TOKEN ELECTRONICS IND. CO., LTD.

HONESTY PERFECTION SHARING

Catalogue of
Ceramic Filters And
Ceramic Resonators

Taiwan: **No. 137, Sec. 1, Chung Shin Rd.,**
Wu Ku Hsiang,Taipei Hsien,Taiwan, R.O.C

TEL: 886-2-2981 0109
FAX: 886-2-2988 7487

China: **3F South, Zhongxing Industry Bld.,**
Changye Rd., Nanshan District,
Shen Zhen, Guangdong 518054

TEL: 86-755-2605 5363~4; 2605 5440~1
FAX: 86-755-2605 5365

Contact: token@token.com.tw

Support: support@tokenonline.net

Homepage: **1. http://www.token.com.tw**

2. http://www.tokenonline.net

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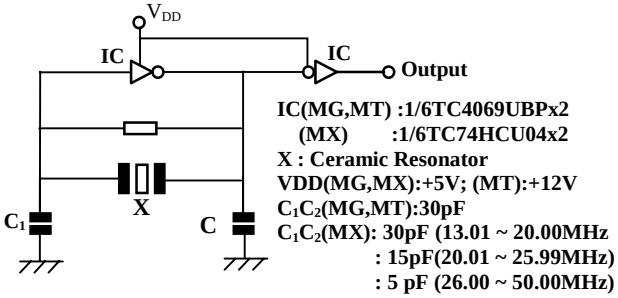
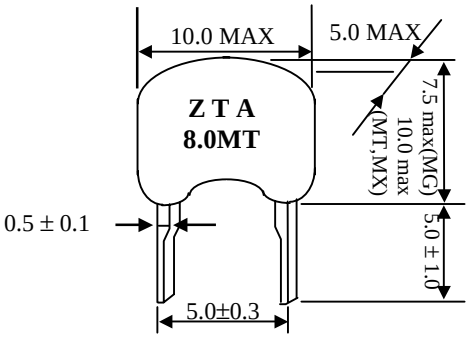
Ceramic Resonator ZTA Series 1.80-50.00 MHz

ZTA Series of Ceramic Resonator
(Compatible to Murata CSA)

Token ZTA Series of ceramic resonators cover the frequency range of 1.80 MHz to 50.00 MHz with an initial frequency tolerance of ± 0.5%. Since the ZTA Series utilizes the thickness mode of vibration of the piezoelectric element, there is little dimensional change with frequency. All ZTA resonators are epoxy coated and completely washable. Tape and reel packaging is available.

TECHNICAL CHARACTERISTICS					
Part Number	Frequency Range (MHz)	Frequency Accuracy (25°C) %	Stability in Temperature (-20°C ~+80°C)%	Operating Temperature (°C)	Aging For Ten Years (%)
ZTA□□□MG	1.80-6.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTA□□□MT	6.01-13.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTA□□□MX	13.01-50.00	±0.5	±0.3	-20 ~ +80	±0.3





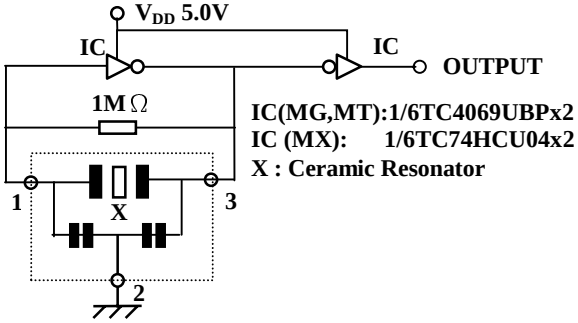
Ceramic Resonator ZTT Series With Built-in Capacitor 1.80-50.00 MHz

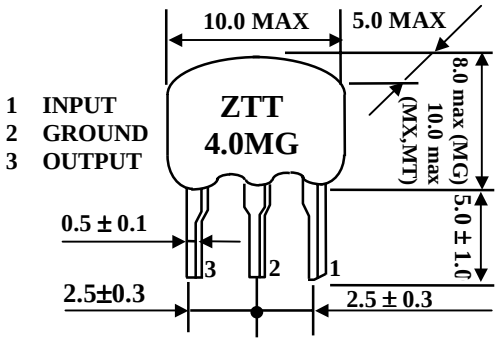
ZTT Series of Ceramic Resonator
(Compatible to Murata CST)

Token ZTT series of ceramic resonators features a built-in load capacitance. This feature eliminates any need for external loading capacitors and reduces component count, increases reliability and reduces size. These units are offered in the frequency range from 1.80 MHz to 50.00 MHz with an initial frequency tolerance of ± 5%.

TECHNICAL CHARACTERISTICS			
Part Number	Frequency Accuracy 25°C (%)	Stability in Temperature -20°C ~ +80°C (%)	Aging For Ten Years (%)
ZTT1.80-6.00MG	±0.5	±0.3	±0.3
ZTT6.01-13.00MT	±0.5	±0.3	±0.3
ZTT13.01-50.00MX	±0.5	±0.3	±0.3

ZTT TEST CIRCUIT FOR MOS IC



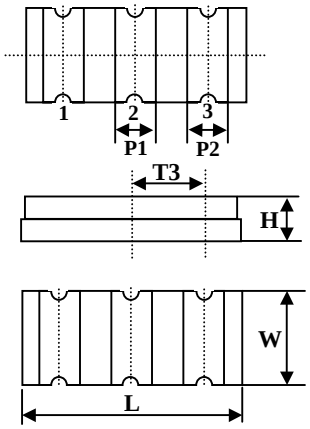


Ceramic Resonator	**ZTACC/CS/CV□MG/MT/MX → Chip Type**	**2.00-50.0 MHz**
Ceramic Resonator	**ZTTCC/CS/CV□MG/MT/MX → Chip Type**	

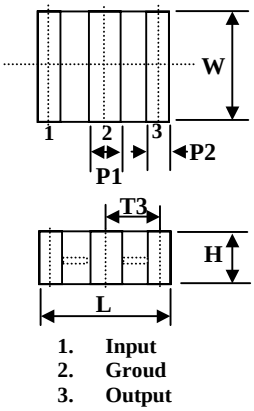
ZTACC/ ZTTCC series of Ceramic Resonator
(Compatible to Murata CSAC\CATC)

Token ZTTC series of chip ceramic resonators features a built-in load capacitance. This feature eliminates any need for external loading capacitors and reduces component count, increases reliability and reduces size. These units are offered in the frequency range from 2.00 MHz to 50.00 MHz with an initial frequency tolerance of ± 0.5%. Token ZTAC series has two terminals, while ZTTC with three terminals.

ZTTCC MG

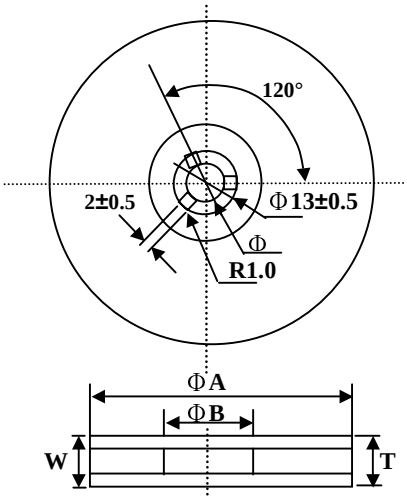


ZTTCS/CV MT/MX

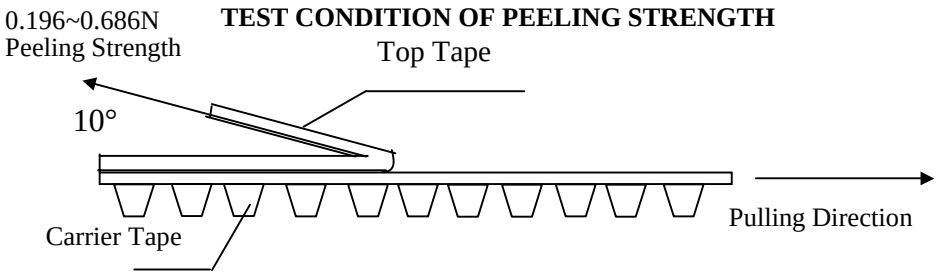


1. Input
2. Groud
3. Output

REEL DIMENSIONS



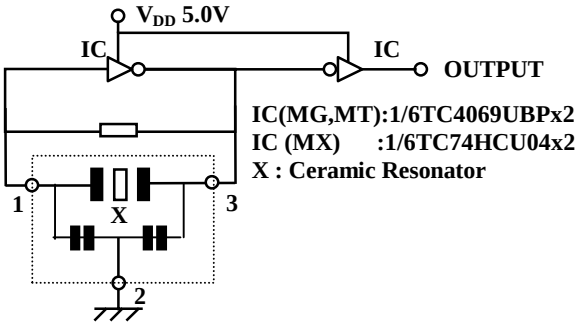
TEST CONDITION OF PEELING STRENGTH



DIMENSIONS OF CHIP TYPE SERIES									
PART NUMBER	DIMENSIONS (mm)								
	L	W	H	P1	P2	T1	T2	T3	W1
ZTTCC □MG	7.4±0.3	3.4±0.3	1.8±0.3	1.2±0.3	1.2±0.3	1.5±0.3	1.7±0.3	2.5±0.3	4.0±0.3
ZTTCS □MT/MX	4.7±0.2	4.7±0.2	1.6±0.3	1.0±0.4	0.8±0.4	1.3±0.2	0.8±0.2	1.95±0.2	5.1±0.2
ZTTCV □MT/MX	3.7±0.2	3.1±0.2	1.2±0.3	0.9±0.3	0.7±0.3	1.0±0.2	0.7±0.2	1.5±0.2	4.1±0.2

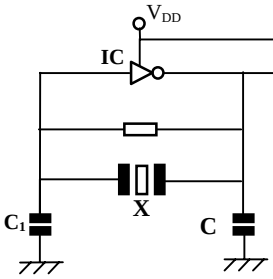
ZTACC/ ZTTCC TECHNICAL CHARATERISTICS				
Part Number	Frequency Range (MHz)	Frequency Accuracy	Stability in Temperature -20°C~+80°C (%)	Aging For Ten Years (%)
ZTACC □MG	2.00-6.99	±0.5	±0.3	±0.3
ZTTCC □MG	2.00-6.99	±0.5	±0.3	±0.3
ZTACS/CV □MT/MX	7.00-13.00	±0.5	±0.4	±0.3
ZTACS/CV □MT/MX	13.0-50.00	±0.5	±0.3	±0.3

ZTTCC TEST CIRCUIT FOR MOS IC



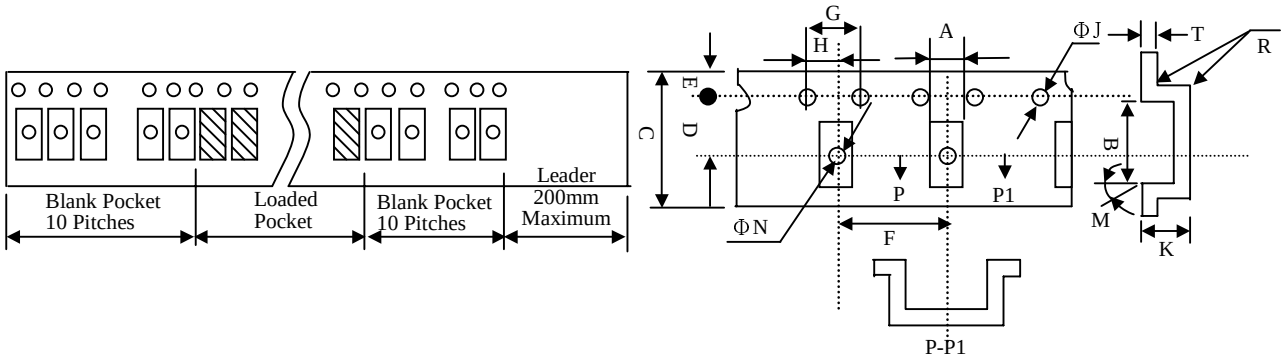
IC(MG,MT):1/6TC4069UBPx2
IC (MX) :1/6TC74HCU04x2
X : Ceramic Resonator

ZTACC TEST CIRCUIT FOR MOS IC



IC(MG,MT) :1/6TC4069UBPx2
(MX) :1/6TC74HCU04x2
X : Ceramic Resonator
VDD(MG,MX):+5V; (MT):+12V
C_1C_2(MG,MT):30pF
C_1C_2(MX): 30pF (13.01 ~ 20.00MHz
: 15pF(20.01 ~ 25.99MHz)
: 5 pF (26.00 ~ 50.00MHz)

PACKING METHOD

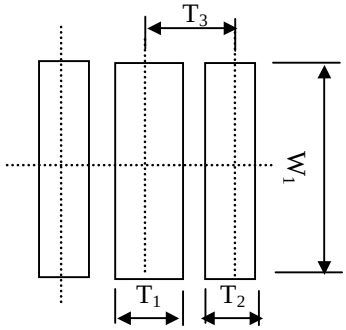


REEL DIMENSIONS (mm)					
ΦA	ΦB	W Min	T Max	Pieces Per Reel	Carrier Tape Size
179±2	60typ	12.4	19.4	1000	12
179±2	60typ	16.4	22.4	1000	16
330±3	80Min	12.4	19.4	4000	12
330±3	80Min	16.4	22.4	4000	16

Tape- Typical Value

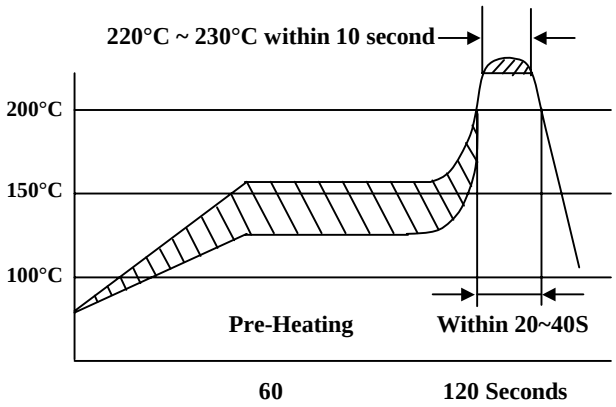
TAPE DIMENSION (mm)															
Part Number		A ±0.2	B ±0.2	C ±0.3	D ±0.1	E ±0.1	F ±0.1	G ±0.1	H ±0.1	ΦJ ±0.1	ΦN ±0.1	M Max.	R Max.	K ±0.2	T ±0.1
ZTACC	□MG	3.8	7.8	16.0	7.5	1.75	8.0	4.0	2.0	1.5	1.6	10^0	0.3	2.1	0.3
ZTTCC	□MG	3.8	7.8	16.0	7.5	1.75	8.0	4.0	2.0	1.5	1.6	10^0	0.3	2.1	0.3
ZTACS	□MT/MX	5.0	4.4	12.0	5.5	1.75	8.0	4.0	2.0	1.5	1.6	10^0	0.3	1.8	0.3
ZTTCS	□MT/MX	5.0	4.4	12.0	5.5	1.75	8.0	4.0	2.0	1.5	1.6	10^0	0.3	1.8	0.3
ZTACV	□MT/MX	3.4	4.0	12.0	5.5	1.75	8.0	4.0	2.0	1.5	1.6	10^0	0.3	1.3	0.3
ZTTCV	□MT/MX	3.4	4.0	12.0	5.5	1.75	8.0	4.0	2.0	1.5	1.6	10^0	0.3	1.3	0.3

RECOMMENDED LAND PATTERN



* See “Dimensions of Chip Resonator Series” in page 2

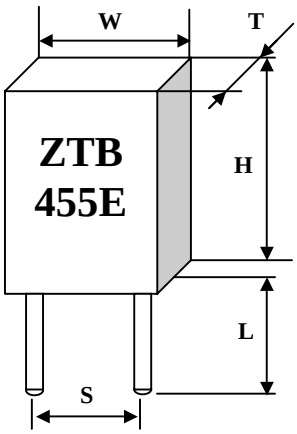
RECOMMENDED REFLOW SOLDERING STANDARD CONDITIONS



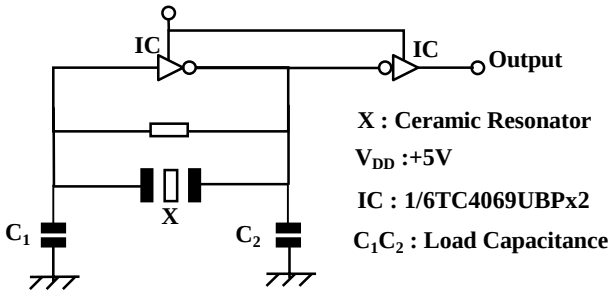
Ceramic Resonator ZTB Series 190-1250 KHz

ZTB Series of Ceramic Resonator (190-1250 KHz)
(Compatible to Murata CSB)

Token ZTB series of ceramic resonators is designed to provide the design engineer Width a rugged, relatively low frequency device in the frequency range of 190 KHz to 1,250 KHz. Initial frequency tolerance is ± 0.5 % which compares very favorably to the nominal ± 2% ~ ± 3% requirements of one chip microprocessors. Token ZTB series utilizes the area vibration mode of the piezoelectric ceramic element.



ZTB TEST CIRCUIT



X : Ceramic Resonator
V_{DD} :+5V
IC : 1/6TC4069UBPx2
C_1C_2 : Load Capacitance

ZTB DIMENSIONS					
Frequency Range (KHz)	Width W (mm)	Thickness T (mm)	Height H (mm)	Lead Space S (mm)	Lead Length L (mm)
190-249	13.5	3.8	14.7	10.0	8.0
250-374	11.0	3.8	12.2	7.7	7.0
375-400	7.9	3.6	9.3	5.0	7.7
401-699	7.0	3.5	9.0	5.0	4.0(6.0)
700-1300	5.2	2.8	6.8	2.5	3.5(5.0)
1000J	5.1	2.3	6.3	2.5	4.0

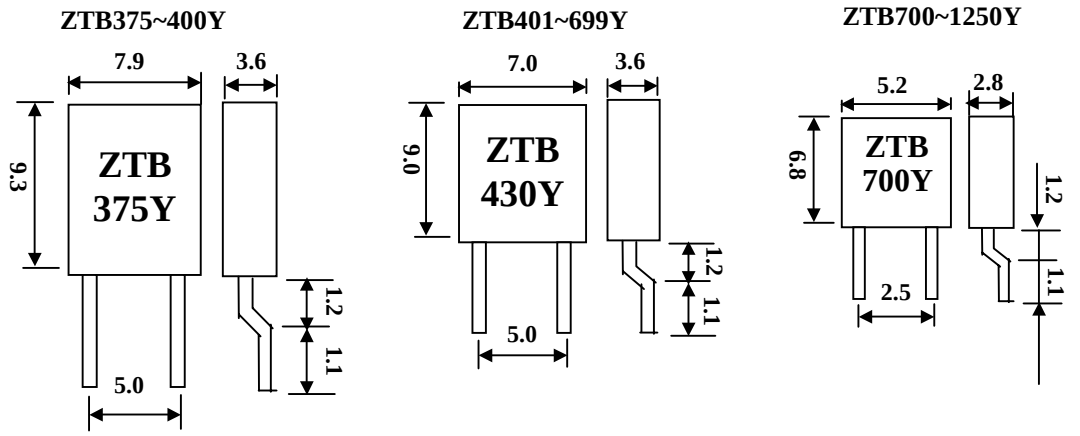
TECHNICAL CHARACTERISTICS						
Part Number	Frequency Accuracy	Resonant Impedance(Ω)	Stability in Temperature) -20~+80°C (%	Aging For Ten Years (%)	Load Capacitance (pF)	
					C_1	C_2
ZTB82~189 *	±2KHz	≦20	±0.3	±0.3	/	/
ZTB190~249D	±1KHz	≦20	±0.3	±0.3	330	470
ZTB250~374D	±1KHz	≦20	±0.3	±0.3	220	470
ZTB375~429P	±2KHz	≦20	±0.3	±0.3	120	470
ZTB430~509E	±2KHz	≦20	±0.3	±0.3	100	100
ZTB510~699P	±2KHz	≦30	±0.3	±0.3	100	100
ZTB700~999J	±0.5%	≦70	±0.3	±0.3	100	100
ZTB1000~1300J	±0.5%	≦100	±0.3	±0.3	100	100

* ZTB82~189 series is new products of custom design.

Ceramic Resonator ZTBY KHz Series Surface Mountable 375-1250 KHz

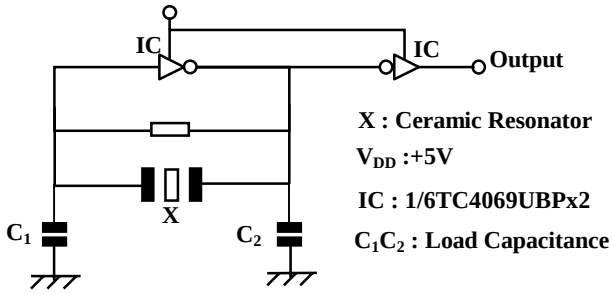
ZTBY KHZ series of Ceramic Resonator
(Compatible to Murata CSBF)

Token ZTBY series of ceramic resonators is a surface mountable device unit of ZTB Width the frequency range of 375 KHz to 1,250 KHz. Initial frequency tolerance is ± 0.5 % which compares very favorably to the nominal ± 2% ~ ± 3% requirements of one chip microprocessors. Token ZTBY series utilizes the area vibration mode of the piezoelectric ceramic element.



TECHNICAL CHARACTERISTICS						
Part Number	Frequency Accuracy	Resonant Impedance (Ω)	Stability in Temperature -20~+80°C (%)	Aging For Ten Years (%)	Load (pF) Capacitance	
					C_1	C_2
ZTB375~429Y	±0.5	≦20	±0.3	±0.3	120	470
ZTB430~509Y	±0.5	≦20	±0.3	±0.3	100	100
ZTB510~699Y	±0.5	≦30	±0.3	±0.3	100	100
ZTB700~900Y	±0.5	≦50	±0.3	±0.3	100	100
ZTB901~1000Y	±0.5	≦70	±0.3	±0.3	100	100
ZTB1001~1250Y	±0.5	≦100	±0.3	±0.3	100	100

ZTBY TEST CIRCUIT



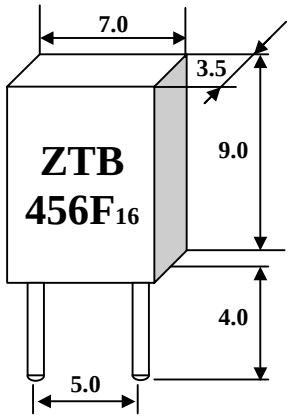
X : Ceramic Resonator
V_{DD} :+5V
IC : 1/6TC4069UBPx2
C_1C_2 : Load Capacitance

Ceramic Resonator ZTB456F Series For FM Multiplexers 456 KHz

ZTB456F Series Of Ceramic Resonator (456KHz)
(Compatible to Murata CSB456F)

Token ceramic resonator ZTB 456F multiplexes series is designed to provide frequency modulation for HI-FI stereo application. These units are offered in the frequency accuracy 19.000 ±38 Hz and 456 KHz ±2 KHz Width different applicable IC.

TECHNICAL CHARACTERISTICS		
Part Number	Frequency Accuracy	Applicable IC
$ZTB456F_{11}$	19.000KHz±38Hz	LA3430 (SANYO)
$ZTB456F_{14}$	19.000KHz±38Hz	TA7413AP (TOSHIBA)
$ZTB456F_{15}$	456KHz±2KHz	LA1832 (SANYO)
$ZTB456F_{16}$	19.000KHz±38Hz	TA8122AN (TOSHIBA)
$ZTB456F_{18}$	19.000KHz±38Hz	TA8132N (TOSHIBA)
$ZTB456F_{33}$	456KHz±2KHz	LA2232 (SANYO)

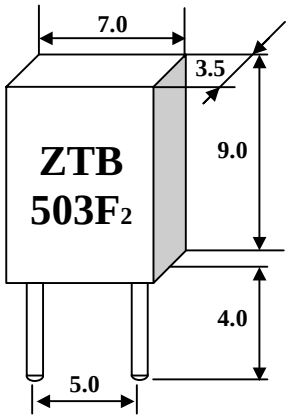


Ceramic Resonator ZTB503/500F For TV Horizontal Synthesizer Circuit 503/500 KHz

ZTB503/500F Ceramic Resonator (503/500KHz)
(Compatible to Murata CSB503F)

Token ceramic resonator ZTB 503/500F series is designed for TV horizontal synthesizer circuits. These units are offered in the following frequency accuracy Width different applicable IC.

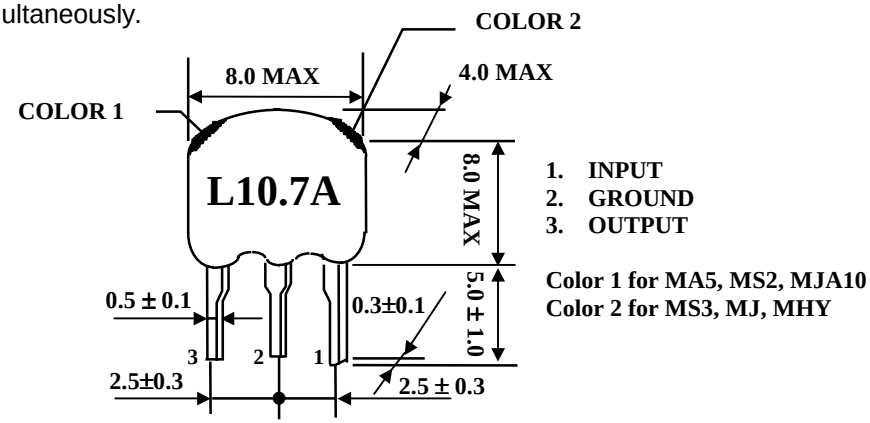
TECHNICAL CHARACTERISTICS		
Part Number	Frequency Accuracy	Applicable IC
$ZTB503F_{2}$	503.5±2KHZ	µPC1401 (NEC)
$ZTB503F_{5}$	504.5±2KHZ	LA7620 (SANYO)
$ZTB503F_{6}$	519±2KHZ	M51370 (MITSUBISH)
$ZTB503F_{10}$	15.734±0.5%	TA7777P (TOSHIBA)
$ZTB503F_{12}$	503.5KHz±2KHz	TDA3586 (THOMSON)
$ZTB503F_{15}$	505.1KHz±2KHz	LTA7650 (SANYO)
$ZTB503F_{30}$	503.5KHz±1.5KHz	TA8654AN (TOSHIBA)
$ZTB503F_{38}$	15.734KHz±62Hz	AN5302 (MATSUSHITA)
$ZTB500F_{2}$	500.0Hz±2KHz	µPC1401 (NEC)
$ZTB500F_{9}$	500.0Hz±2KHz	M51308SP (MTSUBISH)
$ZTB500F_{13}$	500.0Hz±2KHz	M51367SP (MITSUBISH)
$ZTB500F_{28}$	15.680KHz±0.4%	LA7680 (SANYO)
$ZTB500F_{40}$	15.680KHz±0.4%	TA8691N (TOSHIBA)
$ZTB500F_{55}$	15.680KHz±0.4%	LA7685 (SANYO)



Ceramic Filter LT10.7M Series For FM Receiver 10.7 MHz

LT10.7 Series Of Ceramic Filter (10.7MHz)
(Compatible to Murata SFE 10.7 FM-IF)

Token's LT10.7 MHz series of ceramic filters are monolithic device, which utilize the energy- trapped thickness Vibration mode. This principle of operation is based upon the fact that an excellent resonating element Width low spurious vibration can be obtained by adhering to certain theoretical parameters of design. These parameters include the physical dimensions of the ceramic element, the electrode pattern, and the associated mass loading effect of the electrodes. In addition to employing the principle of energy-trapped thickness shear vibration-mode, Token also utilizes the theory of the multi-coupling mode. In short, this theory utilizes divided electrodes to "trap" different frequencies simultaneously.



LT10.7M SERIES FOR FM TECHNICAL CHARACTERISTICS				
Part Number	3dB Band Width (KHz)	20dB Band Width (KHz) Max.	Insertion Loss (dB) Max.	Spurious Attenuation 9-12 MHz (dB) Min.
LT10.7MA5	280±50	650	6	30
LT10.7MS2	230±50	600	6	40
LT10.7MS3	180±40	520	7	40
LT10.7MJ	150±40	400	10	38

＊Input/Output Impedance: 330Ω

LT10.7M A10 SERIES TECHNICAL CHARACTERISTICS				
Part Number	3dB Band Width (KHz)	20dB Band Width (KHz) Max.	Insertion Loss (dB)	Spurious Attenuation 9-12MHz (dB) Min.
LT10.7MA5A10	280±50	590	2.5±2.0	30
LT10.7MS2A10	230±50	520	3.0±2.0	35
LT10.7MS3A10	180±40	470	3.5±1.5	35
LT10.7MJA10	150±40	360	4.5±2.0	35

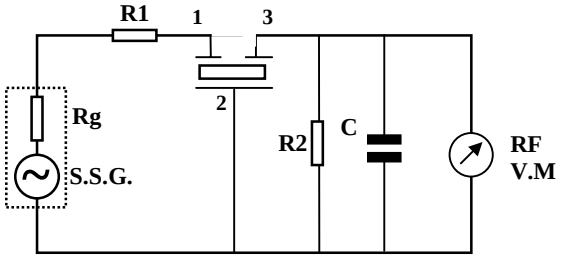
＊Input/Output Impedance:330Ω

WIDE/NARROW BAND-WIDTH TYPE LT10.7M SERIES TECHNICAL CHARACTERISTICS				
Part Number	3dB Band Width (KHz)	20dB Band Width (KHz) Max.	Insertion Loss (dB)	Spurious Attenuation 9-12MHz (dB) Min.
LT10.7MA19	. 350Min.	950	3±2	20
LT10.7MA20	330±50	680	4±2	30
LT10.7MHY	110±30	350	7±2	30
LT10.7MFP	20Min	95	6.0Max.	24

＊Input/Output Impedance:470Ω(MA19),330Ω(MA20,MHY),600Ω(MFP)
＊Spurious Attenuation range of LT10.7MFP: 10.7±1MHZ

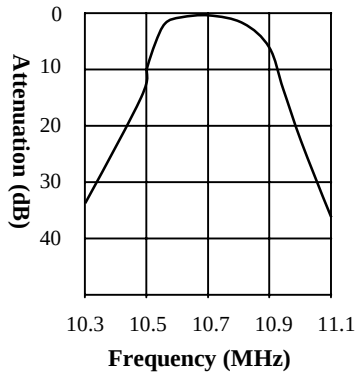
STANDARD RULE	
Center frequency	**Color**
D: 10.64MHz±30KHz	Black
B: 10.67MHz±30KHz	Blue
A: 10.70MHz±30KHz	Red
C: 10.73MHz±30KHz	Orange
E: 10.76MHz±30KHz	White

LT10.7M TEST CIRCUIT

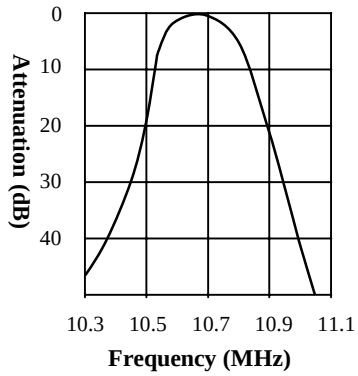


Rg + R1 = R2 = 330Ω ; C = 10pF
Including Stray Capacitance and
Input Capacitance of RF Voltmeter.

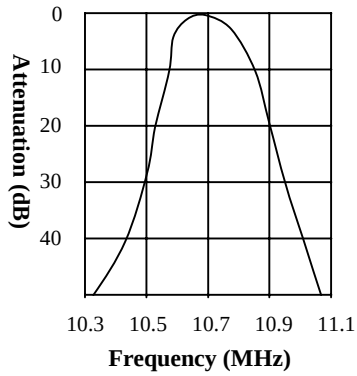
LT10.7MA



LT10.7MS2



LT10.7MS3



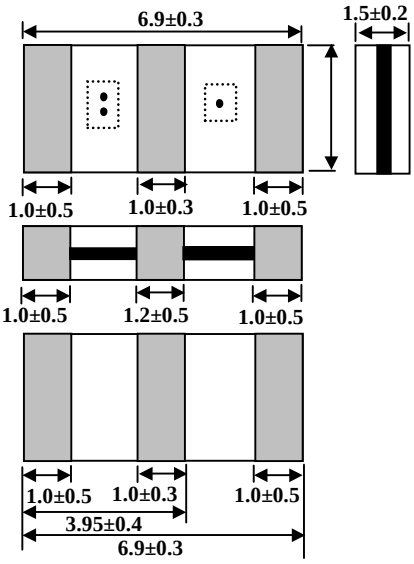
Ceramic Filter LTCA/CV10.7M Series → Chip Type 10.7 MHz

Chip Type LTCA/CV10.7M Series Of Ceramic Filter
(Compatible to Murata SFECV10.7)

Token LTCA 10.7M piezo filters surface device for AM along with the development of the AM chip filter, IF chip filters for AM/FM radios have also been made smaller, thinner and in a chip configuration for surface mounting. This is one more example of Token's leadership in converting conventional electronic components to chip technology.

TECHNICAL CHARACTERISTICS				
Part Number	**3dB Band Width (KHz)**	**20dB Band Width (KHz) Max.**	**Insertion Loss (dB) Max.**	**Spurious Attenuation (9-12MHZ) (dB) Min.**
LTCA10.7MA5	280±50	650	6.0	30
LTCA10.7MS2	230±50	600	6.0	30
LTCV10.7MA5	280±50	590	3.0±2.0	35
LTCV10.7MS2	230±50	510	3.5±2.0	35
LTCV10.7MS3	180±40	470	4.0±2.0	35

∗Input/Output Impedance: 330Ω



Ceramic Discriminator JT10.7M Series For FM 10.7MHz

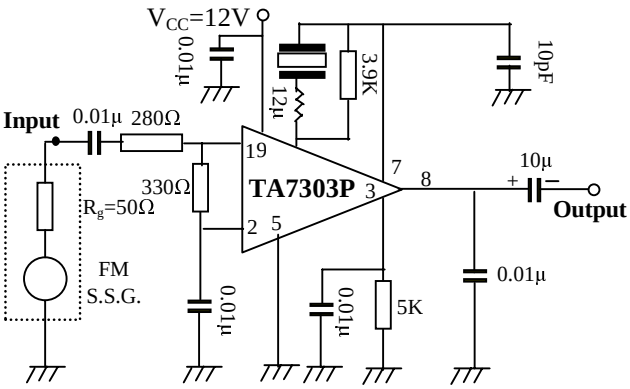
JT10.7M Series of Ceramic Discriminator For FM (10.7MHz)
(Compatible to Murata CDA10.7)

Token JT 10.7 line of ceramic discriminators are resonate devices that offer adjustment free audio detection in both wide and narrow bandwidths. These IC dependent devices utilize FM specific detection methods to convert changes in frequency into an intelligible audio signal.

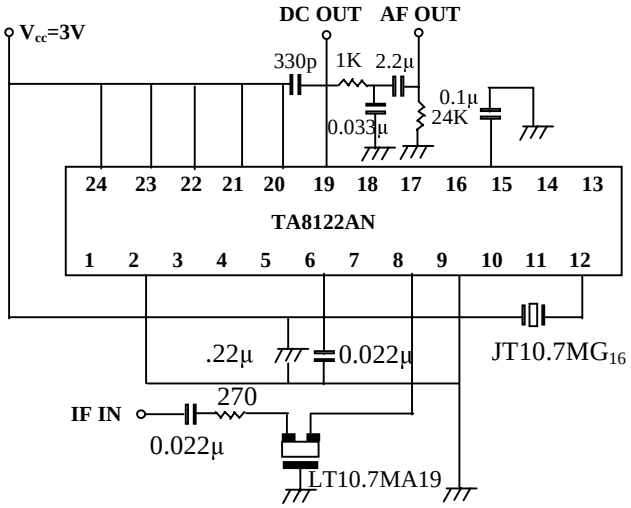
TECHNICAL CHARACTERISTICS				
Part Number	**Demodulation Output at f_o (mv) Min.**	**Distortion Factor at f_o (%)Max.**	**Demodulation 3dB Bandwidth KHz (Min.)**	**Applicable IC**
JT10.7MG1	25	1.0	345	CX-2009, CX-20111
JT10.7MG3	650	1.0	±150	TA7303P, TA7130, μPC1028H, LA1150
JT10.7MG16	60~90	0.9	300	TA8122AN
JT10.7MG18	60~90	0.9	300	TA8132N
JT10.7MG33	45	0.7	250	TA2007
JT10.7MG80	65	1.0	300	TA2104AFN
JT10.7MG82	90	0.8	320	TA2099N
JT10.7MG92	60	1.0	300	TA2132P
JT10.7MC1	35	1.0	242	CXA1019M, CX-20091

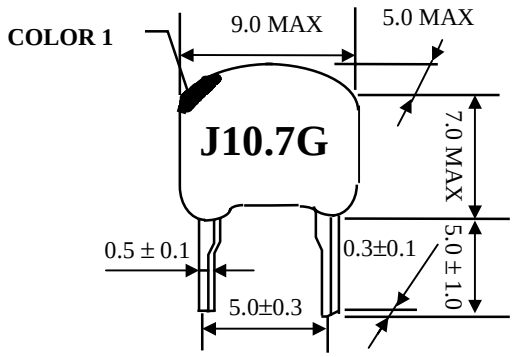
STANDARD RULE					
Center Frequency	**D 10.64MHz ±30KHz**	**B 10.67MHz ±30KHz**	**A 10.70MHz ±30KHz**	**C 10.73MHz ±30KHz**	**E 10.76MHz ±30KHz**
Color	Black	Blue	Red	Orange	White

JT10.7MG$_3$ TEST CIRCUIT



JT10.7MG$_{16}$ TEST CIRCUIT



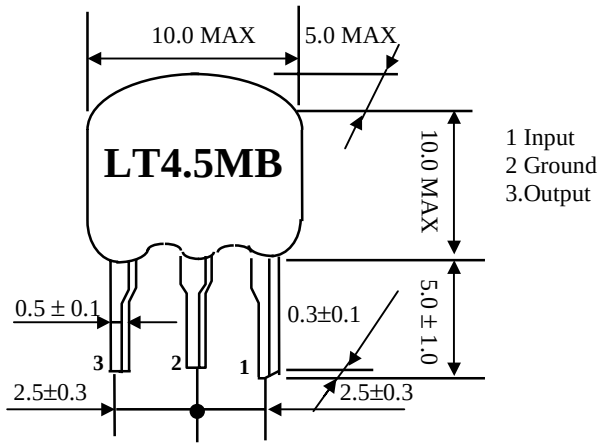


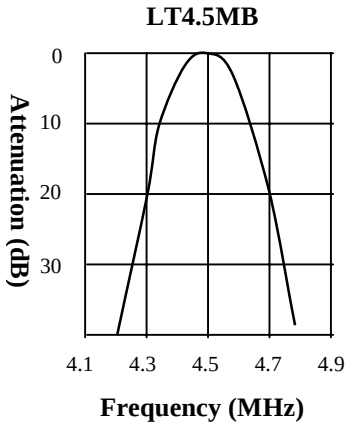
Ceramic Filter LT MB Series For TV/VCR Stage 4.5-6.5MHz

LT MB Series of Ceramic Filter For TV/VCR Stage
(Compatible to Murata SFE MB)

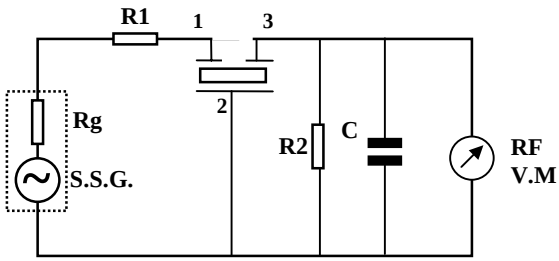
Token ceramic filter LT MB series is a high selectivity filter for 2-channel multi-sound TV.
Features with frequency adjustment-free, high performance and durability, and high selectivity.

TECHNICAL CHARACTERISTICS						
Part Number	**Nominal Center Frequency (fn) (MHz)**	**3dB Band Width (KHz) Min.**	**20dB Band Width (KHz) Max**	**Insertion Loss (dB) Max.**	**Spurious Attenuation (dB) Min.**	**Input/Output Impedance (Ω)**
LT4.5MB	4.500	fn±50	530	6.0	20($4.5\ ^{+0.8}_{-1.0}$ MHz)	1000
LT5.5MB	5.500	fn±75	550	6.0	25(5.5±1MHz)	600
LT6.0MB	6.000	fn±80	600	6.0	25(6.0±1MHz)	470
LT6.5MB	6.500	fn±80	630	6.0	25(6.5+1MHz) 30(6.5-1MHz)	470





LT_MB TEST CIRCUIT



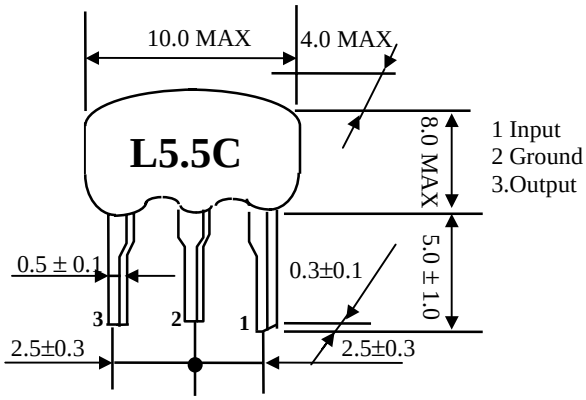
Rg + R1 = R2 = 330Ω ; C = 10pF
Including Stray Capacitance and
Input Capacitance of RF Voltmeter.

Ceramic Filter LTS MCB/MDB Series For TV/VCR Stage (Low Spurious Type) 4.5-6.5MHz

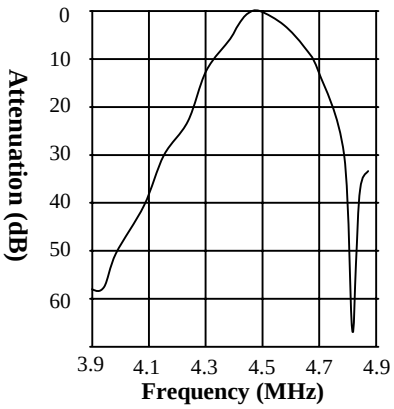
LTS MCB/MDB Series of Ceramic Filter (4.5-6.5MHz)
(Compatible to Murata SFSH MCB/MDB)

Token ceramic filter LTS MCB/MDB series use thickness shear vibration mode. Features with excellent spurious characteristics within Video Signal Band, and 3 types bandwidths prepared to respond customer requests. LTS MCB/MDB is suitable for Multiplex Sound TV in America.

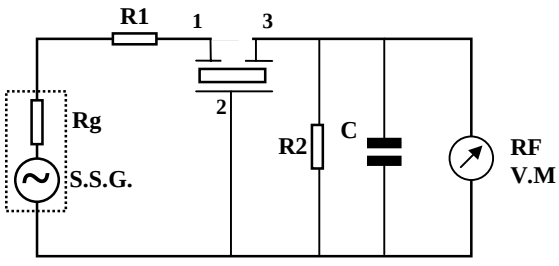
TECHNICAL CHARACTERISTICS						
Part Number	Nominal Center Frequency (fn) (MHz)	3dB Band Width (KHz) Min.	20dB Band Width (KHz) Max.	Insertion Loss (dB) Max.	Spurious Attenuation (dB) Min.	Input/Output Impedance (Ω)
LTS4.5MCB	4.500	fn+60	600	6.0	30(0~~fn)	1000
LTS4.5MDB	4.500	fn+70	750	6.0	30(0~~fn)	1000
LTS5.5MCB	5.500	fn+60	600	6.0	30(0~~fn)	600
LTS5.5MDB	5.500	fn±80	750	6.0	30(0~~fn)	600
LTS6.0MCB	6.000	fn+60	600	6.0	30(0~~fn)	470
LTS6.0MDB	6.000	fn±80	750	6.0	30(0~~fn)	470
LTS6.5MCB	6.500	fn±70	650	6.0	30(0~~fn)	470
LTS6.5MDB	6.500	fn±80	800	6.0	30(0~~fn)	470



LTS4.5MCB



LTS_MCB/MDB TEST CIRCUIT



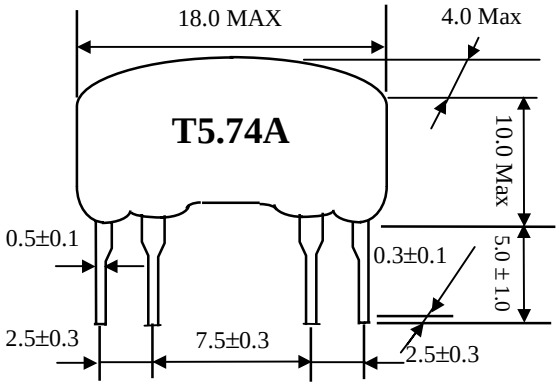
Rg + R1 = R2 = 330Ω ; C = 10pF
Including Stray Capacitance and
Input Capacitance of RF Voltmeter.

Ceramic Filter LTT MA Series For TV/VCR Stage (High-Selectivity Type) 4.5-6.74MHz

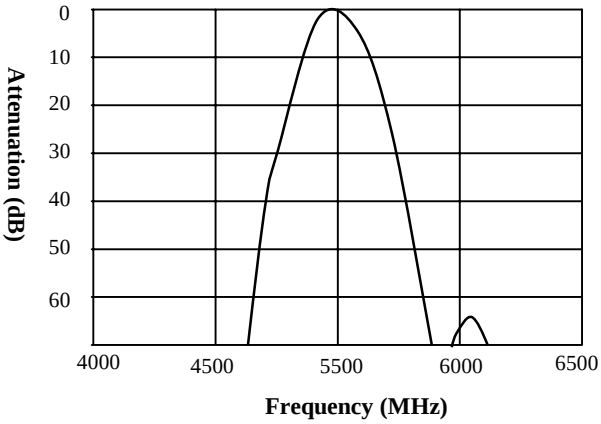
LTT MA Series of Ceramic Filter (4.5-6.74MHz)
(Compatible to Murata SFT)

Token LTT ceramic filters are 4 element devices that offer more selectivity than the conventional LT series (Murata SFE series) of filters. The improved spurious suppression of these filters eliminates the need for cascading multiple filtering devices; therefore, it is possible to design a more compact circuit board configuration.

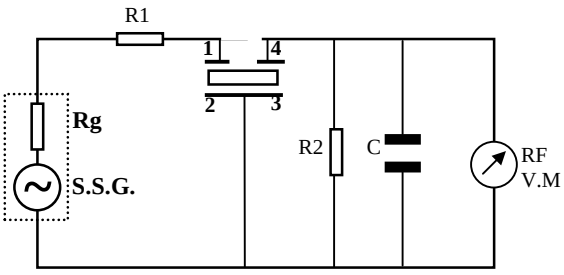
TECHNICAL CHARACTERISTICS						
Part Number	Nominal Center Frequency (fn) (MHz)	3dB Band Width (KHz) Min.	20dB Band Width (KHz) Min.	Insertion Loss (dB) Max.	Spurious Attenuation (dB) Min.	Input/Output Impedance (Ω)
LTT4.5MA	4.500	fn±40	370	10.0	40(4.5±1MHz)	1000
LTT4.72MA	4.724	fn±40	370	10.0	40(4.72±1MHz)	1000
LTT5.5MA	5.500	fn±50	350	9.0	50(5.5±1MHz)	600
LTT5.74MA	5.742	fn±50	350	9.0	50(5.74±1MHz)	600
LTT6.0MA	6.000	fn±50	400	9.0	50(6.0±1MHz)	470
LTT6.25MA	6.250	fn±50	400	9.0	50(6.25±1MHz)	470
LTT6.5MA	6.500	fn±50	400	9.0	50(6.5±1 MHz)	470
LTT6.74MA	6.742	fn±50	400	9.0	50(6.74±1MHz)	470



LTT5.5MA



LTT_MA TEST CIRCUIT



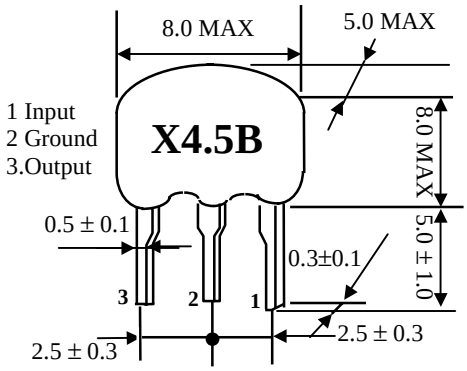
Rg + R1 = R2 = Input and Output Impedance
C = 10pF (Including Stray Capacitance and Input Capacitance of RF Voltmeter.)

Ceramic Trap XT MB Series For TV/VCR Stage 4.5-6.5MHz

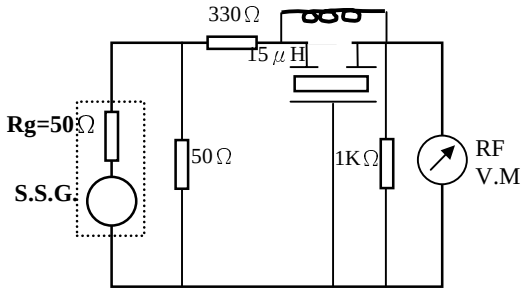
XT MB Series of Ceramic Trap (4.5-6.5MHz)
(Compatible to Murata SFE MB)

Token XT MJ/MB lines of ceramic traps are band reject filters used for video and sound IF attenuation. The 3terMin.al XT MB Series contains 2 trap elements on one substrate for additional attenuation. This line of traps can be used in the sound IF of CATV/VCR receivers.

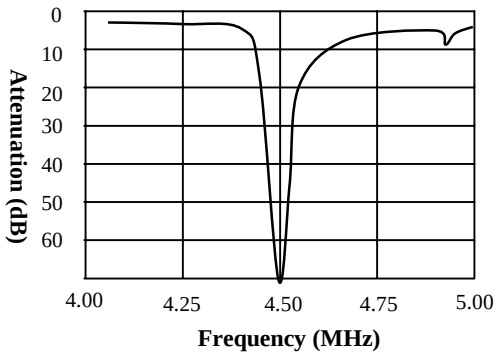
TECHNICAL CHARACTERISTICS			
Part Number	**Center Frequency (fn1)(MHz)**	**Attenuation (at fn1) (dB)Min.**	**30dB Attenuation BW (fn1) (KHz)Min.**
XT3.58MB	3.580	25	40(25dB Att. BW)
XT4.43MB	4.430	30	40
XT4.5MB	4.500	35	50
XT5.5MB	5.500	35	70
XT5.74MB	5.742	35	70
XT6.0MB	6.000	35	70
XT6.5MB	6.500	35	70
∗ The level at 1MHz shall be made for a reference (0dB)			



XT MB TEST CIRCUIT



XT4.5MB

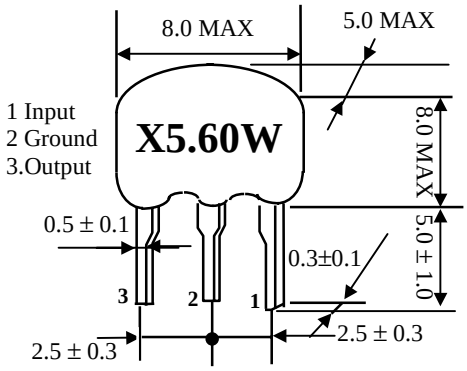


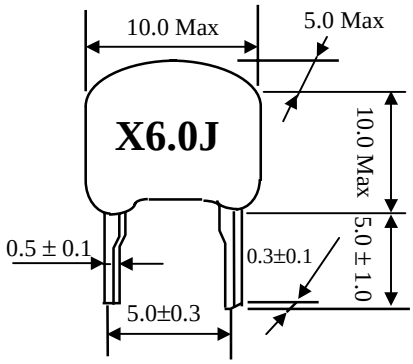
Ceramic Trap XT MW Series Of Double Trap 4.5-6.5MHz

XT MW Series of Double Ceramic Trap
(Compatible to Murata TPWA)

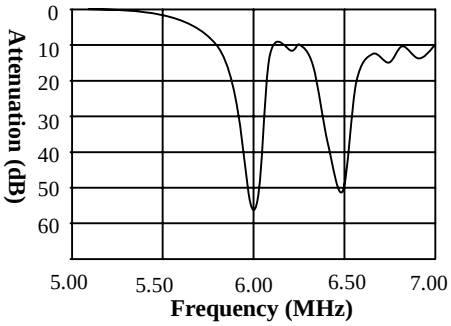
Token ceramic trap XT MW TPWA series consists of 2 wafers with 2 trap frequencies. Recommended for Multi standard set. Features with good performance of attenuation and space saving with 3-terminal type.

TECHNICAL CHARACTERISTICS					
Part Number	**Center Frequency (fn1) (MHz)**	**Center Frequency (fn2) (MHz)**	**Attenuation (at fn1) (dB) min**	**Attenuation (at fn2) (dB) min**	**30dB Attenuation BW (fn1) (KHz) min**
XT4.47MW	4.500	4.724	30	30	50
XT4.60MW	4.500	6.000	30	30	50
XT5.67MW	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
∗ The level at 1MHz shall be made for a reference (0dB)					

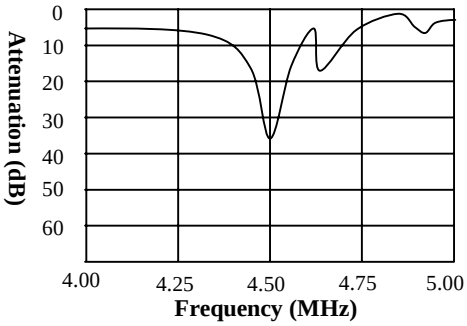




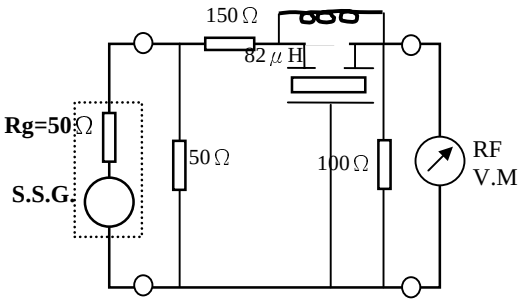
XT6.65MW



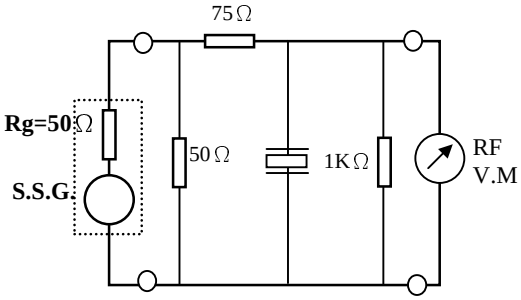
XT4.5MJ



XT MW TEST CIRCUIT



XT MJ TEST CIRCUIT



Ceramic Trap XT MJ Series For Chrominance Carrier 3.58-6.5MHz

XT MJ Series of Ceramic Trap
(Compatible to Murata TPS MJ)

Token XT MJ/MB lines of ceramic traps are band reject filters 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.

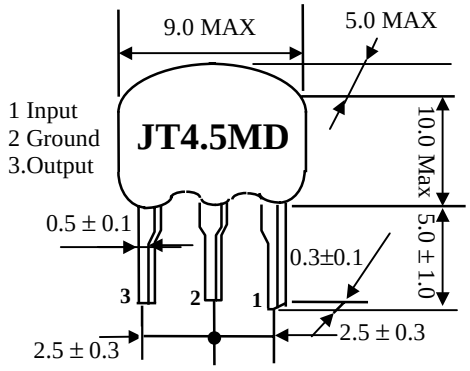
TECHNICAL CHARACTERISTICS			
Part Number	**Center Frequency (fn1) (MHz)**	**Attenuation (at fn1) (dB) min**	**30dB Attenuation BW (fn1) (KHz) min**
XT3.58MJ	3.580	20	20
XT4.43MJ	4.430	20	30
XT4.5MJ	4.500	20	30
XT5.5MJ	5.500	20	30
XT5.74MJ	5.742	20	40
XT6.0MJ	6.000	20	40
XT6.5MJ	6.500	20	40
∗ The level at 1MHz shall be made for a reference (0dB)			

Ceramic Discriminator JT MD Series For TV/VCR SIF Stage 4.5-6.5MHz

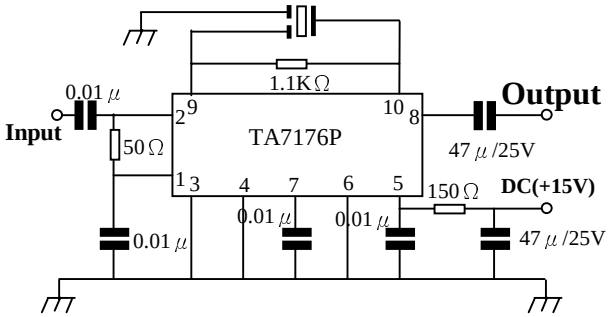
JT MD Series of Ceramic Discriminator
(Compatible to Murata CDA MD)

Token JT MD lines of ceramic discriminators are IC dependent devices used in the recovery of audio signals. The JT MC discriminators have three terminals with IC µPC1382C and quadrature detection while the JT MD discriminators with IC TA7176P.and differential peak detection.

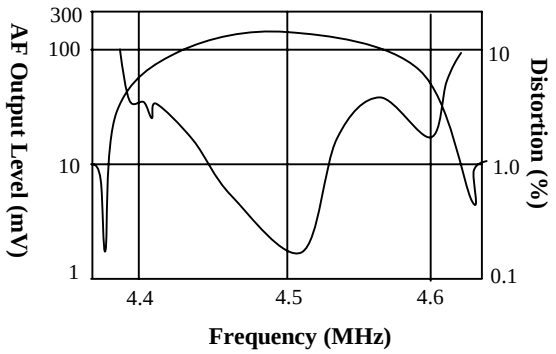
TECHNICAL CHARACTERISTICS					
Part Number	Recovered Audio Voltage (mV)	Recovered Audio3dB Band Width (KHz)	Distortion Factor (%)	Detection Method	Applicable IC
JT4.5MD	≧100	≧±50	≦3	Differential Peak	TA7176P
JT5.5MD	≧100	≧±50	≦3		TA7176P
JT6.0MD	≧100	≧±50	≦3		TA7176P
JT6.5MD	≧100	≧±50	≦3		TA7176P



JT MD TEST CIRCUIT



JT4.5MD

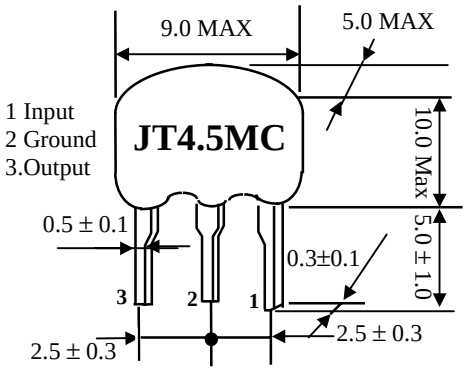


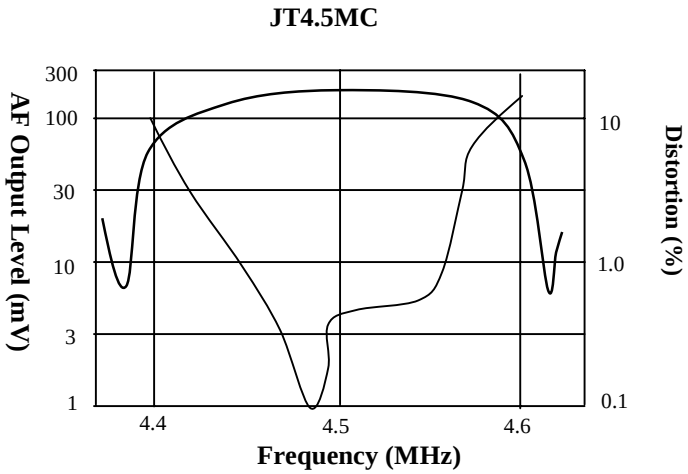
Ceramic Discriminator JT MC Series of For TV/VCR SIF Stage 4.5-6.5MHz

JT MC Series of Ceramic Discriminator
(Compatible to Murata CDA MC)

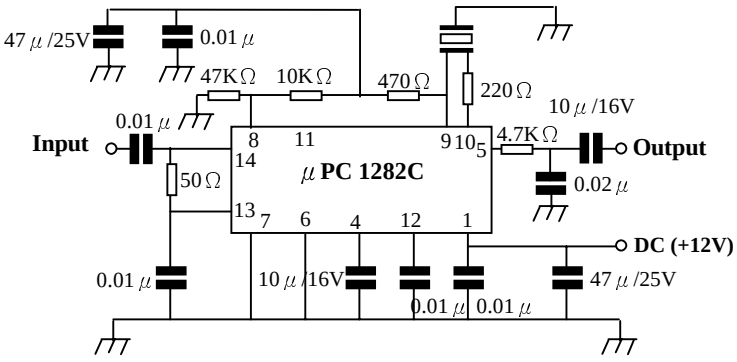
Token JT MC lines of ceramic discriminators are IC dependent devices used in the recovery of audio signals. The JT MC discriminators have three terminals with IC µPC1382C and quadrature detection while the JT MD discriminators with IC TA7176P.and differential peak detection.

TECHNICAL CHARACTERISTICS					
Part Number	**Recovered Audio Voltage (mV)**	**Recovered Audio 3dB Band Width (KHz)**	**Distortion Factor (%)**	**Detection Method**	**Applicable IC**
JT4.5MC	≧140	≧±55	≦1.5	Quadrature	µPC1382C
JT5.5MC	≧140	≧±55	≦1.5		µPC1382C
JT6.0MC	≧140	≧±60	≦1.5		µPC1382C
JT6.5MC	≧200	≧±60	≦1.5		µPC1382C

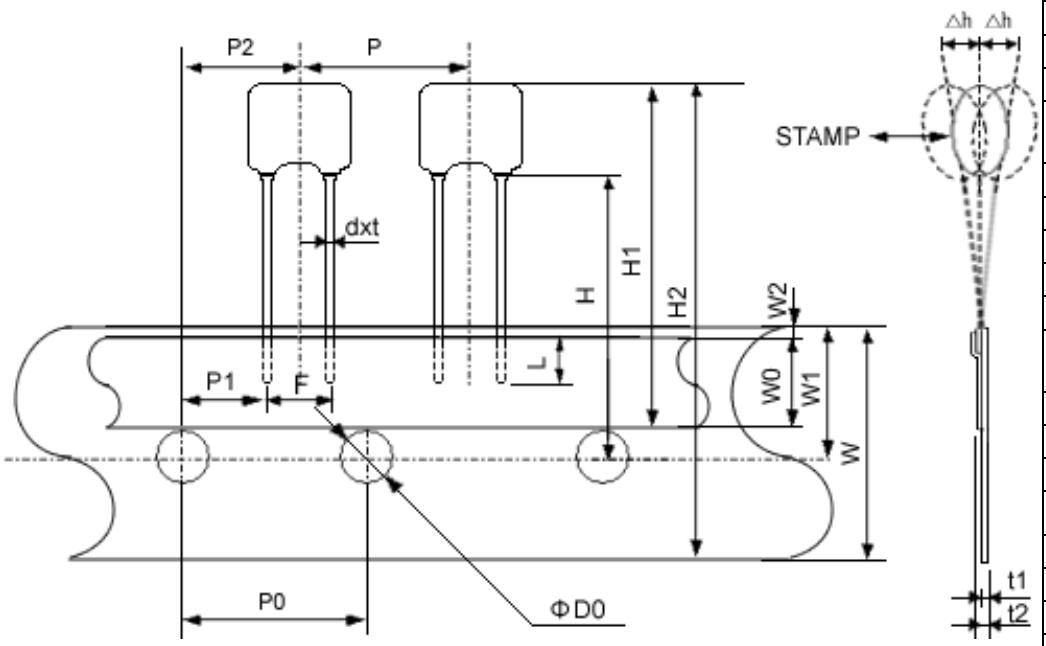




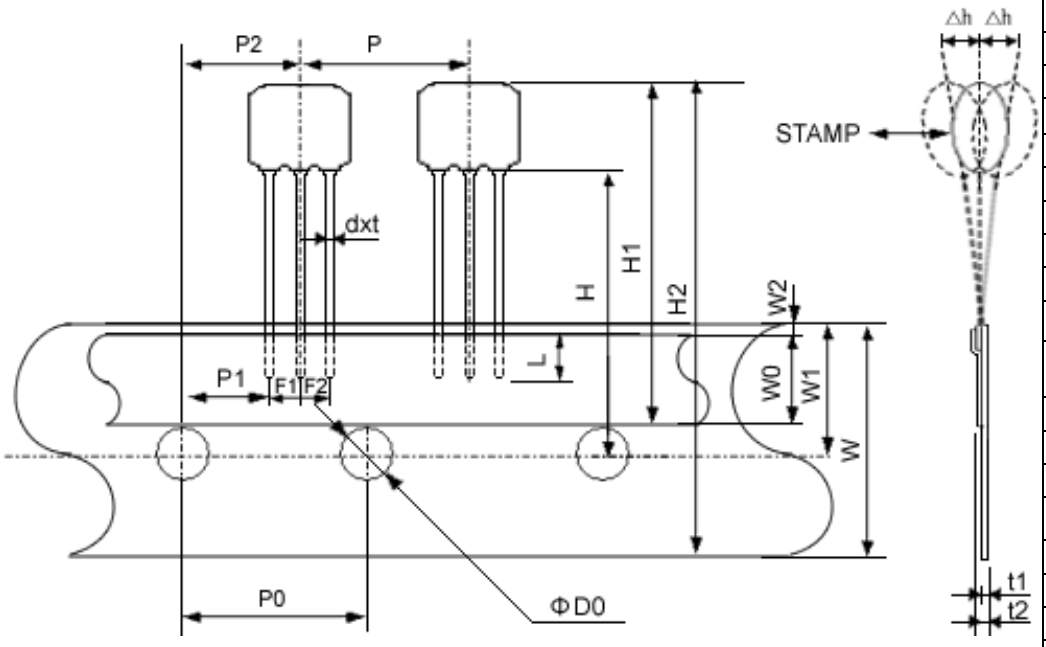
JT MC TEST CIRCUIT



Radial Taping Dimensions



Mark	Size(mm)
P	12.7±0.5
P0	12.7±0.2
P1	3.85±0.5
P2	6.35±1.3*
F	5.0
dxt	0.5×0.3(±0.1)
W	18.0±0.5
W0	5.5 ±0.5
W1	9.0±0.5
W2	1.0max
H	18.0
H1	27.0max**
H2	36.0max**
L	3.0min
ϕ DO	4.0±0.2
T1	0.6±0.2
T2	1.5max
△h	1.0max
∗ Include the slant of products	
∗ ∗ Varies with part number	



Mark	Size(mm)
P	12.7±0.5
P0	12.7±0.2
P1	3.85±0.5
P2	6.35±1.3*
F1	2.5±0.3
F2	2.5±0.3
dxt	0.5×0.3(±0.1)
W	18.0±0.5
W0	5.5 ±0.5
W1	9.0±0.5
W2	1.0max
H	$18.0^{+0.5}_{-1.0}$
H1	27.0max**
H2	36.0max**
L	3.0min
Φ D0	4.0±0.2
t1	0.6±0.2
t2	1.5max
△h	1.0max
∗ Include the slant of products	
∗ ∗ Varies with part number	

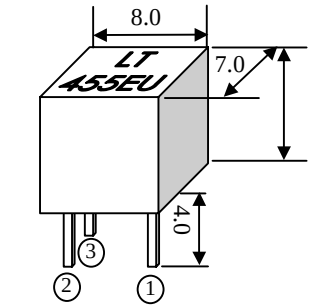
Ceramic Filter LT455/450 U/W Series For Communication 455/450KHz

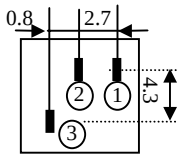
LT455/450 U/W Series of Ceramic Filter
(Compatible to Murata CF,SF)

Token LT 455/450 U/W ceramic filters are 4-element and 6-element devices connected in ladder form. These highly selective filters are designed to address the G.D.T. characteristics required in digital communications. The excellent G.D.T. characteristics allow these filters tube utilized in areas such as the mobile cellular markets as well as a variety of stereo applications. (Also available in 450KHz version.)

TECHNICAL CHARACTERISTICS

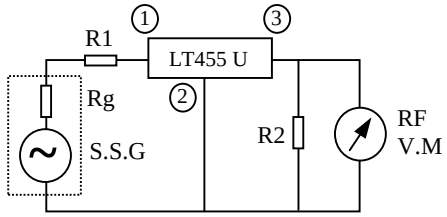
Part Number		Center Frequency (KHz)	Insertion Loss (dB) Max	Pass Band Ripple (dB) Max	6dB Band Width (KHz) Min	40dB Band Width (KHz) Max (LT455. U)	50dB Band Width (KHz) Max (LT455. W)	Stop Band Attenuation f_o ±100KHz (dB) Min		Input/output Impedance (Ω)
								LT (455. U)	LT (455. W)	
LT455BU	LT455BW	455±2.0	4	2	±15	±30	±30	28	40	1500
LT455CU	LT455CW	455±2.0	4	2	±12.5	±24	±24	28	40	1500
LT455DU	LT455DW	455±1.5	4	2	±10	±20	±20	28	40	1500
LT455EU	LT455EW	455±1.5	6	2	±7.5	±15	±15	28	40	1500
LT455FU	LT455FW	455±1.5	6	2	±6	±12.5	±12.5	28	40	2000
LT455GU	LT455GW	455±1.5	6	2	±4.5	±10	±10	28	40	2000
LT455HU	LT455HW	455±1.0	6	2	±3	±9	±9	28	40	2000
LT455IU	LT455IW	455±1.0	6	2	±2	±7.5	±7.5	28	40	2000
LT455HTU	LT455HTW	455±1.0	6	2	±3	±9	±9	35	60	2000



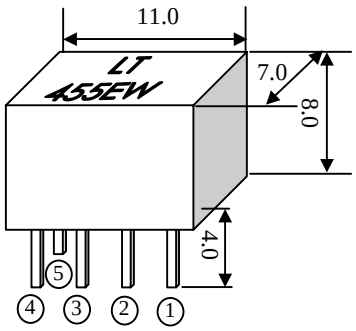


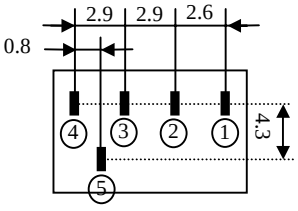
1. Input
2. Ground
3. Output

LT455U TEST CIRCUIT



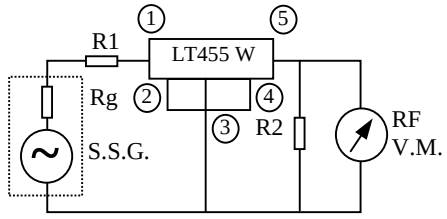
Rg+R1=R2=Input/Output Impedance



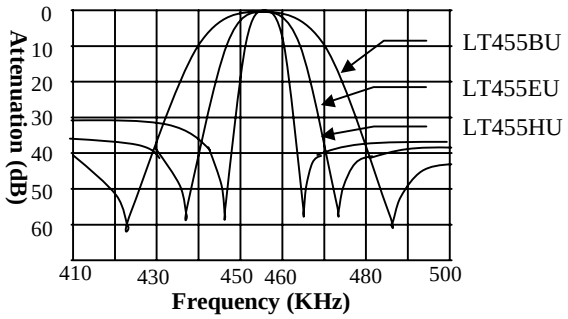


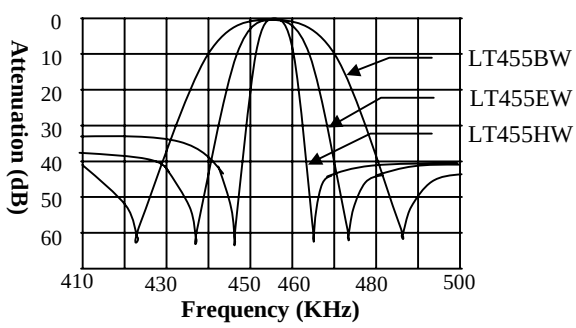
1. Input
2-3-4. Ground
5. output

LT455W TEST CIRCUIT



Rg+R1=R2=Input/Output Impedance



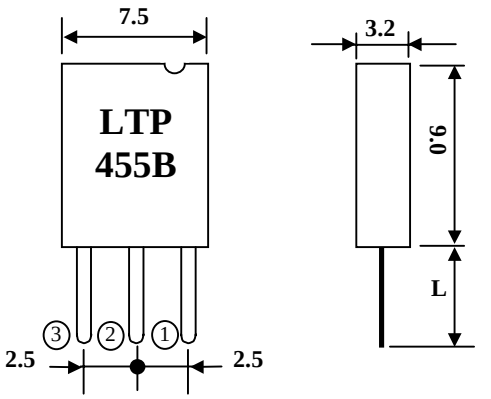


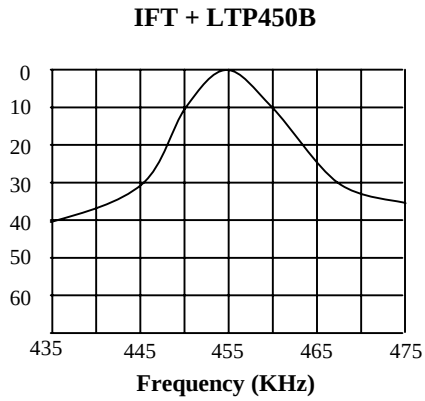
Ceramic Filter LTP Series For AM 450/470KHz

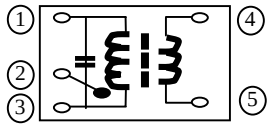
LTP Series of Ceramic Filter For AM
(Compatible to Murata SFU450/455)

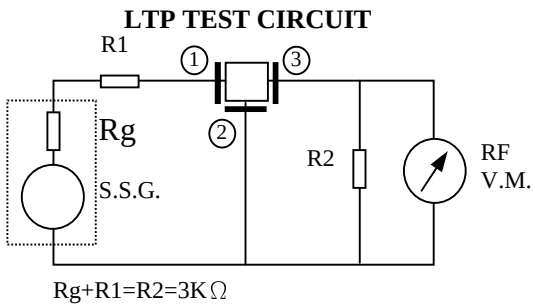
Token LTP and LTZ ceramic filters were designed to address the needs of standard AM filtering requirements. These filters are recommended for use in low cost products where economically, efficient designs are critical.

TECHNICAL CHARACTERISTICS							
Part Number	3dB Band	Selectivity (dB) min		Insertion Loss	Composition	Lead Length L (mm)	
	Width (KHz)	-9KHz off	+9KHz off	(dB) max		L1	L2
LTP455A	10±3	5.0	3.0	5.0	one element	3.6	5.0
LTP455B	10±3	5.0	3.0	5.0	one element with IFT		
LTP450BY	7±2	6.5	5.5	5.0			
LTP450BY1	4.5±1.5	9.5	8.5	5.0			





Type	LTP455B		
 Winding Specification From bottom	1~2	2~3	4~6
Winding Specification	70T	115T	7T
Unload Qu	105		
Tuning Capacity	180pF		



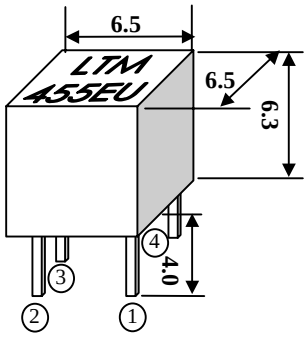
Ceramic Filter LTM455/450□U/W Series For Communication | 455/450KHz

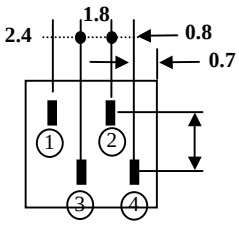
LTM455/450 U/W Series
(Compatible to Murata SFUM/WM 455/450)

Token LTM 455/450 U/W series of ceramic filters are miniaturized versions of the Murata CFU/CFWS lines. These compact, highly selective filters are recommended for use in applications ranging from two-way radio to auxiliary filters in high-class transceivers. These ultra-miniature versions consume approximately 40% less volume while still offering the same high performance filter characteristics.

TECHNICAL CHARACTERISTICS

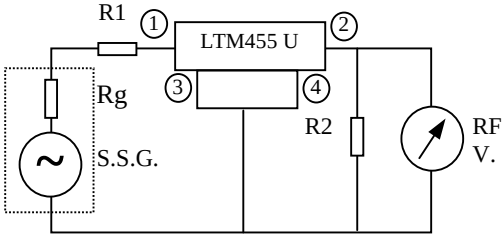
Part Number		Center Frequency (KHz)	Insertion Loss (dB) Max	Pass Band Ripple (dB) Max	6dB Band Width (KHz) Min	40dB Band Width (KHz) Max LTM 455□U	50dB Band Width (KHz) Max LTM 455□W	Stop Band Attenuation f_o ±100KHz (dB) Min LTM (455□U)	Stop Band Attenuation f_o ±100KHz (dB) Min LTM (455□W)	Input/output Impedance (Ω)
LTM455BU	LTM455BW	455±2.0	4	2	±15	±30	±30	28	40	1500
LTM455CU	LTM455CW	455±2.0	4	2	±12.5	±24	±24	28	40	1500
LTM455DU	LTM455DW	455±1.5	4	2	±10	±20	±20	28	40	1500
LTM45EU	LTM455EW	455±1.5	6	2	±7.5	±15	±15	28	40	1500
LTM455FU	LTM455FW	455±1.5	6	2	±6	±12.5	±12.5	28	40	2000
LTM455GU	LTM455GW	455±1.5	6	2	±4.5	±10	±10	28	40	2000
LTM455HU	LTM455HW	455±1.0	6	2	±3	±9	±9	28	40	2000
LTM455IU	LTM455IW	455±1.0	6	2	±2	±7.5	±7.5	28	40	2000
LTM455HTU	LTM455HTW	455±1.0	6	2	±3	±9	±9	35	60	2000



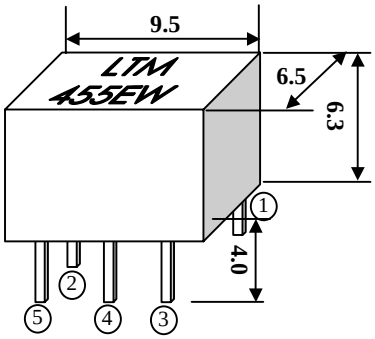


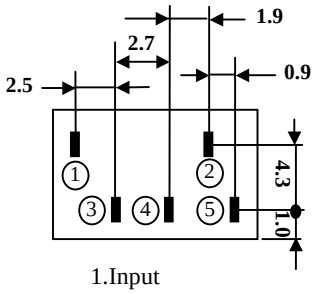
1.Input
3-4.Ground
2.Output

LTM/U TEST CIRCUIT



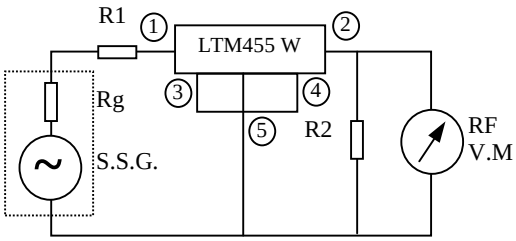
Rg+R1=R2=Input/Output Impedance





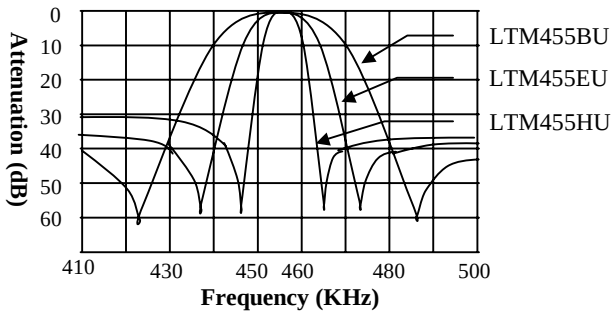
1.Input
3-4-5.Ground
2.Output

LTM/W TEST CIRCUIT

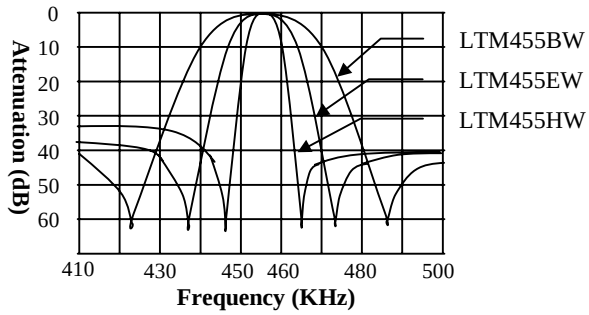


Rg+R1=R2=Input/Output Impedance

LTM455/U CHARACTERISTICS



LTM455/W CHARACTERISTICS



Ceramic Filter Miniature LT Series 450/470KHz

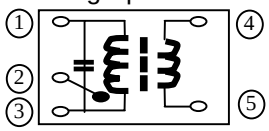
Miniature LT Series of Ceramic Filter
(Compatible to Murata PFB)

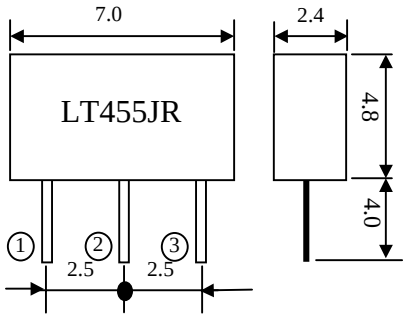
Token's ceramic filter for AM use is one of the most recommendable intermediate filters, having such distinctive features as high selectivity, high stability and adjustment-free operation. Additionally its easy matching with IC helps create an easy circuit design such as applications in Electric synthesized tuners, HiFi audio systems, AM stereo demodulations, One-chip non-adjustment IC's, and even smaller, thinner set structure to cope with these diversifying for AM receiver. Token ceramic filter features with center frequency between 450 and 470 KHz, standard tolerance ±2 KHz, and synthesizers for the types of center frequencies 450, 459 and468 KHz. Standard tolerance is ±1 KHz.

TECHNICAL CHARACTERISTICS				
Part Number	**3dB Band Width (KHz)**	**Selectivity ±9KHz off(dB)**	**Insertion Loss (dB)**	**Composition**
LT455JR	5.5±1.5	≧17	≦6	2 elements

Center Frequency (fo)is available in a range of 450-470KHz

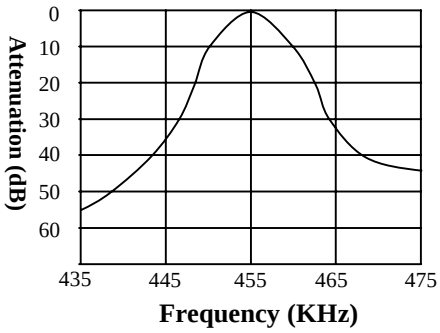
The nominal frequency tolerance is ±2KHz

Type	**7x7mm**			**5x5mm**		
Winding Specification  From bottom	1~2	2~3	4~6	1~2	2~3	4~6
	85T	67T	23T	84T	98T	33T
unloaded Qu	90			65		
Tuning Capacity	180pF			180pF		



1.Input
2.Ground
3.Output

IFT + LT455JR



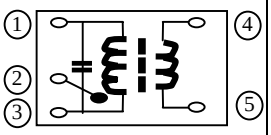
Ceramic Filter LTZ Series For AM 450/470KHz

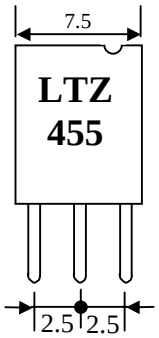
LTZ Series of Ceramic Filter For AM
(Compatible to Murata SFZ)

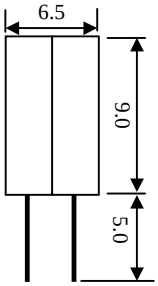
Token LTP and LTZ ceramic filters were designed to address the needs of standard AM filtering requirements. These filters are recommended for use in low cost products where economically, efficient designs are critical.

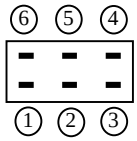
TECHNICAL CHARACTERISTICS				
Part Number	**3dB Band Width (KHz)**	**Selectivity ±9KHz Off**	**Insertion Loss (dB)**	**Composition**
LTZ455HL	4.0±1	28	7	2 elements direct coupling type
LTZ455JL	5.5±1	18	7	

Center Frequency (fo)is available in a range of 450-470KHz
The nominal frequency tolerance is+2KHz

Recommended IFT (7mm Square)			
Type	LTZ455HL/JL		
Winding Specification	1~2	2~3	4~6
 From bottom	68T	84T	14T
Unloaded Qu	90		
Tuning Capacity	180PF		

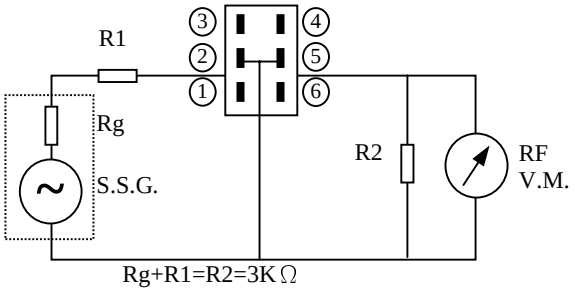




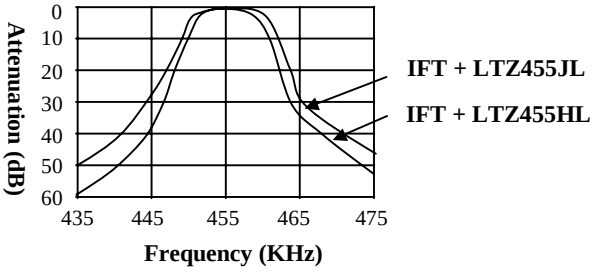


1.Input
5-2.Ground
4-3.Direct Couple
6.Output

LTZ TEST CIRCUIT



LTZ CHARACTERISTICS

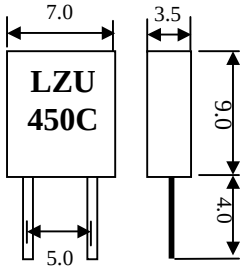


Ceramic Filter LZU Series for Search-Stop Signal Detection 450KHz

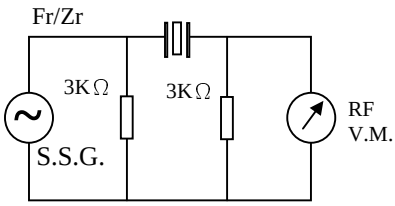
LZU Series Of Ceramic Filter
(Compatible to Murata BFU)

Token ceramic filter LZU 450 KHz search stop signal detection were specifically designed for signal detection circuitry used in applications such as that found in the search-stop functions of electronically tuned radios. Center frequency is also available in LTZ series a range of 450 KHz ~ 470 KHz.

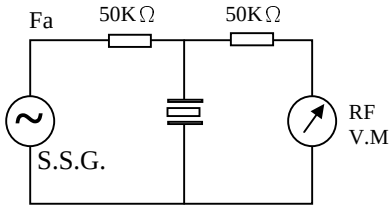
TECHNICAL CHARACTERISTICS				
Part Number	Resonant Frequency (KHz)	Resonant Resistance (Ω) max	Band Width (Fa-Fr) KHz	Application
LZU450C	450±1	20	14±2	IF signal detection
LZU450C4N	450±0.8	30	9±2	



LZU TEST CIRCUIT-Fr/Zr



LZU TEST CIRCUIT-Fa



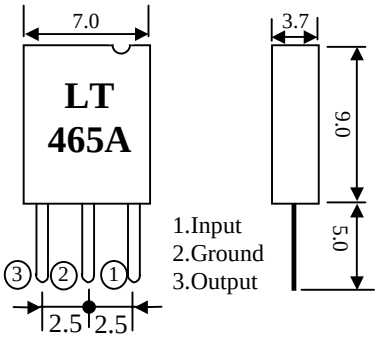
Ceramic Filter LT Series for Radio-Cassette Recorder 450/470KHz

LT SERIES FOR RADIO-CASSETTE RECORDER

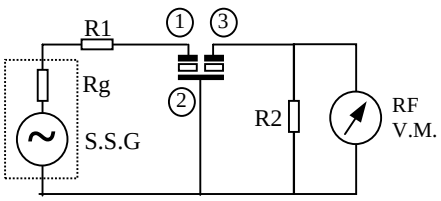
Token LT465A ceramic filters were designed to address the needs of standard radio cassette recorder requirements. These filters are recommended for use in low cost products where economically, efficient designs are critical. The nominal frequency tolerance is ±2 KHz.

TECHNICAL CHARACTERISTICS						
Part Number	Insertion loss (db)	Pass Band Width (KHz)	Stop Band Width (KHz)	Selectivity ±9KHz off	Ripple (dB)	Input/Output Impedance (KΩ)
LT465A	≦3	≦8	≦12	≦11	≦1	2

Center Frequency(to)is available in a range of 450-470KHz
The nominal frequency tolerance is ±2KHz

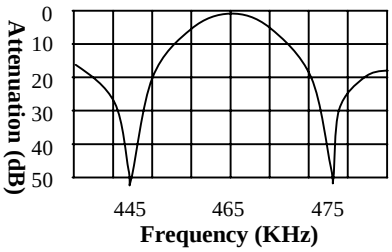


LT TEST CIRCUIT



Rg+R1=R2=Input/Output Impedance

LT465A



Ceramic Discriminator JTM Series for Communication 455KHz

JTM Series of Ceramic Discriminator For Communication (455kHz)

Token JTM discriminator including features with small in size and light weight, realize non-adjustment in detection circuit, high sensitivity and stability, wide range of standard products are available for various ICs, operating temperature range:-20°C to +80°C and storage temperature range:-40°C to +85°C. Standard line includes products for a wide range of applications, from cordless telephones to cellular telephones, making non-adjustment and shrinking of the detection circuit possible.

TECHNICAL CHARACTERISTICS					
Part Number	Center Frequency f_o(KHz)	Recovered Audio 3dB BW (KHz) min	Recovered Audio Output (mV) min	Distortion Factor At f_o (%) max	Applicable IC
JTM455C_2	455±2			3	TA8104F
JTM455C_3	455±2			3	CTA1184N
JTM455C_{28}	455±2	fn±4	40±25	3	TA31142FN
JTM455C_{32}	455±2	fn±4	40±20	3	TA31143