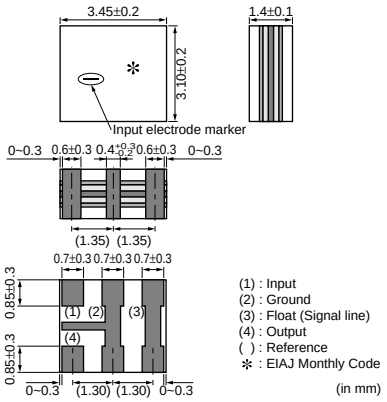
CERAFIL® MHz SMD Type SFECS10M8 Series

The SFECS10M8 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.



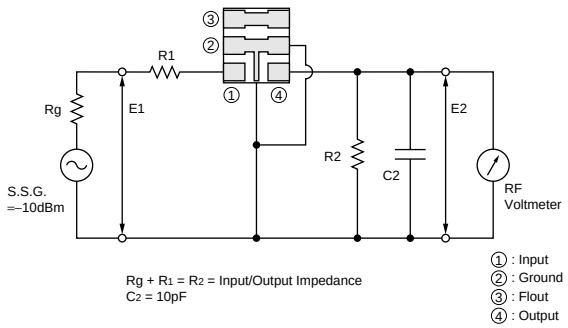
■ Features

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)

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)
SFECS10M8PF00-R0	10.800	fn±110 min.	fn±310 max. [within 20dB]	6.0 max. [at fn]	0.5 max. [within fn±100kHz]	-	1.5 max. [within fn±100kHz]	2.8 ±1.0µs [at fn]	330
SFECS10M8RF00-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 ±1.0µs [at fn]	330
SFECS10M8SF00-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

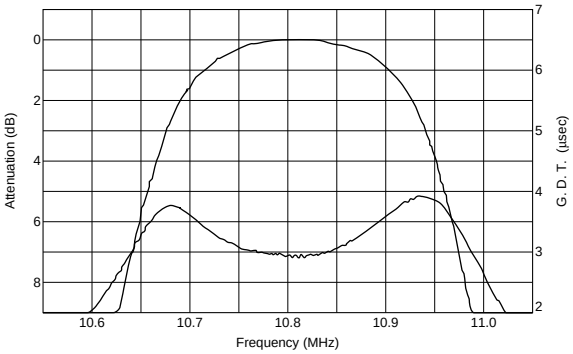
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

■ Test Circuit

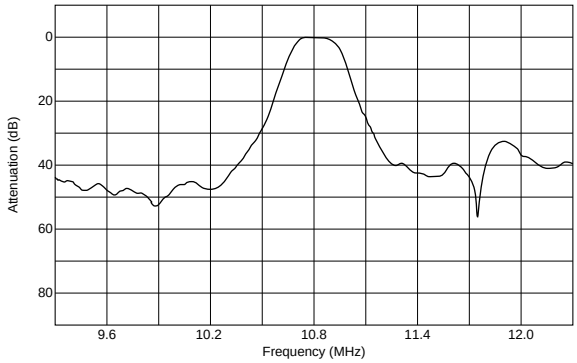


■ Frequency Characteristics

SFECS10M8PF00-R0



SFECS10M8PF00-R0



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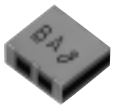
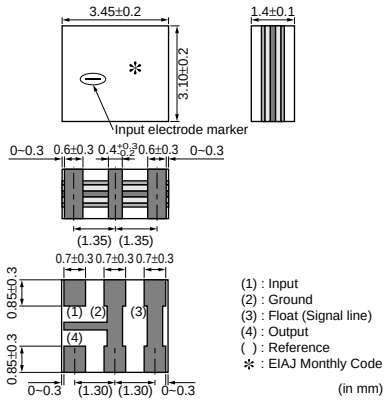
Ceramic Filters (CERAFIL®)/Ceramic Discriminators for Communications Equipment

CERAFIL® MHz SMD Type SFECS10M7 Series

The SFECS10M7 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 are recommended for digital communication applications and are perfect in pocket cordless phones, RKE (Remote Keyless Entry), TPMS (Tire Pressure Monitoring System) 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. Various bandwidths are available. Select a suitable type in accordance with the desires selectivity.
4. Operating temperature range : -10 to +50 (degree C)
   Storage temperature range : -40 to +85 (degree C)

Part Number	Center Frequency (fo) (MHz)	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (at minimum loss point) (dB)	Ripple (within 3dB B.W.) (dB)	Spurious Attenuation (dB)	Input/Output Impedance (ohm)
SFECS10M7HA00-R0	10.700 ±30kHz	-	180 ±40kHz	470 max.	4.5 ±2.0dB	1.0 max.	30 min.	330
SFECS10M7GA00-R0	10.700 ±30kHz	-	230 ±50kHz	510 max.	3.5 ±2.0dB	1.0 max.	30 min.	330
SFECS10M7FA00-R0	10.700 ±30kHz	-	280 ±50kHz	590 max.	3.0 ±2.0dB	1.0 max.	30 min.	330
SFECS10M7EA00-R0	10.700 ±30kHz	-	330 ±50kHz	700 max.	3.0 ±2.0dB	1.0 max.	30 min.	330
SFECS10M7DF0021-R0	-	10.700	fn ±200kHz min.	950 max.	3.0 ±2.0dB	3.0 max.	20 min.	330

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency (fo) defined by center of 3dB bandwidth.

■ Center Frequency Rank Code

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	

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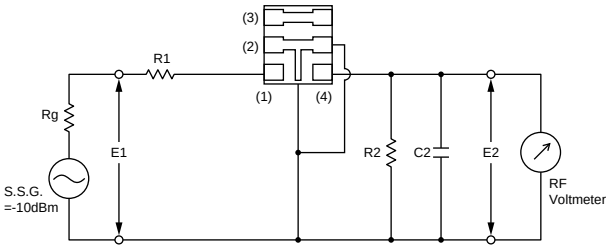
Continued from the preceding page.

■ Test Circuit

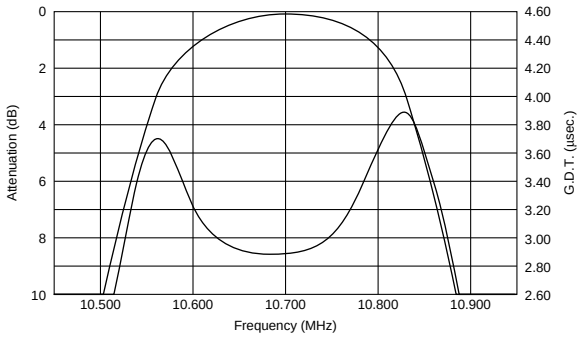


Rg=50Ω
R1=280Ω
R2=330Ω
C2=10pF
(Including stray capacitance
and Input capacitance of RF Voltmeter)

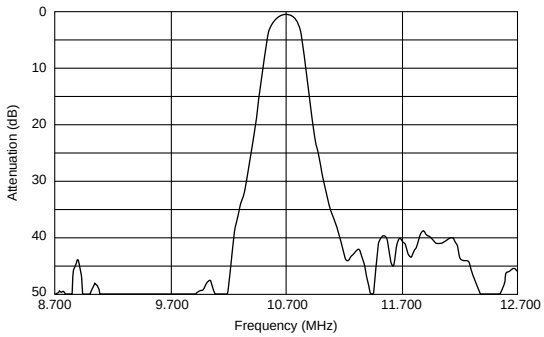
(1) : Input
(2) : Ground
(3) : Float
(4) : Output

■ Frequency Characteristics

SFECS10M7FA00-R0



SFECS10M7FA00-R0



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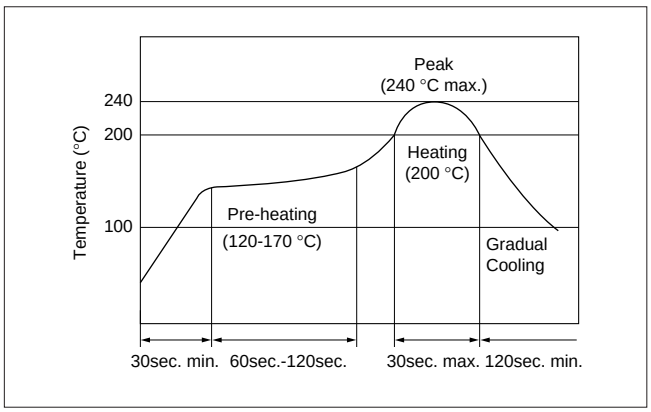
MHz SMD Type CERAFIL® Notice

■ 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^{+1}_{-0} hours.



(2) Soldering Iron

Filter is soldering at +280±5°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.

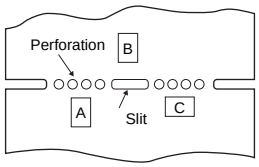
2. Wash

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 extremly 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.

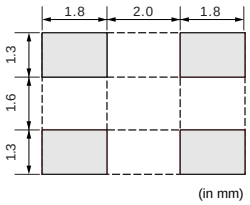
[Component layout close to board]



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

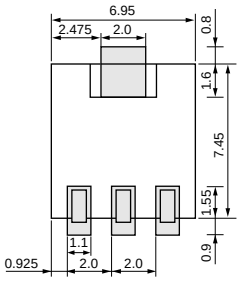
SMD Type CERAFIL® Standard Land Pattern Dimensions

■ CFXCD Series



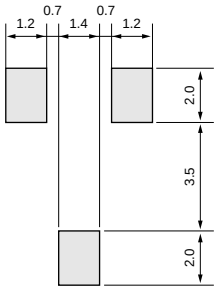
(in mm)

■ SFPCA Series



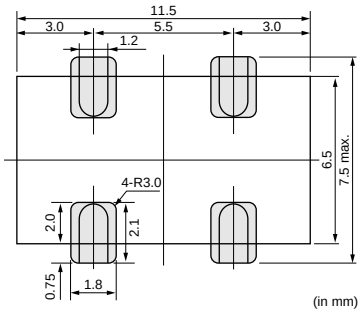
(in mm)

■ CFUCG/CFUCF Series



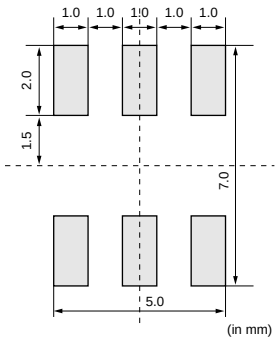
(in mm)

■ CFWCA Series



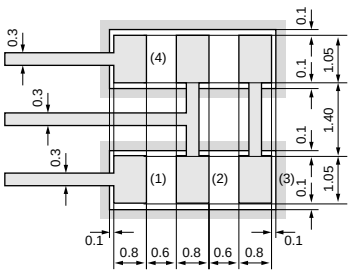
(in mm)

■ CFXCA Series



(in mm)

■ SFECS Series



It shoes solder resist land pattern.

(1) : Input
(2) : Ground
(3) : Float (Signal Line)
(4) : Output

(in mm)