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# Ceramic Trap Filter Series

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# Trap Filter Design Notes

## ▶ Trap Filter Design Notes

### Trap Filter Design Notes

#### What is "Trap?"

- Band Eliminate Filter (B. E. F.) which blocks or attenuates particular frequency is called trap.
- Contrariwise, ceramic filter passes only particular frequency. Sound trap for TV set is one of the famous example of B. E. F.
- In TV set, video signal is used in picture amplitude circuit after video signal detection block, ceramic resonator is insert here and trap circuit is formed in order to eliminate sound signal involved in video signal.

#### Type of "Ceramic Trap"

Token's Ceramic trap is divided into 2 types:

##### 1. Two-Terminal Ceramic Trap Filter:

Two-terminal ceramic Trap is used in Black and White TV sets since the number of peripheral components can be reduced, though its attenuation isn't so much.

##### 2. Three-Terminal Ceramic Trap Filter:

Three-terminal ceramic trap has a monolith structure formed from 2 ceramic resonators. The characteristic of a three-terminal ceramic trap equals two two-terminal ceramic traps. The three-terminal ceramic trap needs additional coil, it is used in Color TV set and VCR because to its high attenuation.



# Double Trap Filters (XT MW)

## ► Product Introduction

**Token (XT MW) are Murata Double Trap Filters TPWA Series Compatible.**

### (XT MW) Double Trap Filter Quick Selection :

- Dimensions (Unit: mm): 10.0 max × 8.0 max × 4.0 max.
- XT4.47MW Cener Frequency  $f_{01}$ :4.500MHz; Cener Frequency  $f_{02}$ :4.724MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT4.60MW Cener Frequency  $f_{01}$ :4.500MHz; Cener Frequency  $f_{02}$ :6.000MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT5.57MW Cener Frequency  $f_{01}$ :5.500MHz; Cener Frequency  $f_{02}$ :5.742MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT5.60MW Cener Frequency  $f_{01}$ :5.500MHz; Cener Frequency  $f_{02}$ :6.000MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT5.65MW Cener Frequency  $f_{01}$ :5.500MHz; Cener Frequency  $f_{02}$ :6.500MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT6.65MW Cener Frequency  $f_{01}$ :6.000MHz; Cener Frequency  $f_{02}$ :6.500MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; 70(kHz)min@ $f_{01}$  30dB Att BW

Trap filter is a ceramic filter passes only particular frequency. To the contrary, Band Eliminate Filter (B. E. F.) which blocks or attenuates particular frequency is called trap.

Sound trap for TV set is one of the famous examples of B. E. F. In TV set, video signal is used in picture amplitude circuit after video signal detection block, ceramic resonator is inserting here and trap circuit is formed in order to eliminate sound signal involved in video signal.

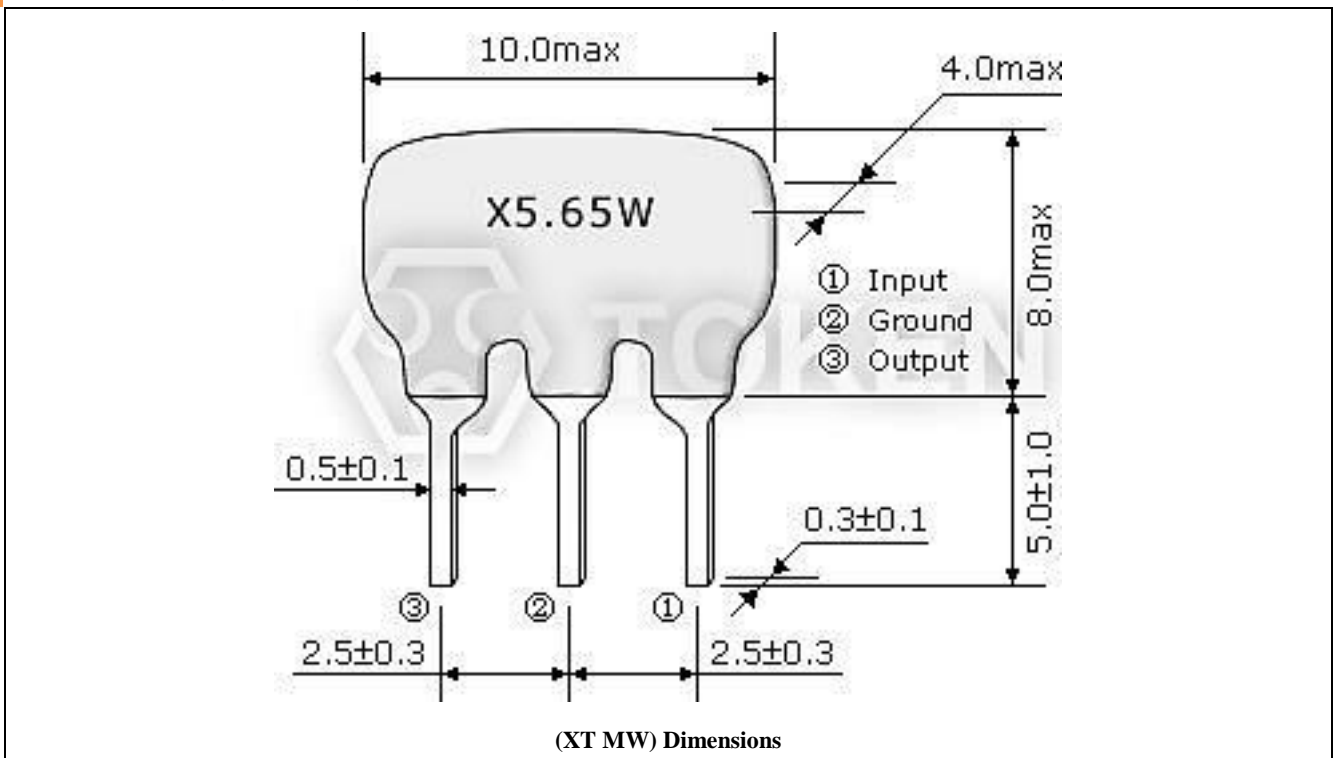
Token Double Trap Filter (XT MW) Series consist of 2 wafers with 2 trap frequencies. Recommended for Multi standard set. Features with good performance of attenuation and space saving with 3-terminal type. The characteristic of a three-terminal ceramic trap equals two two-terminal ceramic traps. Three-terminal ceramic trap has a monolith structure formed from 2 ceramic resonators.

Full line products meet RoHS compliant. Token will also produce devices outside these specifications to meet specific customer requirements, contact us with your specific needs. For more information, please link to Token official website "[Ceramic Trap Filters](http://www.token.com.tw)".



## ▶ Dimensions

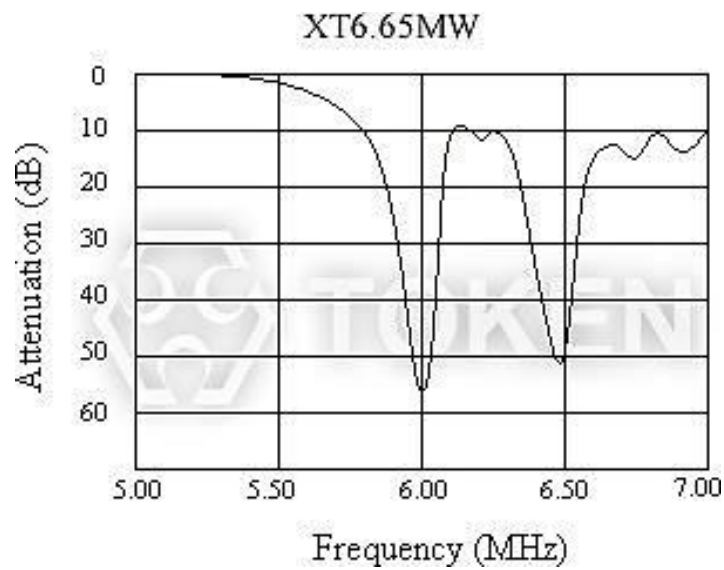
### Dimensions (XT MW)



## Characteristics

### Characteristics (XT MW)

Part Number	Center Frequency (fo1)(MHz)	Center Frequency (fo2)(MHz)	Attenuation (at fo1) (dB)min	Attenuation (at fo2) (dB)min	30dB Attenuation BW (fo1)(kHz)min
XT4.47MW	4.500	4.724	30	30	50
XT4.60MW	4.500	6.000	30	30	50
XT5.57MW	5.500	5.742	30	30	50
XT5.60MW	5.500	6.000	30	30	50
XT5.65MW	5.500	6.500	30	30	50
XT6.65MW	6.000	6.500	30	30	70

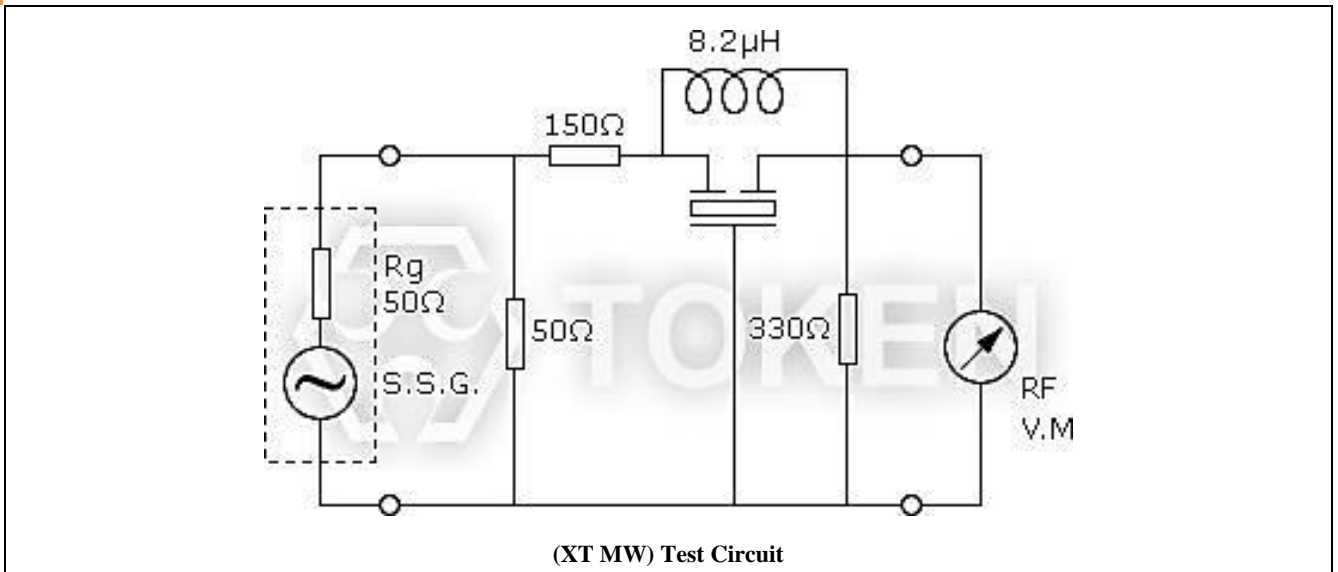


(XT MW) Characteristics

- The level at 1MHz shall be made for a reference (0dB).

## ▶ Test Circuit

### Test Circuit (XT MW)



## ▶ Order Codes

### Order Codes (XT MW)

XT4.47MW	P
Part Number	Package

## ▶ General Information

### Advantage of Token Piezoelectric Trap Filters

Token Electronics had been able to develop specialized piezo materials which when combined with an advance design have resulted in a complete line of practical, inexpensive piezo devices for entertainment and communications applications.

Token reliably deliver high-quality components according to the each customer special needs with respect to performance, costs, and technology modifications.

For marketing discontinuations or sourcing activities concerning Piezoelectric "Trap" products, you are encouraged to contact our Sales Department so the request can be properly directed within Token.

# Triple Trap Filters (XT MT)

## ▶ Product Introduction

**Token (XT MT) are Murata Triple Trap Filters TPT Compatible.**

### (XT MT) Triple Trap Filter Quick Selection :

- Dimensions (Unit: mm): 10.0 max × 8.0 max × 4.0 max.
- XT01MT Cener Frequency  $f_{01}$ :5.500MHz;  $f_{02}$ :6.000MHz;  $f_{03}$ :6.500MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; &  $f_{03}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT02MT Cener Frequency  $f_{01}$ :5.500MHz;  $f_{02}$ :5.742MHz;  $f_{03}$ :6.500MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; &  $f_{03}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW
- XT03MT Cener Frequency  $f_{01}$ :5.500MHz;  $f_{02}$ :5.742MHz;  $f_{03}$ :6.000MHz; 30db min @ $f_{01}$ &  $f_{02}$ ; &  $f_{03}$ ; 50(kHz)min@ $f_{01}$  30dB Att BW

### Features :

- Good performance of attenuation, three-terminals trap filter, and space saving for Multi set.

The characteristic of a three-terminal ceramic trap equals two two-terminal ceramic traps. Three-terminal ceramic trap has a monolith structure formed from 2 ceramic resonators.

Trap filter is a ceramic filter passes only particular frequency. To the contrary, Band Eliminate Filter (B. E. F.) which blocks or attenuates particular frequency is called trap.

Sound trap for TV set is one of the famous examples of B. E. F. In TV set, video signal is used in picture amplitude circuit after video signal detection block, ceramic resonator is inserting here and trap circuit is formed in order to eliminate sound signal involved in video signal.

Token (XT MT) Ceramic Trap Filters (compatible to Murata TPT) series consist of 3 wafers with 3 trap frequencies. Recommended for Multi standard sets.

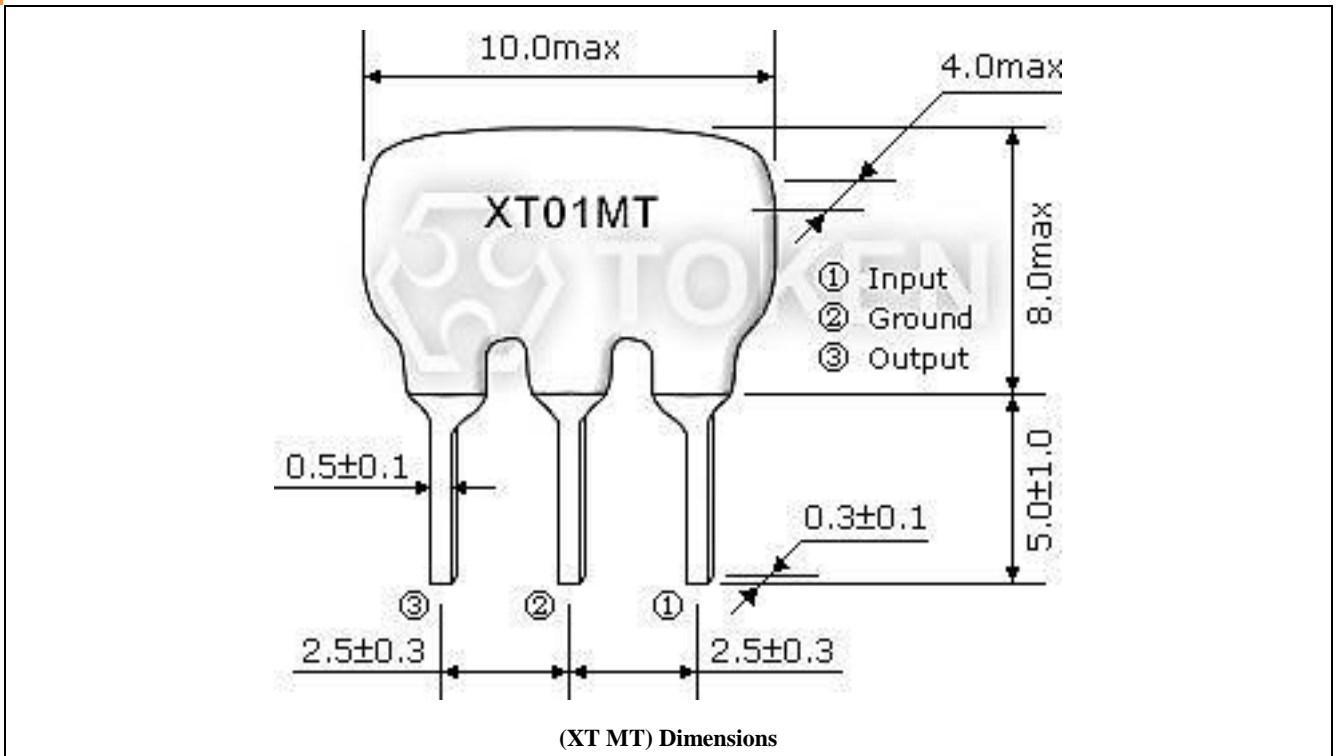
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## Dimensions

### Dimensions (XT MT)



## Characteristics

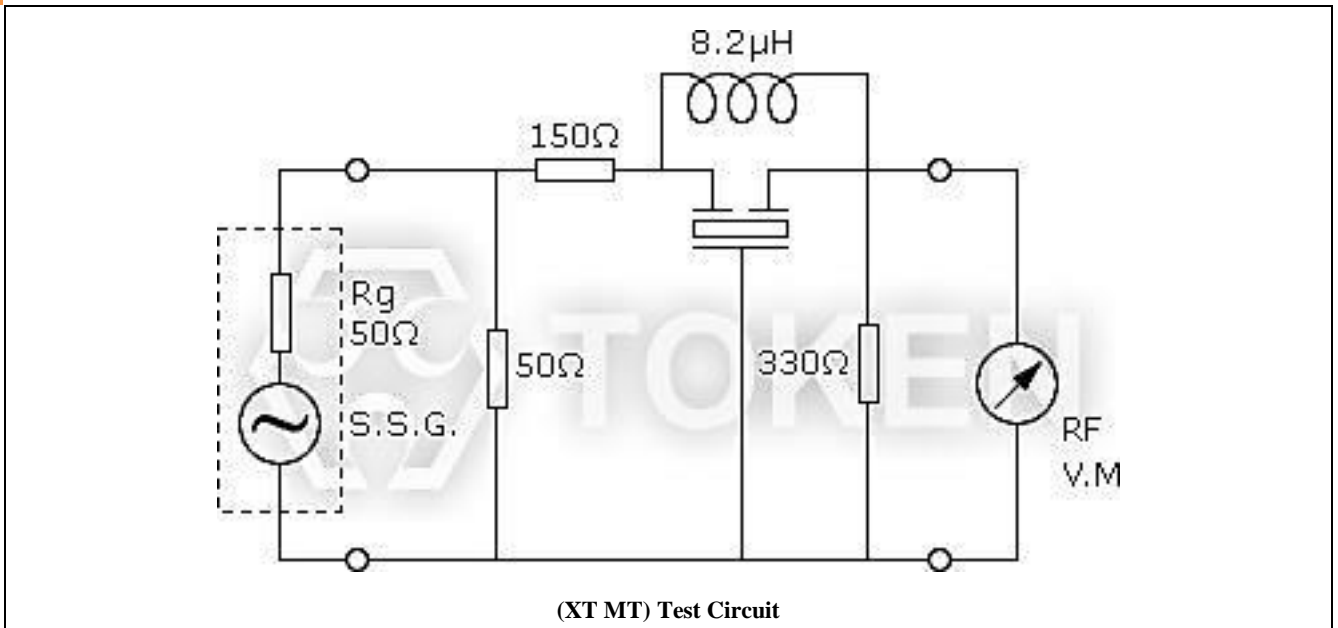
### Characteristics (XT MT)

Part Number	Center Frequency (fo1)(MHz)	Center Frequency (fo2)(MHz)	Center Frequency (fo3)(MHz)	Attenuation (at fo1) (dB)min	Attenuation (at fo2) (dB)min	Attenuation (at fo3) (dB)min	30dB Attenuation BW (fo1)(kHz)min
XT01MT	5.500	6.000	6.500	30	30	30	50
XT02MT	5.500	5.742	6.500	30	30	30	50
XT03MT	5.500	5.742	6.000	30	30	30	50

- The level at 1MHz shall be made for a reference (0dB).

## ▶ Test Circuit

### Test Circuit (XT MT)



## ▶ Order Codes

### Order Codes (XT MT)

XT02MT	P
Part Number	Package

## ▶ General Information

### Advantage of Token Piezoelectric Trap Filters

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# Ceramic Trap Filters (XT MB)

## ▶ Product Introduction

**Token (XT MB) for TV/VCR Stage is Murata Trap Filters TPS MB Compatible.**

### (XT MB) Trap Filter Quick Selection :

- Dimensions (Unit: mm): 10.0 max × 8.0 max × 4.0 max.
- XT3.58MB Cener Frequency  $f_0$ :3.580MHz; 25db min @ $f_0$ ; 40(kHz)min@25dB Att BW
- XT4.43MB Cener Frequency  $f_0$ :4.430MHz; 30db min @ $f_0$ ; 50(kHz)min@30dB Att BW
- XT4.5MB Cener Frequency  $f_0$ :4.500MHz; 35db min @ $f_0$ ; 70(kHz)min@30dB Att BW
- XT5.5MB Cener Frequency  $f_0$ :5.500MHz; 35db min @ $f_0$ ; 90(kHz)min@30dB Att BW
- XT5.74MB Cener Frequency  $f_0$ :5.742MHz; 35db min @ $f_0$ ; 90(kHz)min@30dB Att BW
- XT6.5MB Cener Frequency  $f_0$ :6.500MHz; 35db min @ $f_0$ ; 90(kHz)min@30dB Att BW

Token Trap is employing piezoelectric technology's mechanical resonance, it is almost unaffected by the surrounding circuits, and its characteristics do not deviate when it is implanted in the printed circuit and no adjustment is required.

Utilize Token special piezoelectric materials, Token trap filters has a high Q compared with IFT and a high selectivity is obtained. It also has a remarkable frequency temperature coefficient, high selectivity and high stability.

In TV set, video signal is used in picture amplitude circuit after video signal detection block, ceramic resonator is inserting here and trap circuit is formed in order to eliminate sound signal involved in video signal.

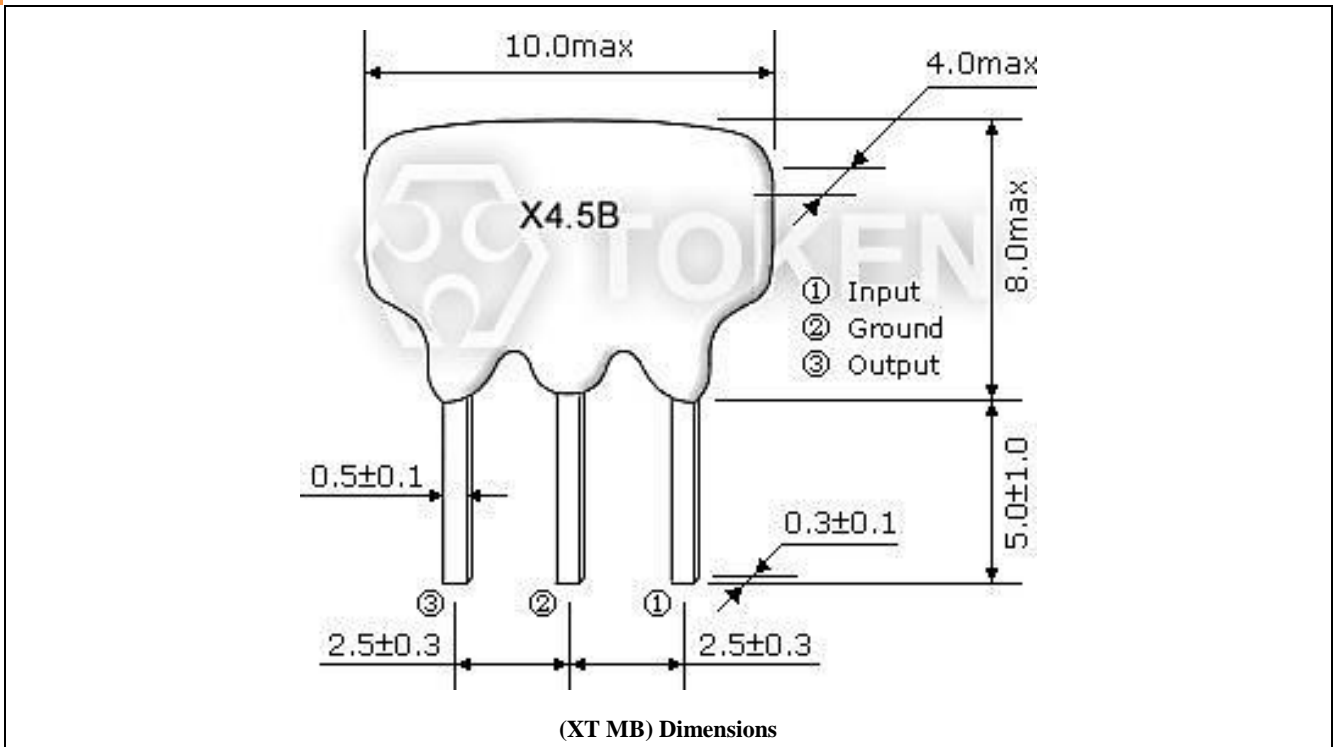
Token (XT MB) Series are band reject type used for video and sound IF attenuation. The 3 terminal XT MB Series contains 2 elements on one substrate for additional attenuation. XT MB Series can be used in the sound IF of CATV/VCR receivers.

The (XT MB) series is lead-free and RoHS compliant. Token will also produce devices outside these specifications to meet specific customer requirements, contact us with your specific needs. For more information, please link to Token official website "[Ceramic Trap Filters](http://www.token.com.tw)".



## ▶ Dimensions

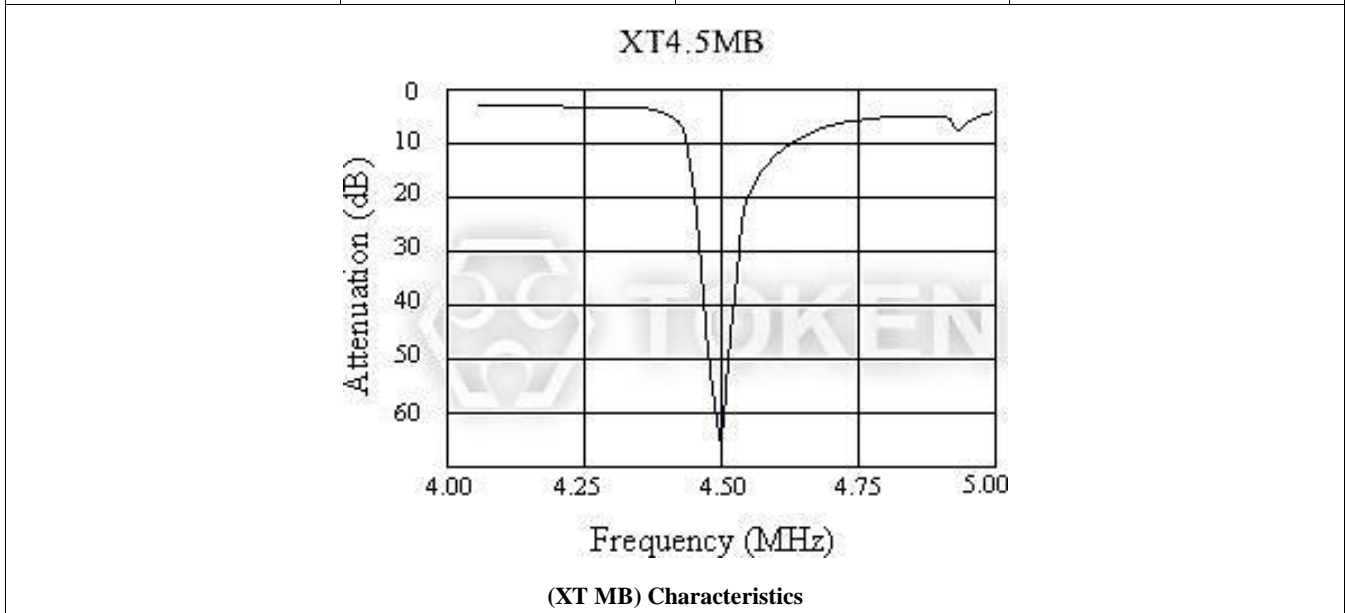
### Dimensions (Unit: mm) (XT MB)



## Characteristics

### Characteristics (XT MB)

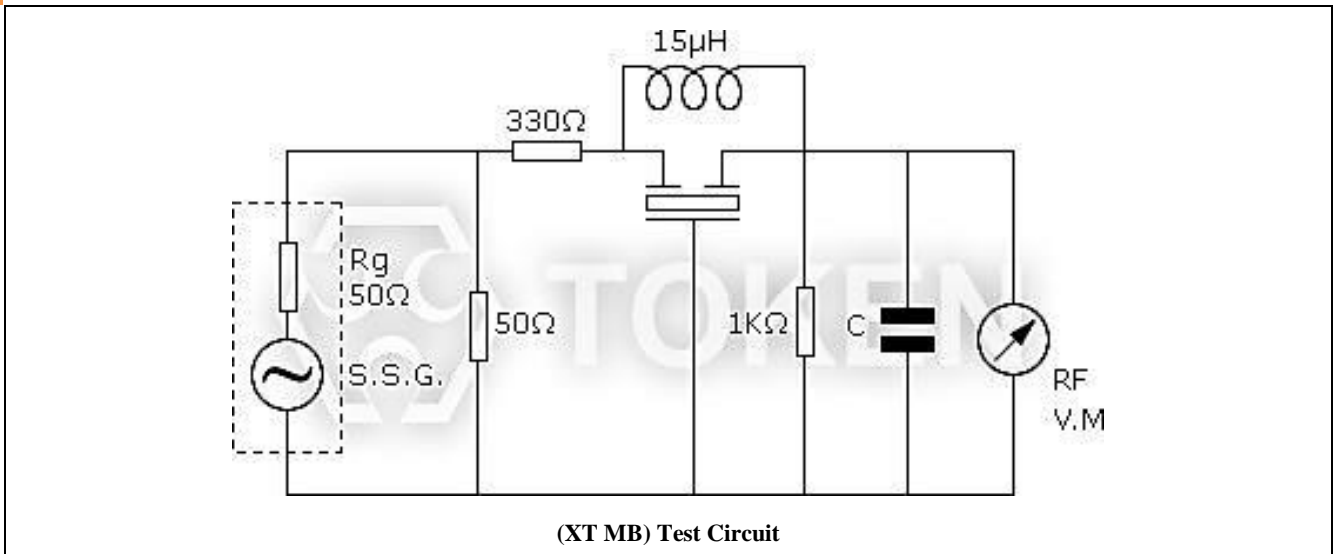
Part Number	Center Frequency (fo1)(MHz)	Attenuation (at fo1)(dB)min	30dB Attenuation BW (fo1)(kHz)min
XT3.58MB	3.580	25	40(25dB Att.BW)
XT4.43MB	4.430	30	50
XT4.5MB	4.500	35	70
XT5.5MB	5.500	35	90
XT5.74MB	5.742	35	90
XT6.5MB	6.500	35	90



- The level at 1MHz shall be made for a reference (0dB).

## ▶ Test Circuit

### Test Circuit (XT MB)



## ▶ Order Codes

### Order Codes (XT MB)

XT3.58MB	P
Part Number	Package

## ▶ General Information

### Advantage of Token Piezoelectric Trap Filters

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# Trap Filters (XT MJ)

## ▶ Product Introduction

**Token (XT MJ) for Chrominance Carrier is Murata Trap Filter TPS MJ Series Compatible.**

### Features :

- RoHS Compliant.
- TV SIF stage use.
- Low insertion loss.
- Wide bandwidth Ceramic Trap.
- Excellent spurious suppression characteristics.

### (XT MJ) Trap Filter Quick Selection :

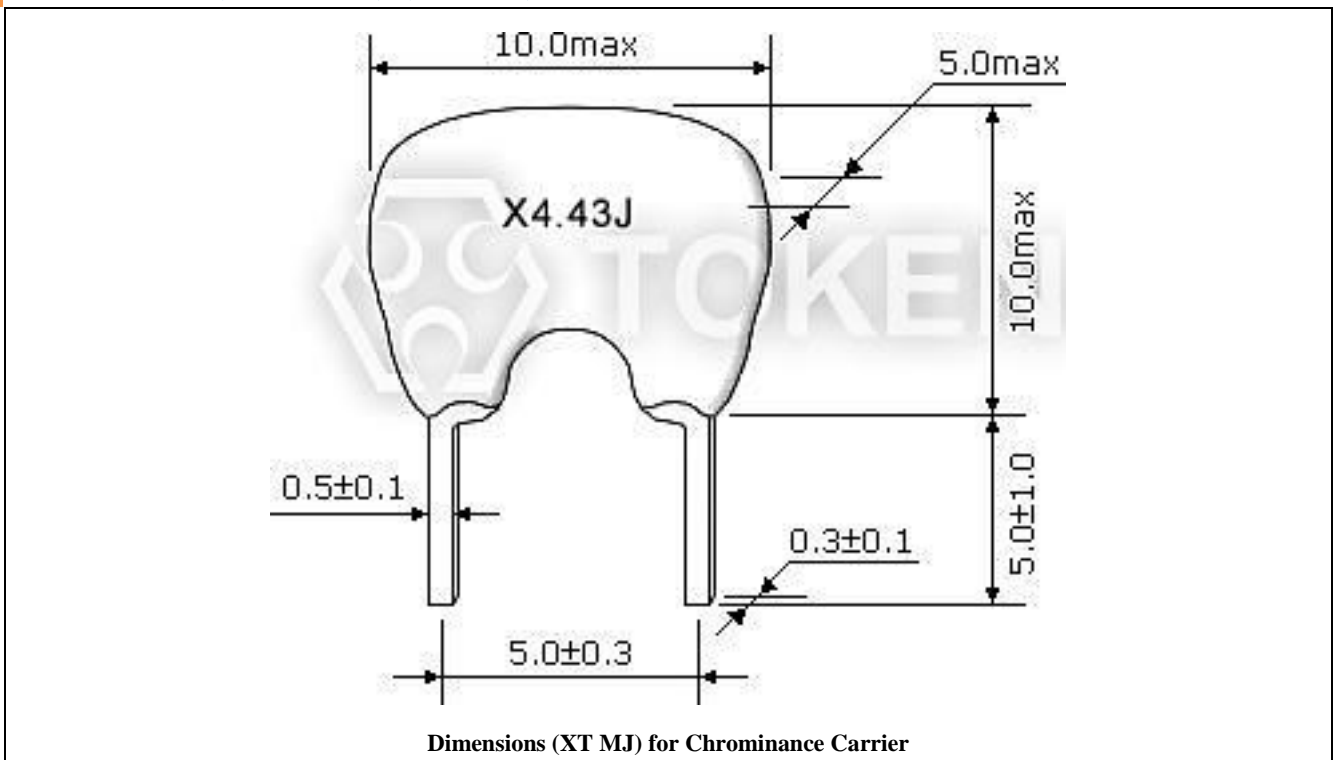
- Dimensions (Unit: mm): 10.0 max × 10.0 max × 5.0 max.
- XT3.58MJ Cener Frequency  $f_0$ :3.58MHz; 20db min @ $f_0$ ; 20(kHz)min@20dB Att BW
- XT4.43MJ Cener Frequency  $f_0$ :4.43MHz; 20db min @ $f_0$ ; 40(kHz)min@20dB Att BW
- XT4.5MJ Cener Frequency  $f_0$ :4.5MHz; 20db min @ $f_0$ ; 40(kHz)min@20dB Att BW
- XT5.74MJ Cener Frequency  $f_0$ :5.74MHz; 20db min @ $f_0$ ; 40(kHz)min@20dB Att BW
- XT5.5MJ Cener Frequency  $f_0$ :5.5MHz; 20db min @ $f_0$ ; 40(kHz)min@20dB Att BW
- XT6.0MJ Cener Frequency  $f_0$ :6.0MHz; 20db min @ $f_0$ ; 40(kHz)min@20dB Att BW
- XT6.5MJ Cener Frequency  $f_0$ :6.5MHz. 20db min @ $f_0$ ; 40(kHz)min@20dB Att BW

(XT MJ) Series are band reject device used for video and sound IF attenuation. The 2 terminal (XT MJ) Series can be used to attenuate either the sound signal in B/W receivers or the Chroma signal in video. Contact us with your specific needs. For more information, please link to Token official website "[Ceramic Trap Filters](#)".



## ▶ Dimensions

### Dimensions (Unit: mm) (XT MJ)

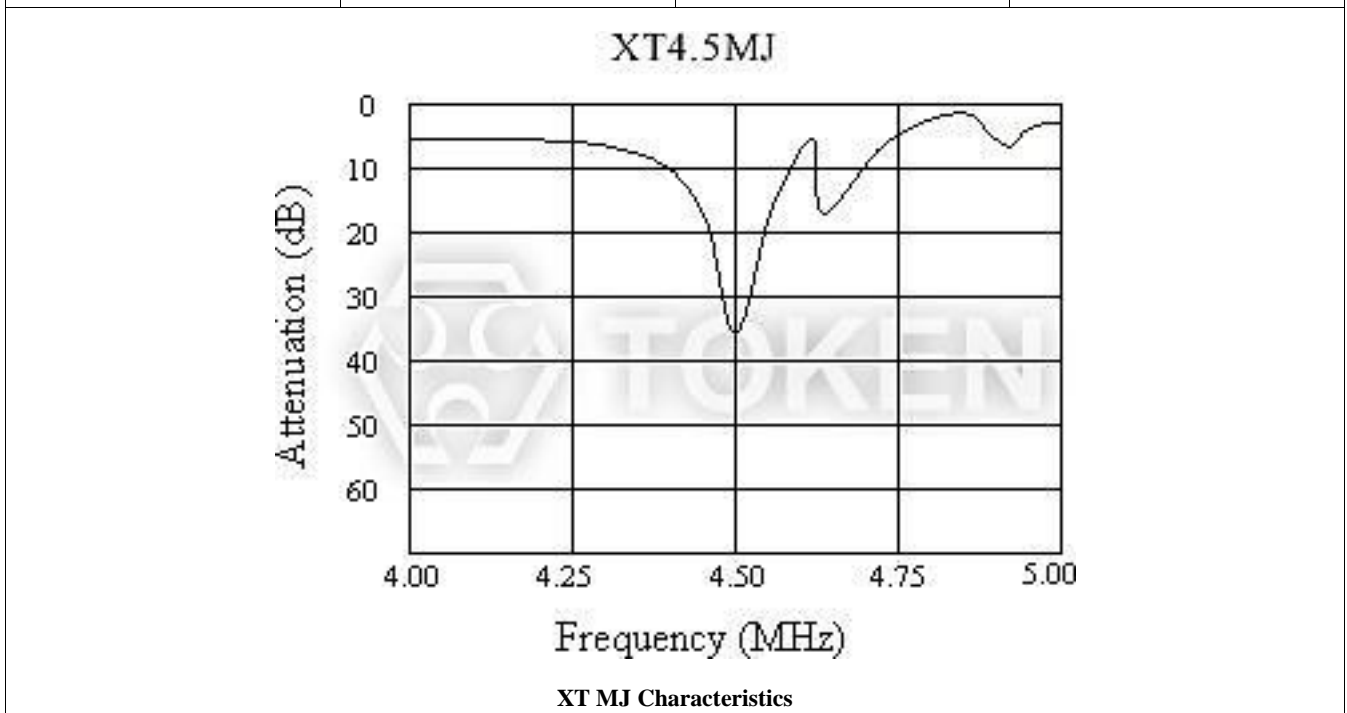




## Characteristics

### Characteristics (XT MJ)

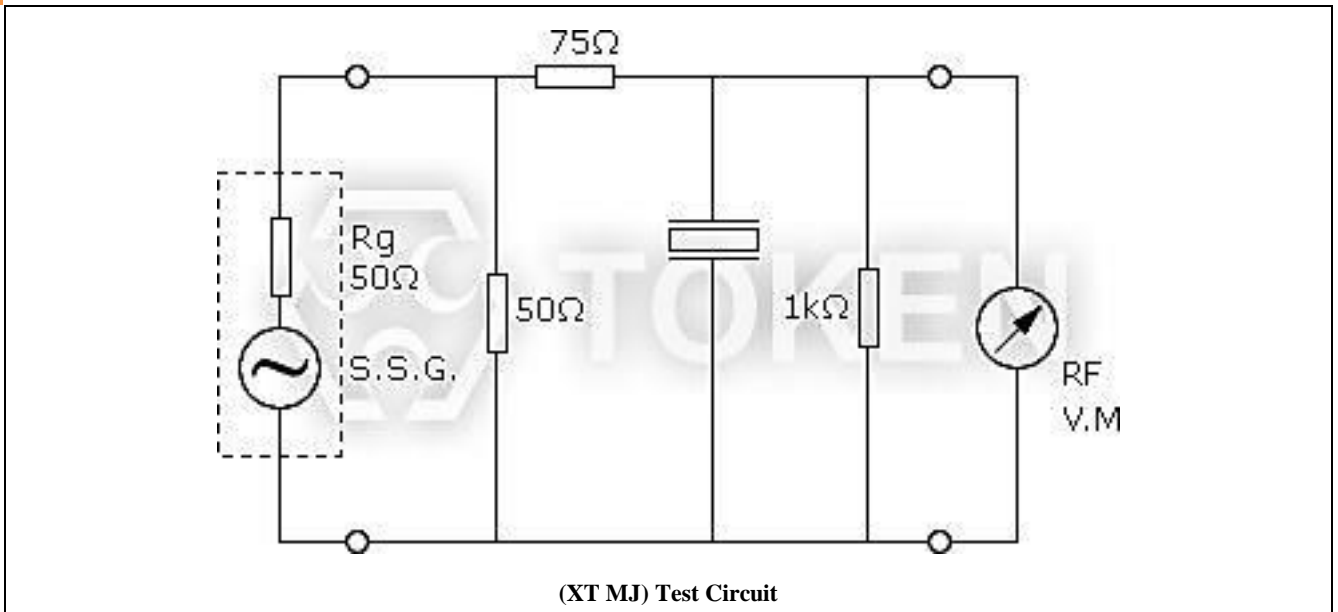
Part Number	Center Frequency (fo1)(MHz)	Attenuation (at fo1)(dB)min	20dB Attenuation BW (fo1)(kHz)min
XT3.58MJ	3.580	20	20
XT4.43MJ	4.430	20	40
XT4.5MJ	4.500	20	40
XT5.5MJ	5.500	20	40
XT5.74MJ	5.742	20	40
XT6.0MJ	6.000	20	40
XT6.5MJ	6.500	20	40



- The level at 1MHz shall be made for a reference (0dB).

## ▶ Test Circuit

### Test Circuit (XT MJ)



## ▶ Order Codes

### Order Codes (XT MJ)

XT3.58MJ	P
Part Number	Package

## ▶ General Information

### Advantage of Token Piezoelectric Trap Filters

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