

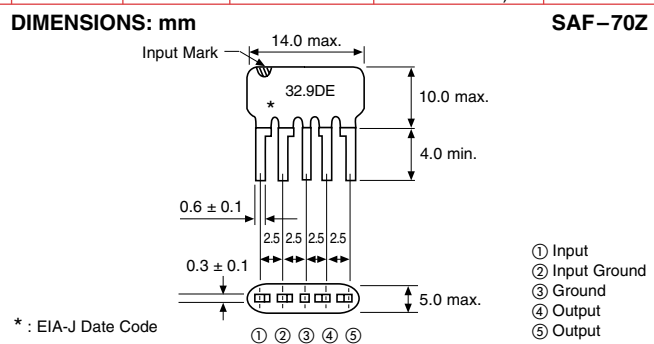
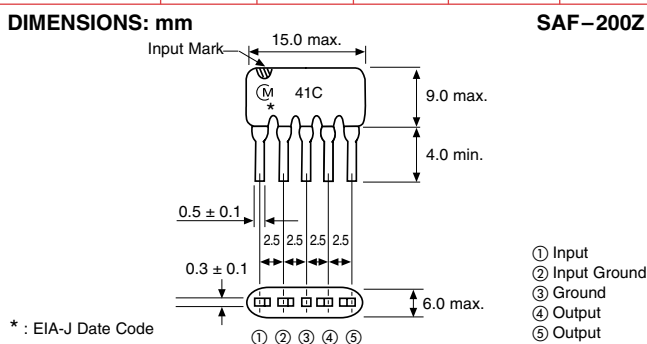
This series of saw filters is designed for TV/VCR applications. These filters are capable of passing 1) SIF and PIF, 2) SIF or 3) PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards worldwide.

SPECIFICATIONS

SAF MHz

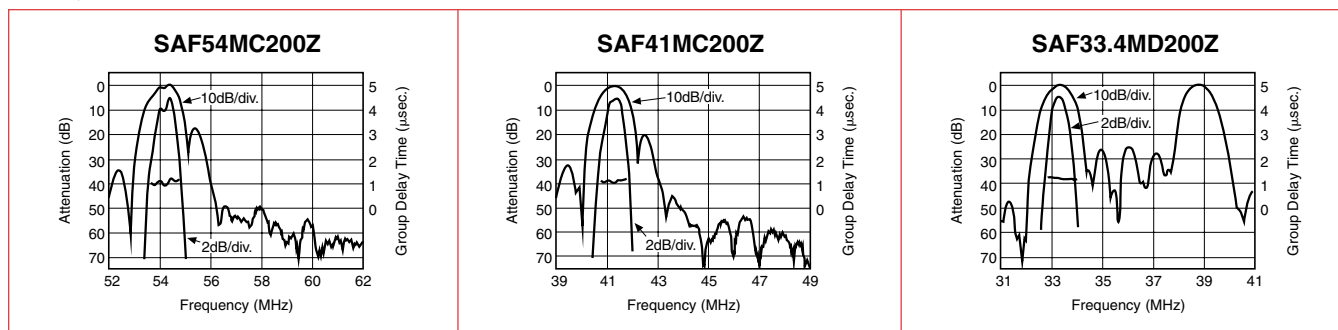
Part Number	Insertion Loss (dB) max.	Picture Carrier (dB) max.	Chroma Carrier (dB) min.	Attenuation (dB) max. at fs-0.3MHz	Attenuation (dB) max. at fs+0.3MHz	Adjacent Sound Carrier (dB) min.	Adjacent Picture Carrier (dB) min.	Spurious Response (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF54MC200Z	16(13)	40 min.	17	3	3	40	37	28 (0~52.75MHz)	30 (56.75~70MHz)	-28 ± 20
SAF41MC200Z	17(14)	40 min.	17	3	3	40	37	28 (0~39.75MHz)	30 (43.75~56MHz)	-28 ± 20
SAF39.2MC70Z	19(14)	40 min.	35	6	6	40	30	30 (28~31.2MHz)	30 (40.7~45MHz)	-10 ± 20
SAF33.4MC200Z	20(18)	40 min.	20	4	4	40	35	30 (0~31.9MHz)	30 (40.4~47MHz)	-10 ± 20
SAF54MD200Z	20(17)	within ±3	20	fs~0.2MHz 3	fs~0.2MHz 3	35	30	30 (0~70MHz)	15 <sup>1</sup> (55.5~57.5MHz)	-28 ± 20
SAF41MD200Z	17(14)	within ±3	20	fs~0.2MHz 3	fs~0.2MHz 3	35	35	30 (0~55MHz)	15 <sup>1</sup> (42.5~44.5MHz)	-28 ± 20
SAF33.4MD200Z	20.5(16)	within ±3	20	fs~0.2MHz 3	fs~0.2MHz 3	35	35	30 (0~50MHz)	15 <sup>1</sup> (34.67~37.7MHz)	-10 ± 20
SAF33.0MDA70Z	26(23)	5.0 ± 3.0	12	fs~0.2MHz 3	fs~0.2MHz 3	26	20	15 (0~39.5MHz)	8 <sup>1</sup> (34.67~37.7MHz)	-10 ± 20
SAF32.9MDE70Z	25(23)	4.3 ± 3.0	15	fs~0.2MHz 3	fs~0.2MHz 3	35	25	22 (0~31.5MHz)	10 <sup>1</sup> (35.27~38MHz)	-10 ± 20
SAF31.4MD70Z	28(26)	within ±3	15	fs~0.2MHz 3	fs~0.2MHz 3	35	35	30 <sup>1</sup> (0~45MHz)	15 <sup>1</sup> (32.645~35.675MHz)	-10 ± 20

PIEZO FILTERS



- SAF54MC200Z, SAF41MC200Z and SAF33.4MC200Z are for Split Carrier System.
- SAF54MD200Z, SAF41MD200Z, SAF33.4MD200Z and SAF31.4MD70Z are for Quasi-Parallel System.
- SAF33.0MDA70Z is for Multi-Sound TV in Northern Europe. ( ): Typ. values
- SAF32.9MDE70Z is for Multi-Sound TV in U.K.
- 1Minimum attenuation between picture carrier and sound carrier
- 0dB level should be at fs.

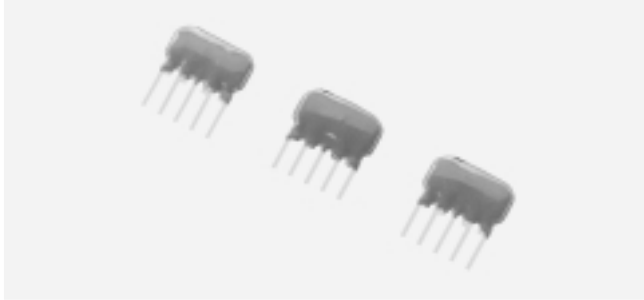
FREQUENCY CHARACTERISTICS



# PIEZO FILTERS

## SAW FILTERS FOR AUDIO VISUAL EQUIPMENT

### MULTI TV/VCR SIF



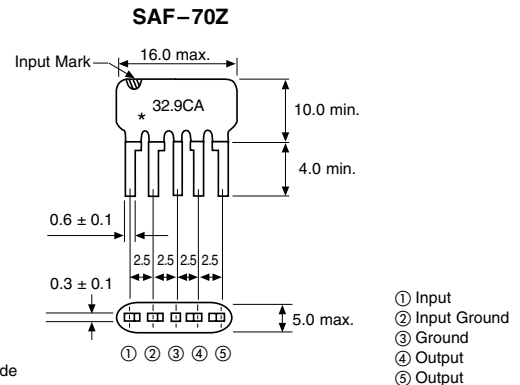
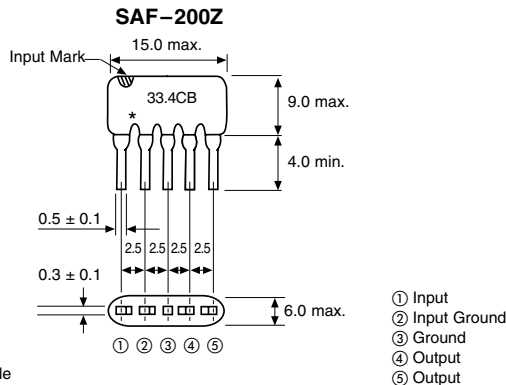
This series of saw filters is designed for TV/VCR applications. These filters are capable of passing 1) SIF and PIF, 2) SIF or 3) PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards worldwide.

### SPECIFICATIONS

### SAF

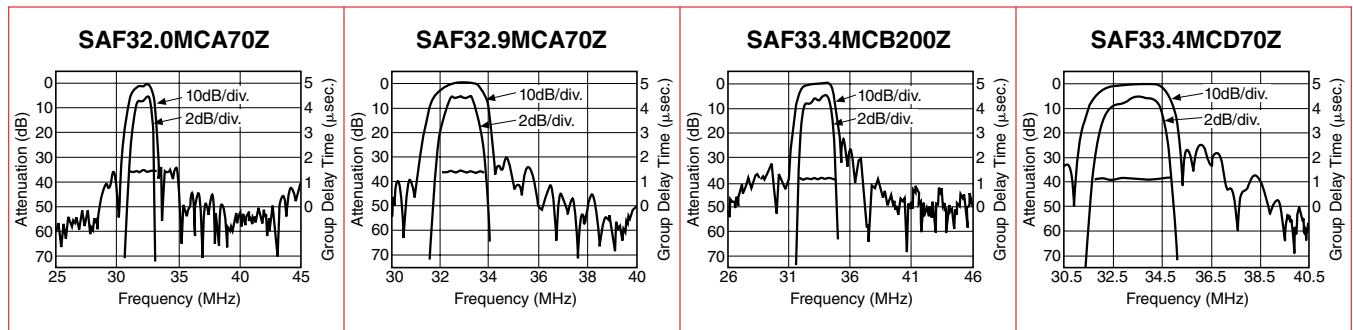
Part Number	Insertion Loss (dB) max.	Picture Carrier (dB) max.	Chroma Carrier (dB) min.	Attenuation (dB) max. at fs-0.3MHz	Sound 1 (fs1) Carrier (dB) max.	Sound 2 (fs2) Carrier (dB) max.	Attenuation (dB) max. at fs+0.3MHz	Adjacent Sound Carrier (dB) min.	Adjacent Picture Carrier (dB) min.	Spurious Response (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF32.0MCA70Z	26(23)	35(55)	25(35)	6	3	3	6	40(55)	35(50)	30 (0~30MHz)	22 (33.57~42MHz)	-10 ± 20
SAF32.9MCA70Z	25(22)	35(53)	25(34)	6	3	3	6	40(55)	35(43)	30 (0~30.9MHz)	22 (34.47~42MHz)	-10 ± 20
SAF33.4MCB200Z	29(26)	30(47)	14(30)	6	3	3	6	30(46)	35(50)	25 (0~30.9MHz)	25 (40.4~46.0MHz)	-10 ± 20
SAF33.4MCD70Z	29(26)	30(49)	20(37)	2 [32.348 MHz]	2	2.5	8	30(50)	28(42)	25 (0~30.9MHz)	30 (40.4~46.0MHz)	-10 ± 20

#### DIMENSIONS: mm



- Since the insertion loss of surface acoustic wave filters varies with the matching state, the values of insertion loss in the table are not always in conformity with insertion loss of the actual circuit. ( ): Typ. values
- fp–picture carrier, fc–chroma carrier, fs–sound carrier, fas–adjacent sound carrier, fap–adjacent picture carrier.

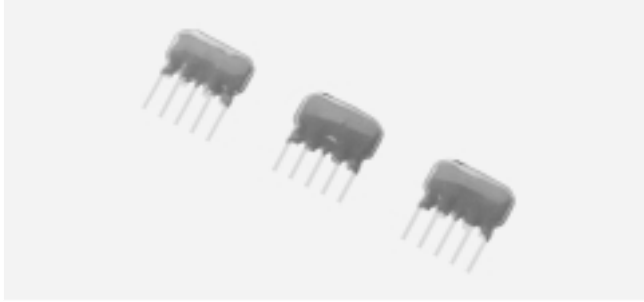
### FREQUENCY CHARACTERISTICS



# PIEZO FILTERS

## SAW FILTERS FOR AUDIO VISUAL EQUIPMENT

### MULTI TV/VCR/VIF



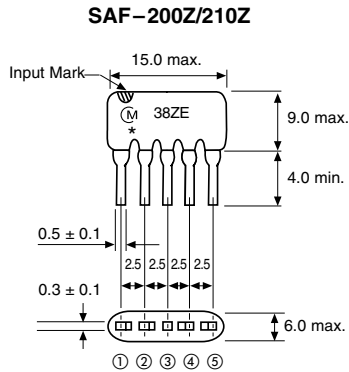
This series of saw filters is designed for TV/VCR applications. These filters are capable of passing 1) SIF and PIF, 2) SIF or 3) PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards worldwide.

### SPECIFICATIONS

### SAF

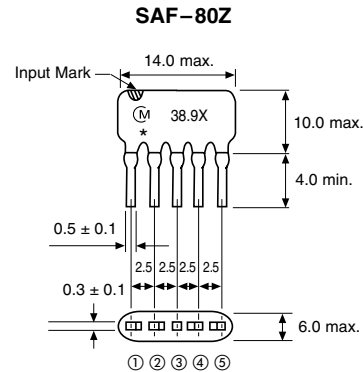
Part Number	Insertion Loss (dB) max.	Picture Carrier (dB)	Chroma Carrier (dB)	Sound 1 Carrier (dB)	Sound 2 Carrier (dB)	Sound 3 Carrier (dB)	Adjacent Sound Carrier (dB) min.	Adjacent Picture Carrier (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)	System
SAF38.0MZE210Z	27(22)	4.8 ± 1.2	3.8 ± 1.3	17.5 ± 3.0	—	17.0 ± 3.0	40(53)	40(53)	30(43)	-10 ± 20	D/K/B/G/I
SAF38.0MZJ80Z	29(26)	5.1 ± 1.2	4.1 ± 1.5	22.0 ± 3.0	—	19.5 ± 3.0	40(56)	40(55)	30(40)	-10 ± 20	D/K/B/G/I
SAF38.9MX200Z	26(23)	5.0 ± 1.2	3.4 ± 1.0	18.0 ± 3.0	15.0 ± 3.0	22.0 ± 4.0	40(48)	35(41)	30(38)	-10 ± 20	B/G/I/D/K
SAF38.9MZA80Z	25(22)	4.5 ± 1.3	4.5 ± 1.3	16.5 ± 3.0	15.0 ± 3.0	20.0 ± 3.0	45(53)	40(58)	30(46)	-10 ± 20	B/G/I/D/K
SAF38.9MZC200Z	25.5(22)	3.7 ± 1.3	4.3 ± 1.3	15.5 ± 3.0	—	16.5 ± 3.0	40(50)	40(47)	30(36)	-10 ± 20	B/G/I/D/K

#### DIMENSIONS: mm



- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

\* : EIA-J Date Code



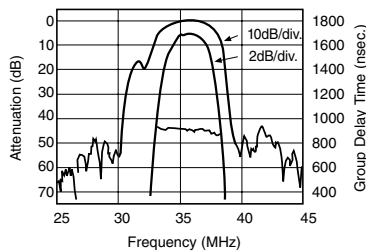
- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

\* : EIA-J Date Code

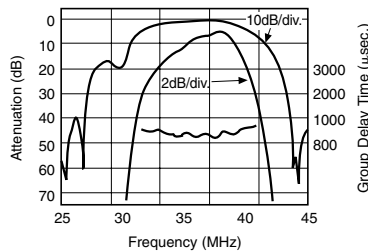
( ) : Typ. values

### FREQUENCY CHARACTERISTICS

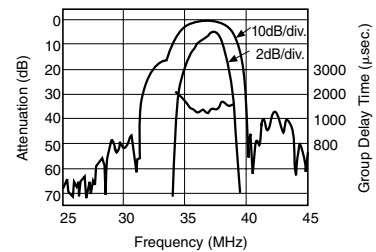
SAF38.0MZE210Z



SAF38.9MX200Z

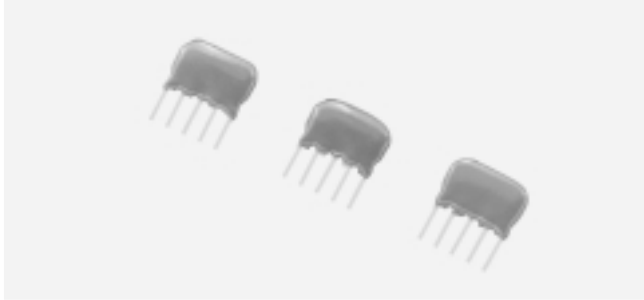


SAF38.9MZA80Z



# PIEZO FILTERS SAW FILTERS FOR AUDIO VISUAL EQUIPMENT

## SAF Series



This series of saw filters is designed for TV/VCR applications. These filters are capable of passing 1) SIF and PIF, 2) SIF or 3) PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards worldwide.

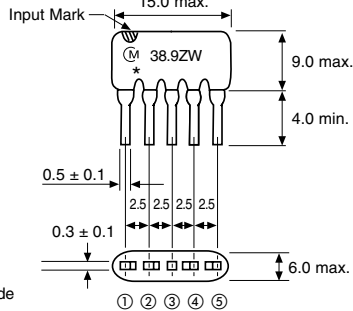
### SPECIFICATIONS

### SAF

Part Number	Insertion Loss (dB) max.	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB) min.	Attenuation at fap +1.0MHz (dB) min.	Attenuation at fap -0.5MHz (dB) min.	Adjacent Picture Carrier (dB) min.	Attenuation at fap -0.5 MHz (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF38.9MZ215Z	24.0(19)	5.0 ± 1.2	5.8 ± 1.5	19.0 ± 2	44(56)	42(52)	—	45(50)	—	36	-10 ± 20
SAF38.9MZR80Z	24.0(22)	4.5 ± 1.2	4.5 ± 1.5	22.0 ± 3	40(48)	38(48)	35(45)	40(48)	37(50)	30	-10 ± 20
SAF38.9MZW210Z	22.5(20)	4.5 ± 1.2	3.1 ± 1.0	17.5 ± 3	43(54)	38(52)	38(42)	36(42)	38(42)	33	-10 ± 20

#### DIMENSIONS: mm

#### SAF-210Z/215Z

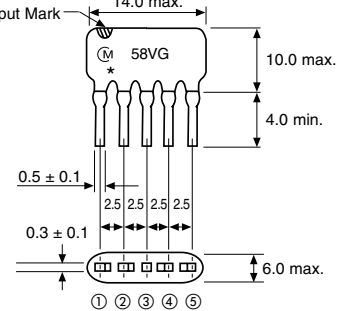


- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

\* : EIA-J Date Code

#### DIMENSIONS: mm

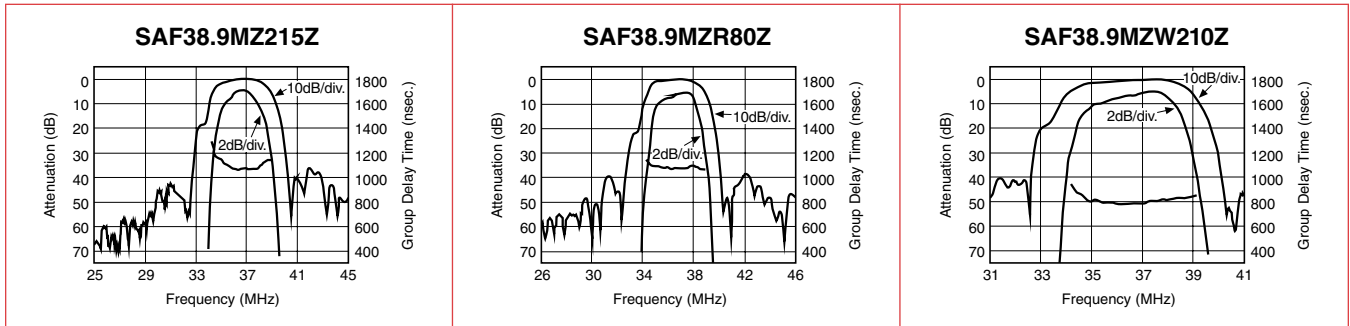
#### SAF-80Z



- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

\* : EIA-J Date Code

### FREQUENCY CHARACTERISTICS



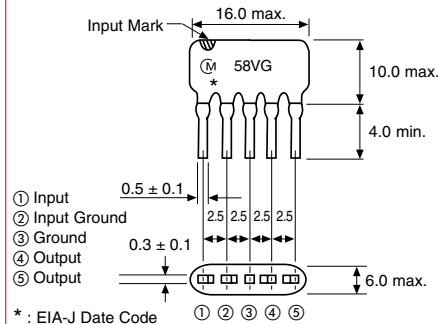
### SPECIFICATIONS

### SAF

Part Number	Insertion Loss (dB) max.	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Attenuation at fap -4.0MHz (dB) max.	Adjacent Sound Carrier (dB) min.	Adjacent Picture Carrier (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF58MVG80Z	23(20)	4.8 ± 1.2	1.0	20	5.0(2.0)	40(53)	40(58)	30	-28 ± 20
SAF45MVE80Z	23(20)	5.0 ± 1.2	1.2	20	5.5(2.7)	40(48)	40(53)	28	-28 ± 20

#### DIMENSIONS: mm

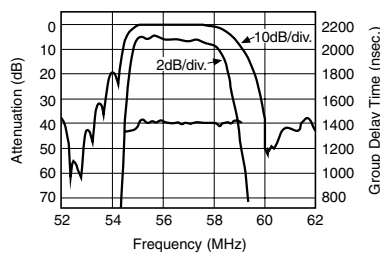
#### FREQUENCY CHARACTERISTICS



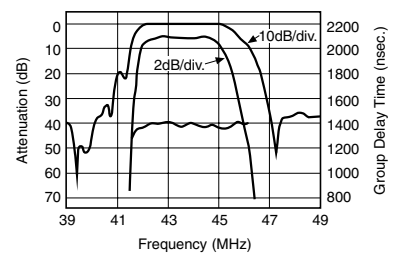
- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

\* : EIA-J Date Code

#### SAF58MVG80Z



#### SAF45MVE80Z



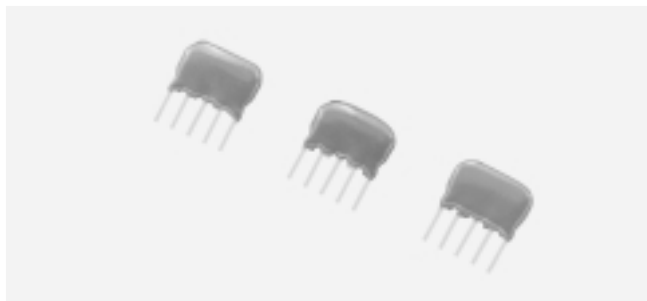
# PIEZO FILTERS

## SAW FILTERS FOR AUDIO VISUAL EQUIPMENT

### COLOR TV VIF/VCR



## SAF Series



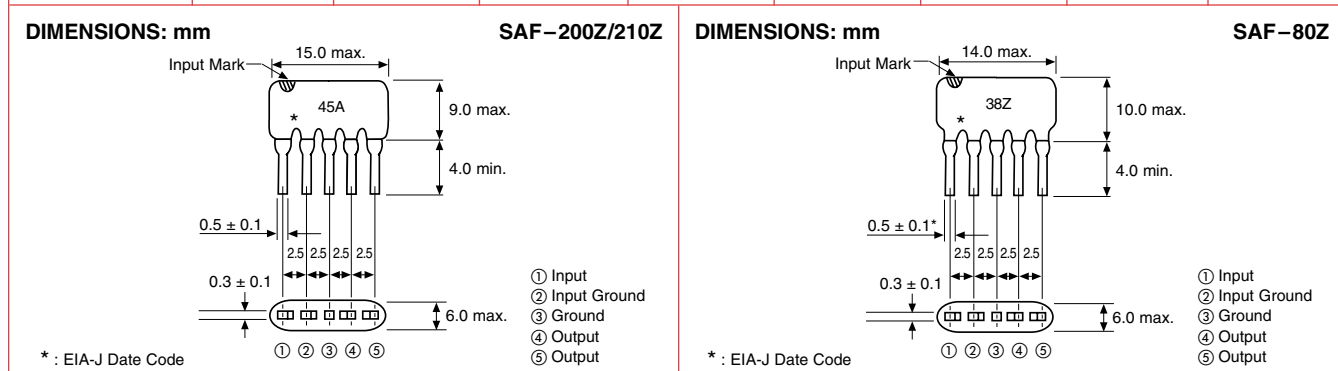
This series of saw filters are designed for TV/VCR applications. These filters are capable of passing SIF, PIF, SIF or PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards world wide.

### SPECIFICATIONS

### SAF

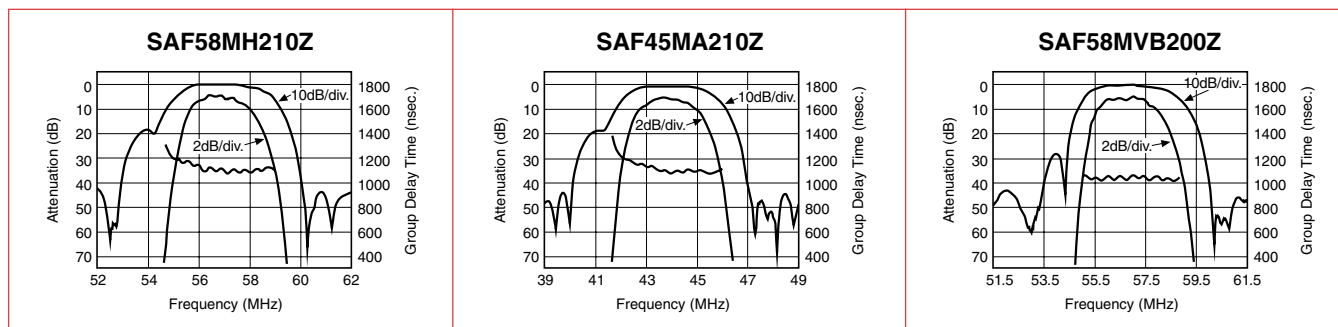
Part Number	Insertion Loss (dB) max.	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB) min.	Adjacent Picture Carrier (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF58MH210Z	21(17)	4.2 ± 1.2	4.2 ± 1.5	20 ± 3	40(57)	40(53)	30	-28 ± 20
SAF45MA210Z	21(18)	4.0 ± 1.2	4.5 ± 1.5	18 ± 3	40(54)	40(47)	30	-28 ± 20
SAF39.5MZ210Z	25(22)	5.0 ± 1.2	4.5 ± 1.5	20 ± 3	40(52)	40(55)	30	-10 ± 20
SAF38.9MZ210Z	24(19)	5.0 ± 1.2	5.8 ± 1.5	20 ± 3	40(55)	40(47)	30	-10 ± 20
SAF38.0MZ210Z	27(25)	6.0 ± 1.5	6.6 ± 1.5	25 ± 3	40(48)	40(55)	30	-10 ± 20
SAF36.9MZ80Z	25(21)	5.0 ± 1.2	5.0 ± 1.5	20 ± 3	40(50)	40(53)	30	-10 ± 20
SAF32.7MZ80Z	25(22)	6.5 ± 1.5	1.0 ± 1.0	38 min.	40(48)	35(48)	30	-10 ± 20
SAF58MVB200Z	20(15)	4.5 ± 1.2	4.5 ± 1.5	25 min.	40(55)	40(57)	30	-28 ± 20
SAF45MVG200Z	21(19)	4.5 ± 1.2	4.5 ± 1.5	25 min.	40(55)	40(47)	29	-28 ± 20
SAF38.9MVB200Z	24(21)	4.5 ± 1.2	4.8 ± 1.5	25 min.	40(48)	40(55)	30	-10 ± 20

PIEZO FILTERS

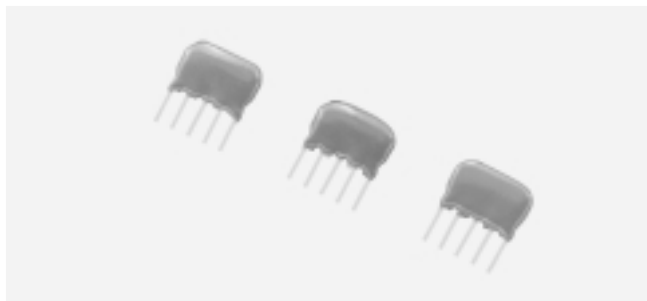


- SAF58MVB200Z, SAF45MVG200Z and SAF38.9MVB200Z are for picture IF filters in quasi-parallel or split carrier systems. ( ): Typ. values
- Low-profile type 6.0mm (60Z) is also available.

### FREQUENCY CHARACTERISTICS



# PIEZO FILTERS SAW FILTERS FOR SET TOP BOX (CATV)



This series of saw filters is designed for TV/VCR applications. These filters are capable of passing 1) SIF and PIF, 2) SIF or 3) PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards worldwide.

### SPECIFICATIONS

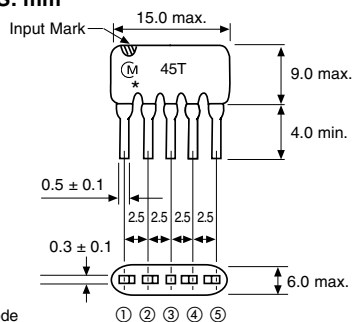
### SAF

Part Number	Insertion Loss (dB) max.	Flatness (dB) max.	Lower ch. Picture Carrier (dB) min.	Lower ch. Sound Carrier (dB) min.	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Upper ch. Picture Carrier (dB) min.	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF45MT210Z	23	2 <sup>10</sup>	14	—	2 max.	2 max.	2 max.	30	27	-28 ± 20
SAF55MB70Z	21	2	35	8	0	0 ± 1	2 max.	35	26	-28 ± 20
SAF58MT71Z	22	2	14	8	2	2	2	30	27	-28 ± 20
SAF61MB210Z	20	1 <sup>2</sup>	35	8	0	0 ± 1	2 max.	35	26 <sup>6</sup>	-28 ± 20
SAF61MD210Z	23	2 <sup>3</sup>	30 <sup>4</sup>	8 <sup>4</sup>	2 max. <sup>4</sup>	2 max.	2 max.	14 <sup>4</sup>	27	-28 ± 20
SAF61MZ72Z	22	—	30 <sup>4</sup>	40 <sup>4</sup>	5.5 ± 1.2 <sup>4</sup>	5.0 ± 1.5 <sup>4</sup>	20 ± 3 <sup>4</sup>	40 <sup>4</sup>	28	-28 ± 20
SAF67MB70Z	20	2	35	8	0	0 ± 1	2 max.	35	26	-28 ± 20

**Note:** SAF55MB70Z is full channel pass filter for channel 2. SAF61MB70Z is full channel pass filter for channel 3. SAF67MB70Z is full channel pass filter for channel 4. For channel 2 SAF59.8MA72Z, channel 3 SAF65.8MA72Z and channel 4 SAF71.8MA72Z is the Sound Intermediate Frequency (SIF).

• SAF61MD70Z is a wide-band type. SAF61MZ72Z is for direct detection systems. \* Reference Point. <sup>2</sup>61.25 – 64.83MHz. <sup>3</sup>61.25 – 65.75MHz. <sup>4</sup>Reference level (0dB) is the peak value. <sup>5</sup>50–55.25MHz 67.25–78MHz <sup>6</sup>0–55.25MHz 67.25–80MHz <sup>7</sup>0–55.25MHz 68.25–80MHz <sup>8</sup>30: 0–59.75MHz 28: 67.25–80MHz <sup>10</sup>41.25–45.75MHz

#### DIMENSIONS: mm

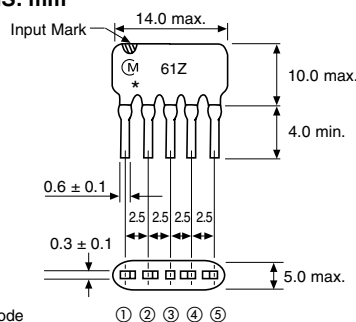


\* : EIA-J Date Code

#### SAF-210Z

- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

#### DIMENSIONS: mm

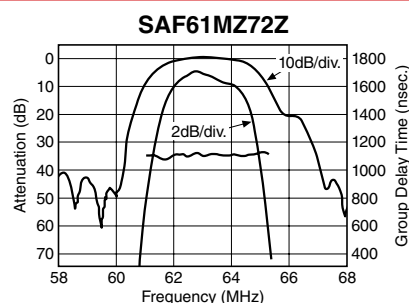
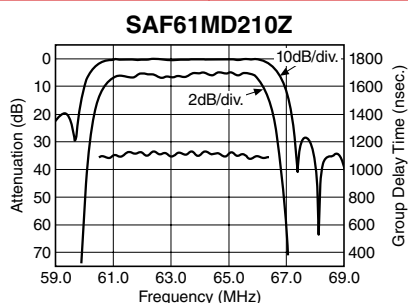
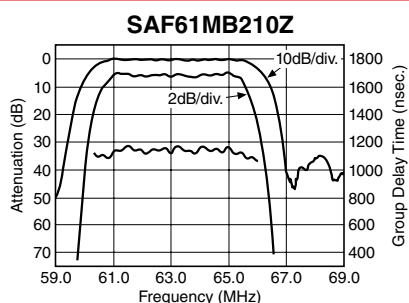
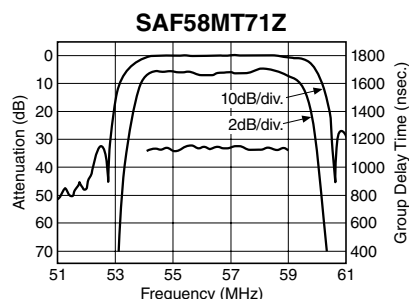
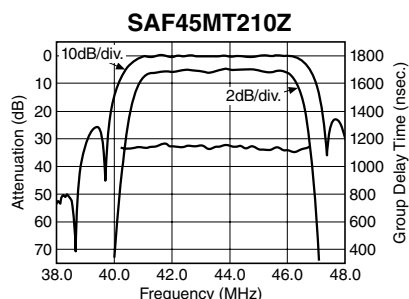


\* : EIA-J Date Code

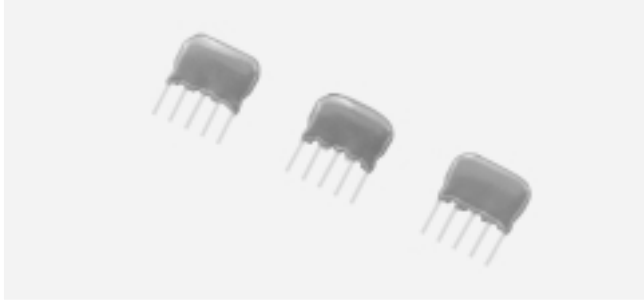
#### SAF-70Z

- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

### FREQUENCY CHARACTERISTICS



# PIEZO FILTERS SAW FILTERS FOR SET TOP BOX (CATV)



This series of saw filters is designed for TV/VCR applications. These filters are capable of passing 1) SIF and PIF, 2) SIF or 3) PIF. Saw filters are made up of zinc oxide on a glass substrate. Murata provides saw filters for a variety of television standards worldwide.

### SPECIFICATIONS

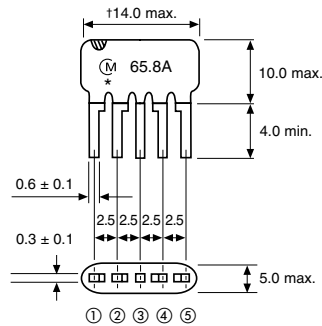
### SAF

Part Number	Insertion Loss (dB max.)	Picture Carrier (dB)	Attenuation (dB) at $f_s - 0.25\text{MHz}$	Attenuation (dB) at $f_s + 0.25\text{MHz}$	Upper ch. Picture Carrier (dB)	Spurious Response (dB) min.	Temperature Coefficient (ppm/°C)
SAF65.8MA72Z	18	—	3	3	—	20*	$-28 \pm 20$
SAF41MCA70Z	17	(40)	( $f_s - 0.2\text{MHz}$ ) 3.5	( $f_s + 0.2\text{MHz}$ ) 3.5	(37)	30	$-28 \pm 20$

\* The level at sound carrier frequency ( $f_s$ ) is to be the reference (0dB).

\*0-64.7 MHz, 66.8-100MHz.

#### DIMENSIONS: mm

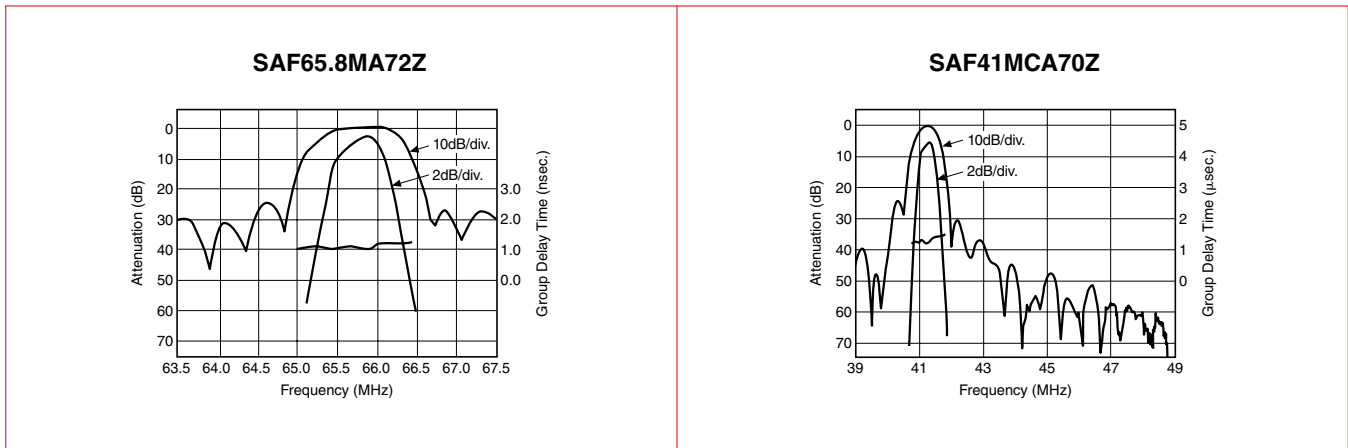


- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

\* : EIA-J Date Code

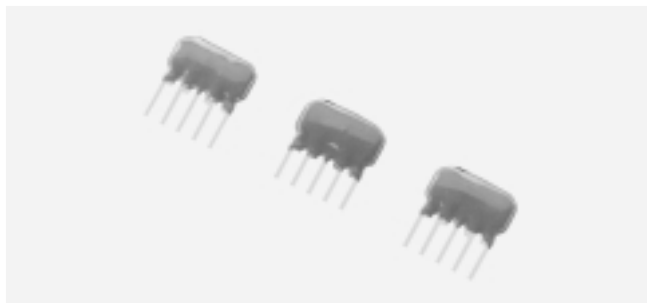
†SAF41MCA70Z = 16.0 max.

### FREQUENCY CHARACTERISTICS



# PIEZO FILTERS

## SAW FILTERS FOR CABLE MODEM DTV/DIGITAL CATV



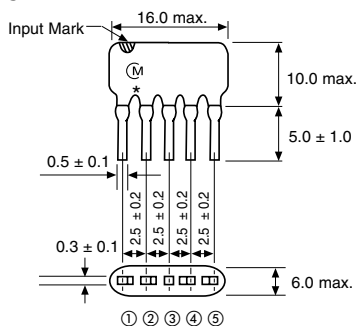
To meet the needs of the newest emerging technologies, Murata now offers a line of SAW filters designed for Digital Television, Digital Cable Television, and Cable Modem applications.

### SPECIFICATIONS

### SAF MHz

Part Number		SAF44MTC80ZL	SAF44.00MTD220ZL	SAF44.00MTE220ZL
Insertion Loss (at 44.00 MHz)		22.0dB	20.5dB	21.0dB
Amplitude Response dB	39.75MHz	35.0 min.	—	—
	40.00MHz	—	32.0 min.	32.0 min.
	40.50MHz	—	10.0 min.	7.0 min.
	41.00MHz	—	3.5 ± 1.5	1.5 ± 1.5
	41.31MHz	0.7 ± 1.3	—	—
	41.47MHz	—	0.0 ± 1.2	0.0 ± 1.2
	46.53MHz	—	0.0 ± 1.2	0.0 ± 1.2
	46.69MHz	1.5 ± 1.5	—	—
	47.00MHz	—	3.5 ± 1.5	2.0 ± 1.5
	47.25MHz	25.0 min.	—	—
47.50MHz	—	10.0 min.	8.0 min.	
48.00MHz	—	34.0 min.	30.0 min.	
Amplitude Ripple		1.0dB p-p (41.62 to 46.38MHz)	1.0dB p-p (41.00 to 47.00MHz)	1.0dB p-p (41.00 to 47.00MHz)
GDT Ripple		60 nsec. max. (41.62 to 46.38MHz)	60 nsec. p-p max. (41.00 to 47.00MHz)	60 nsec. p-p max. (41.00 to 47.00MHz)
Spurious Response (dB min.) (Reference Level at 44.00MHz)		30.00 (0.00 to 40.00MHz) 30.00 (48.00 to 55.00MHz)	30.0 (35.00 to 40.00MHz) 28.0 (48.00 to 55.00MHz)	28.00 (0.00 to 40.00MHz) 25.00 (48.00 to 55.00MHz)

#### DIMENSIONS: mm

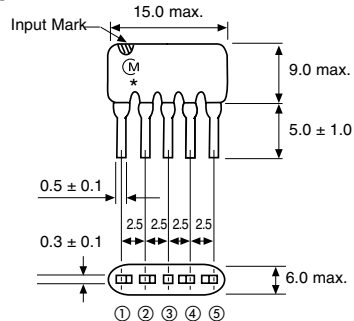


\* : EIA-J Date Code

#### SAF-80Z

- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

#### DIMENSIONS: mm

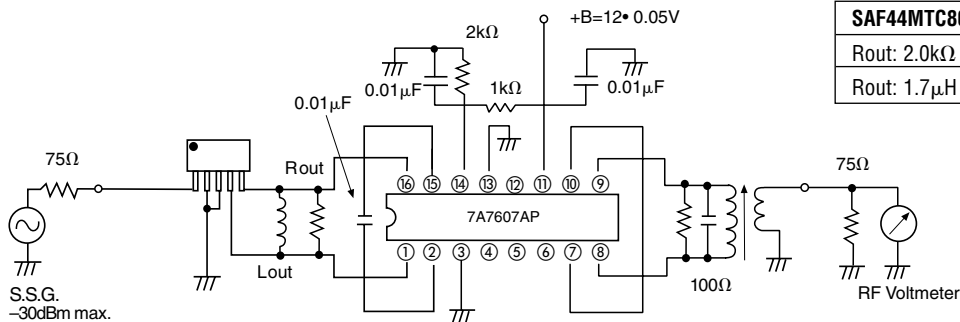


\* : EIA-J Date Code

#### SAF-220Z

- ① Input
- ② Input Ground
- ③ Ground
- ④ Output
- ⑤ Output

### TEST CIRCUIT



SAF44MTC80ZL	SAF44.00MTD(E)220ZL
Rout: 2.0kΩ	Rout: 3.0kΩ
Rout: 1.7μH	Lout: 1.55μH



# PIEZO FILTERS

## SAW FILTERS FOR AUDIO VISUAL EQUIPMENT

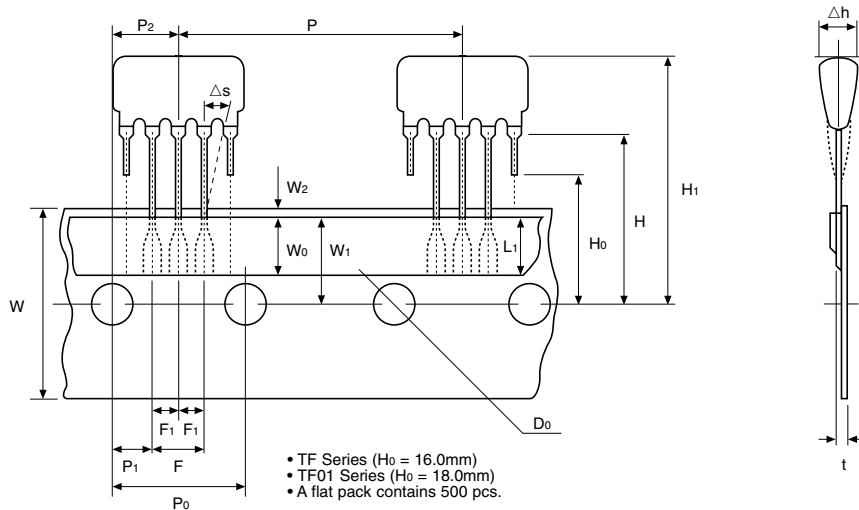
### TAPING DIMENSIONS

#### SPECIFICATIONS

Item	Code	Part Number			
		SAF□M80Z-TF/SAF□M200Z-TF		SAF□M80Z-TF01/SAF□M200Z-TF01	
		Nominal Value	Allowable Value	Nominal Value	Allowable Value
Portion to cut in case of defect	L <sub>1</sub>	3	min.	3	min.
Pitch of component	P	25.4	±0.5	25.4	±0.5
Pitch of sprocket hole	P <sub>0</sub>	12.7	±0.2	12.7	±0.2
Feed hole position to SAW filter terminal	P <sub>1</sub>	3.85	±0.5	3.85	±0.5
Feed hole position to SAW filter terminal	P <sub>2</sub>	6.35	±0.5	6.35	±0.5
Terminal spacing <sup>(1)</sup>	F	5.0	+0.5 -0.2	5.0	+0.5 -0.2
Terminal spacing <sup>(2)</sup>	F <sub>1</sub>	2.5	±0.2	2.5	±0.2
Deviation across tape	Δh	0	±1.0	0	±1.0
Deviation along tape, left or right	Δs	0	±1.0	0	±1.0
Carrier tape width	W	18.0	±0.5	18.0	±0.5
Hold-down tape width	W <sub>0</sub>	6.0	min.	6.0	min.
Position of sprocket hole	W <sub>1</sub>	9.0	±0.5	9.0	±0.5
Hold-down tape width	W <sub>2</sub>	0	±0.5	0	±0.5
Distance between reference and terminal	H <sub>0</sub>	16.0	±0.5	18.0	±0.5
Height of terminal stopper	H	19.25	±0.5	21.25	±0.5
Distance between reference and top	H <sub>1</sub>	32.0	max.	32.0	max.
Diameter of sprocket hole	D <sub>0</sub>	φ4.0	±0.2	φ4.0	±0.2
Total tape thickness	t	0.6	±0.2	0.6	±0.2

DIMENSIONS: mm

SAF□M200Z-TF01/SAF□M80Z-TF01



•The differences between TF and TF01 are only the dimensions of H<sub>0</sub> (16mm or 18mm) and H (19.25mm or 21.25mm).