1)	F	5.0	$^{+0.5}_{-0.2}$	
Lead spacing (2)	F_1	2.5	±0.2	
Slant to the forward or backward	Δh	0	±1.0	
Slant to the left or right	ΔS_1	0	±1.0	
Width of carrier tape	W	18.0	±0.5	
Width of hold down tape	W_0	6.0 min.		
Position of sprocket hole	W_1	9.0	±0.5	
Gap of hold down tape and carrier tape	W_2	0	$^{+0.5}_{-0}$	Hold-down tape doesn't exceed the carrier tape.
Distance between the center of sprocket hole and lead stopper	H_0	18.0	±0.5	
Diameter of sprocket hole	D_0	ø4.0	±0.2	
Total tape thickness	t	0.6	±0.2	
Pitch of sprocket hole (2)	$P_0$20	254.0	±1.5	The pitch of 20 sprocket holes

(in mm)

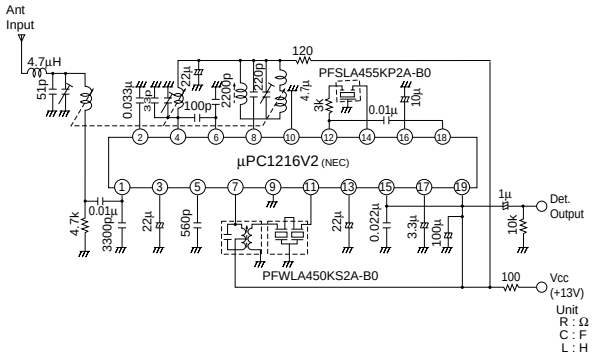
SF/PF/BF Series Application Circuit

■ Car Radio

SFPLA450KH1A-B0/BFULA450KC004-B0

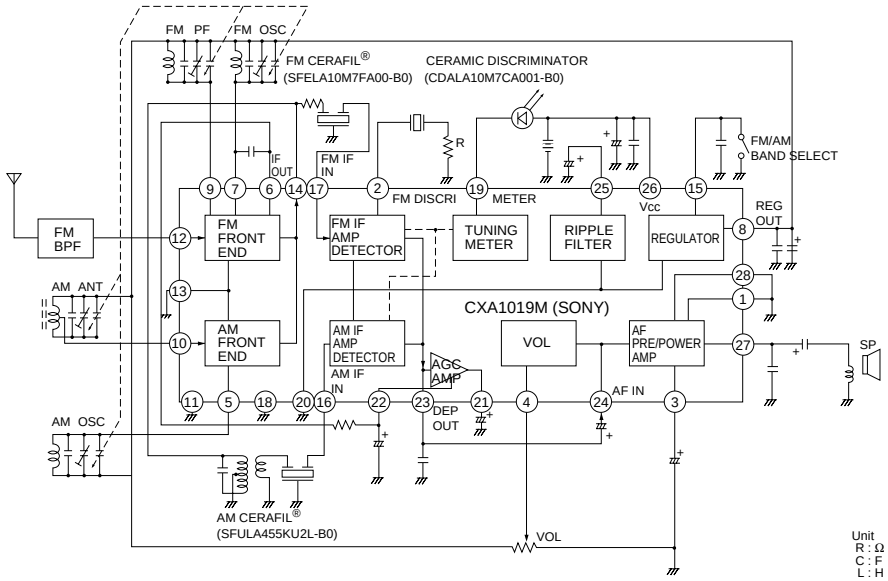


PFSLA455KP2A-B0/PFWLA450KS2A-B0



■ Portable Radio

SFULA455KU2L-B0



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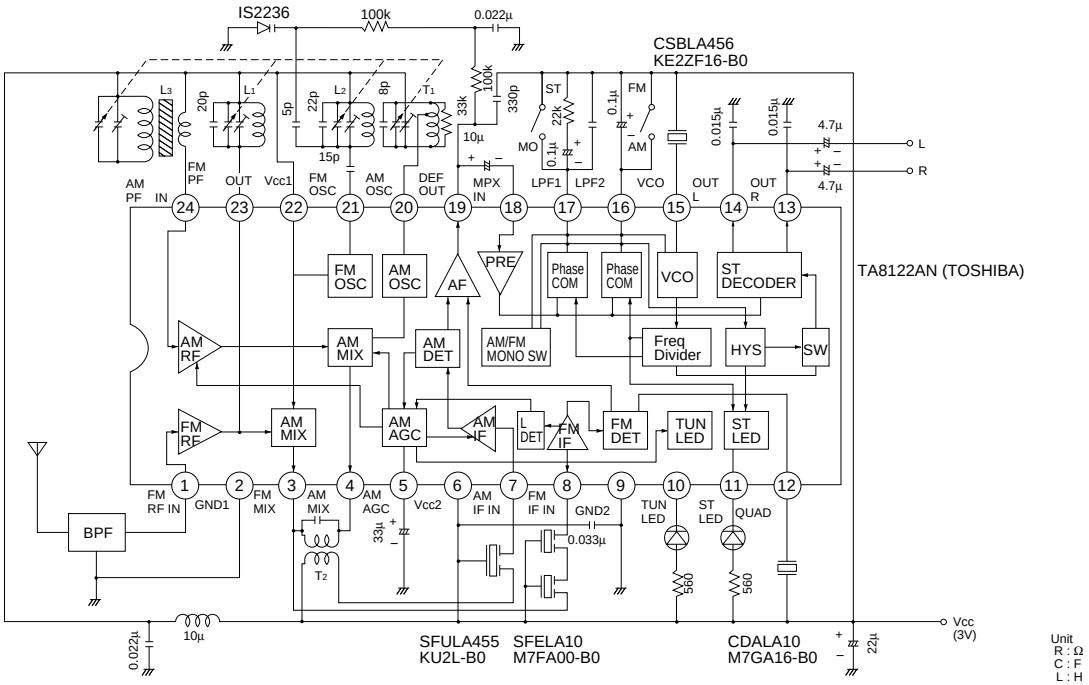
SF/PF/BF Series Application Circuit

Continued from the preceding page.

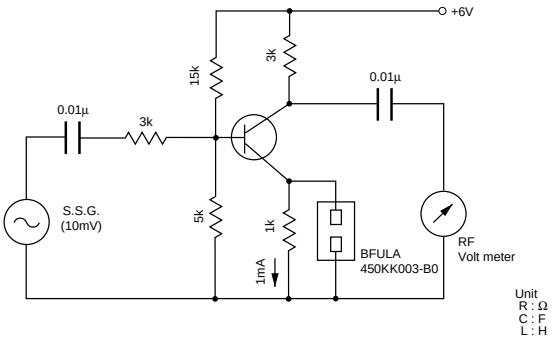
■ Portable Radio

SFULA455KU2L-B0



■ In Tr Circuit

BFULA450KK003-B0



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