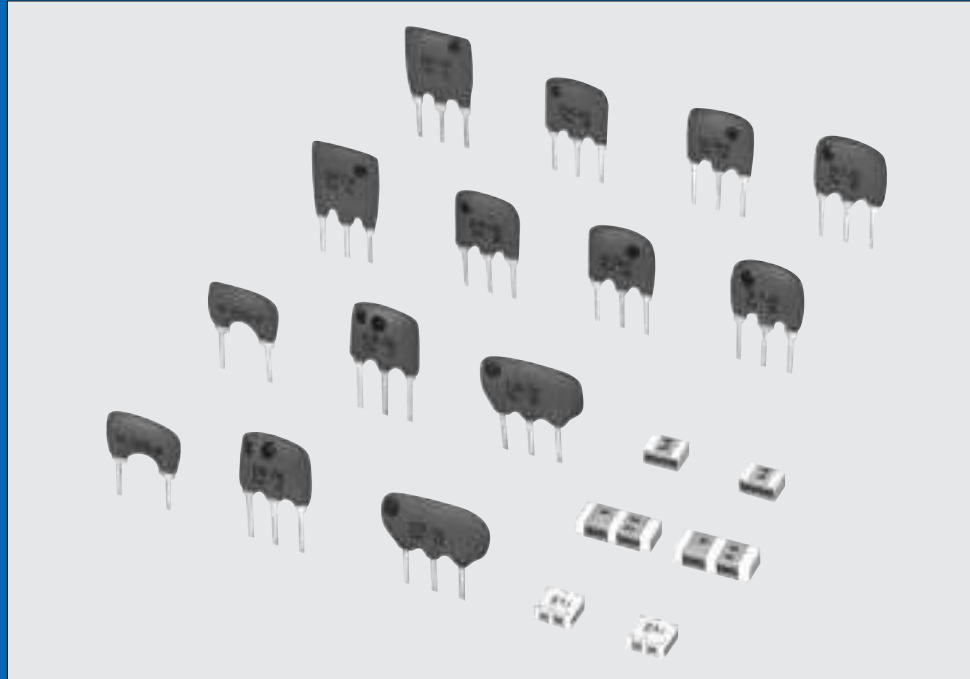




# CERAMIC FILTER (CERAFIL®) For FM Receivers

**SFE10.7/SFT10.7/CDA10.7 Series**

**CERAMIC  
FILTERS  
(CERAFIL®)**



*Innovator  
in Electronics*

Murata  
Manufacturing Co., Ltd.

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■ISO9000 CERTIFICATIONS

Manufacturing plants of these products in this catalog have obtained the ISO9000 quality system certificate.

Plants	Certified Date	Organization	Registration No.	Standard
Himi Murata Manufacturing Co., Ltd.	Dec. 1. 1997	UL *1	A5983	ISO9001, QS9000
Murata Electronics Malaysia SDN. BHD	Feb. 28. 1997	SIRIM *2	AR1015	ISO9002
Wuxi Murata Electronics Co., Ltd.	May. 12. 1999	UL *1	A7924	ISO9002

\*1 UL ; Underwriters Laboratories Inc.

\*2 SIRIM ; Standards and industrial Reserch Institute of Malaysia

## Introduction

FM-broadcasting generally has high fidelity and a high S/N ratio. In Europe and North America, there is a particularly large number of FM-broadcasting stations. The performance of FM-receivers is, therefore, greatly dependent on the characteristics of the intermediate frequency filter (selectivity, waveform symmetry, group delay time, etc.). Murata's ceramic filter SFE10.7/SFT10.7 Series for FM-receivers are monolithic type ceramic filters which use the energy trapped thickness vibration-mode of the piezoelectric ceramic.

Ceramic filters are compact and of simple structure, with high selectivity, excellent temperature and environmental characteristics, and favorable waveform symmetry. Because of these excellent features,

Murata's ceramic filter has stable receiving performance.

In recent years, FM-receiver technology has progressed rapidly;

- Electronic tuners have replaced mechanical tuners.
- Tuners have progressively been given higher selectivity and better functions for car-radio receivers.
- High fidelity characteristics have rapidly improved for home audio equipment.
- One-chip, non-adjustment ICs have been developed.
- Compact and low profile because of many chip components used (e. g. for headphone audio).
- Automatic insertion technology for taped components has progressed.

Various types of ceramic filters for FM receivers (SFE10.7/SFT10.7 series) are available to meet the needs of divers types of FM receivers.

## NOTICE

- Matching condition should be evaluated to perform stable electrical characteristics which are specified.
- Covering filter with over coat, conditions, such as material of resin cure temperature and so on be evaluated well.
- Conformal coating of filter is not acceptable due to unsealed construction.
- Filter might be damaged when an excess stress will be applied.
- We can no warrant against defects caused by any use of the filter which deviates from the intended use as described in this catalog. Please contact us for any other characteristics, using conditions or application to the device which need to be extremely reliable.

## PART NUMBERING (Please specify the part numbers when ordering.)

(Ex.) 

SF	E	10.7M	A5	H	-	Z
----	---	-------	----	---	---	---

  
① ② ③ ④ ⑤ ⑥

① Application, Function.

② Appearance, Shape, Dimensions

E : 2 section filter on 1 wafer

T : 3 section filter on 1 wafer

③ Center Frequency

"M" is added at the end when unit is MHz.

ex.) 10.7MHz → 10.7 M

④ Rating, Characteristics. (Customers Specifications)

⑤ Tolerance of Center Frequency

±30kHz	No Code
±25kHz	H
±20kHz	K

⑥ Rank of Center Frequency

Code	30kHz Step	25kHz Step
D	10.64MHz±30kHz	10.650MHz±25kHz
B	10.67MHz±30kHz	10.675MHz±25kHz
A	10.70MHz±30kHz	10.700MHz±25kHz
C	10.73MHz±30kHz	10.725MHz±25kHz
E	10.76MHz±30kHz	10.750MHz±25kHz
Z	Combination A, B, C, D, E	
M	Combination A, B, C	



# CERAMIC FILTERS

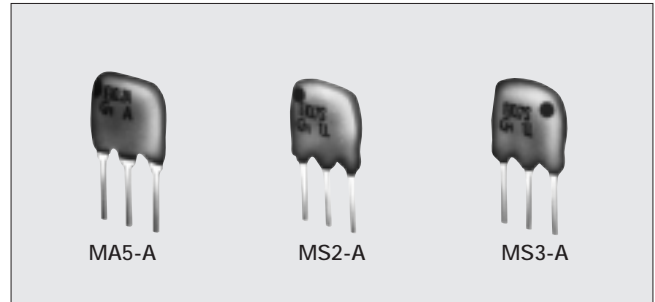
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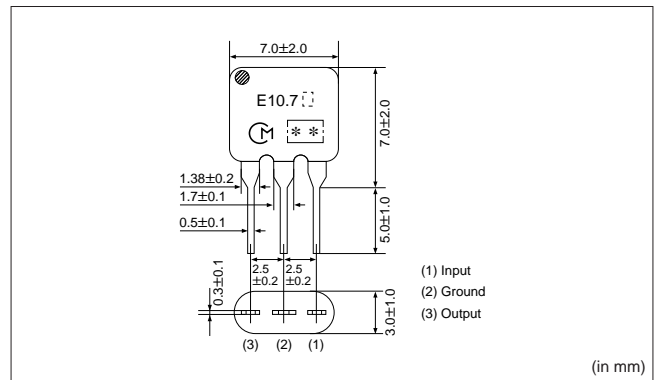
## For FM Receiver **SFE10.7** Series

### FEATURES

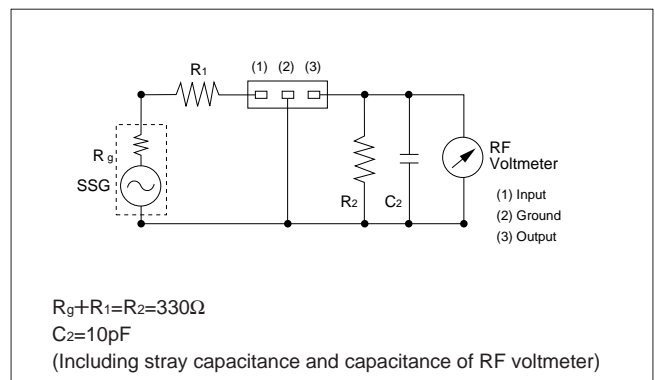
1. These miniature filters have high mechanical strength.
2. Low loss, favorable waveform symmetry, and high selectivity
3. Various band widths are available for applications in wide to narrow bands.
4. Small dispersion and stable characteristics.
5. Change in center frequency is typically within  $\pm 30\text{ppm}/^\circ\text{C}$  at  $-20$  to  $+80^\circ\text{C}$ .
6. High reliability.



### DIMENSIONS



### MEASURING CIRCUIT



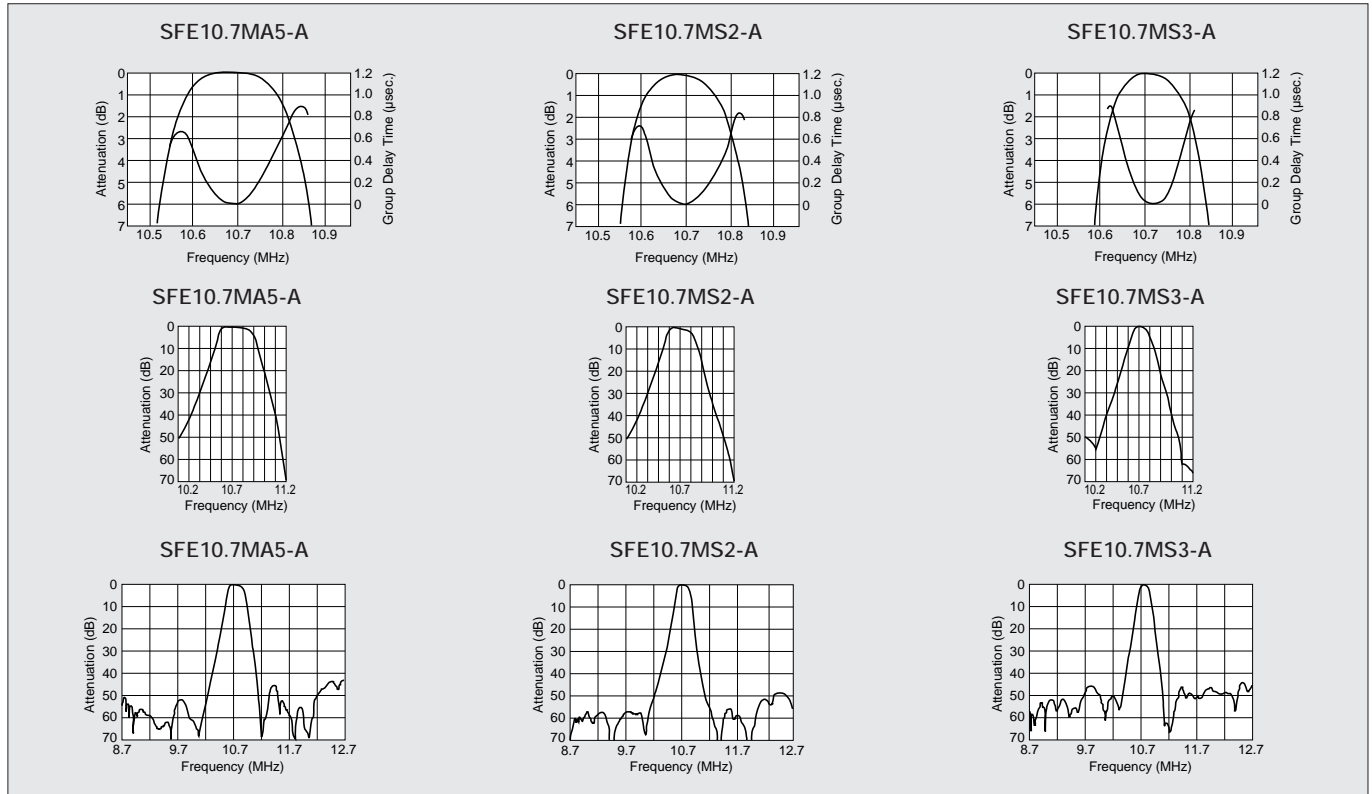
### SPECIFICATIONS

Part Number	3dB Band Width (kHz)	20dB Band Width (kHz) max.	Insertion Loss (dB)	Spurious Attenuation (9-12MHz) (dB) min.
<b>SFE10.7MA5-Z</b>	280±50	650 (520)	6 (4)	30 (43)
<b>SFE10.7MS2-Z</b>	230±50	600 (420)	6 (4)	40 (45)
<b>SFE10.7MS3-Z</b>	180±40	520 (380)	7 (4.5)	40 (45)

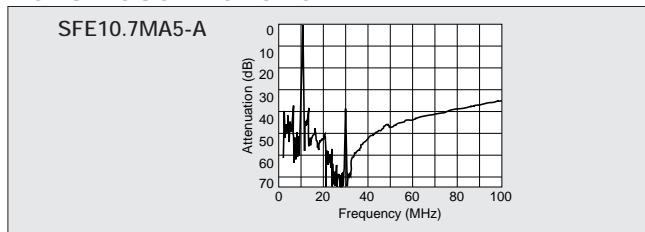
• Input/output matching impedance : 330Ω

( )Typ.value

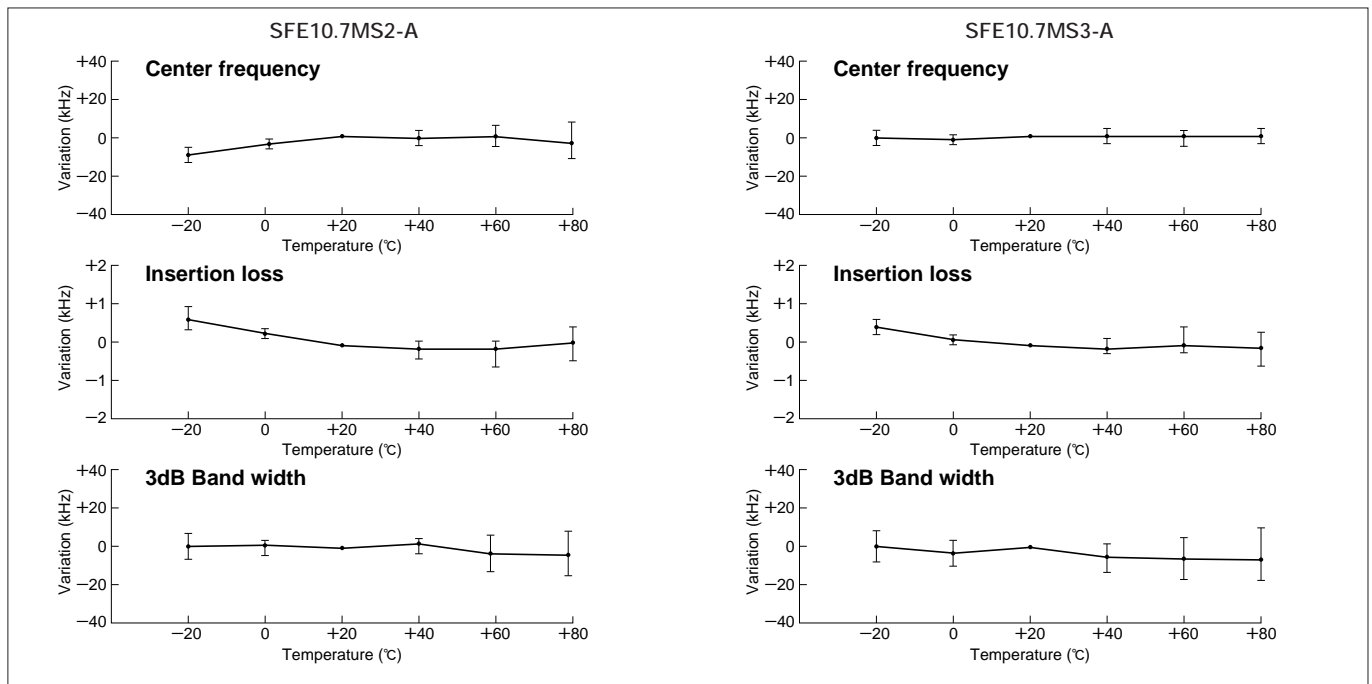
**FREQUENCY CHARACTERISTICS**



**SPURIOUS RESPONSE**



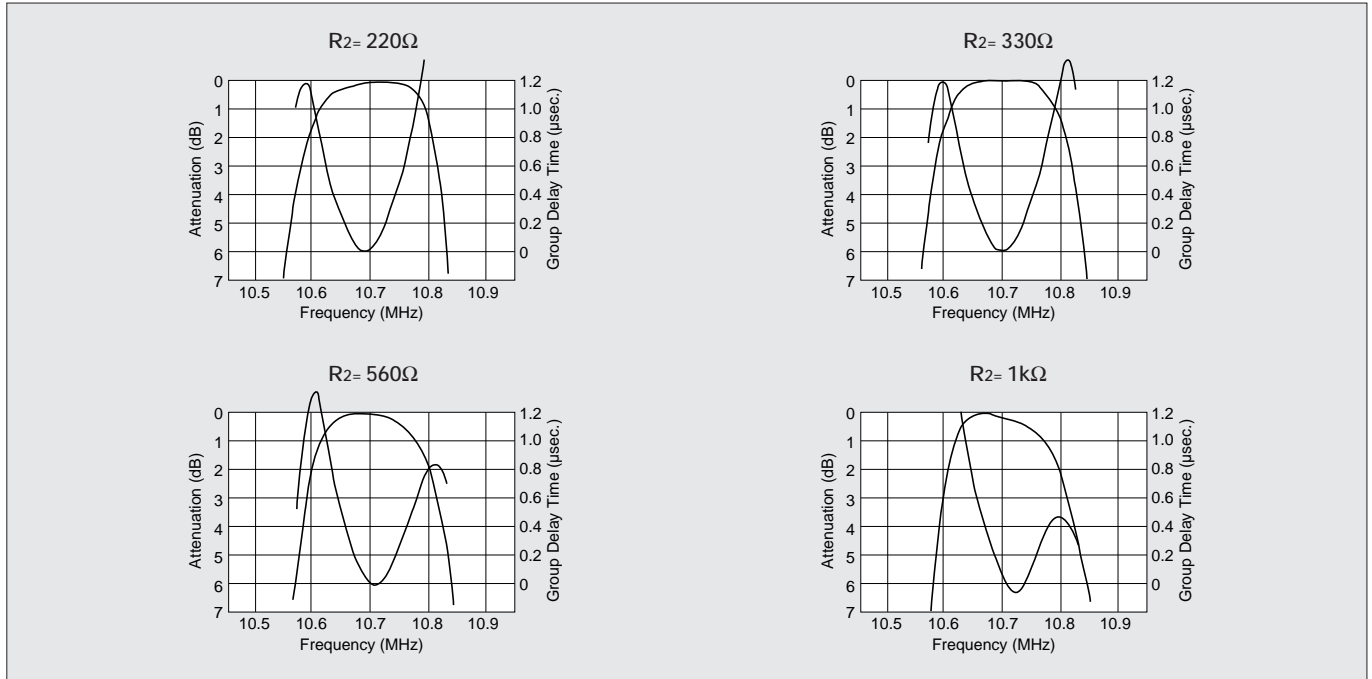
**TEMPERATURE CHARACTERISTICS**



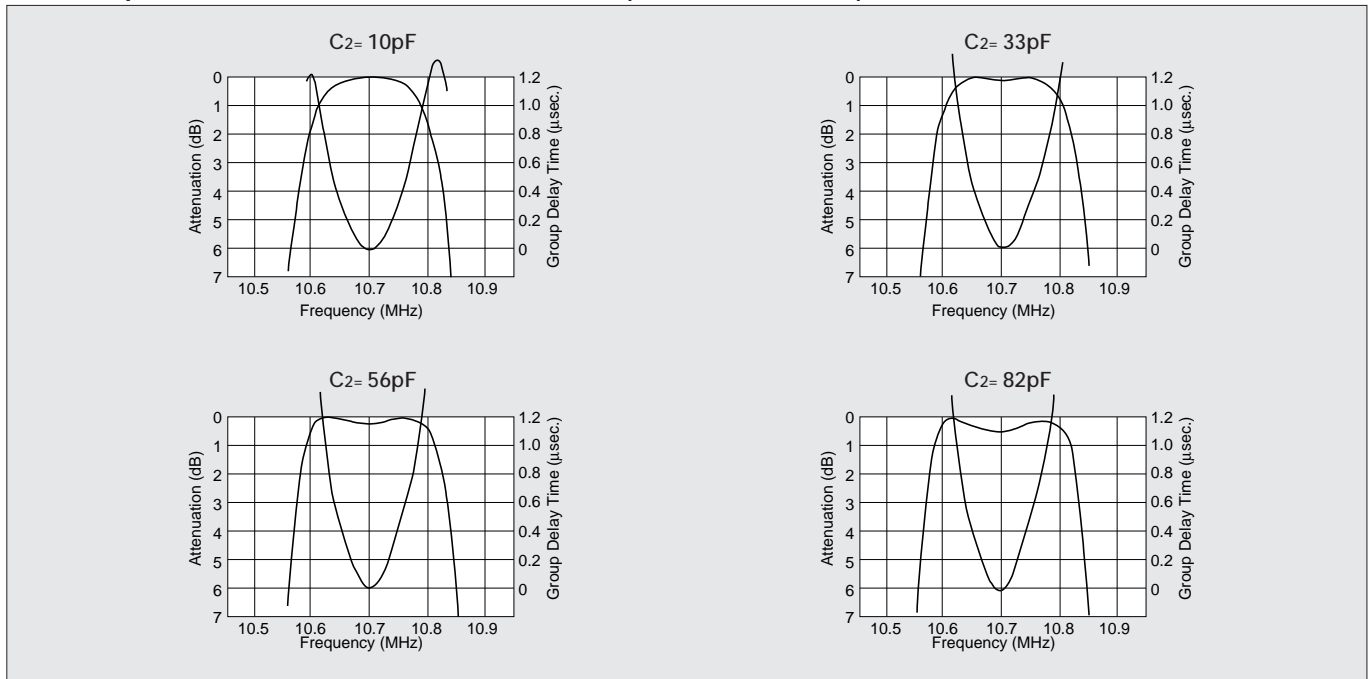
**■MATCHING CONDITIONS**

- When using ceramic filters, it is most important to match the input/output load to impedance 330Ω (pure resistance). Waveform symmetry is damaged when reactance is added to the input/output load.
- Two ceramic filters directly connected can be used for high selectivity. For reducing waveform variation, it is recommended to input a buffer AMP between ceramic filters.
- The SFE10.7 and SFT10.7 series are of input/output symmetric structure so that in theory there is no input/output directionality. Actual circuits may use different input/output loading conditions (for example, mismatched impedance) or capacitance load. In such cases, the waveform will be a little changed by the direction of the input/output of the ceramic filters.

**Load resistance and waveform of SFE10.7MS2-A ( $R_g + R_l = 330\Omega$ )**



**Loaded capacitance and waveform for SFE10.7MS2-A ( $R_l + R_g = R_2 = 330\Omega$ )**





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## Chip Ceramic Filter SFECV10.7 Series

# Contributing to the Reduction of AM/FM IF Circuit

The chip CERAFIL® SFECV series is high performance filter. Together with the PFWCC455 filter series for AM, the SFECV10.7 filter series reduces the size of IF circuit in AM/FM radios.

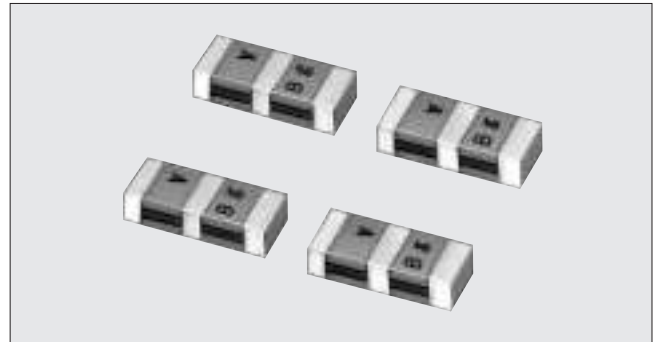
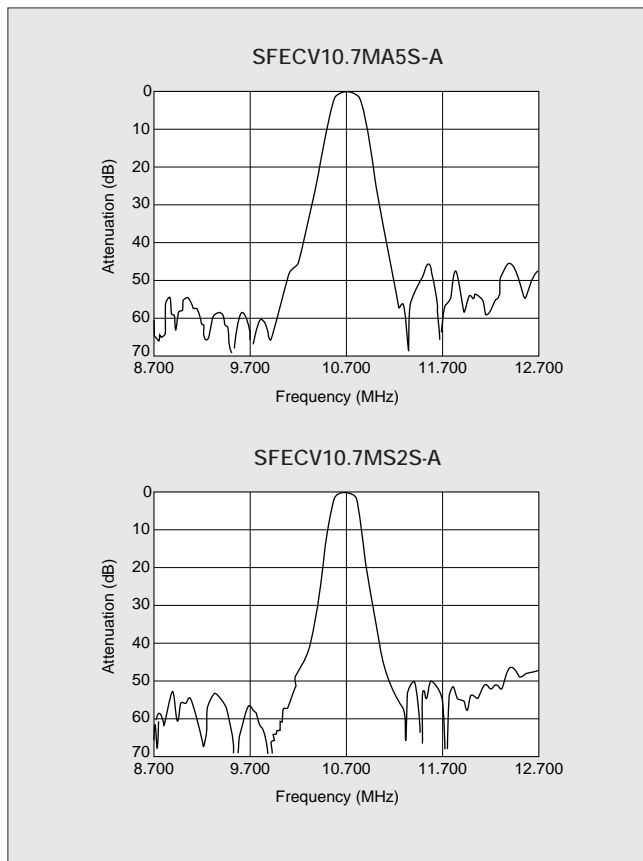
### FEATURES

1. Super-thin. Only 1.5mm. The most suitable ceramic filter available for thinning substrates.
2. Heat resistant. Reflow soldering can be performed because of its excellent heat resistance.
3. The piezoelectric element is connected in the sandwich shape by heat resistant substrates, thus it has excellent mechanical strength, and it is suitable for automatic mounting.
4. Various band-widths are available. Select a suitable type in accordance with the desired selectivity.
5. Electrical characteristics are the same as conventional CERAFIL®.

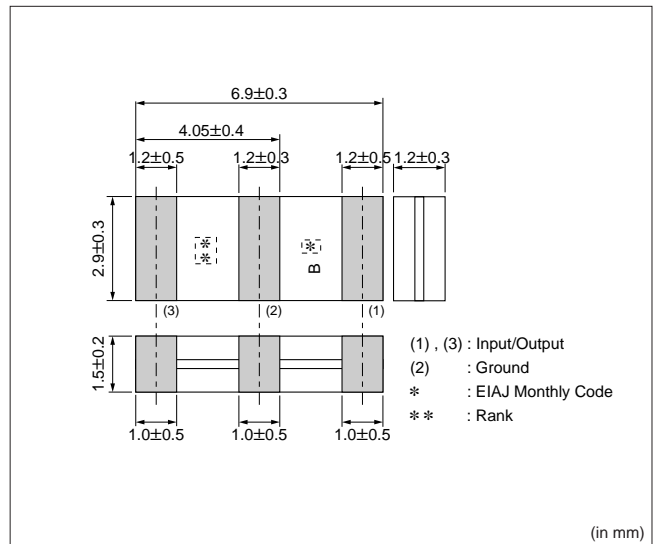
### APPLICATIONS

- Small, thin radios
- CAR radios
- Headphone stereos

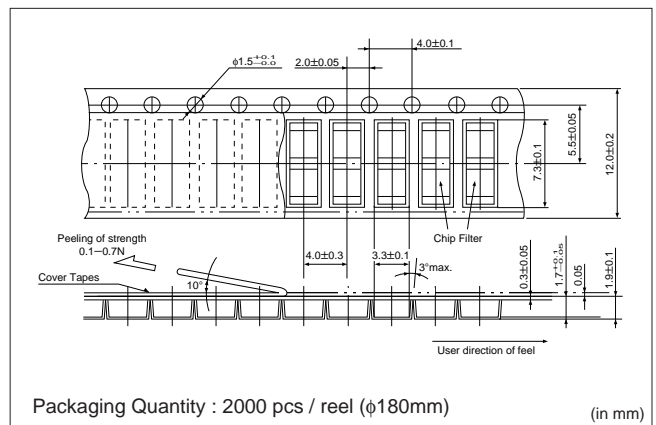
### FREQUENCY CHARACTERISTICS



### DIMENSIONS



### DIMENSIONS OF PLASTICS TAPE

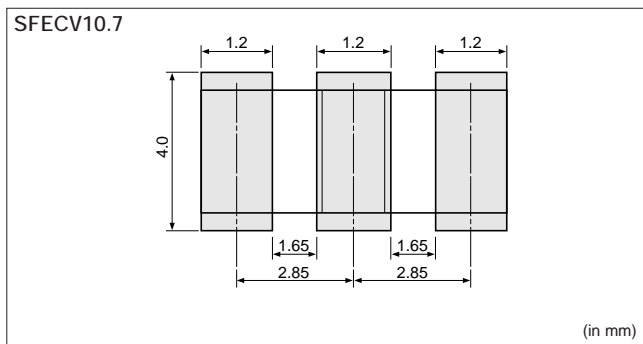


**■SPECIFICATIONS**

Part Number	SFECV10.7MA5S-Z	SFECV10.7MS2S-Z	SFECV10.7MS3S-Z	SFECV10.7MJS-Z
Char.				
Center Frequency( $f_0$ )	A : 10.700MHz±30kHz max.    B : 10.670MHz±30kHz max. C : 10.730MHz±30kHz max.    D : 10.640MHz±30kHz max. E : 10.760MHz±30kHz max. Provided that the center point of 3dB band width should be the center frequency and identified by the letters : A, B, C, D or E			
3dB Pass Band Width	280±50kHz	230±50kHz	180±40kHz	150±40kHz
20dB Attenuation Band Width	590kHz max.	510kHz max.	470kHz max.	380kHz max.
Insertion Loss	3.0±2.0dB	3.5±2.0dB	4.0±2.0dB	5.5±2.0dB
Spurious Attenuation (9-12 MHz)	35dB min.	35dB min.	35dB min.	35dB min.
Input/Output Matching Impedance	330Ω			

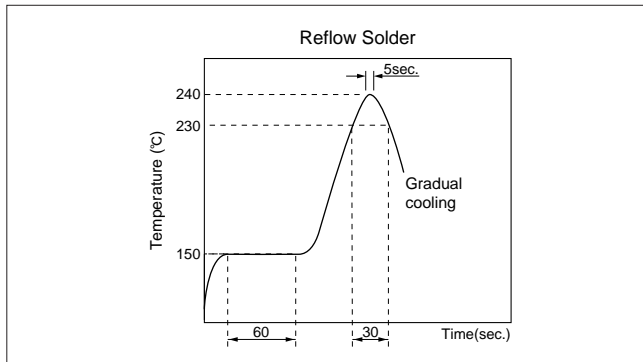
**■APPLICATIONS**

(1) Standard Land Dimensions



(2) Soldering Conditions

- Standard soldering conditions



- Soldering with iron

Soldering conditions : Soldering iron temperature 280°C  
 Soldering time less than 3 seconds.

Note : Please solder this chip ceramic filter so that the soldering iron should not touch the chip body directly.

(3) Cleaning conditions

Please avoid cleaning this chip ceramic filter with vapor or immersion because this type is not perfectly shielded.





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## Miniature Chip Ceramic Filter SF ECS10.7 Series

# Contributing to the Miniaturization of AM/FM IF Circuit

The chip CERAFIL® SF ECS series is a half mounting area filter compare to the conventional series (SF ECV). The SF ECS10.7 filter series miniature the size of IF circuit in AM/FM radio.

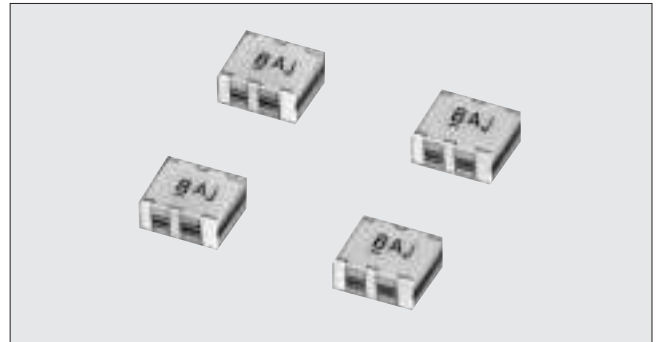
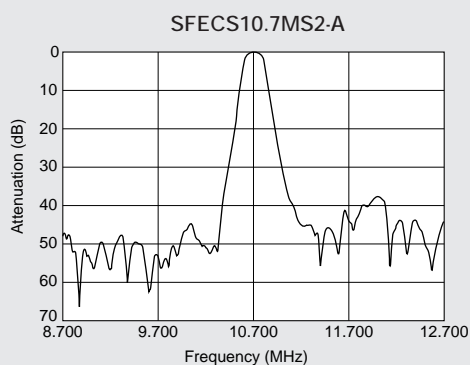
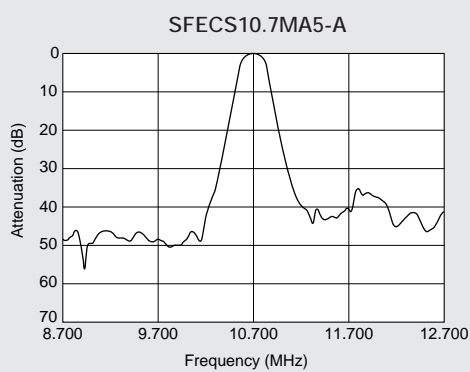
### FEATURES

1. Mounting area. Only 10.7mm<sup>2</sup> (About one half of SF ECV10.7 series), Super-miniaturization and super-thin. Only 1.4mm.
2. Heat resistant. Reflow soldering can be performed because of its excellent heat resistance.
3. The piezoelectric element is connected in the sandwich shape by heat resistant substrates, thus it has excellent mechanical strength, and it is suitable for automatic mounting.
4. Various band-widths are available. Select a suitable type in accordance with the desired selectivity.

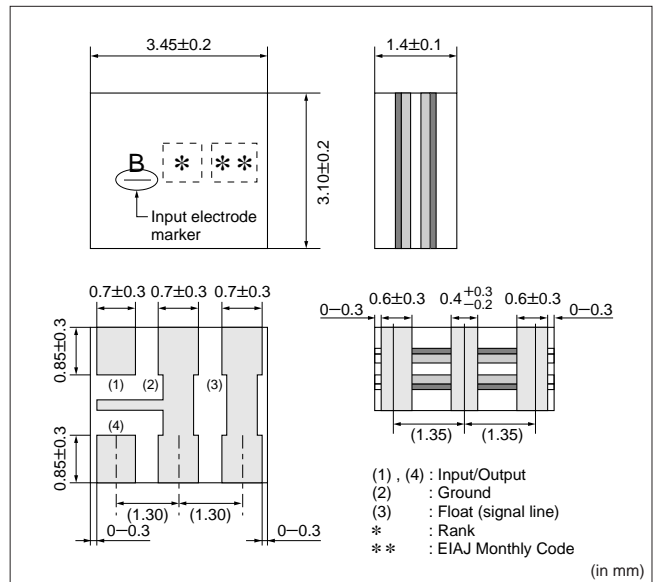
### APPLICATIONS

- Small, thin radios
- Headphone stereos

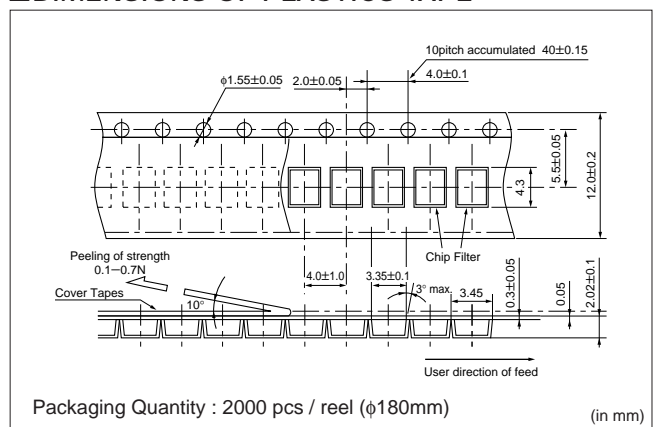
### FREQUENCY CHARACTERISTICS



### DIMENSIONS



### DIMENSIONS OF PLASTICS TAPE

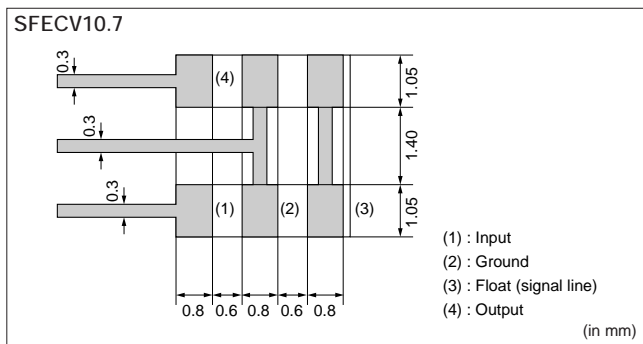


**■SPECIFICATIONS**

Part Number	SFECS10.7MA5-Z	SFECS10.7MS2-Z	SFECS10.7MS3-Z
Char.			
Center Frequency( $f_0$ )	A : 10.700MHz±30kHz max.    B : 10.670MHz±30kHz max. C : 10.730MHz±30kHz max.    D : 10.640MHz±30kHz max. E : 10.760MHz±30kHz max. Provided that the center point of 3dB band width should be the center frequency and identified by the letters : A, B, C, D or E		
3dB Pass Band Width	280±50kHz	230±50kHz	180±40kHz
20dB Attenuation Band Width	590kHz max.	510kHz max.	470kHz max.
Insertion Loss	3.0±2.0dB	3.5±2.0dB	4.0±2.0dB
Spurious Attenuation (9-12 MHz)	30dB min.	30dB min.	30dB min.
Input/Output Matching Impedance	330Ω		

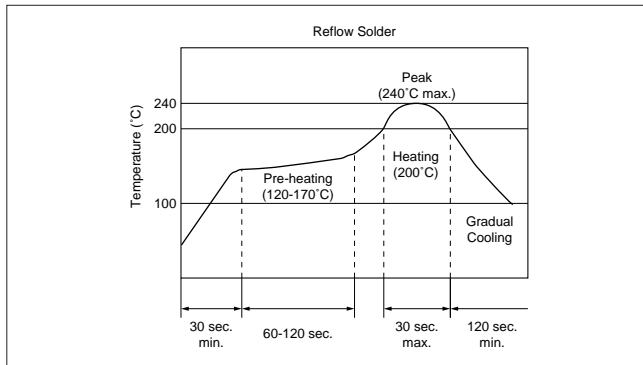
**■APPLICATIONS**

(1) Standard Land Dimensions



(2) Soldering Conditions

● Standard soldering conditions



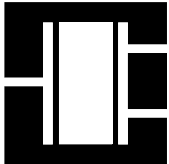
● Soldering with iron

Soldering conditions : Soldering iron temperature 280°C  
Soldering time less than 3 seconds.

Note : Please solder this chip ceramic filter so that the soldering iron should not touch the chip body directly.

(3) Cleaning conditions

Please avoid cleaning this chip ceramic filter with vapor or immersion because this type is not perfectly shielded.



# CERAMIC FILTERS

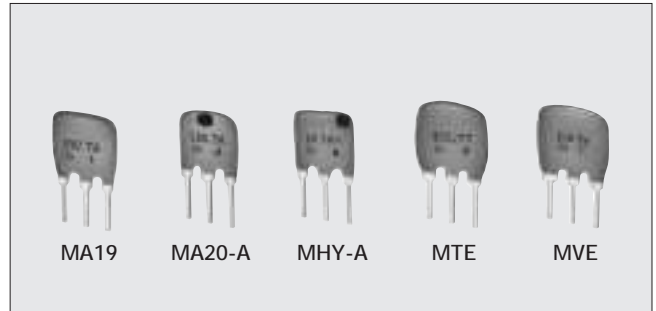
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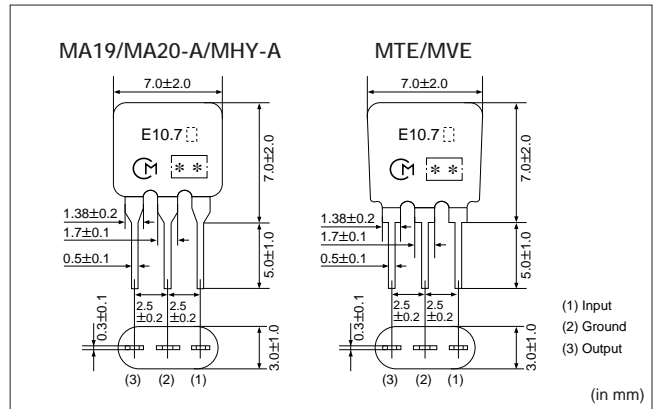
## Wider/Narrow Band-width Type **SFE10.7** Series

### FEATURES

1. Realizes wider or narrower band characteristics not obtained by conventional ceramic filters.
2. Temperature characteristics are the best available, the same as those of Murata's conventional ceramic filters. Thus, even in the case of narrow band filters, the center frequency is stable even if temperature changes.



### DIMENSIONS



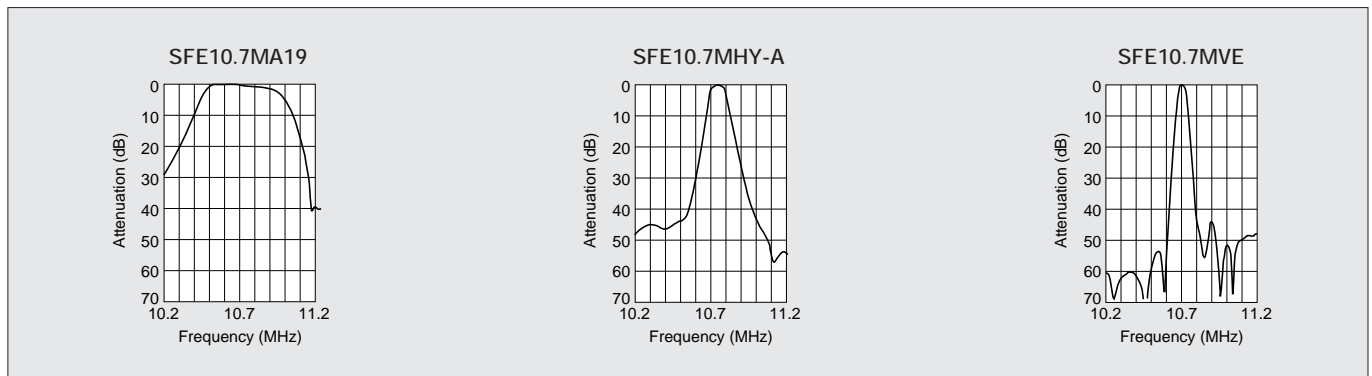
### SPECIFICATIONS

Part Number	3dB Band Width (kHz)	20dB Band Width (kHz) max.	Insertion Loss (dB)	Spurious Attenuation (9–12MHz) (dB) min.
<b>SFE10.7MA19</b>	350 min. (450)	950 (750)	3±2	20 (30)
<b>SFE10.7MA20-A</b>	330±50	680 (615)	4±2	30 (40)
<b>SFE10.7MHY-A</b>	110±30	350 (260)	7±2	30 (42)
<b>SFE10.7MTE</b>	±25kHz min. (82)	200 (160)	5.5±2.5	30 (48)
<b>SFE10.7MVE</b>	±13kHz min. (56)	135 (110)	5±2	30 (41)

• Input/output matching impedance : 330Ω (MA20-A, MHY-A, MTE, MVE), 470Ω (MA19)

( )Typ. value

### FREQUENCY CHARACTERISTICS





# CERAMIC FILTERS

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## Low Loss Type SFE10.7□A10 Series

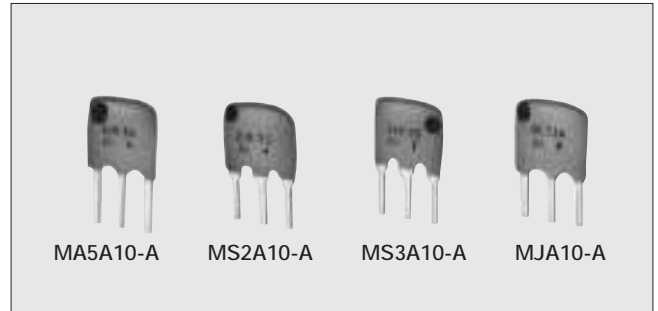
### FEATURES

1. Insertion loss is 1—1.5dB lower than conventional products. This type is useful for elevating the sensitivity of sets.
2. Excellent shape factor of frequency response.
3. Good waveform symmetry.

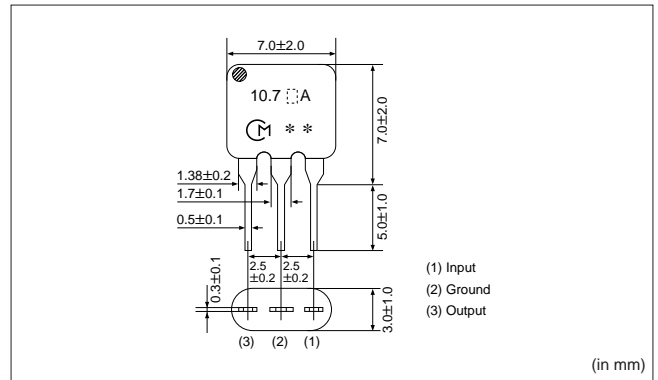
### SPECIFICATIONS

Part Number	3dB Band Width (kHz)	20dB Band Width (kHz) max.	Insertion Loss (dB)	Spurious Attenuation (9—12MHz) (dB) min.
SFE10.7MA5A10-Z	280±50	590 (480)	2.5±2.0	30 (42)
SFE10.7MS2A10-Z	230±50	520 (400)	3.0±2.0	35 (43)
SFE10.7MS3A10-Z	180±40	470 (360)	3.5±1.5	35 (43)
SFE10.7MJA10-Z	150±30	360 (290)	4.0±2.0	35 (44)

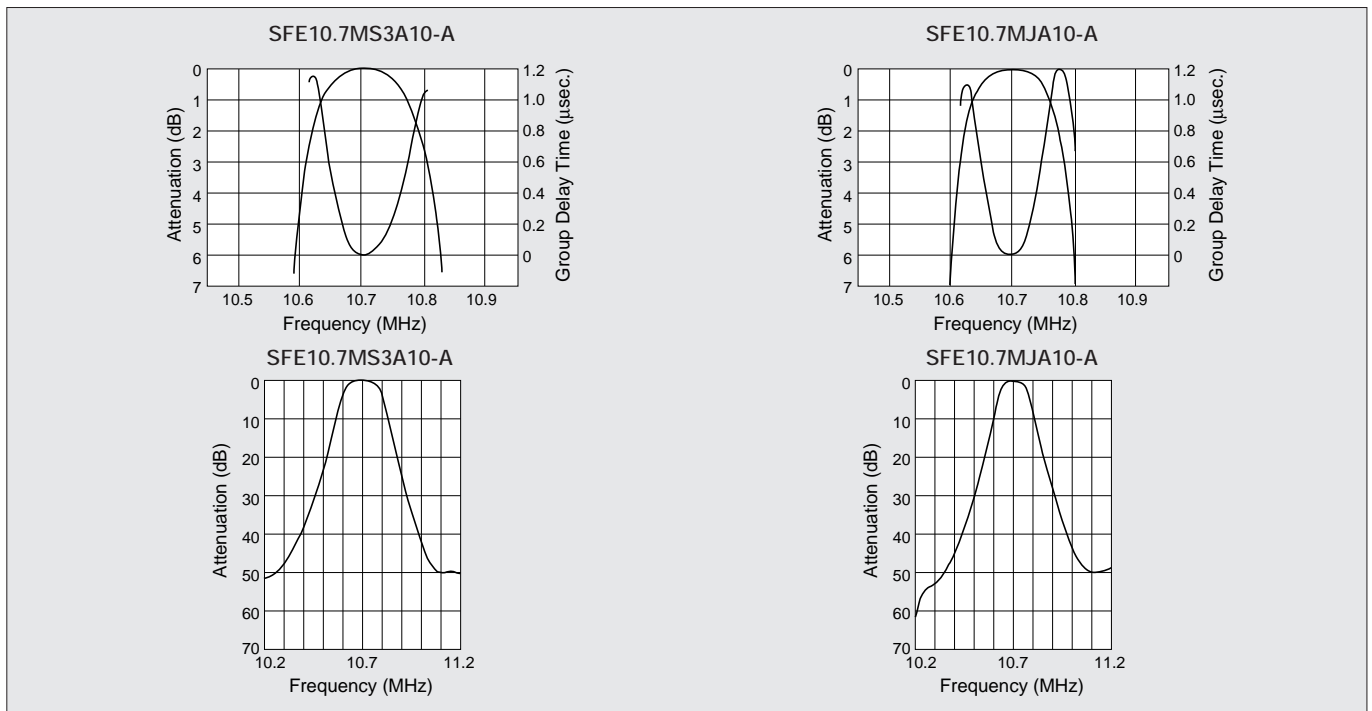
• Input/output matching impedance : 330Ω ( )Typ.value



### DIMENSIONS



### FREQUENCY CHARACTERISTICS





# CERAMIC FILTERS

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## Low Profile Type SFE10.7□C10 Series

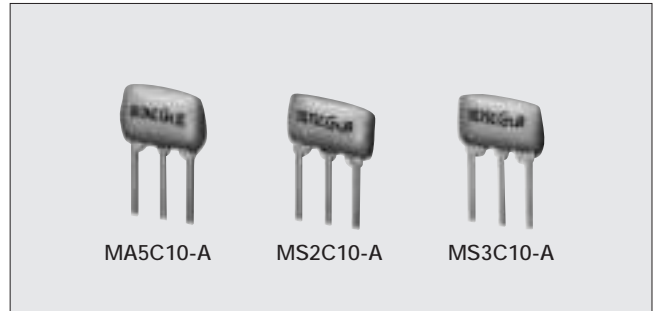
### FEATURES

1. Installed height is 5 mm, making it well suited for compact, thin sets.
2. Electrical characteristics and performance are the same as those of the ceramic filter SFE10.7 series.

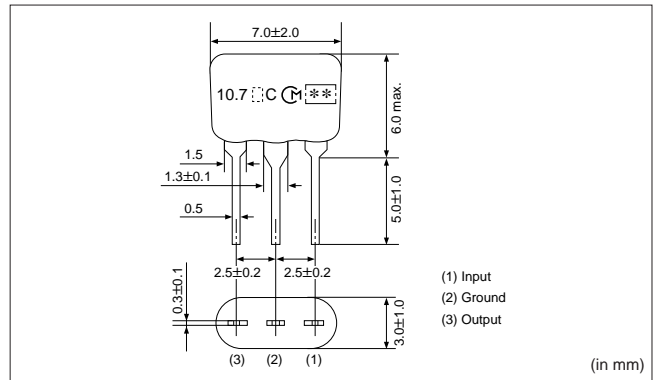
### SPECIFICATIONS

Part Number	3dB Band Width (kHz)	20dB Band Width (kHz) max.	Insertion Loss (dB)	Spurious Attenuation (9—12MHz) (dB) min.
SFE10.7MA5C10-Z	280±50	650 (546)	3.0±2.0	30 (47)
SFE10.7MS2C10-Z	230±50	570 (474)	3.0±2.0	40 (48)
SFE10.7MS3C10-Z	180±40	470 (360)	3.5±2.0	35 (45)

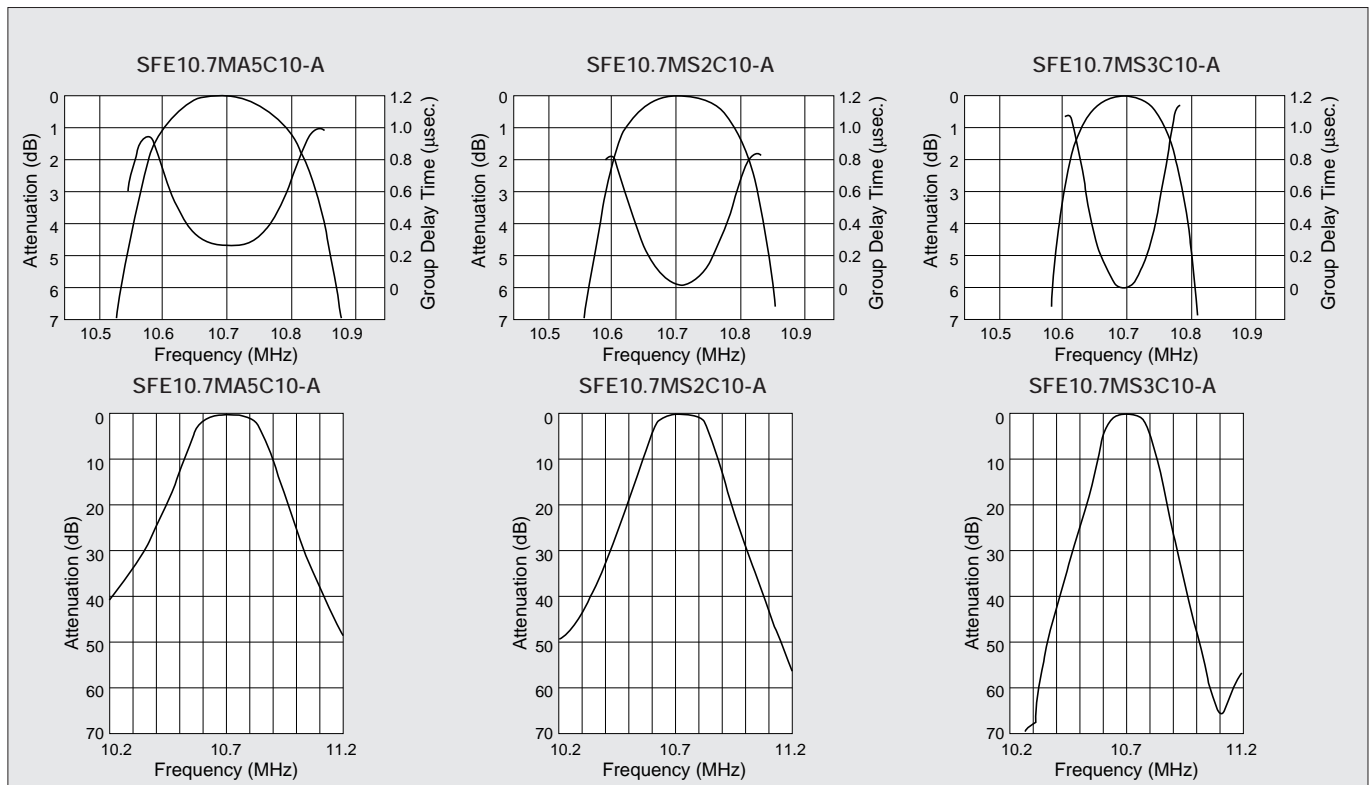
• Input/output matching impedance : 330Ω ( )Typ.value



### DIMENSIONS



### FREQUENCY CHARACTERISTICS





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## 3-element Type SFT10.7 Series

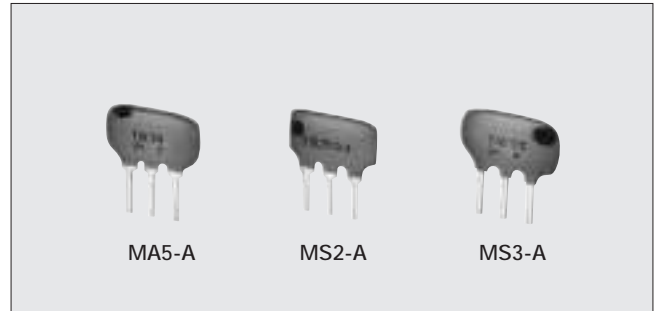
### FEATURES

1. It has an excellent shape factor, and it is possible to obtain 1.5 times more excellent selectivity than SFE10.7 series (by detuning ±300 or 400kHz).
2. Good performance of spurious suppression.
3. Having the same terminal pitch as the SFE10.7 series, it easily replaces that series.
4. By replacing two SFE10.7 series filters with one SFT10.7 filter, more compact sets can be made.
5. Well-suited for 1-chip ICs.

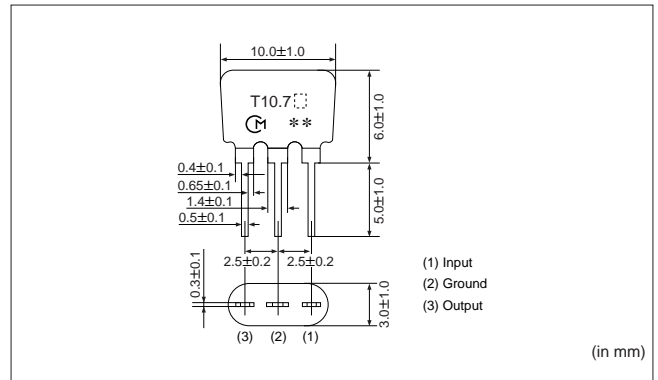
### SPECIFICATIONS

Part Number	3dB Band Width (kHz)	40dB Band Width (kHz) max.	Insertion Loss (dB)	Spurious Attenuation (9-12MHz) (dB) min.
SFE10.7MA5-Z	280±50	700 (630)	6±2	50 (60)
SFE10.7MS2-Z	230±40	650 (580)	6±2	50 (60)
SFE10.7MS3-Z	180±40	550 (500)	8±2	50 (60)

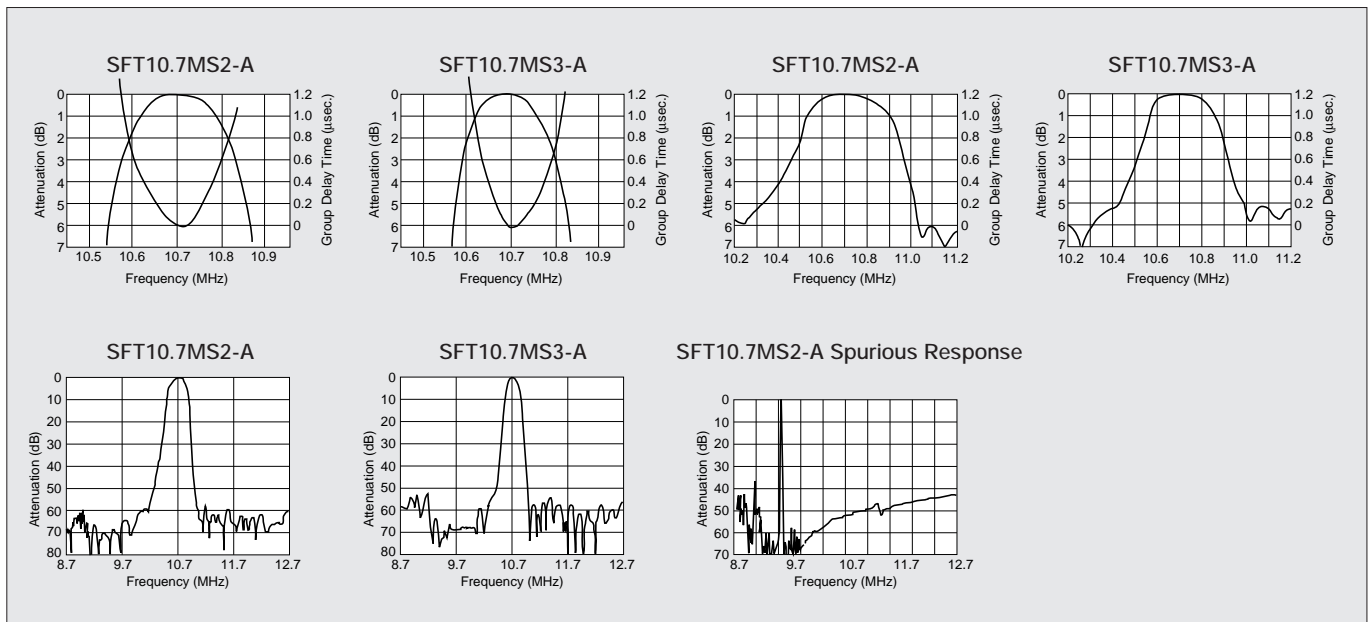
- Input/output matching impedance : 330Ω ( )Typ.value
- SFT10.7 series is good to replace with SFE10.7 series because of its higher selectivity.

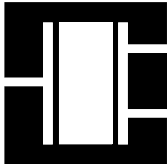


### DIMENSIONS



### FREQUENCY CHARACTERISTICS



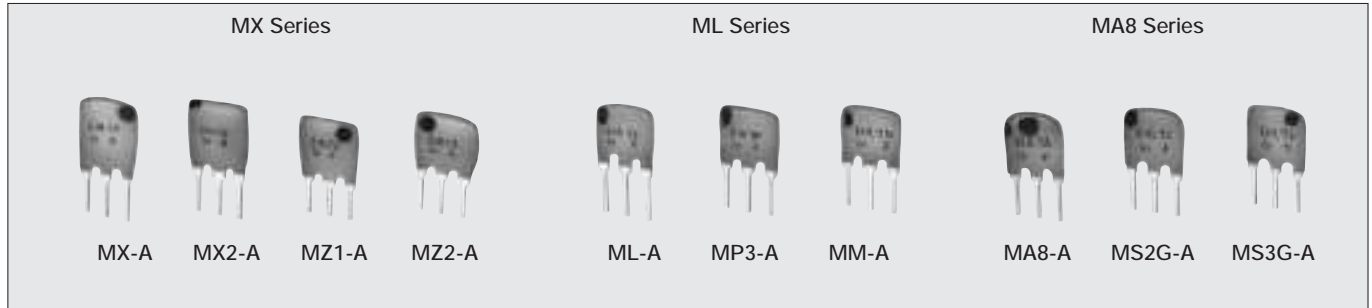


# CERAMIC FILTERS

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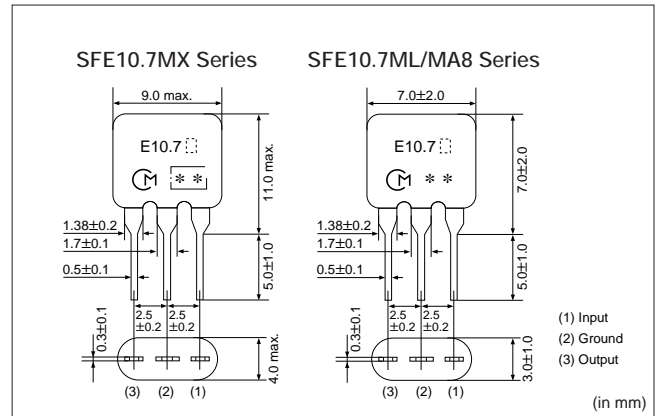
## For Stereo Tuners (G. D. T. Waveform Control Product) SFE10.7 Series



### FEATURES

1. Little dispersion of amplitude characteristics and phase characteristics(G. D. T. characteristics)
2. The SFE10.7 MX series has G.D.T characteristics and is useful for obtaining low distortion.  
SFE10.7 ML series, in these ceramic filters, being in harmony with flatness of G.D.T., roundness of the amplitude and selectivity characteristics, therefore, these ceramic filters are suitable to high-grade stereo tuners. Even if mismatching condition, they can keep little distortion because of low Qm of ceramic material.  
The SFE10.7MA8 series is based on SFE10.7 MA5/MS2/MS3, and it obtains high selectivity with low loss.  
There is little dispersion of amplitude and G.D.T. characteristics, and low distortion rate can be obtained.
3. All products are inspected for symmetry and roundness of amplitude characteristics, and the flatness of G.D.T. characteristics.

### DIMENSIONS



### SPECIFICATIONS

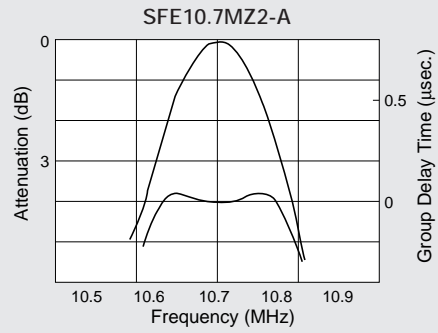
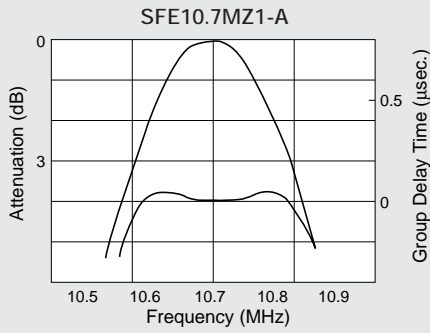
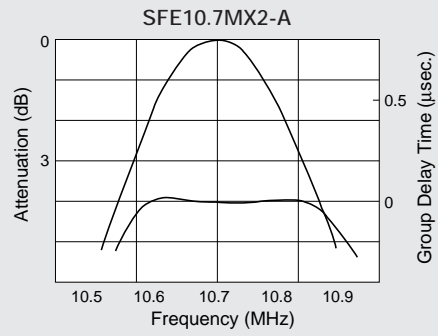
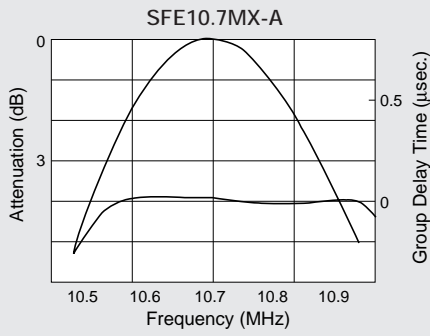
	Char. Part Number	3dB Band Width (kHz)	20dB Band Width (kHz) max.	Insertion Loss (dB) max.	Spurious Attenuation. min.	G. D. T. Band Width (kHz) min.
MX Series	SFE10.7MX-Z	250±40	670 (620)	12 (10)	25 (33)	Deviation : 0.2μ sec. max. (Within fo ±110kHz)
	SFE10.7MX2-Z	220±40	610 (560)	12.5 (10.5)	30 (37)	Deviation : 0.15μ sec. max. (Within fo ±80kHz)
	SFE10.7MZ1-Z	180±30	530 (460)	14 (12.3)	33 (38)	Deviation : 0.15μ sec. max. (Within fo ±60kHz)
	SFE10.7MZ2-Z	150±30	500 (420)	14 (12.6)	35 (41)	Deviation : 0.15μ sec. max. (Within fo ±50kHz)
ML Series	SFE10.7ML-Z	280±50	650 (610)	9 (7)	25 (33)	0.25μsec. fo±70 (±105) kHz
	SFE10.7MP3-Z	250±50	650 (550)	10 (8)	30 (35)	0.25μsec. fo±65 (±90) kHz
	SFE10.7MM-Z	230±50	600 (510)	11 (9)	30 (38)	0.25μsec. fo±60 (±85) kHz
MA8 Series	SFE10.7MA8-Z	280±50	650 (520)	6 (4)	30 (43)	0.5μsec. fo±80 (±100) kHz
	SFE10.7MS2G-Z	230±50	600 (420)	7 (4.5)	40 (45)	0.5μsec. fo±60 (±75) kHz
	SFE10.7MS3G-Z	180±40	520 (380)	9 (5)	40 (45)	0.5μsec. fo±45 (±60) kHz

● Input/output matching impedance : 330Ω

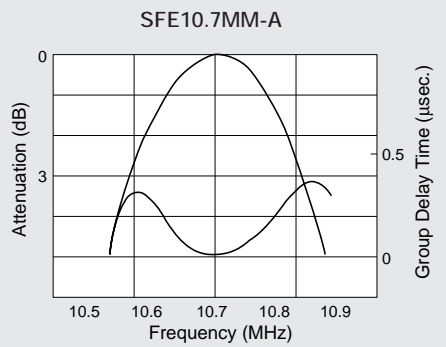
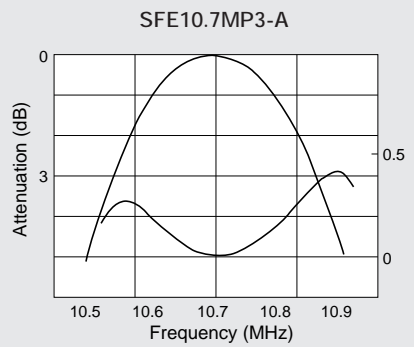
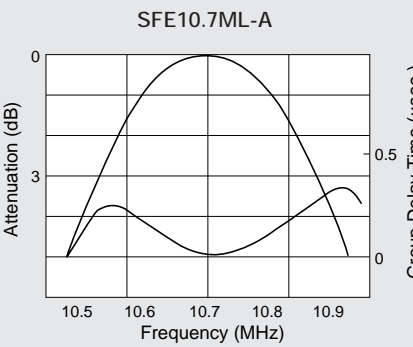
( )Typ.value

### ■ FREQUENCY CHARACTERISTICS

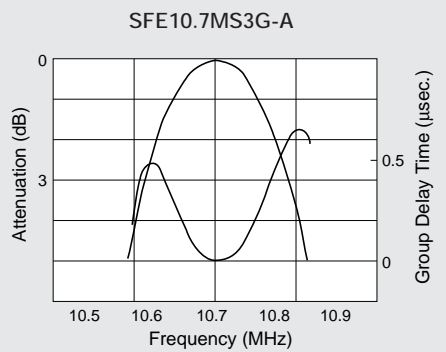
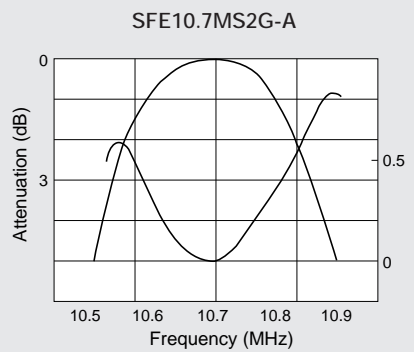
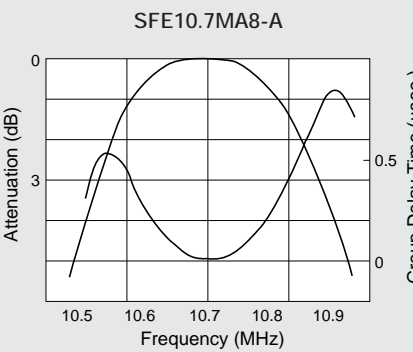
● MX series



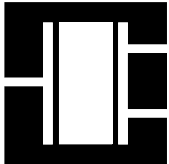
● ML series



● MA8 series







# CERAMIC FILTERS

CERAFIL® is the Registered Trademark of Murata's Ceramic Filters.



## Ceramic Discriminator **CDA10.7** Series For FM Detection

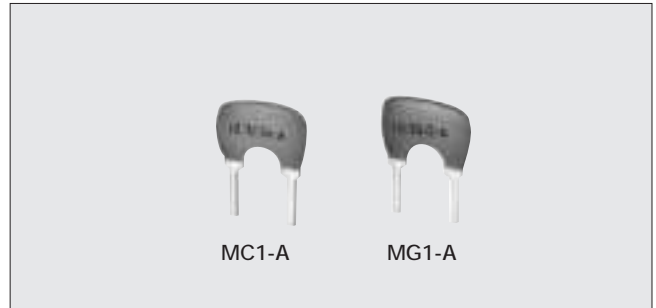
### Well-suited for Miniaturization without Adjustment

In conformity with trends for higher performance audio devices, demand has grown for non-adjustment, single chip ICs.

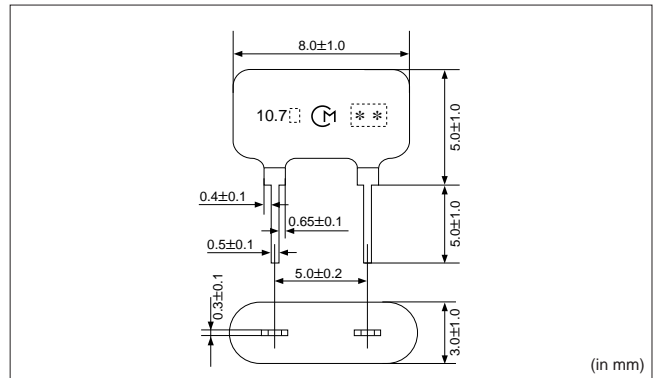
Murata's ceramic discriminator CDA10.7 series forms a resonator on a piezoelectric ceramic substrate. In combination with ICs, this type obtains stable demodulation characteristics in wide bandwidths.

#### ■FEATURES

1. Compact and excellent mechanical strength.
2. Can be combined with various ICs. The IC is determined by the last number in the part
3. Stable demodulation characteristics can be obtained without adjustment.
4. The MG type for wide bandwidths and the MC type for narrow bandwidths are available.
5. Stable temperature characteristics.
6. We recommend kits : ceramic discriminator CDA10.7 series and CERAFIL® SFE10.7 of the same frequency rank.



#### ■DIMENSIONS



#### ■SPECIFICATIONS

Part Number	Demodulation Output (mV) at f <sub>0</sub>	Distortion Factor (%) max. at f <sub>0</sub>	Demodulation 3dB Band width (kHz) min.	Detection System	IC
<b>CDA10.7MG16-Z</b>	60—90 min.	0.9 (0.5)	300 (370)	Quadrature	TA8122AN/AF
<b>CDA10.7MG48-Z</b>	700 min.	1.0 (0.2)	400 (560)	Quadrature	LA1835
<b>CDA10.7MG92-Z</b>	60 min	1.0	300	Quadrature	TA2132P
<b>CDA10.7MC1-Z</b>	35 min.	1.0 (0.2)	242 (370)	Quadrature	CXA1019M CX20091

( )Typ.value

- Input signal conditions
 

CDA10.7MG16-Z	: Input Level	80dBμ	Mod.Freq.1000Hz	Freq.Dev. ±22.5kHz
CDA10.7MG48-Z	: Input Level	112dBμ	Mod.Freq.1000Hz	Freq.Dev. ± 75kHz
CDA10.7MG92-Z	: Input Level	80dBμ	Mod.Freq.1000Hz	Freq.Dev. ±22.5kHz
CDA10.7MC1-Z	: Input Level	100dBμ	Mod.Freq. 400Hz	Freq.Dev. ±22.5kHz
- Center frequency rank
 

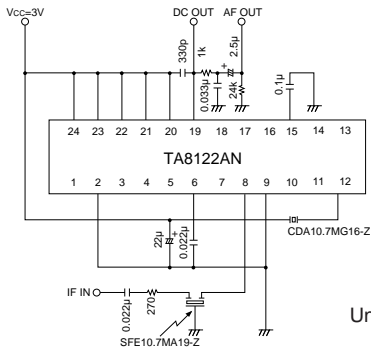
A (Red)	: 10.70MHz±30kHz
B (Blue)	: 10.67MHz±30kHz
C (Orange)	: 10.73MHz±30kHz
D (Black)	: 10.64MHz±30kHz
E (White)	: 10.76MHz±30kHz

 Z : A.B.C.D.E 5 ranks mixed.
- We have other discriminators for every kinds of ICs. Please inquire about them to our office.

**FREQUENCY CHARACTERISTICS**

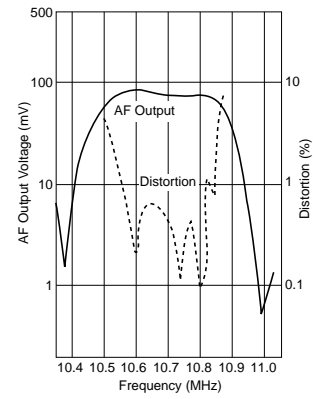
TEST CIRCUIT OF CDA10.7MG16-Z

CDA10.7MG16-A



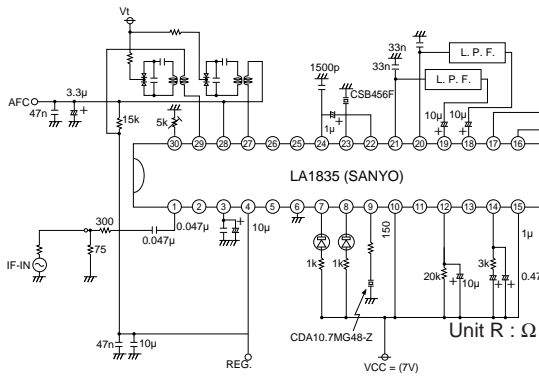
Unit R : Ω

Input signal conditions  
 Input Level 80dBμ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±22.5kHz



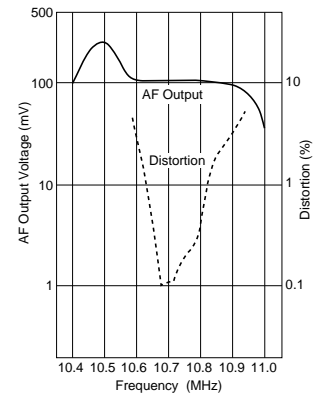
TEST CIRCUIT OF CDA10.7MG48-Z

CDA10.7MG48-A



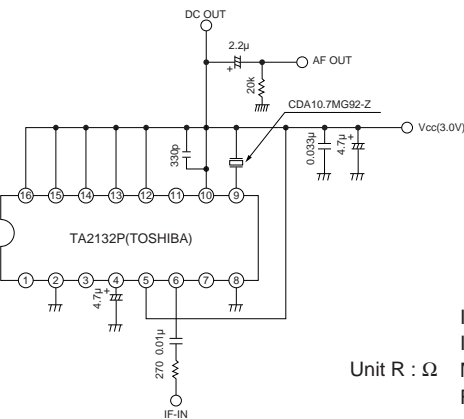
Unit R : Ω

Input signal conditions  
 Input Level 112dBμ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±75kHz



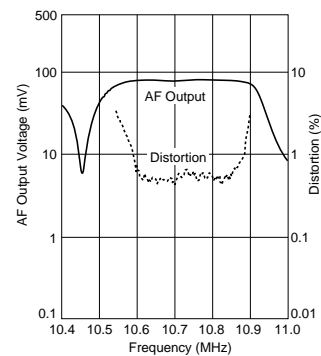
TEST CIRCUIT OF CDA10.7MG92-Z

CDA10.7MG92-A



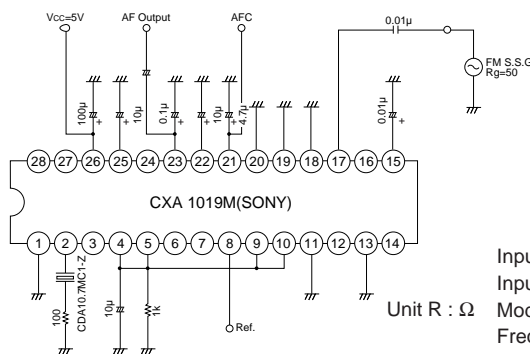
Unit R : Ω

Input signal conditions  
 Input Level 80dBμ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±22.5kHz



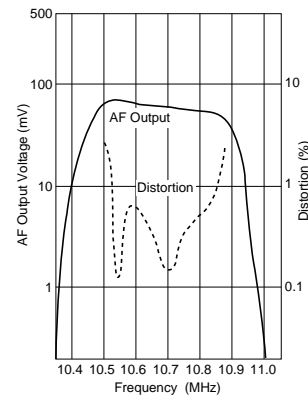
TEST CIRCUIT OF CDA10.7MC1-Z

CDA10.7MC1-A



Unit R : Ω

Input signal conditions  
 Input Level 100dBμ  
 Mod.Freq. 400Hz  
 Freq.Dev. ±22.5kHz



## ■ CERAMIC DISCRIMINATOR LIST FOR FM RECEIVER

### CDA10.7MG Type

Part Number	Corresponding IC
CDA10.7MG1-Z	CX-20029/CX-20111
CDA10.7MG2-Z	CX-831
CDA10.7MG4-Z	BA4234L
CDA10.7MG6-Z	TA7640AP
CDA10.7MG7-Z	LA1260
CDA10.7MG8-Z	TA7303P
CDA10.7MG9-Z	TA7130P
CDA10.7MG12-Z	CXA1030P
CDA10.7MG13-Z	AN7007SU
CDA10.7MG14A-Z	AN7006S
CDA10.7MG15-Z	LA1816
CDA10.7MG16-Z	TA8122AN
CDA10.7MG17-Z	TEA5591
CDA10.7MG18-Z	TA8132N
CDA10.7MG19-Z	BA1440
CDA10.7MG20-Z	NE604
CDA10.7MG21	TBA229-2
CDA10.7MG22-Z	LA1810
CDA10.7MG23-Z	LA7770
CDA10.7MG24	TDA2557
CDA10.7MG25V	U829B
CDA10.7MG26-Z	LA1805
CDA10.7MG27-Z	CXA1238
CDA10.7MG28-Z	U2501B
CDA10.7MG29	TBA120U
CDA10.7MG30-Z	TE5592
CDA10.7MG31-Z	TA2003
CDA10.7MG32-Z	CXA1343M
CDA10.7MG33-Z	TA2007
CDA10.7MG34V	U4490B
CDA10.7MG35-Z	TEA5594
CDA10.7MG36-Z	TA2029
CDA10.7MG37-Z	LA1830
CDA10.7MG39-Z	TA8186
CDA10.7MG40-Z	TEA5710
CDA10.7MG41-Z	BA4220
CDA10.7MG42-Z	SA605
CDA10.7MG43-Z	LA1831
CDA10.7MG45-Z	TA2008
CDA10.7MG46-Z	LA1832
CDA10.7MG47A	SA626
CDA10.7MG48-Z	LA1835
CDA10.7MG49-Z	MC13156
CDA10.7MG50-Z	TA2022

Part Number	Corresponding IC
CDA10.7MG51-Z	TDA1576T
CDA10.7MG52-Z	MC13173
CDA10.7MG53-Z	AN7232
CDA10.7MG54-Z	CXA1376
CDA10.7MG55-Z	TEA5712T
CDA10.7MG56-Z	uPC1391H
CDA10.7MG57-Z	TA2057
CDA10.7MG58-Z	TA2046
CDA10.7MG59V	KA2244
CDA10.7MG60-Z	BA1448/1449
CDA10.7MG61-Z	TEA5762
CDA10.7MG62-Z	TK14581
CDA10.7MG63-Z	KA2292
CDA10.7MG64-Z	KA2295
CDA10.7MG65-Z	KA2298
CDA10.7MG66-Z	BA4110
CDA10.7MG67-Z	BA4240L
CDA10.7MG68-Z	CXA1991N
CDA10.7MG69-Z	CXA1538
CDA10.7MG70-Z	LA1150
CDA10.7MG71-Z	TA7765AF
CDA10.7MG72	TA31161
CDA10.7MG75-Z	CXA1611
CDA10.7MG76-Z	CXA3067M
CDA10.7MG77-Z	TA2111
CDA10.7MG79-Z	LA1838
CDA10.7MG80-Z	TA2104AFN
CDA10.7MG82-Z	TA2099
CDA10.7MG83-Z	LA1827
CDA10.7MG84-Z	BH4126FV
CDA10.7MG85-Z	SA639
CDA10.7MG86N-Z	LA1833N
CDA10.7MG88V	TA8721ASN
CDA10.7MG92-Z	TA2132P
CDA10.7MG96-Z	SA636DK
CDA10.7MG97-Z	AN6138SH

### CDA10.7MC Type

Part Number	Corresponding IC
CDA10.7MC1-Z	CXA1019M/CX-20091
CDA10.7MC2-Z	A7687P/F
CDA10.7MC3	AN7220A
CDA10.7MC4A-Z	MC3356P
CDA10.7MC5A-Z	LA7770
CDA10.7MC6-Z	TEA5591
CDA10.7MC10-Z	TEA5594
CDA10.7MC19-Z	BA1440
CDA10.7MC30-Z	TEA5592
CDA10.7MC40-Z	TEA5710
CDA10.7MC43A-Z	LA1831
CDA10.7MC55-Z	TEA5712T/N2



# CERAMIC FILTERS

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## Chip Ceramic Discriminator CDACV10.7 Series

# Chip Ceramic Discriminator For Thinner FM Radios.

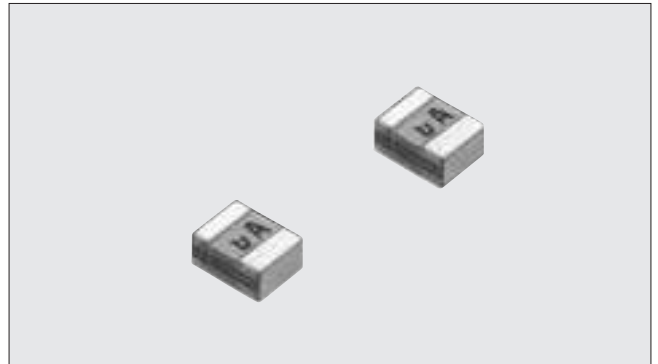
When using chip components in the design of FM radios, their arrangement and space allocation can create design difficulties. To help reduce these problems, Murata has developed this series of chip ceramic discriminators. The CDACV series has the same structure as the chip CERAFIL® SFECV series, and allow the design of FM detecting circuits requiring no adjustment. Also, these discriminators have good stable demodulation characteristics.

The mounting area of the discriminators have been decreased to approximately 80% of conventional models (CDAC). The series will especially contribute to downsizing, height reduction.

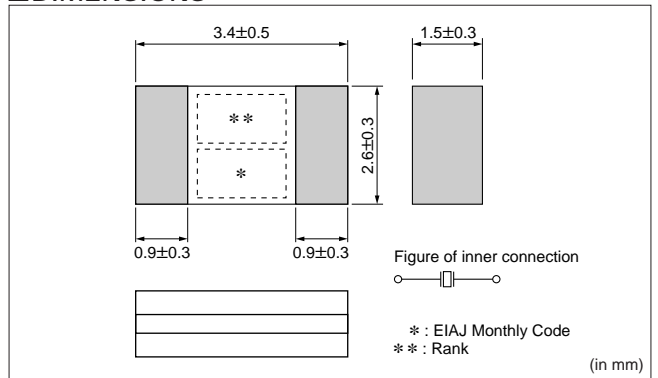
The CDACV10.7 series can be used as kits with the CERAFIL® SFECV10.7 series to facilitate design.

### ■ FEATURES

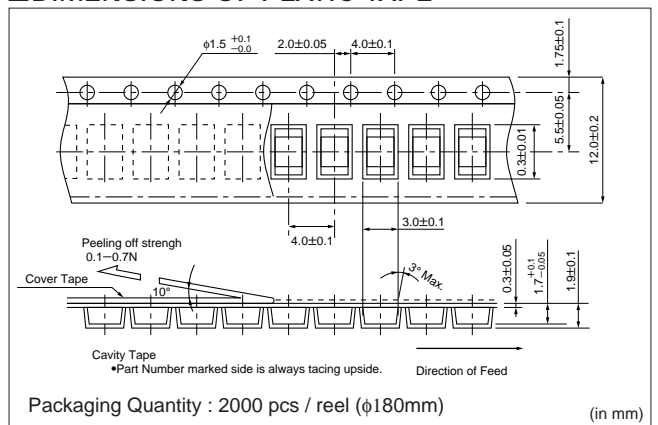
1. The discriminator is only 1.5mm thick so it is well suited for thin circuit boards.
2. This discriminator can be used with a variety of ICs including the following examples : CX-20029 (Sony)  
TA8122AF (Toshiba)  
TA2022 (Toshiba)  
CXA1538N (Sony)
3. It exhibits demodulation characteristics over a wide frequency range without the need for adjustment.
4. The series has excellent temperature characteristics and good aging stability.
5. The series has the same structure as the chip CERAFIL® SFECV10.7 series. It is suitable for automatic mounting and its excellent heat resistance allows reflow soldering.
6. This series(CDACV10.7)and the chip CERAFIL® SFECV10.7 series can be supplied with the equivalent center frequency as kits.



### ■ DIMENSIONS



### ■ DIMENSIONS OF PLATIC TAPE



■SPECIFICATIONS

Part Number	Demodulation Output (mV) at $f_0$	Distortion Factor (%) max. at $f_0$	Demodulation 3dB Band width (kHz) min.	Detection System	IC
CDACV10.7MG1S-Z	55 min.	1.0 (0.3)	$f_0 \pm 150$	Quadrature	CXA20029 CXA20111
CDACV10.7MG16S-Z	Within 60 to 90	0.9 (0.3)	300	Quadrature	TA8122F
CDACV10.7MG69S-Z	80 min	1.0 (0.3)	330	Quadrature	CXA1538N
CDACV10.7MC1S-Z	55 min.	1.0 (0.1)	$\pm 150$	Quadrature	CXA1031M CX-20091

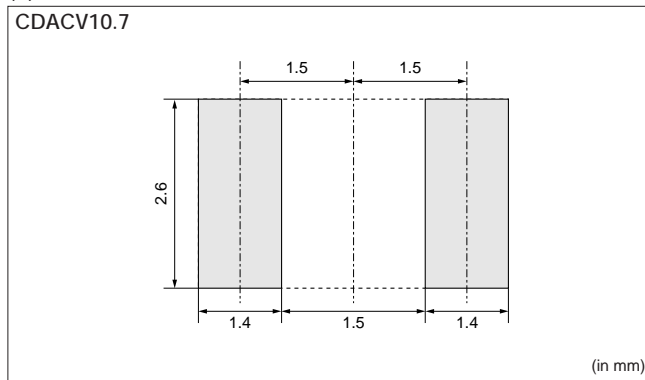
( )Typ.value

\*Input signal conditions

CDACV10.7MG1-Z	: Input Level	100dB $\mu$	Mod.Freq.1000Hz	Freq.Dev. $\pm 22.5$ kHz
CDACV10.7MG16-Z	: Input Level	80dB $\mu$	Mod.Freq.1000Hz	Freq.Dev. $\pm 22.5$ kHz
CDACV10.7MG69-Z	: Input Level	100dB $\mu$	Mod.Freq.1000Hz	Freq.Dev. $\pm 75$ kHz
CDACV10.7MC1S-Z	: Input Level	100dB $\mu$	Mod.Freq.1000Hz	Freq.Dev. $\pm 22.5$ kHz

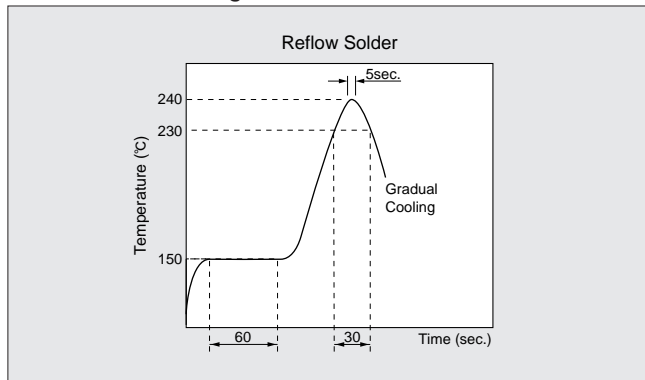
■APPLICATIONS

(1) Standard Land Dimensions



(2) Soldering Conditions

● Standard soldering conditions



● Soldering with iron

Soldering conditions : Soldering iron temperature 280°C  
Soldering time less than 3 seconds.

Note: Do not allow the tip of the soldering iron to directly contact the chip ceramic discriminator.

(3) Cleaning conditions

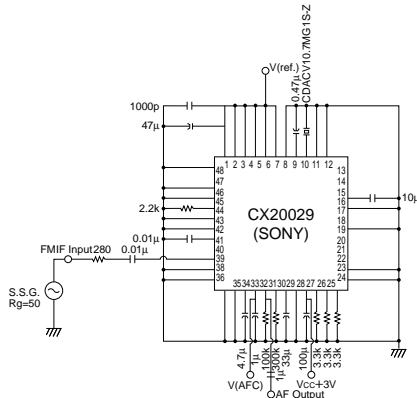
Please avoid cleaning this chip ceramic discriminator using the vapor or immersion methods because it is not perfectly shielded.

■NOTICE

1. Please avoid applying an excessive stress to the ceramic filter because it might be damaged.
2. Ceramic discriminators are designed to perform as intended in conjunction with specific ICs. Please contact us for the appropriate part number of the ceramic discriminator to be matched with the IC. It is also strongly recommended to evaluate the ceramic discriminator after mounting it on your products prior to series production.
3. These ceramic discriminator are designed to be used in the portable FM radio application. Please avoid using it for Car radio and other application which require high stability over a wide temperature range.

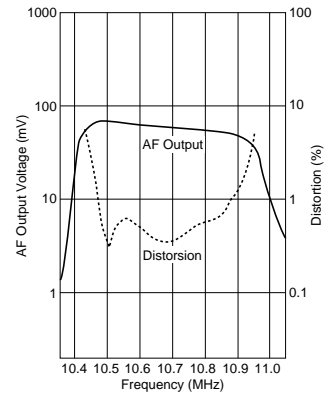
**FREQUENCY CHARACTERISTICS**

TEST CIRCUIT OF CDACV10.7MG1S-Z



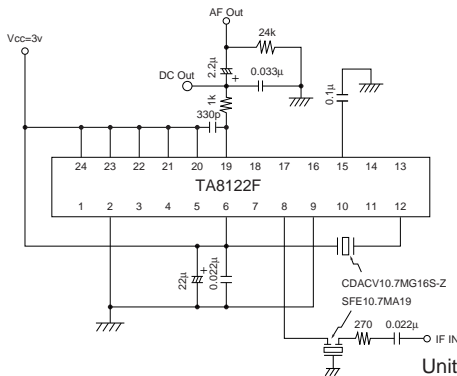
Unit R : Ω

CDACV10.7MG1S-A



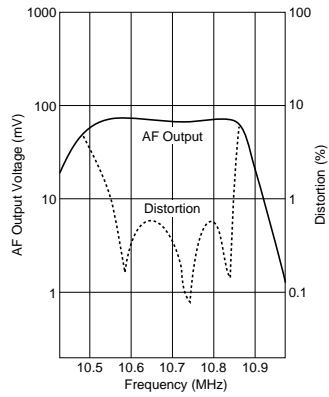
Input signal conditions  
 Input Level 100dBµ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±22.5kHz

TEST CIRCUIT OF CDACV10.7MG16S-Z



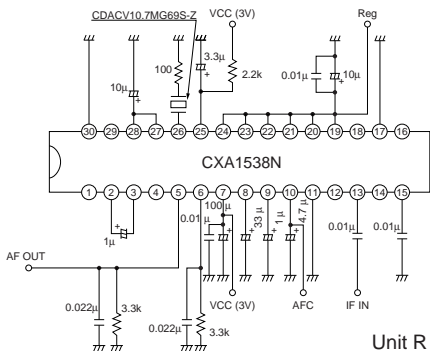
Unit R : Ω

CDACV10.7MG16S-A



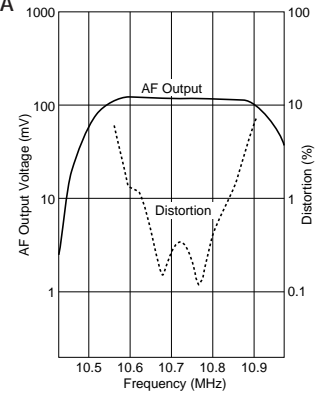
Input signal conditions  
 Input Level 80dBµ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±22.5kHz

TEST CIRCUIT OF CDACV10.7MG69S-Z



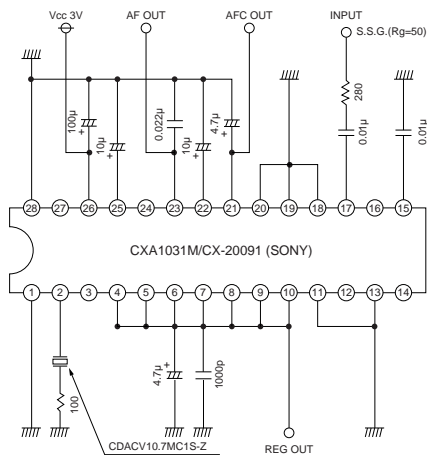
Unit R : Ω

CDACV10.7MG69S-A



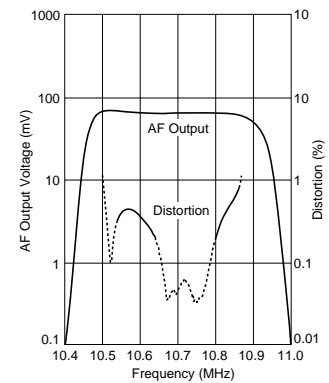
Input signal conditions  
 Input Level 100dBµ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±75kHz

TEST CIRCUIT OF CDACV10.7MC1S-Z



Unit R : Ω

CDACV10.7MC1S-A



Input signal conditions  
 Input Level 100dBµ  
 Mod.Freq. 1000Hz  
 Freq.Dev. ±22.5kHz



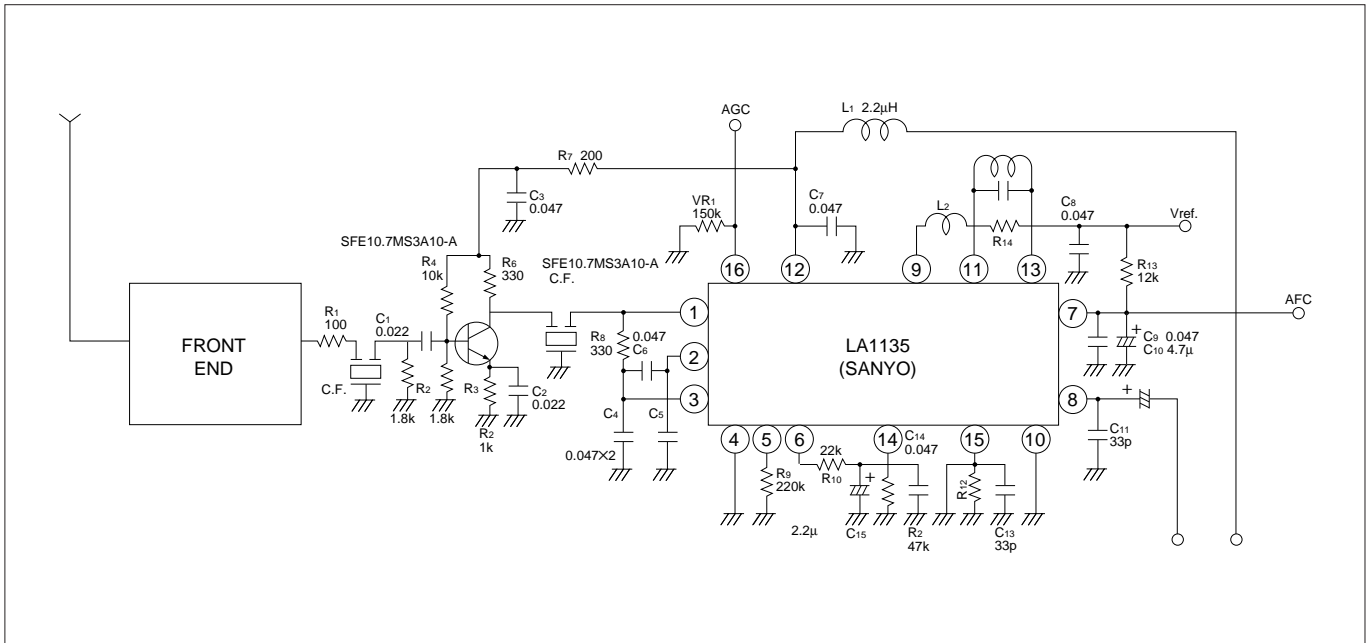
# CERAMIC FILTERS

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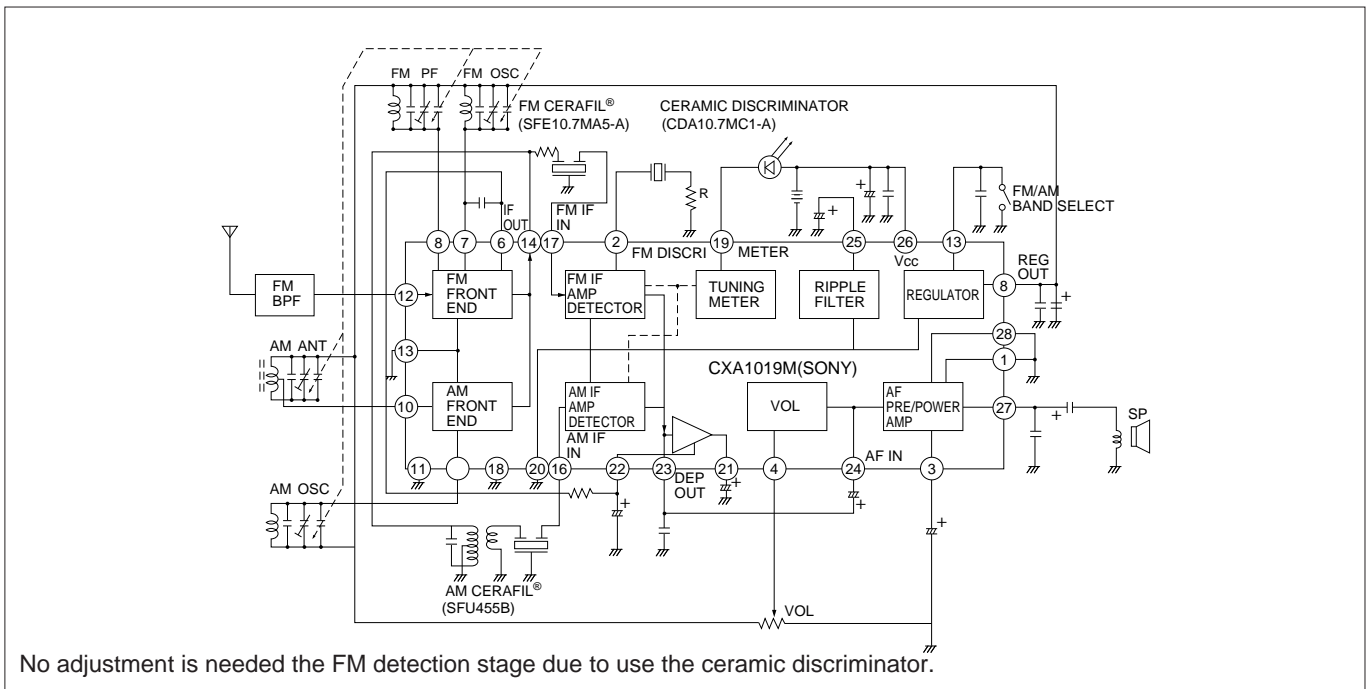


## EXAMPLE OF APPLIED CIRCUIT

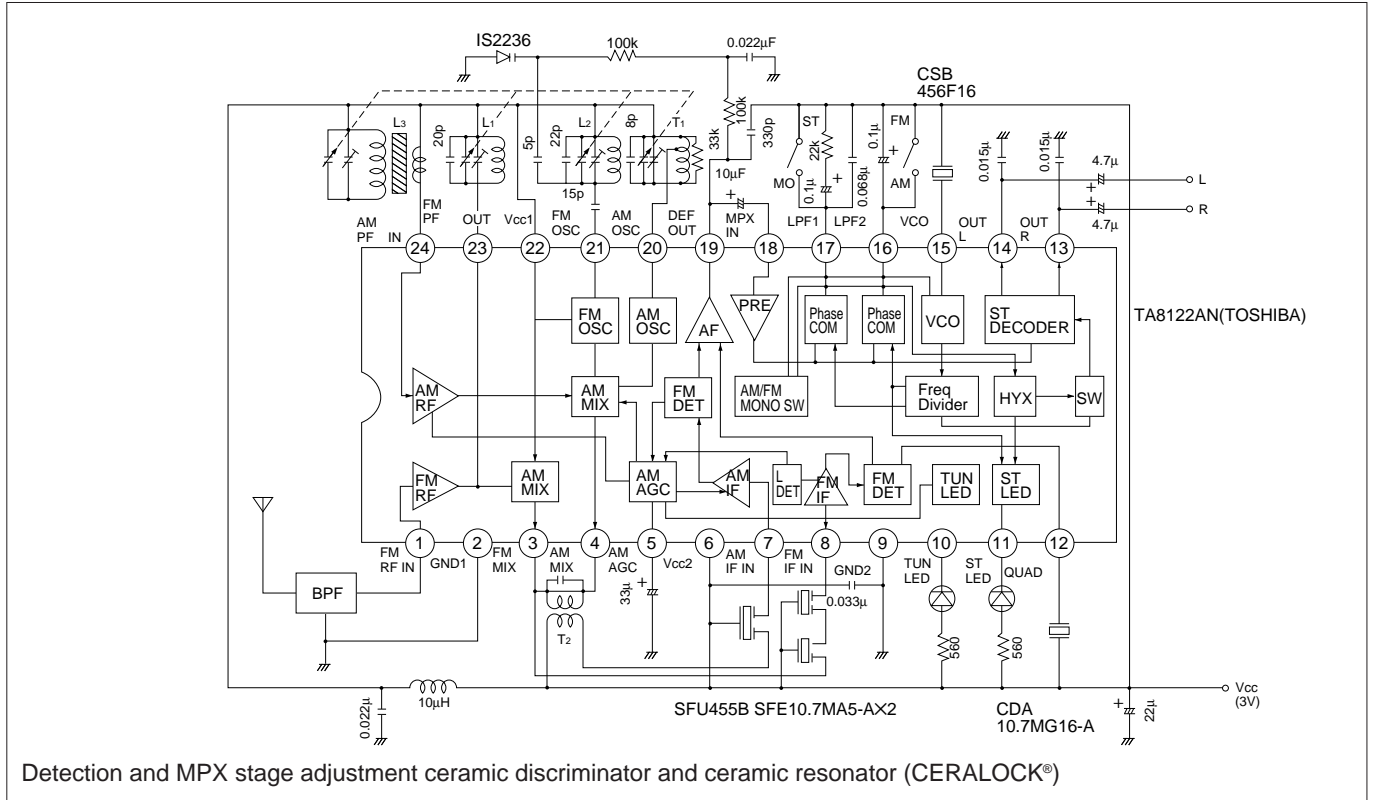
### Application for LA1140 (Car Radio)



### Application for CXA1019M (Radio)



Application for TA8122AN/AF (Radio)





**⚠ 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 January 2000. 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. The parts numbers and specifications listed in this catalog are for information only. 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.**