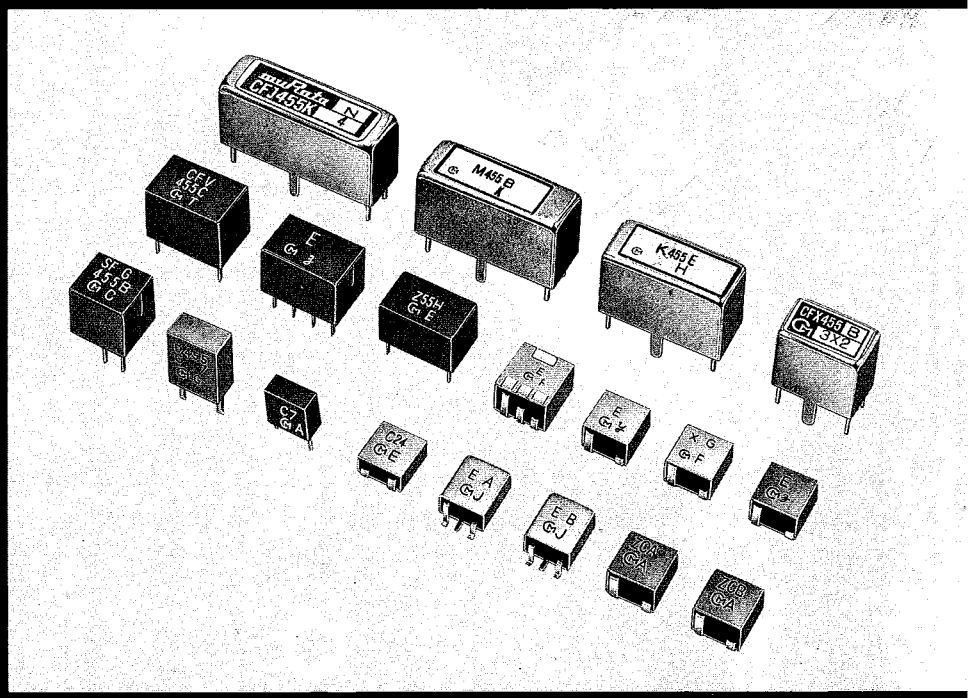
CERAMIC FILTER (CERAFIL®)/CERAMIC DISCRIMINATOR FOR COMMUNICATIONS EQUIPMENT

CERAMIC FILTER/ CERAMIC DISCRIMINATOR FOR COMMUNICATIONS EQUIPMENT



muRata

MURATA MFG. CO., LTD.

Cat. No. P05E-5

CERAMIC FILTER (CERAFIL®) *CERAFIL® is the Registered Trademark of Murata's Ceramic Filters. muRata

Ceramic Filter for Communications Equipment

■METAL CASE TYPE

Type	Part Number	6dB Bandwidth (KHz)max. A ±17.5	B ±15	C ±13	D ±10	E ±8	E10 ±7.5	F ±6	G ±4	H ±3	I ±2	J ±1.5	K Total 1.0~3.2	Attenuation (dB) min. WITHIN 455±80 or ±100kHz	Page Number
High Selectivity Series	CFK455□(11 Elements)	—	●	●	●	●	●	●	●	●	●	●	—	80	3
	CFX455□(9 Elements)	—	●	●	●	●	●	●	●	●	●	●	—	70	
	CFS455□(15 Elements)	●	●	●	●	●	—	●	●	●	●	●	—	70(J : 60)	
	CFR455□(11 Elements)	●	●	●	●	●	—	●	●	●	●	●	—	60(E~I : 55)	
	CFL455□(9 Elements)	—	●	●	●	●	●(±7.0)	●	●	●	●	—	—	60	
	CFG455□(7 Elements)	—	●	●	●	●	●(±7.0)	●	●	●	●	●	—	50	
	CFM455□(9 Elements)	●	●	●	●	●	●	●	●	●	●	—	—	50(E~H : 45)	
	CFJ455□(11 Elements)	—	—	—	—	—	—	—	—	—	—	—	●	60	

Type	Part Number	Features	Page Number
G.D.T. Flat Type Series	CFKR455□(11 Elements)	High selectivity, small G.D.T. deviation, Bandwidth : D~H	6
	CFL455□G(9 Elements)	High selectivity, small G.D.T. deviation, Bandwidth : A~E	7

■PLASTIC CASE TYPE

Type	Part Number	6dB Bandwidth (KHz)max. A ±17.5	B ±15	C ±12.5	D ±10	E ±7.5	E10 ± 7	F ± 6	G ±4.5	H ± 3	I ± 2	HT ± 3	IT ± 2	Attenuation (dB) min. WITHIN 455±80 or ±100kHz	Page Number
High Selectivity Series	CFU455□2(4 Elements)	—	●	●	●	●	—	●	●	●	●	●	●	27 {G~I : 25 / HT,IT : 35}	8
	CFW455□(6 Elements)	—	●	●	●	●	—	●	●	●	●	●	●	35 (HT,IT : 60)	9
	CFV455□(7 Elements)	—	●	●(±13)	●	●(±8)	●	●	●(±4)	●	●	—	—	50	10
High Selectivity Low Profile Series	CFWS455□(6 Elements)	—	—	—	●	●	—	●	●	—	—	—	—	35	11
	CFVS455□(7 Elements)	—	—	—	●	●(±8)	●	●	●(±4)	●	—	—	—	50	12
High Selectivity Miniature Series	CFYM455□(2 Elements)	—	●	●	●	●	—	●	—	—	—	—	—	12 (B : 11)	13
	CFUM455□(4 Elements)	—	●	●	●	●	—	●	●	●	●	—	—	27 {G,I : 25 / H,I : 55}	
	CFWM455□(6 Elements)	—	●	●	●	●	—	●	●	●	●	—	—	35 (H,I : 55)	
	CFVM455□(7 Elements)	—	●	●(±13)	●	●(±8)	●	●	●(±4)	●	—	—	—	50	15
	CFZM455□(9 Elements)	—	●	●(±13)	●	●(±8)	●(±7.5)	●	●(±4)	●	—	—	—	70	
G.D.T. Flat Type	SFG455□(4 Elements)	—	●	●	●	●	—	●	●	—	—	—	—	25 {D~F : 23 / G : 20}	17
	SFH455□(6 Elements)	●	●	●	●	●	—	●	●	—	—	—	—	35	18
G.D.T. Flat Type Miniature Series	SFGM455□(4 Elements)	—	●	●	●	●	—	●	●	—	—	—	—	25 {D~F : 23 / G : 20}	19
	SFHM455□(6 Elements)	●	●	●	●	●	—	●	●	—	—	—	—	35	

■SMD TYPE

Type	Part Number	6dB Bandwidth (KHz)max. A ±17.5	B ±15	C ±12.5	D ±10	E ±7.5	E10 ± 7	F ± 6	G ±4.5	H ± 3	I ± 2	HT ± 3	IT ± 2	Attenuation (dB) min. WITHIN 455±80 or ±100kHz	Page Number
High Selectivity Series (Metal Case Type)	KMFC601□(3 Elements×2)	—	—	—	—	●	—	●	●	—	—	—	—	35	21
	KMFC602□(3 Elements×3)	—	—	—	—	●(±8)	—	●	●(±4)	—	—	—	—	70	23
High Selectivity Series (Plastic Case Type)	SFPC455□(4 Elements)	—	—	—	●	●	—	●	●	●	—	—	—	27 {G ; 25 / H ; 25}	25
High Selectivity Series (Plastic Case Type)	CFUCG455□(4 Elements)	—	—	—	●	●	—	●	●	—	—	—	—	27 (G ; 25)	27
Narrow Bardwidth G.D.T. Flat Type Miniature Series (Plactic Case Type)	CFUCG455□X(4 Elements)	—	—	—	—	—	—	●	●	—	—	—	—	27 (G ; 25)	29
G.D.T. Flat Type Miniature Series (Plastic Case Type)	SFGCG455□(4 Elements)	●	●	●	●	●	—	—	—	—	—	—	—	25 (D~E; 23)	31
G.D.T. Flat Type High Selectivity SMD Series (Plastic Case Type)	KMFC626□(4 Elements×2)	—	—	●	—	—	—	—	—	—	—	—	—	55	33

Ceramic Discriminator for Communications Equipment

■CERAMIC DISCRIMINATOR FOR QUADRATURE DETECTION

Type	Part Number	Features	Page Number
Standard Series	**CDB455C□**	Ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	35
Miniature Series	**CDBM455C□**	Small sized ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	
Wide Bandwidth Series	**CDB455CL□**	Wide bandwidth ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	
Wide Bandwidth Miniature Series	**CDBM455CL□**	Small sized, wide bandwidth ceramic discriminator for quadrature detection, eliminating adjustment in detection circuit.	
SMD series	**CDBC455CX□**	Reflow solderable SMD ceramic discriminator for quadrature detection, non-adjustment.	
Wide Bandwidth SMD Series	**CDBC455CLX□**	Reflow solderable wide bandwidth SMD ceramic discriminator for quadrature detection, non-adjustment.	

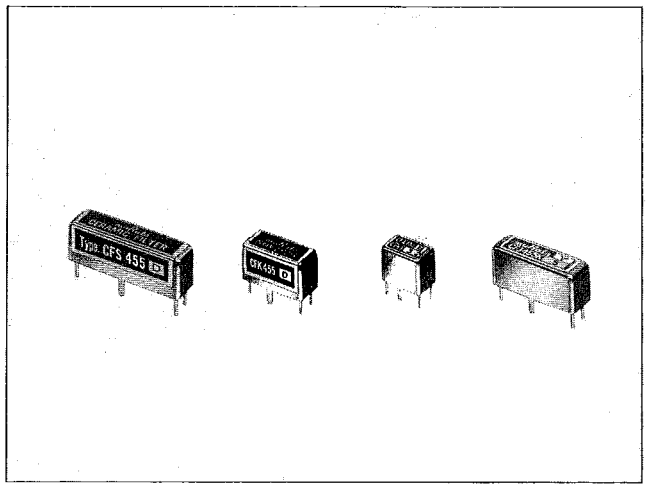
■IC LIST

I C	Applicable Part Number						Page Number
	CDB455C□	CDBM455C□	CDBC455CX□	CDB455CL□	CDBM455CL□	CDBC455CLX□	
MC3357	●	●	●				7
MC3371	—	●					18
MC3372	●	●	●				16
MC13136	●	●					34
LA8610	—	●					4
NE604	●	●	●	●	●		9
NE605	●	●	●				29
CXA1003BM	●	●		●	●	●	13
CXA1183BM	—	●					15
CXA1184BM	●	●					3
CXA1474	—	●					33
CXA1484	—	●					25
TK10487	●	●					27
TK14501	●	●					30
TK10930	●	●					35
TA8103F	●	●					10
TA8104F	—	●	●				2
TA31132	●	●		●	●	●	21
TA31136	●	●	●				24
TA31141	—	●	●				31
TA31142	●	●	●				28
TA31143	●	●	●				32

"—" Not available Part Number
Please feel free to ask us on other IC. We will arrange the discriminator.

High Performance Ceramic Filters for Various Types of Radio Equipment

CF□ series ceramic filters are high-performance filters, which consist of piezoelectric elements connected in a ladder form. They can be widely used as intermediate-frequency filters in various high-class receivers, SSB communications equipment, mobile radio set.



■FEATURES

1. High selectivity.
2. Stable operation in a wide temperature range.
3. Variety of bandwidths available to suit your needs.

CFS455□	High selectivity type filter using 15 ceramic elements
CFR455□	11 ceramic elements used. The characteristic standard of this filter located between CFS455 and CFM455.
CFM455□	Economic ceramic filter using 9 ceramic elements.
CFK455□	Miniature but having characteristics equivalent to CFS455. Most suitable for portable radios which are required to be mimiaturized.
CFL455□	Another miniature type. Characteristics are equivalent to CFR455 and the size is the same as CFK455□. Enables immediate improvement of characteristics.
CFX455□	One of the smallest of our ceramic filters. It is provided with characteristics equivalent to CFL455. Perfect for portable radios and particularly, pagers.
CFG455□	The other of our smallest filters. Characteristics equivalent to CFM455. Perfect for receivers and radio equipment which require particular miniaturization.
CFJ455□	Most suitable type for SSB communications for which narrow bands are particularly needed.

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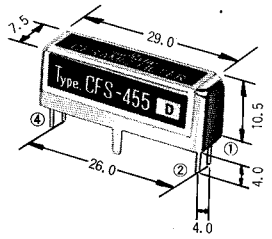
Ceramic Filter for Communications Equipment CF□455□ Series

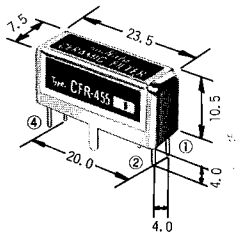
CFS455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	80dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFS455A	455	±13	±17.5	3	±30	70	50	4	1500
CFS455B	455	±10	±15	3	±25	70	50	4	1500
CFS455C	455	± 9	±13	3	±23	70	50	4	1500
CFS455D	455	± 7	±10	3	±20	70	50	4	1500
CFS455E	455	± 5.5	± 8	3	±15	70	50	6	1500
CFS455F	455	± 4.2	± 6	3	±12	70	50	6	2000
CFS455G	455	——	± 4	3	± 9	70	50	6	2000
CFS455H	455	——	± 3	3	± 7.5	70	50	7	2000
CFS455I	455	——	± 2	3	± 5	70	50	8	2000
CFS455J	455	——	± 1.5	3	± 4.5	60	50	8	2000

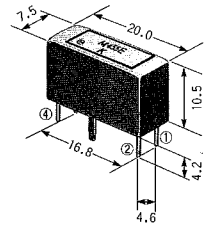
CFR455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	70dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFR455A	455	±13	±17.5	3	±30	60	40	4	1000
CFR455B	455	±10	±15	3	±25	60	40	4	1000
CFR455C	455	± 9	±13	3	±23	60	40	4	1000
CFR455D	455	± 7	±10	3	±20	60	40	4	1500
CFR455E	455	± 5.5	± 8	3	±16	55	40	6	1500
CFR455F	455	± 4.2	± 6	3	±12	55	40	6	2000
CFR455G	455	——	± 4	3	±10	55	40	6	2000
CFR455H	455	——	± 3	3	± 7.5	55	40	7	2000
CFR455I	455	——	± 2	3	± 5	55	40	8	2000
CFR455J	455	——	± 1.5	3	± 4.5	55	40	8	2000

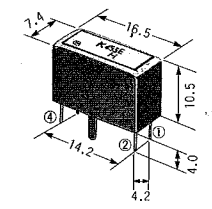
CFM455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	60dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFM455A	455	±13	±17.5	3	±30	50	30	3	1000
CFM455B	455	±10	±15	3	±25	50	30	3	1000
CFM455C	455	± 9	±13	3	±23	50	30	3	1000
CFM455D	455	± 7	±10	3	±20	50	30	3	1500
CFM455E	455	± 5.5	± 8	3	±16	45	30	5	1500
CFM455F	455	± 4.2	± 6	3	±12	45	30	6	2000
CFM455G	455	——	± 4	3	±10	45	30	6	2000
CFM455H	455	——	± 3	3	± 7.5	45	30	6	2000
CFM455I	455	——	± 2	3	± 5	45	30	7	2000

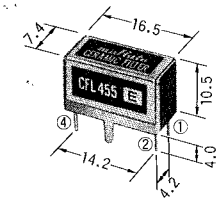
CFK455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	70dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFK455B	455	±10	±15	3	±25	80	50	4	1000
CFK455C	455	± 9	±13	3	±23	80	50	4	1000
CFK455D	455	± 7	±10	3	±20	80	50	4	1500
CFK455E	455	± 5.5	± 8	3	±16	80	50	6	1500
CFK455E10	455	± 5	± 7.5	3	±12.5	80	50	6	1500
CFK455F	455	± 4.2	± 6	3	±12	80	50	6	2000
CFK455G	455	——	± 4	3	±10	80	50	6	2000
CFK455H	455	——	± 3	3	± 7.5	80	50	7	2000
CFK455I	455	——	± 2	3	± 5	70	50	8	2000
CFK455J	455	——	± 1.5	3	± 4.5	70	50	8	2000

CFL455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	70dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFL455B	455	±10	±15	3	±25	60	40	4	1000
CFL455C	455	± 9	±13	3	±23	60	40	4	1000
CFL455D	455	± 7	±10	3	±20	60	40	4	1500
CFL455E	455	± 5.5	± 8	3	±16	60	40	6	1500
CFL455E10	455	± 5	± 7	3	±12.5	60	40	6	1500
CFL455F	455	± 4.2	± 6	3	±12	60	40	6	1500
CFL455G	455	——	± 4	3	±10	60	40	6	1500
CFL455H	455	——	± 3	3	± 7.5	60	40	7	1500
CFL455I	455	——	± 2	3	± 5	60	40	8	2000

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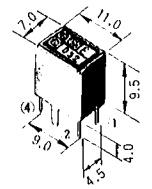
Ceramic Filter for Communications Equipment CF□455□ Series

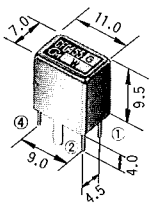
CFX455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	70dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFX455B	455	±10	±15	3	±25	70	40	4	1000
CFX455C	455	± 9	±13	3	±23	70	40	4	1000
CFX455D	455	± 7	±10	3	±20	70	40	4	1500
CFX455E	455	± 5.5	± 8	3	±16	70	40	6	1500
CFX455E10	455	± 5.0	± 7.5	3	±12.5	70	40	6	1500
CFX455F	455	± 4.2	± 6	3	±12	70	50	6	1500
CFX455G	455	——	± 4	3	±10	70	50	6	1500
CFX455H	455	——	± 3	3	± 7.5	70	50	7	1500
CFX455I	455	——	± 2	3	± 5	70	50	8	2000
CFX455J	455	——	± 1.5	3	± 4.5	70	50	8	2000

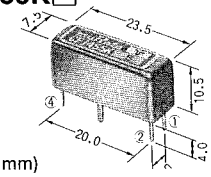
CFG455□



(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	60dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFG455B	455	±10	±15	3	±25	50	25	4	1000
CFG455C	455	± 9	±13	3	±23	50	25	4	1000
CFG455D	455	± 7	±10	3	±20	50	25	4	1500
CFG455E	455	± 5.5	± 8	3	±16	50	25	6	1500
CFG455E10	455	± 5	± 7	3	±12.5	50	25	6	1500
CFG455F	455	± 4.2	± 6	3	±12	50	25	6	1500
CFG455G	455	——	± 4	3	±10	50	25	6	1500
CFG455H	455	——	± 3	3	± 7.5	50	25	6	1500
CFG455I	455	——	± 2	3	± 5	50	25	6	2000
CFG455J	455	——	± 1.5	3	± 4.5	50	25	8	2000

CFJ455K□



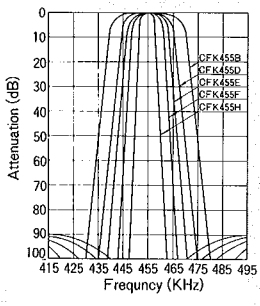
(Unit : mm)

Part Number \ Characteristics	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	60dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFJ455K5	455	——	2.4 (Total)	2	4.5 (Total)	——	60 (40 at 600 ~700KHz)	6	2000
CFJ455K14	455	——	±1.1~±1.3	2	4.5 (Total)	——	60 (40 at 600 ~700KHz)	7	2000
CFJ455K8	455	——	1.0 (Total)	1.5	3.0 (Total)	60	——	8	2000

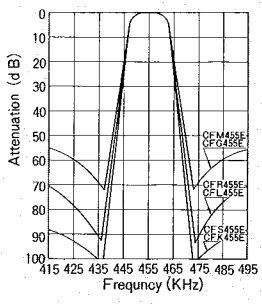
1. Operating temperature range is −20℃ to +80℃. 2. Aging variation of frequency is within 0.4 % over 10 years.
3. Ripple definition range is within the 3 dB bandwidth mentioned in the standards list whenever the 3 dB bandwidth standard is provided. It is within a 6 dB bandwidth mentioned in the standards list whenever 3 dB bandwidth is not provided.

■EXAMPLES OF CHARACTERISTICS

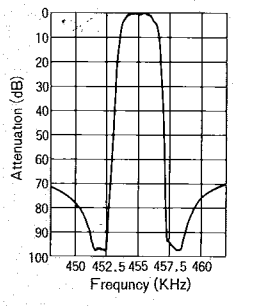
● Frequency Characteristics of the CFK455 Series



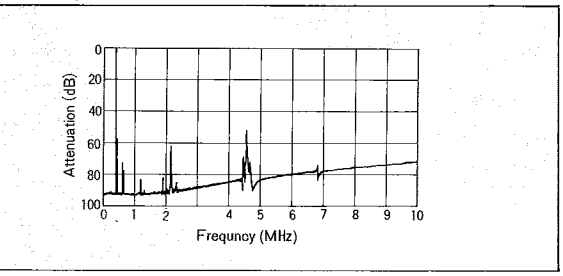
● Frequency Characteristics Comparison of the CF□455E Series



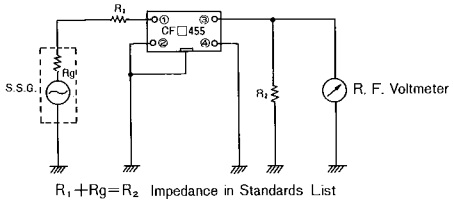
● Frequency Characteristics of CFJ455K5



● Spurious Response of CFS455E

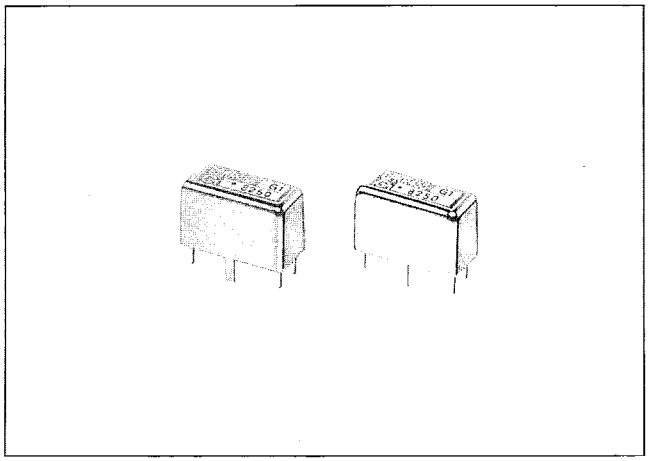


● Measuring Circuit Diagram of the CF□455□Series



Low Insertion Loss, G.D.T. Flat Type Metal Cased Ceramic Filter for Digital Communications

The CFKR455□ is high-selectivity type ceramic filter with a metal-case and 11-elements. Insertion loss is low, and group delay characteristics are excellent. Recommended for digital communications or cellular phones.



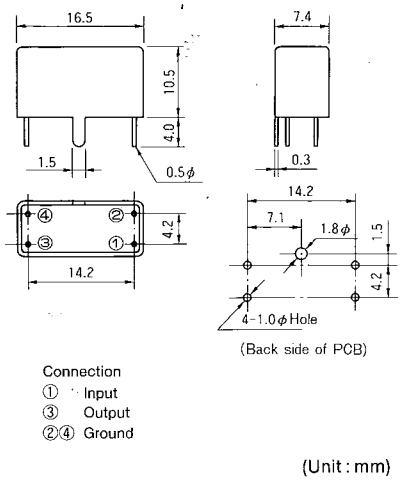
■FEATURES

1. Because of the low insertion loss, these are suitable for narrow bandwidths.
2. Favorable group delay characteristics can be obtained in the pass bandwidth.
3. High selectivity. Attenuation is 60dB min.

■SPECIFICATIONS

Item / Part Number	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz) min.	6dB Bandwidth (KHz) min.	Stop Bandwidth (KHz) max.	Attenuation 455±100KHz (dB)min.	Insertion Loss (dB)max.	G.D.T deviation (μsec.) max.	Input/Output Impedance (Ω)
CFKR455E1	455	±5.8	—	±17.0 (70dB B.W.)	70	4	40 (±6KHz)	1500
CFKR455G1	455	±3.0	±4.0	±11.5 (60dB B.W.)	70	6	35 (±4KHz)	1500
CFKR455H3	455	—	±3.5	±11.2 (60dB B.W.)	60	6	25 (±3.5KHz)	1500

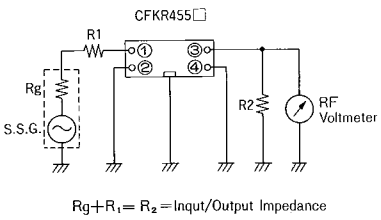
■DIMENSIONS



Connection
① Input
③ Output
②④ Ground

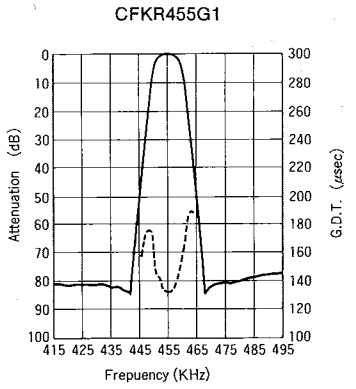
(Unit : mm)

■MEASURING CIRCUIT



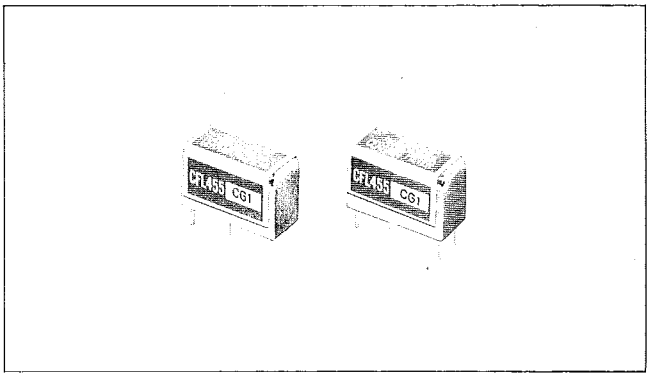
$Rg+R_1 = R_2$ = Inqut/Output Impedance

■FREQUENCY CHARACTERISTICS



G.D.T. Flat type, Metal cased Ceramic Filter for Digital Communications

The CFL455□G is high-selectivity type ceramic filter with a metal-case and 9-elements. wide bandwidths can be covered, and group-delay characteristics are excellent. Recommended for digital communications or cellular phones.



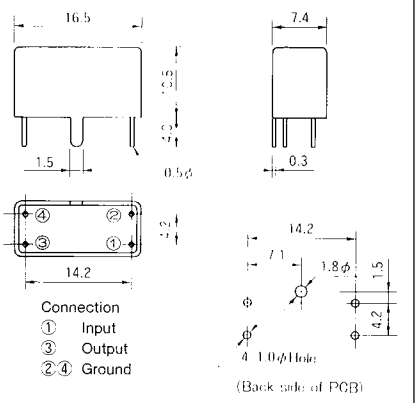
■FEATURES

1. Suitable for wide bandwidths.
   Filters with pass bandwidths of about 40 to 15KHz are available.
2. Favorable group delay characteristics can be obtained in the pass bandwidth.
3. High selectivity. Attenuation is 60dB min.

■SPECIFICATIONS

Item / Part Number	Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	60dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	G. D. T. deviation (μsec.) max.	Input/Output Impedance (Ω)
CFL455AG2	455±1.0	—	±17.5~ ±19.5	48dB min. (±29KHz)	65 (±40KHz)	40	7.5	40 (±15KHz)	1000
CFL455BG5	455 Nominal	±10.5	±13.5	±27.5	60	30	10	25 (±10.5KHz)	1000
CFL455CG1	455 Nominal	±9.5	±12	±25.5	60	30	10	35 (±9.5KHz)	1000
CFL455DG2	455 Nominal	± 7	± 9	±21	60	30	11	35 (±7KHz)	1000
CFL455EG1	455 Nominal	± 5	± 7	±18	60	30	13	30 (±5KHz)	1500

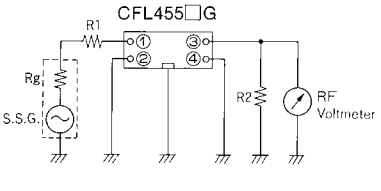
■DIMENSIONS



Connection
① Input
③ Output
②④ Ground

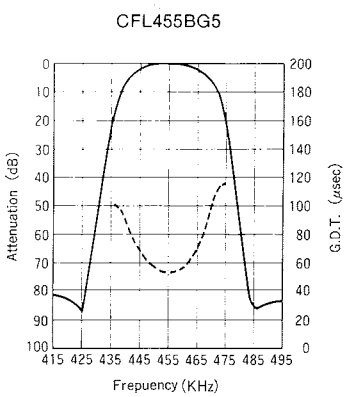
(Unit : mm)

■MEASURING CIRCUIT



Rg+R1=R2=Input/Output Impedance

■FREQUENCY CHARACTERISTICS



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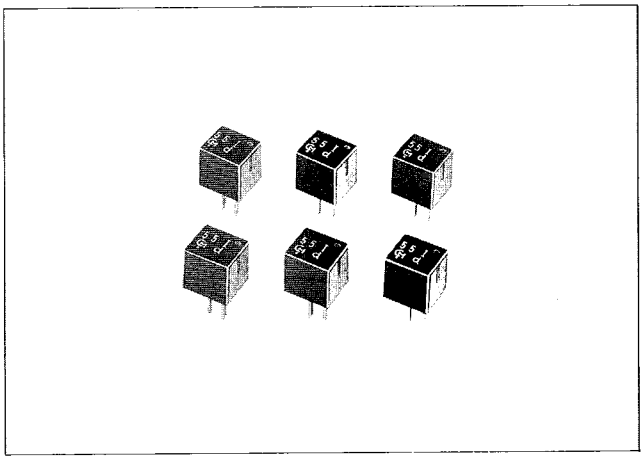
Ceramic Filter for Communucations Equipment **CFU455** Series

Resin Molded, High Selectivity Type Ceramic Filter (4-Element)

Ceramic filter CFU455 series are high selectivity ceramic filters which consist of 4 ceramic elements connected in a ladder form.
They are recommended for use as filters for transceivers or auxiliary filters for high-class transceivers.



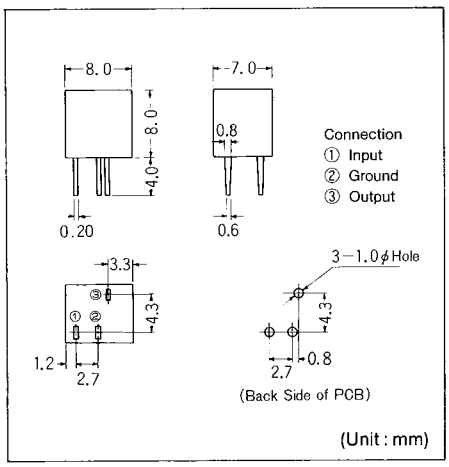
■FEATURES

1. High selectivity.
2. The pass bandwidths from 30KHz to 4KHz are available.
3. Easily mountable onto printed boards.

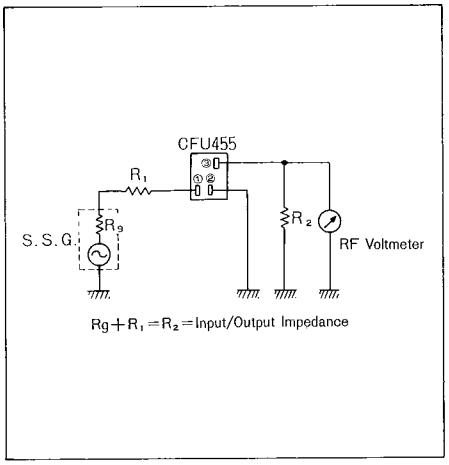
■SPECIFICATIONS

Characte-ristics / Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	40dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFU455B2	455±2	±15	±30	27	4	1500
CFU455C2	455±2	±12.5	±24	27	4	1500
CFU455D2	455±1.5	±10	±20	27	4	1500
CFU455E2	455±1.5	± 7.5	±15	27	6	1500
CFU455F2	455±1.5	± 6	±12.5	27	6	2000
CFU455G2	455±1	± 4.5	±10	25	6	2000
CFU455H2	455±1	± 3	± 9	25	6	2000
CFU455I2	455±1	± 2	± 7.5	25	6	2000
CFU455HT	455±1	± 3	± 9	35	6	2000
CFU455IT	455±1	± 2	± 7.5	35	6	2000

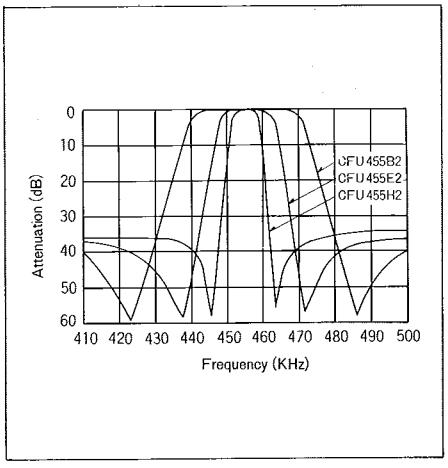
■DIMENSIONS



■MEASURING CIRCUIT



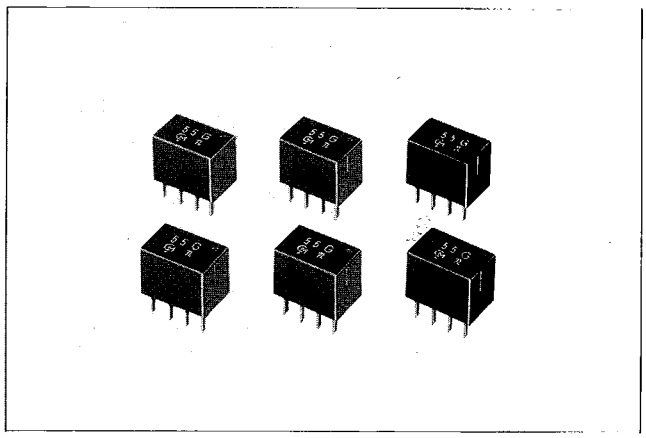
■FREQUENCY CHARACTERISTICS



Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.
Avoid directly applying a direct current to output of ceramic filters (between ③ and ②).

Resin Molded, High Selectivity Ceramic Filter (6-Element)

The CFW455 series ceramic filters are high selectivity units which use 6 elements in a ladder configuration. They have the same electrical characteristics as the CFWS455 series. They are best suited for application in high-performance tramsceivers, cordless telephones and personal radios.



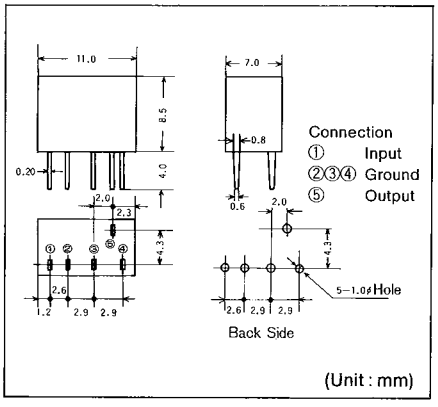
■FEATURES

1. High selectivity.
2. Available bandwidths are B to I as standard.
3. Easily mountable on an any PC board.

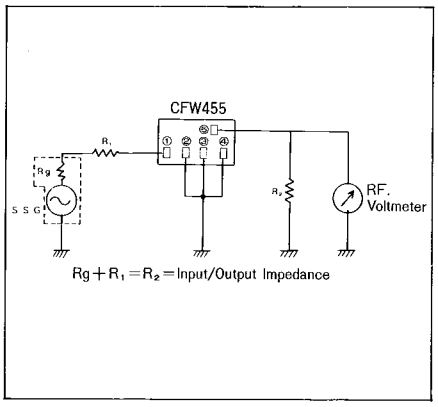
■SPECIFICATIONS

Characte-ristics / Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) max.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFW455B	455	±15	±30	35	4	1500
CFW455C	455	±12.5	±24	35	4	1500
CFW455D	455	±10	±20	35	4	1500
CFW455E	455	± 7.5	±15	35	6	1500
CFW455F	455	± 6	±12.5	35	6	2000
CFW455G	455	± 4.5	±10	35	6	2000
CFW455H	455	± 3	± 9	35	6	2000
CFW455I	455	± 2	± 7.5	35	7	2000
CFW455HT	455	± 3	± 9	60	6	2000
CFW455IT	455	± 2	± 7.5	60	7	2000

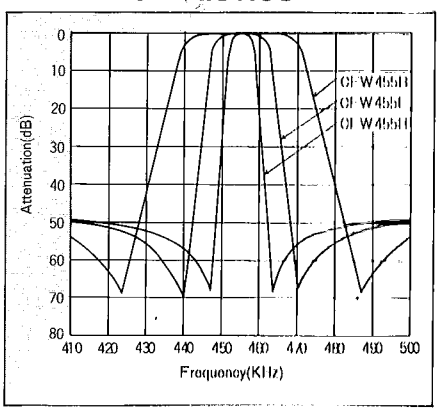
■DIMENSIONS



■MEASURING CIRCUIT



■FREQUENCY CHARACTERISTICS



Note : For Safety purposes, connect the output of these filters to an IF amplifier through a DC blocking capacitor. Avoid applying a direct current to the output of ceramic filters (between ⑤ and ②, ③, ④).

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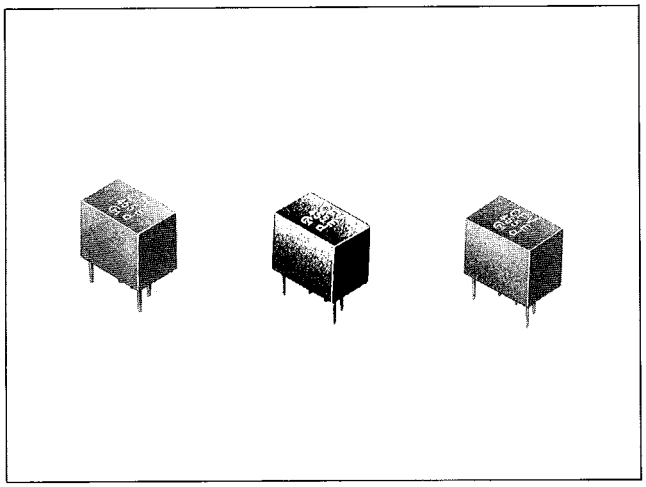
Ceramic Filter for Communications Equipment **CFV455** Series

Resin Molded, High Selectivity Ceramic Filter (7-Element)

The CFV455 series ceramic filter are high selectivity units which use 7 elements in a ladder configuration. They have the same electrical characteristics as the CFG455 series and are applicable to high-performance transceivers, pagers, personal radios and cordless telephones.



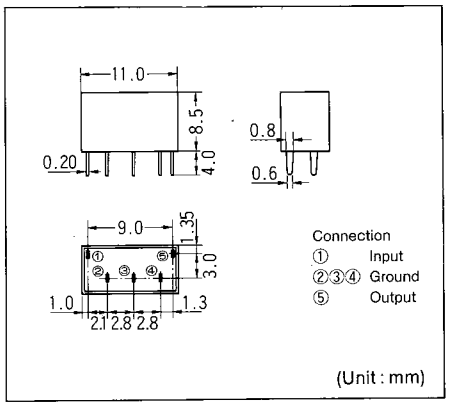
■FEATURES

1. High selectivity.
2. Bandwidths B to I are available.
3. Easily mounted on an any PC board.

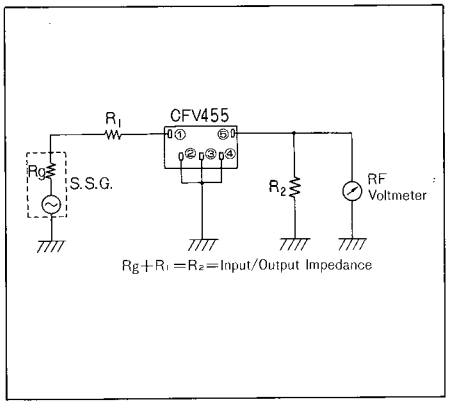
■SPECIFICATIONS

Characteristics / Part Number	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	60dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFV455B	455	±10	±15	3	±25	50	25	4	1000
CFV455C	455	± 9	±13	3	±23	50	25	4	1000
CFV455D	455	± 7	±10	3	±20	50	25	4	1500
CFV455E	455	± 5.5	± 8	3	±16	50	25	6	1500
CFV455E10	455	± 5	± 7	3	±12.5	50	25	6	1500
CFV455F	455	± 4.2	± 6	3	±12	50	25	6	1500
CFV455G	455	———	± 4	3	±10	50	25	6	1500
CFV455H	455	———	± 3	3	± 7.5	50	25	6	1500
CFV455I	455	———	± 2	3	± 5	50	25	6	2000

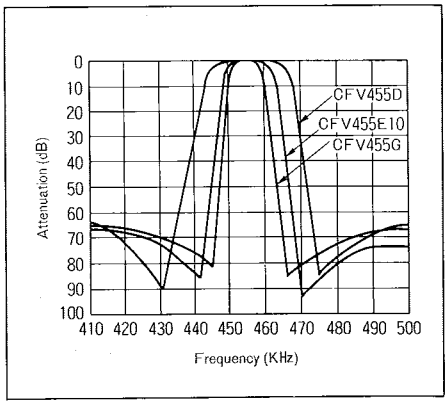
■DIMENSIONS



■MEASURING CIRCUIT



■FREQUENCY CHARACTERISTICS



Note : For Safety purposes, connect the output of filters to the IF amplifier through a DC blocking capacitor. Avoid applying a direct current to the output of ceramic filters (between ⑤ and ②③④)

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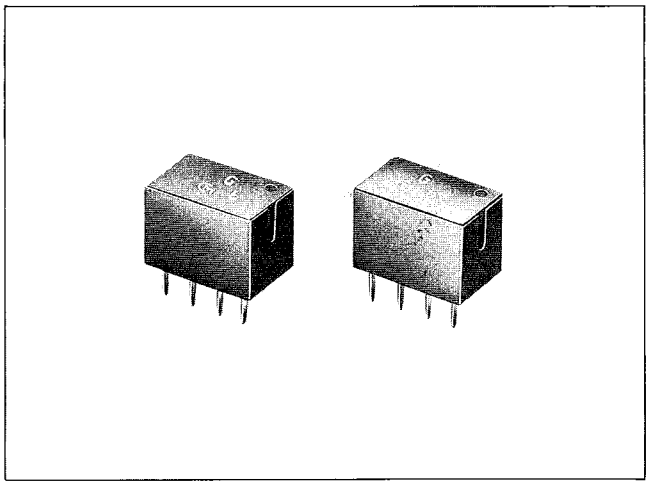
Ceramic Filter for Communications Equipment **CFWS455** Series

Resin Molded, High Selectivuty Low Profile Type Ceramic Filter (6-Element)

Ceramic filter CFWS455 series are low profile high selectivity ceramic filters which use 6 elements in ladder form. They have the same electric characteristics as CFW455 series, best suitable to high-class transceivers, cordless telephones and amateur radios.



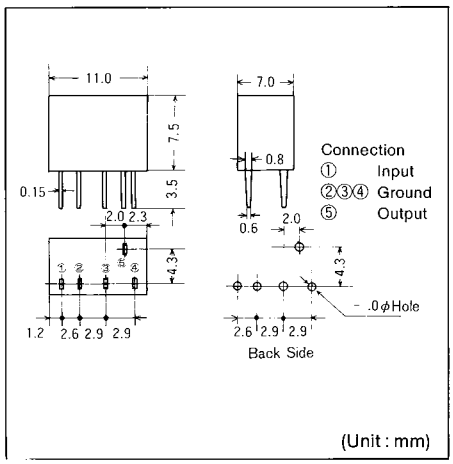
■FEATURES

1. Low profile,high selectivity.
2. Available bandwidths are D to G as standard.
3. Easily mountable on an any PC board.

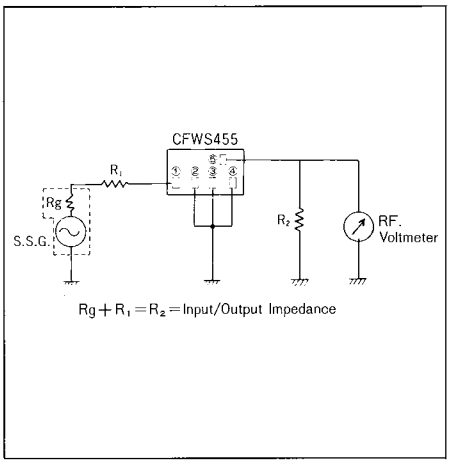
■SPECIFICATIONS

Characte-ristics / Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) max.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFWS455D	455	±10	±20	35	4	1500
CFWS455E	455	± 7.5	±15	35	6	1500
CFWS455F	455	± 6	±12.5	35	6	2000
CFWS455G	455	± 4.5	±10	35	6	2000

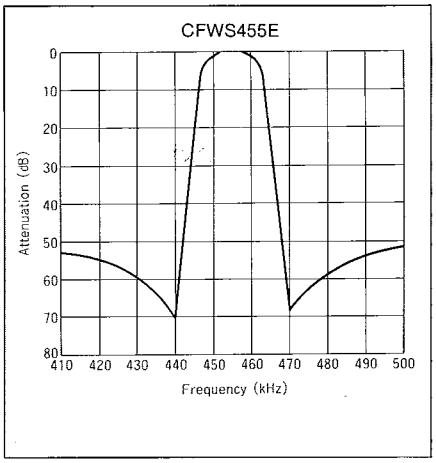
■DIMENSIONS



■MEASURING CIRCUIT



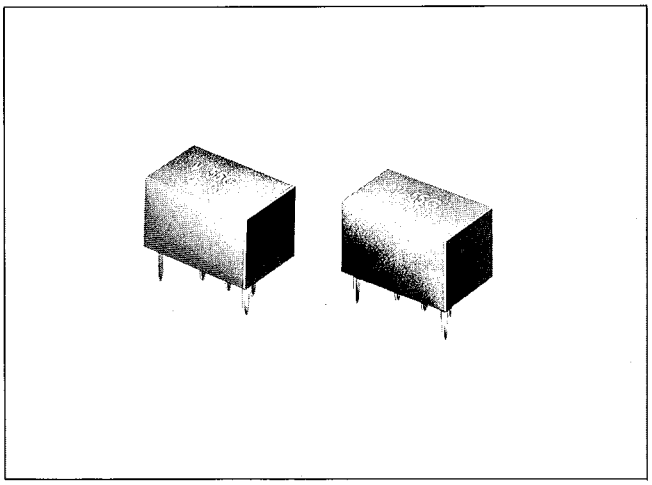
■FREQUENCY CHARACTERISTICS



Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.
Avoid directly applying a direct current to output end of ceramic filters (between ⑤ and ②, ③, ④).

Miniature, Resin Molded, High Selectivity Low Profile Type Ceramic Filter (7-Element)

Ceramic filter CFVS455 series are low profile high selectivity ceramic filter which use 7 elements in ladder form. They have the same electric characteristics as CFV455 series applicable to high class transceivers, pagers, amateur radios and cordless telephones.



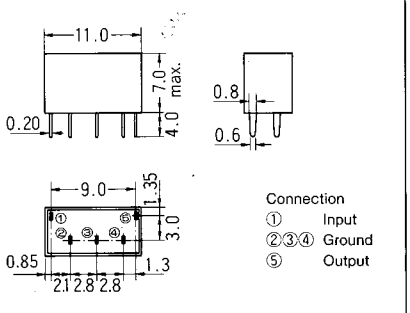
■FEATURES

1. Low profile, high selectivity.
2. Bandwidths D to H are available to meet your needs.
3. Easily mountable on an any PC board.

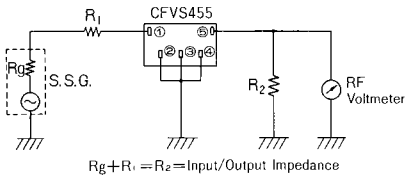
■SPECIFICATIONS

Characte-ristics / Part Number	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	60dB Bandwidth (KHz)max.	Attenuation 455±100KHz (dB)min.	Spurious 0.1~1MHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFVS455D	455	±7	±10	3	±20	50	25	4	1500
CFVS455E	455	±5.5	± 8	3	±16	50	25	6	1500
CFVS455E10	455	±5	± 7	3	±12.5	50	25	6	1500
CFVS455F	455	±4.2	± 6	3	±12	50	25	6	1500
CFVS455G	455	———	± 4	3	±10	50	25	6	1500
CFVS455H	455	———	± 3	3	± 7.5	50	25	6	1500

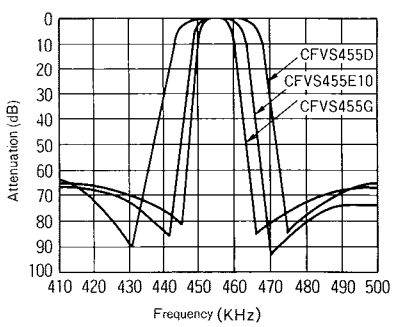
■DIMENSIONS



■MEASURING CIRCUIT



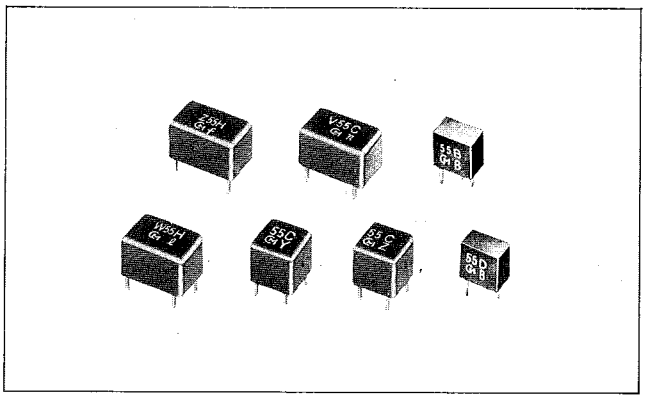
■FREQUENCY CHARACTERISTICS



Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifire through a DC cut capacitor.
Avoid directly applying a direct current to output end of ceramic filters (between ⑤ and ②③④)

Miniature High Selectivity Ceramic Filter for Radio Equipments

CF□M455□ series ceramic filters are miniature, high-performance ceramic filters composed of piezoelectric elements connected in a ladder form.
These filters, with only 6.3mm high, are 60% the volume of conventional types. They are well suited for miniaturizing various kinds of communications equipment, pocket pagers, car radios, cordless telephones and Mobile telephones.



■FEATURES

1. Miniature, High selectivity.
2. 2 elements, 4 elements, 6 elements, 7 elements and 9 elements types are all available, making selection easy in accordance with desired selectivity.
3. A variety of bandwidths are available.

■SPECIFICATIONS

● CFYM455□

Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	20dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFYM455B	455	±15	±30	11	4	1500
CFYM455C	455	±12.5	±24	12	4	1500
CFYM455D	455	±10	±20	12	4	1500
CFYM455E	455	± 7.5	±15	12	4	1500
CFYM455F	455	± 6	±12.5	12	4	2000

● CFYM455 series are miniature 2-element ceramic filters.

● CFUM455□

Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	40dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFUM455B	455	±15	±30	27	4	1500
CFUM455C	455	±12.5	±24	27	4	1500
CFUM455D	455	±10	±20	27	4	1500
CFUM455E	455	± 7.5	±15	27	6	1500
CFUM455F	455	± 6	±12.5	27	6	2000
CFUM455G	455	± 4.5	±10	25	6	2000
CFUM455H	455	± 3	± 9	35	6	2000
CFUM455I	455	± 2	± 7.5	35	7	2000

● CFUM455 series filters are 4-element ceramic filters and miniature versions of CFU455 series.

● CFWM455□

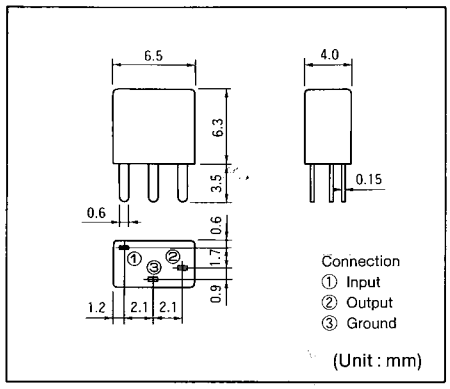
Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
CFWM455B	455	±15	±30	35	4	1500
CFWM455C	455	±12.5	±24	35	4	1500
CFWM455D	455	±10	±20	35	4	1500
CFWM455E	455	± 7.5	±15	35	6	1500
CFWM455F	455	± 6	±12.5	35	6	2000
CFWM455G	455	± 4.5	±10	35	6	2000
CFWM455H	455	± 3	± 9	55	6	2000
CFWM455I	455	± 2	± 7.5	55	7	2000

● CFWM455 series filters are 6-element ceramic filters and miniature versions of CFW455 series.

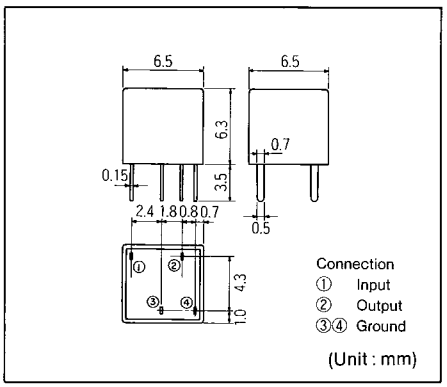
Miniature Ceramic Filter for Communications Equipment CF□M455□ Series

■DIMENSIONS

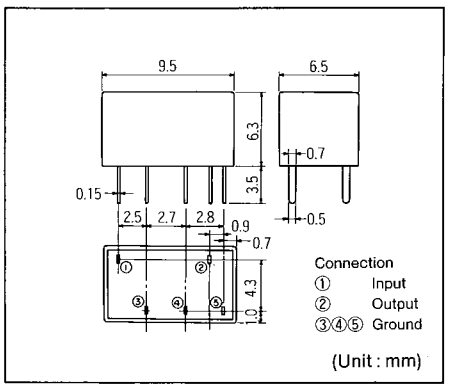
● CFYM455□



● CFUM455□



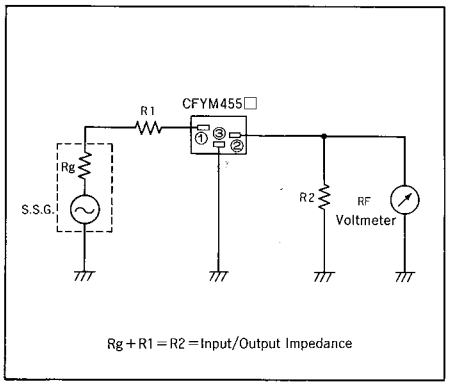
● CFWM455□



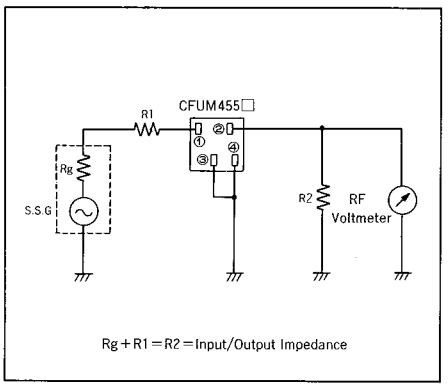
Note : To take best advantage of safety feature of ceramic filters, connect the output to an IF amplifire through a DC cut capacitor.
Avoid directly applying a direct current to output end of ceramic filters.

■MEASURING CIRCUITS

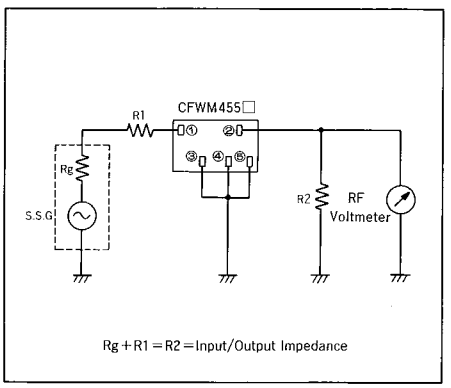
● CFYM455□



● CFUM455□

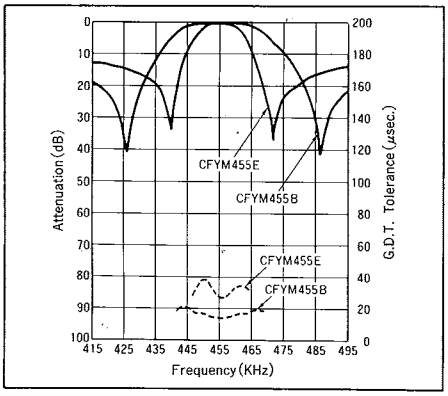


● CFWM455□

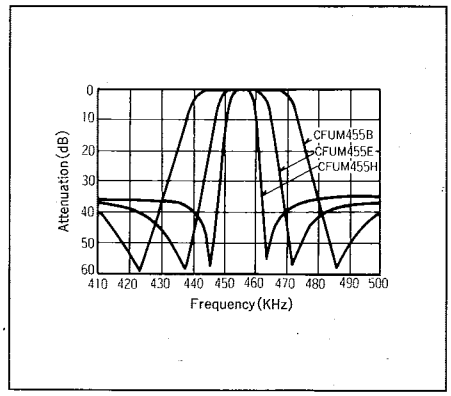


■FREQUENCY CHARACTERISTICS

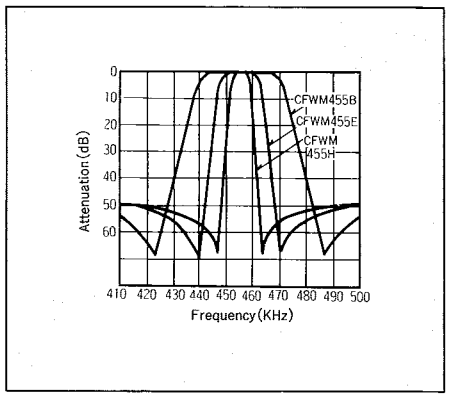
● CFYM455□



● CFUM455□



● CFWM455□



CERAMIC FILTER (CERAFIL®) *CERAFIL® is the Registered Trademark of Murata's Ceramic Filters. muRata

Miniature Ceramic Filter for Communications Equipment CF□M455□ Series

■SPECIFICATIONS

● CFVM455□

Part Number	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	60dB Bandwidth (KHz)max.	Attenuation (dB)min.	Spurious Response (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFVM455B	455	±10	±15	3	±25	50	25	4	1000
CFVM455C	455	± 9	±13	3	±23	50	25	4	1000
CFVM455D	455	± 7	±10	3	±20	50	25	4	1500
CFVM455E	455	± 5.5	± 8	3	±16	50	25	6	1500
CFVM455E10	455	± 5	± 7	3	±12.5	50	25	6	1500
CFVM455F	455	± 4.2	± 6	3	±12	50	25	6	1500
CFVM455G	455	———	± 4	3	±10	50	25	6	1500
CFVM455H	455	———	± 3	3	± 7.5	50	25	6	1500

● CFVM455 series filters are 7-element miniature versions of CFV455 series.

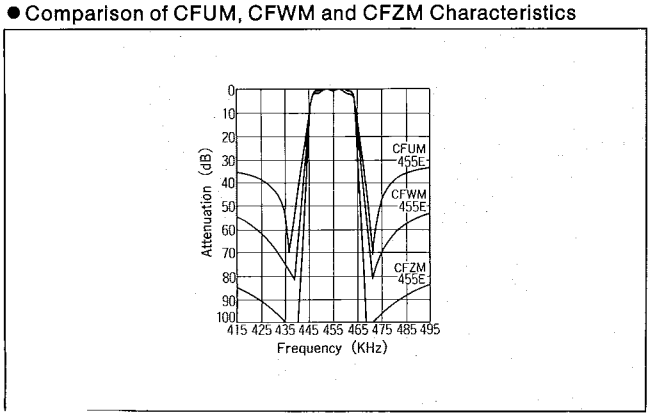
● CFZM455□

Part Number	Nominal Center Frequency (KHz)	3dB Bandwidth (KHz)min.	6dB Bandwidth (KHz)min.	Ripple (dB)max.	70dB Bandwidth (KHz)max.	Attenuation (dB)min.	Spurious Response (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)
CFZM455B	455	±10	±15	3	±25	70	40	4	1000
CFZM455C	455	± 9	±13	3	±23	70	40	4	1000
CFZM455D	455	± 7	±10	3	±20	70	40	4	1500
CFZM455E	455	± 5.5	± 8	3	±16	70	40	6	1500
CFZM455E10	455	± 5	± 7.5	3	±12.5	70	40	6	1500
CFZM455F	455	± 4.2	± 6	3	±12	70	50	6	1500
CFZM455G	455	———	± 4	3	±10	70	50	6	1500
CFZM455H	455	———	± 3	3	± 7.5	70	50	7	1500

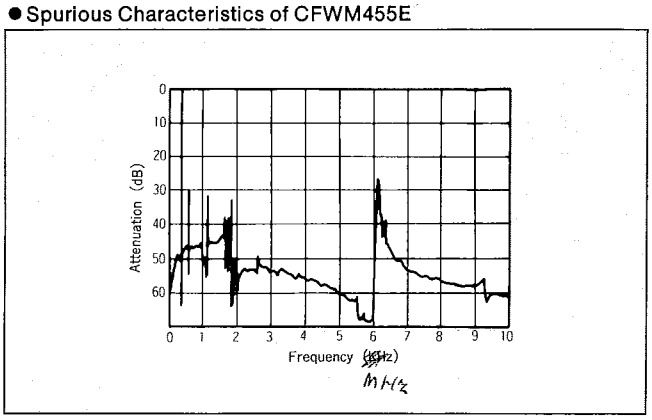
● CFZM455 series filters are 9-element ceramic filters and miniature versions of metal-case type CFX455 series. They are excellent for high- class equipment.

■TECHNICAL DATA

● Comparison of CFUM, CFWM and CFZM Characteristics



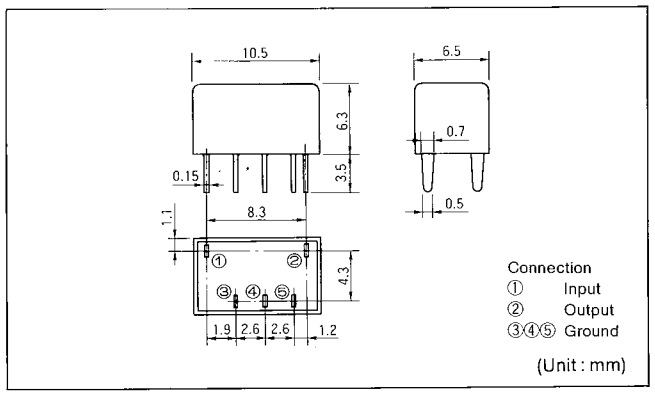
● Spurious Characteristics of CFWM455E



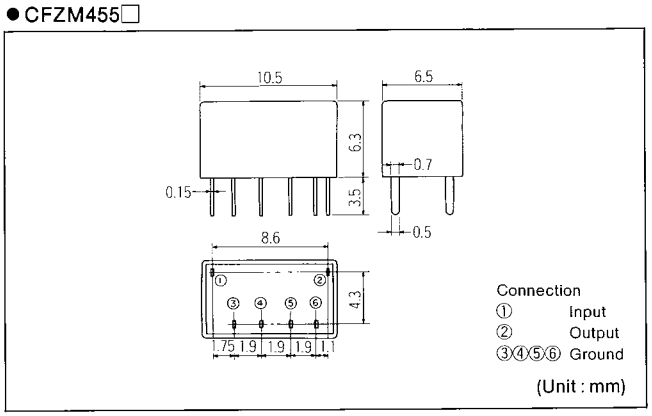
Miniature Ceramic Filter for Communications Equipment CF□M455□ Series

■DIMENSIONS

● CFVM455□

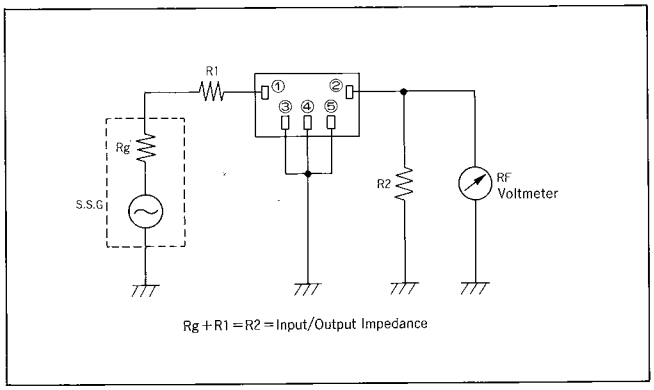


● CFZM455□

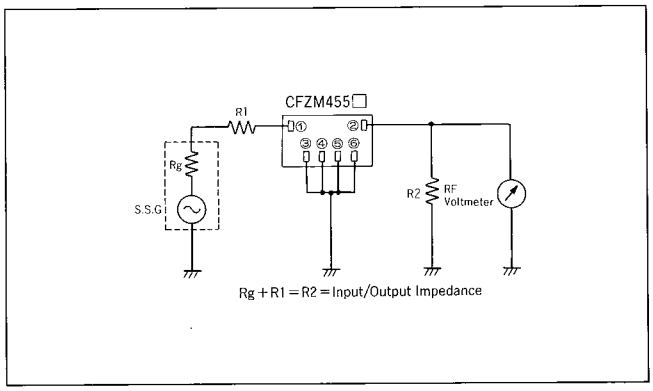


■MEASURING CIRCUITS

● CFVM455□

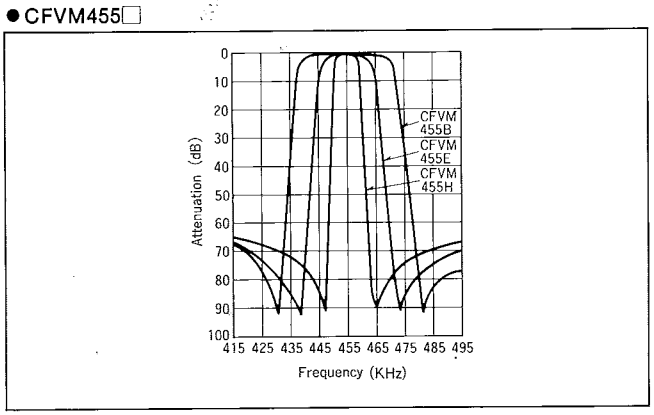


● CFZM455□

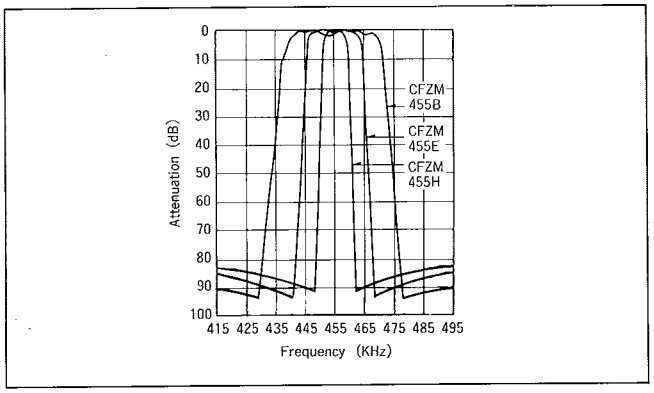


■FREQUENCY CHARACTERISTICS

● CFVM455□



● CFZM455□

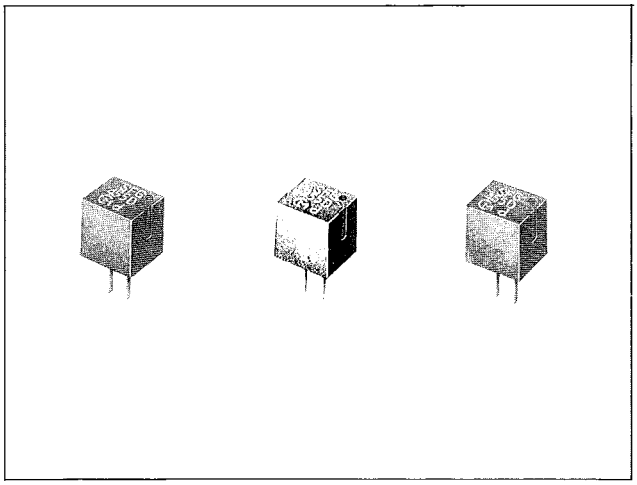


CERAMIC FILTER (CERAFIL®) *CERAFIL® is the Registered Trademark of Murata's Ceramic Filters. muRata

Ceramic Filter for Communications Equipment **SFG455** Series

Resin Molded, G.D.T. Flat Type Ceramic Filter

SFG455 series are high selectivity ceramic filters, which consist of 4 ceramic elements connected in a ladder form. Most suitable for digital communications and cellular phones because of their improved G.D.T. characteristics.



■FEATURES

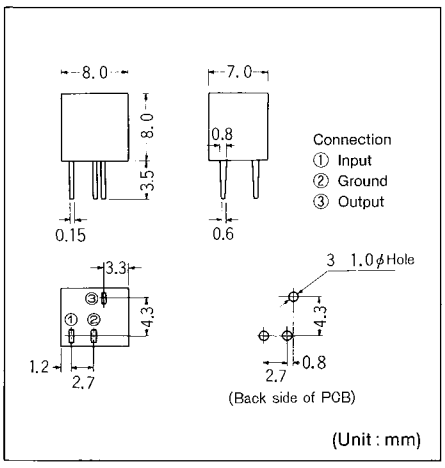
1. High selectivity.
2. A variety of bandwidth available.
3. Excellent G.D.T. characteristics are available within pass bandwidth.
4. Easily mounted on a printed circuit board.

■SPECIFICATIONS

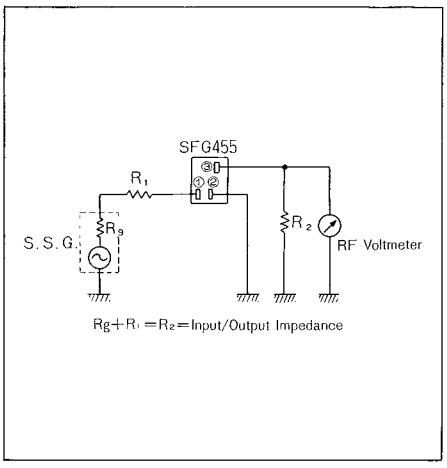
Characte-ristics / Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	40dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)	G.D.T Deviation ※ Typ. (μsec.)
SFG455B	455±1.5	±15	±35	25(455±80KHz)	5	1500	[30] (±15KHz)
SFG455C	455±1.5	±12.5	±30	25(455±80KHz)	6	1500	[30] (±12.5KHz)
SFG455D	455±1.0	±10	±25	23	7	1500	[30] (±10KHz)
SFG455E	455±1.0	± 7.5	±20	23	8	1500	[30] (±7.5KHz)
SFG455F	455±1.0	± 6	±17.5	23	9	2000	[20] (±6KHz)
SFG455G	455±1.0	± 4.5	±15	20	10	2000	[20] (±4.5KHz)

※Typical value.

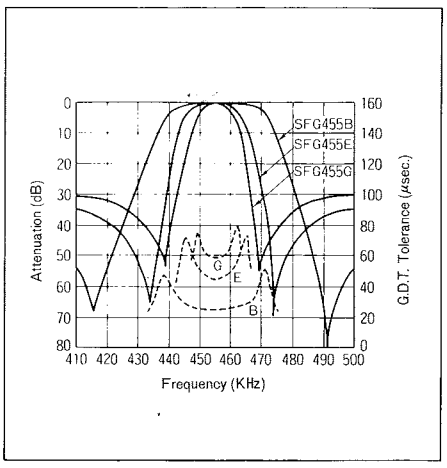
■DIMENSIONS



■MEASURING CIRCUIT



■CHARACTERISTICS



Note : To take best advantage of safety features of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor. Avoid directly applying a direct current to output end of ceramic filters (between ③ and ②).

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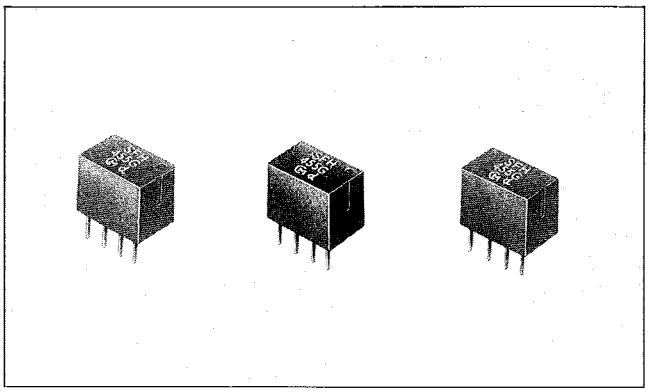
Ceramic Filter for Communications Equipment **SFH455** Series

Resin Molded, G.D.T. Flat Type Ceramic Filter

SFH455 series are high selectivity ceramic filters, which consist of 6 ceramic elements connected in a ladder form. Most suitable for digital communications and mobile telephones because of their improved G.D.T. characteristics.



■FEATURES

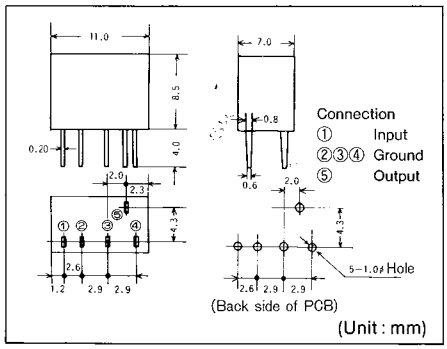
1. High selectivity.
2. A variety of bandwidths are available.
3. Excellent G.D.T. characteristics are available within pass bandwidth.
4. Easily mounted on a printed circuit board.

■SPECIFICATIONS

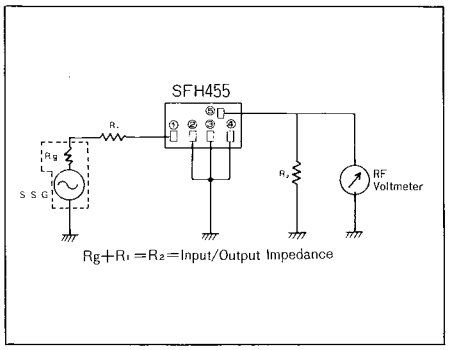
Characte-ristics / Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB)min.	Insertion Loss (dB)max.	Input/Output Impedance (Ω)	G.D.T Deviation ※ Typ. (μsec.)
SFH455B	455±1.5	±15	±35	35	6	1500	[40] (±15KHz)
SFH455C	455±1.5	±12.5	±30	35	7	1500	[40] (±12.5KHz)
SFH455D	455±1.0	±10	±25	35	8	1500	[40] (±10KHz)
SFH455E	455±1.0	± 7.5	±15	35	9	1500	[40] (±7.5KHz)
SFH455F	455±1.0	± 6	±17.5	35	10	2000	[40] (±6KHz)
SFH455G	455±1.0	± 4.5	±15	35	13	2000	[40] (±4.5KHz)

※Typical value

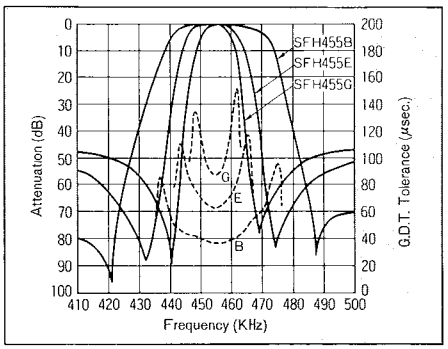
■DIMENSIONS



■MEASURING CIRCUIT



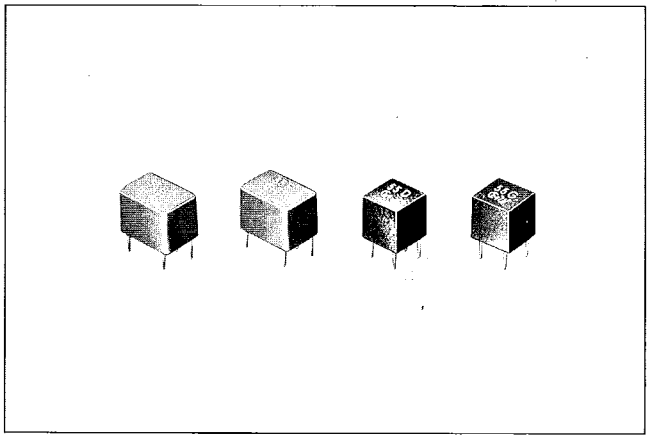
■CHARACTERISTICS



Note : To take best advantage of safety features of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.
Avoid directly applying a direct current to output end of ceramic filters (between ⑤ and ②③④).

Miniature, G.D.T. Flat Type Ceramic Filter

Ceramic filter SFGM/SFHM455 series are miniature and high-performance filters.
These filters, with only 6.3mm high, are 60% the volume of conventional types (SFG/SFH series).
Well suited for miniaturizing the communications equipment, especially for a cellular phone.



■FEATURES

1. Miniature, flat G.T.D. characteristics.
2. Suitable for a cellular phone.
3. A variety of band width are available.

■SPECIFICATIONS

SFGM455□

Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	40dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
SFGM455B	455	±15	±35	25	5	1500
SFGM455C	455	±12.5	±30	25	6	1500
SFGM455D	455	±10	±25	23	7	1500
SFGM455E	455	± 7.5	±20	23	8	1500
SFGM455F	455	± 6	±17.5	23	9	2000
SFGM455G	455	± 4.5	±15	20	10	2000

● SFGM455 series filters are 4-element ceramic filters and miniature type of SFG455 series.

SFHM455□

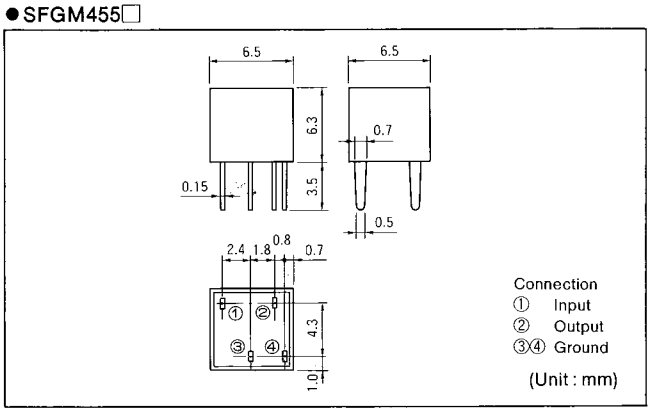
Part Number	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) max.	Attenuation 455±100KHz (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (Ω)
SFHM455B	455	±15	±35	35	6	1500
SFHM455C	455	±12.5	±30	35	7	1500
SFHM455D	455	±10	±25	35	8	1500
SFHM455E	455	± 7.5	±20	35	9	1500
SFHM455F	455	± 6	±17.5	35	10	2000
SFHM455G	455	± 4.5	±15	35	13	2000

● SFHM455 series filters are 6-element ceramic filters and miniature type of SFH455 series.

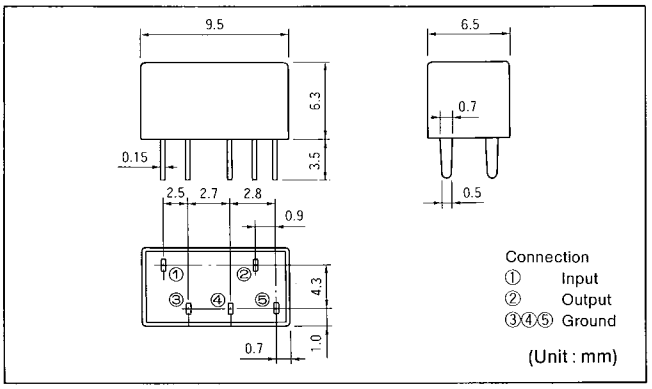
Ceramic Filter for Communications Equipment SFGM/SFHM455 Series

■DIMENSIONS

● SFGM455□

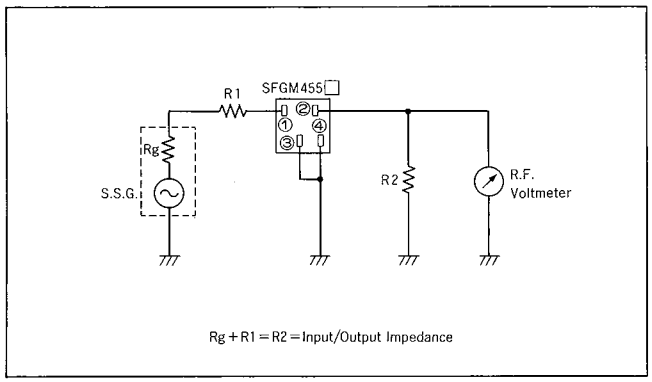


● SFHM455□

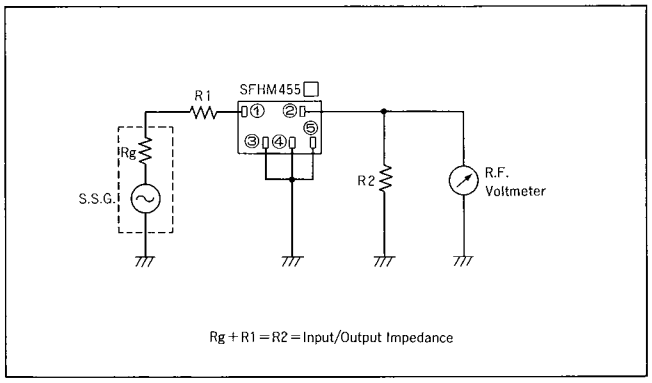


■MEASURING CIRCUITS

● SFGM455□

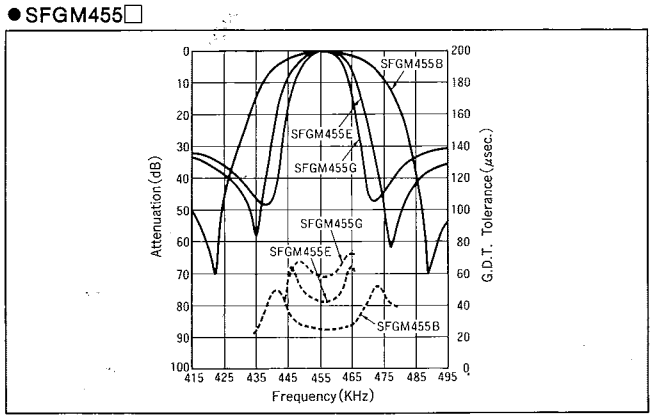


● SFHM455□

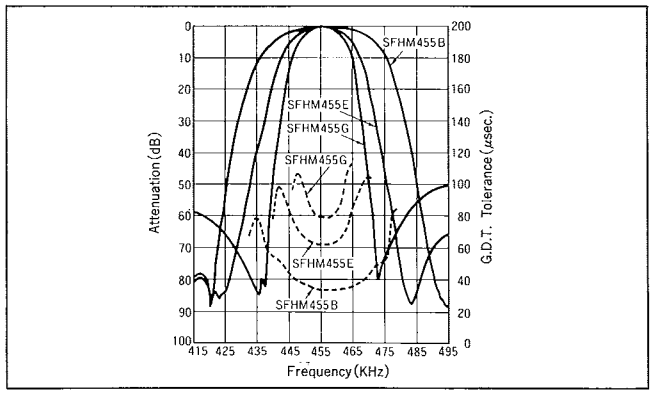


■FREQUENCY CHARACTERISTICS

● SFGM455□



● SFHM455□



Note : To take best advantage of safety features of ceramic filters, connect the output to an IF amplifier through a DC cut capacitor.
Avoid directly applying a direct current to output end of ceramic filters.