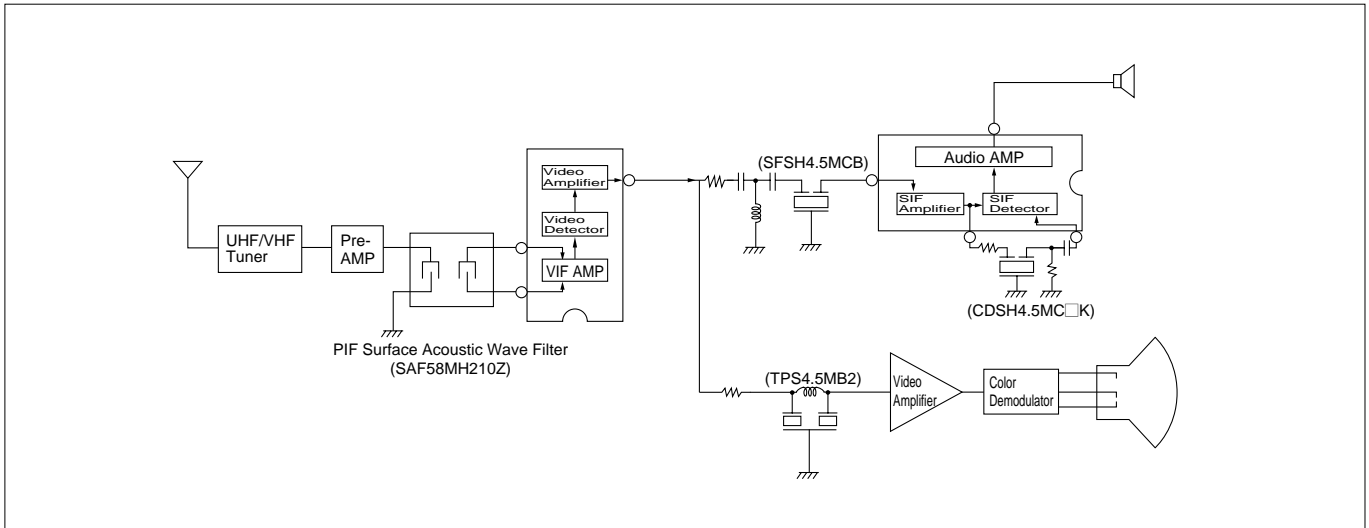


■INTRODUCTION

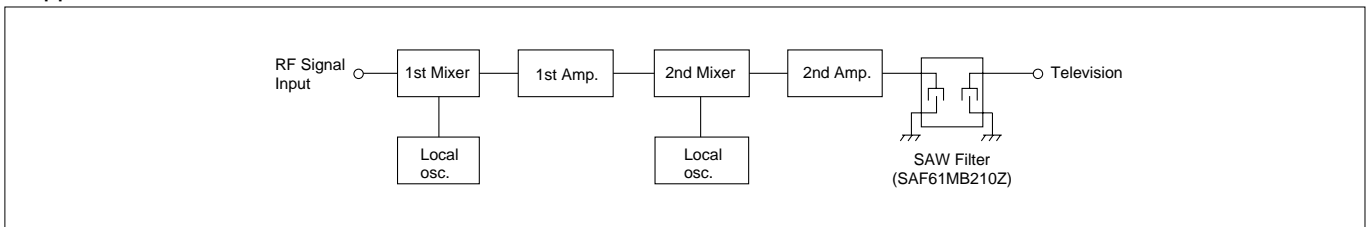
Murata has continued research on surface acoustic wave filters since 1970. In 1976 we offered for sale our first surface acoustic wave filter to be used in the IF of high-fidelity FM tuners. Then, we successfully developed and offered for sale the surface acoustic wave filter for the video IF of color television sets.

Now surface acoustic wave filters have been parts indispensable to electronic circuits of video equipments and telecommunication equipments such as TV/VCR. Murata has successfully put surface wave filters incorporating ZnO thin film into series. It is realized to be in resin molded small package (SIP), and stable temperature characteristics.

● Application for VIF/SIF circuit of TV/VCR.



● Application for CATV convertor.



■BASIC STRUCTURE

The basic configuration of a SAW filter is two IDTs (comb type electrode) on the piezoelectric substrate.

The first IDT connected to the signal source generates a surface acoustic wave, which propagates along a substrate surface to the second IDT, which transforms SAW energy into electrical voltage on a load connected to the IDT.

This is shown in the Fig.-1.

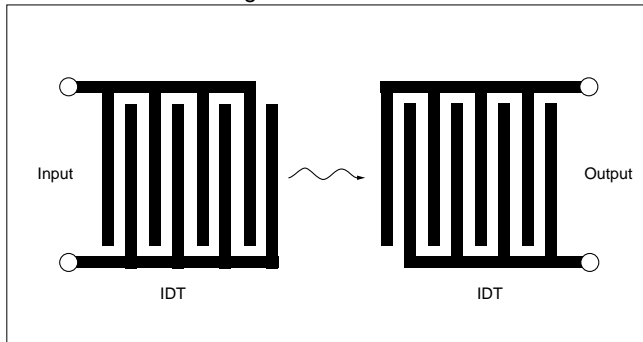


Fig.-1 Transversal filter

Frequency characteristics of the IDTs can be calculated by means of impulse model. In case of Normal IDT which has a constant pitch and a constant overlap, the IDT and the corresponding impulse is shown in Fig.-2 below.

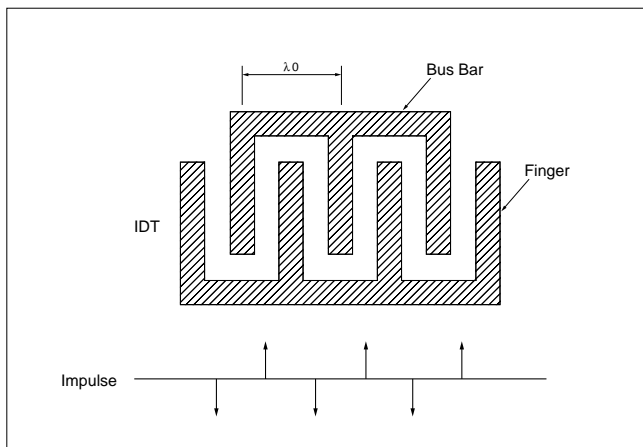


Fig.-2 IDT and the corresponding impulse

When a voltage is fed to the IDT, the direction of the voltage is the positive-negative-positive-negative at $\lambda_0/2$ interval. The voltage is then subjected to expansion and shrinkage of substrate by the piezoelectric effect. One impulse pair of adjacent positive and negative polarities is corresponding to one electrode pair.

When the wavelength of the surface acoustic waves generated by each impulse is equal to the electrode pitch λ_0 , we get maximum SAW energy.

When wave velocity is V , electrode pitch is λ_0 , number of electrode pair is N , then frequency characteristics of normal IDT can be calculated by the equations shown below.

$$A(f) = \frac{\sin N \pi X}{N \pi X} \left[X = \frac{f-f_0}{f_0}, f_0 = \frac{V}{\lambda_0} \right]$$

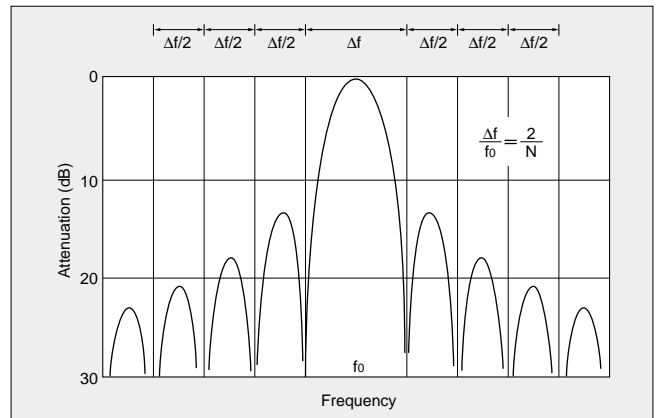


Fig.-3 Frequency characteristics of the normal IDT

■PART NUMBERING

(Please specify the part number when ordering)

(Ex.)

SAF	58M	H	7	0	Z
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① ② ③ ④ ⑤ ⑥

①Kind

SAF—SAW filter
 SAFW—Dual type SAW filter
 SAFCC—Chip SAW filter
 MKT—High frequency trap

②Nominal Center Frequency, f_p or f_s

③Type

④Package

⑤Individual Specification

⑥Element Substrate

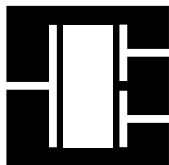
Z—ZnO

P—PZT

When Taping type, -TF □ is added

■NOTICE

- Do not apply DC voltage between the each terminal.
- Washing filter is not acceptable due to unsealed construction.
- Filter might be damaged when an excessive stress was applied.
- Matching condition should be evaluated well to perform stable electrical characteristics which are specified.
- We can not 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.



SURFACE ACOUSTIC WAVE FILTERS

MURATA

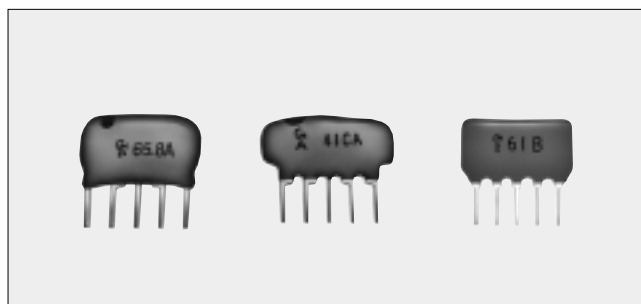
 Surface Acoustic Wave Filter for **CATV 70/200Z** Series

The Best SAW Filter Choice for CATV Miniaturizing and Adding Efficiency

For the first time in history of the electronic industry, mass production of SURFACE ACOUSTIC WAVE FILTERS incorporating zinc oxide (ZnO) thin film has begun. In addition, MURATA has begun commercial production of a wide variety of surface acoustic wave filters for CATV use.

FEATURES

1. Adjustment-free.
2. Associated parts can be reduced.
3. Vary stable phase char.



DIMENSIONS

(in mm)

A	B

*SAF41MCA70Z : 16.0mm max.

SPECIFICATIONS

• CATV CONVERTER

Part Number	Insertion Loss [dB]max.	Flatness [dB]max.	fp-6MHz Attenuation [dB]min.	fas Attenuation [dB]min.	fp Attenuation [dB]	fc Attenuation [dB]	fs Attenuation [dB]	fap Attenuation [dB]min.	Spurious Response [dB]min.	Temperature Coefficient [ppm/°C]	Frequency Char.	DIMENSIONS
SAF61MB210Z	20	2*1	35	8	0 (Reference Level)	1 max.	2 max.	35	26	-28±20	Fig.-1	B
SAF61MD210Z	22	2*2	30	8	2 max.*3	2 max.	2 max.	14	27	-28±20	Fig.-2	
SAF61MZ72Z	22	—	30	40	5.5±1.2	5.5±1.5	20±3	40	28	-28±20	Fig.-3	A

- Temperature range : -20°C to +80°C
- SAF61MZ72Z is for direct detection system.
- U.S. 2ch. and 4ch. are also available.

- *1. Flatness between 61.25 - 64.83 MHz
- *2. Flatness between 61.25 - 65.75 MHz
- *3. Reference level (0 dB) is the peak value.

Part Number	Insertion Loss [dB]max.	Flatness [dB]max.	fp Attenuation [dB]max.	fc Attenuation [dB]max.	fs Attenuation [dB]max.	fas Attenuation [dB]min.	fap Attenuation [dB]min.	Spurious Response [dB]min.	Temperature Coefficient [ppm/°C]	Frequency Char.	DIMENSIONS
SAF45MT210Z	23	2*4	2	2	2	8	14	27	-28±20	Fig.-4	B
SAF58MT210Z	22.5	2*4	2	2	2	8	14	27	-28±20	Fig.-5	

- Temperature range : -20°C to +80°C

- *4. Flatness between 41.25 - 45.75 MHz

• CATV DESCRAMBLER • IF FILTER SEPARATING THE SOUND SIGNALS

Part Number	Insertion Loss [dB]max.	fp Attenuation [dB]min.	fc Attenuation [dB]min.	Attenuation at fs-0.25MHz [dB]max.	Attenuation at fs+0.25MHz [dB]max.	fas Attenuation [dB]min.	fap Attenuation [dB]min.	Spurious Response [dB]min.	Temperature Coefficient [ppm/°C]	Frequency Char.	DIMENSIONS
SAF65.8MA200Z*5	18.5	—	—	3	3	—	—	20	-28±20	Fig.-6	B
SAF41MCA70Z*6	17	40	23	[fs-0.2MHz] 3.5	[fs+0.2MHz] 3.5	40	37	30	-28±20	Fig.-7	A

- Temperature range : -20°C to +80°C
- The level at sound carrier frequency (Fs) is to be reference (0 dB).

- *5. U.S.—2ch (59.8MHz) and 4ch (71.8MHz)
JPN—1ch (95.8MHz), 2ch (101.8MHz)are also available
- *6. JPN : (54MHz)are also available

■ FREQUENCY CHARACTERISTICS

● FOR CATV CONVERTER

● SAF61MB210Z

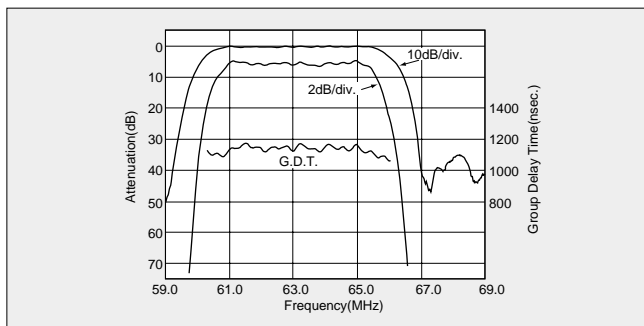


Fig.-1

● SAF61MD210Z

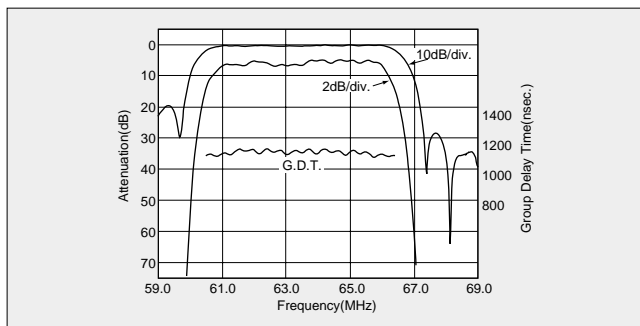


Fig.-2

● SAF61MZ72Z

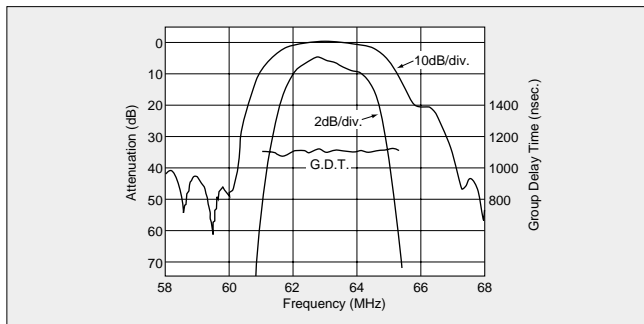


Fig.-3

● SAF45MT210Z

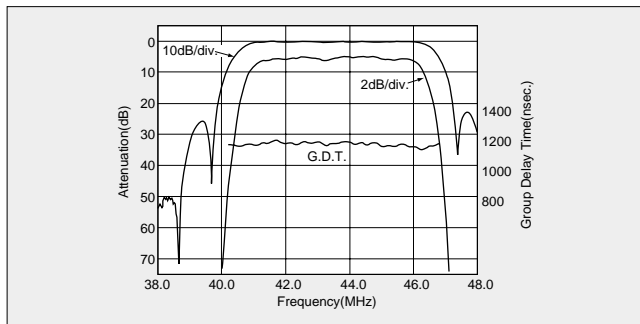


Fig.-4

● SAF58MT210Z

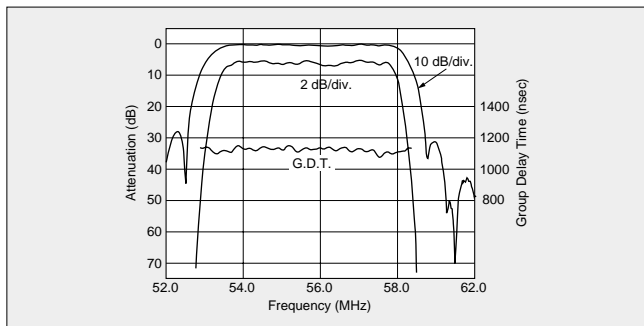


Fig.-5

● FOR CATV DESCRAMBLER • IF FILTER SEPARATING SOUND SIGNALS

● SAF65.8MA200Z

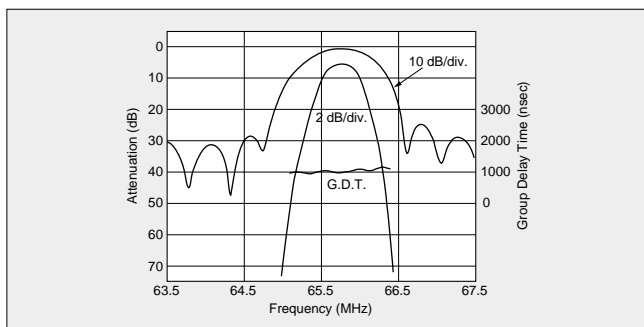


Fig.-6

● SAF41MCA70Z

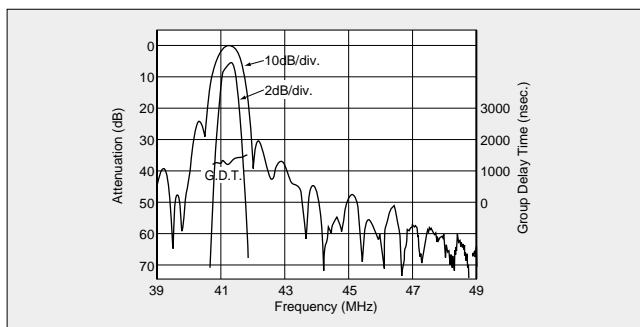


Fig.-7

■ STANDARD PACKAGING QUANTITY

300 pcs./Bag