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Ceramic Filters (CERAFIL $^{\circledR}$)/Ceramic Discriminators for Communications Equipment



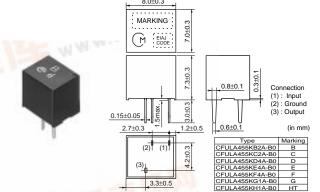
CERAFIL® Plastic Case General Use CFULA_A Series

CFULA_A series are high selectivity ceramic filters, which consist of 4 ceramic elements connected in a

Most suitable for digital communications and cellular phones because of their improved GDT characteristics.

■ Features

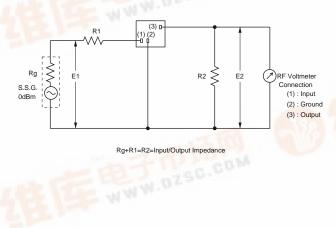
- 1. High selectivity. 2. A variety of bandwidth available.
- 3. Excellent GDT characteristics are available within pass bandwidth.
- 4. Easily mounted on a printed circuit board
- 5. Operating temperature range: -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



Part Number	Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFULA455KB2A-B0	455.0 ±2.0kHz	fn±15.0 min.	fn±30.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KC2A-B0	455.0 ±2.0kHz	fn±12.5 min.	fn±24.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KD4A-B0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KE4A-B0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFULA455KF4A-B0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULA455KG1A-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULA455KH1A-B0	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000

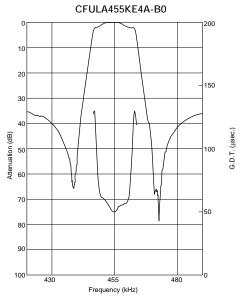
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

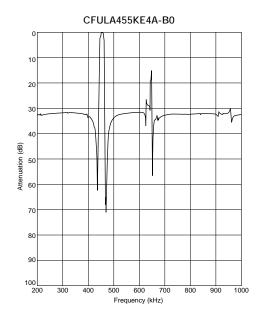
■ Test Circuit





The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.





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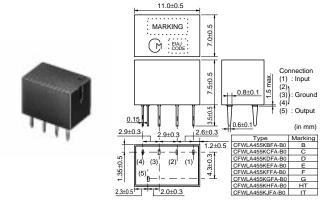
CERAFIL® Plastic Case Miniaturized Type CFWLA_A Series

Ceramic filter CFWLA_A series are low profile high selectivity ceramic filters which use 6 elements in ladder form

They are best suitable to high-class transceivers, cordless telephones and amateur radios.

■ Features

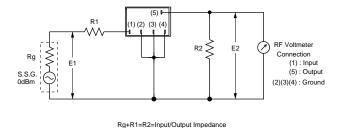
- 1. Low profile, high selectivity.
- 2. Available bandwidths are B to J as standard.
- 3. Easily mountable on any PC board.
- 4. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)

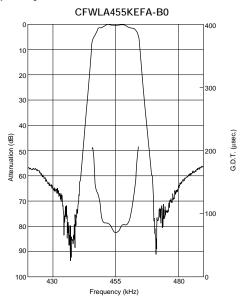


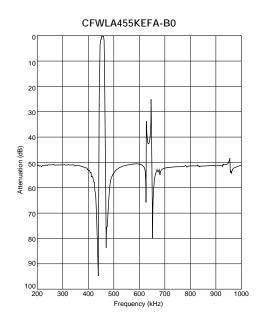
Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFWLA455KBFA-B0	455	fn±15.0 min.	fn±30.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±10kHz]	1500
CFWLA455KCFA-B0	455	fn±12.5 min.	fn±24.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±8kHz]	1500
CFWLA455KDFA-B0	455	fn±10.0 min.	fn±20.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±7kHz]	1500
CFWLA455KEFA-B0	455	fn±7.5 min.	fn±15.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	3.0 max. [within fn±5kHz]	1500
CFWLA455KFFA-B0	455	fn±6.0 min.	fn±12.5 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	3.0 max. [within fn±4kHz]	2000
CFWLA455KGFA-B0	455	fn±4.5 min.	fn±10.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2.0 max. [within fn±3kHz]	2000
CFWLA455KHFA-B0	455	fn±3.0 min.	fn±9.0 max. [within 50dB]	60 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2.0 max. [within fn±2kHz]	2000
CFWLA455KJFA-B0	455	fn±2.0 min.	fn±7.5 max. [within 50dB]	60 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	2.0 max. [within fn±1.5kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

■ Test Circuit









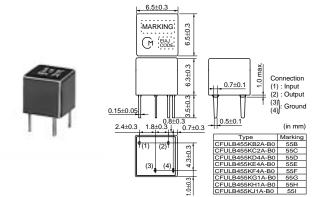
CERAFIL® Plastic Case Miniaturized Type CFULB_A Series

CFULB_A 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 65% the volume of conventional types. (CFULA455K_A series) They are well suited for miniaturizing various kinds of communications equipment, pocket pagers, car radios, cordless telephones and mobile telephones.

■ Features

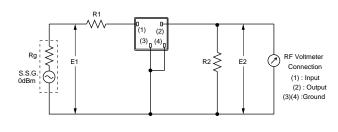
- 1. Miniature and high selectivity.
- 2. A variety of bandwidths are available.
- 3. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFULB455KB2A-B0	455.0 ±2.0kHz	fn±15.0 min.	fn±30.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KC2A-B0	455.0 ±2.0kHz	fn±12.5 min.	fn±24.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KD4A-B0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KE4A-B0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFULB455KF4A-B0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KG1A-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KH1A-B0	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KJ1A-B0	455.0 ±1.0kHz	fn±2.0 min.	fn±7.5 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

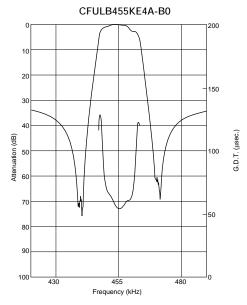
■ Test Circuit

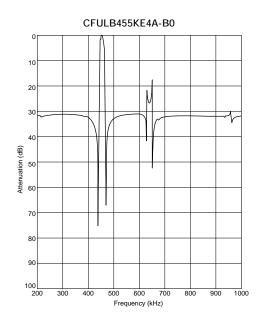


Rg+R1=R2=Input/Output Impedance



The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.







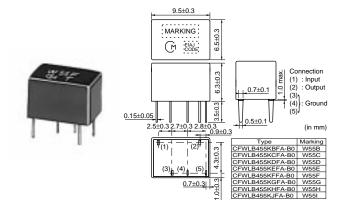
CERAFIL® Plastic Case General Use CFWLB_A Series

CFWLB_A 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 67% the volume of conventional types. (CFWLB_A series) They are well suited for miniaturizing various kinds of communications equipment, pocket pagers, pagers, car radios, cordless telephones and mobile telephones.

■ Features

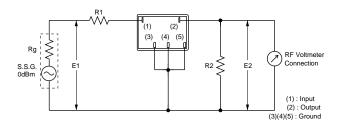
- 1. Miniature and high selectivity.
- 2. A variety of bandwidths are available.
- 3. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFWLB455KBFA-B0	455	fn±15.0 min.	fn±30.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KCFA-B0	455	fn±12.5 min.	fn±24.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KDFA-B0	455	fn±10.0 min.	fn±20.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KEFA-B0	455	fn±7.5 min.	fn±15.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFWLB455KEFA004-B0	455	fn±7.5 min.	fn±15.0 max. [within 60dB]	60 min. [within fn±15kHz to 30kHz]	5.0 max. [at fn]	1500
CFWLB455KFFA-B0	455	fn±6.0 min.	fn±12.5 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KGFA-B0	455	fn±4.5 min.	fn±10.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KHFA-B0	455	fn±3.0 min.	fn±9.0 max. [within 50dB]	55 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KJFA-B0	455	fn±2.0 min.	fn±7.0 max. [within 50dB]	55 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	2000

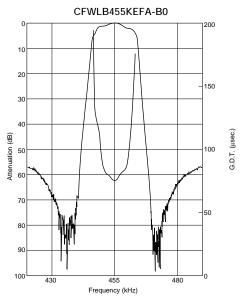
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

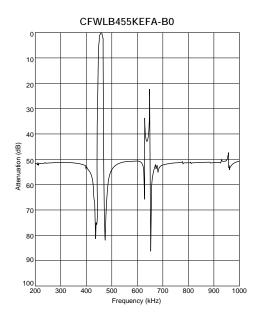
■ Test Circuit



Rg+R1=R2=Input/Output Impedance

■ Frequency Characteristics







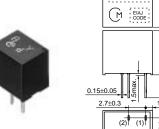
CERAFIL® Plastic Case Group Delay Flat Type CFULA_Y Series

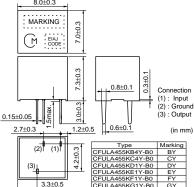
CFULA_Y series are high selectivity ceramic filters, which consist of 4 ceramic elements connected in a ladder form

Most suitable for digital communications and cellular phones because of their improved GDT characteristics.

■ Features

- 1. High selectivity.
- 2. A variety of bandwidth available.
- 3. Excellent GDT characteristics are available within pass bandwidth.
- 4. Easily mounted on a printed circuit board
- 5. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



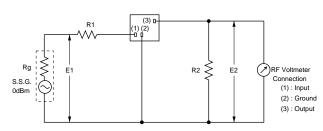


Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (µs)	Input/Output Impedance (ohm)
CFULA455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	15.0 max. [within fn±10kHz]	1500
CFULA455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	15.0 max. [within fn±8kHz]	1500
CFULA455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	20.0 max. [within fn±7kHz]	1500
CFULA455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	20.0 max. [within fn±5kHz]	1500
CFULA455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 40dB]	23 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	20.0 max. [within fn±4kHz]	2000
CFULA455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 40dB]	23 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	20.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

■ Test Circuit

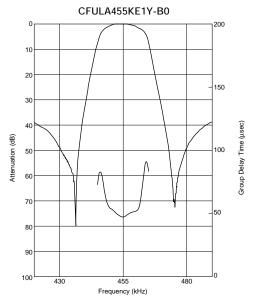
14

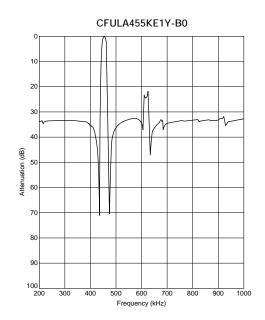


Rg+R1=R2=Input/Output Impedance



The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.





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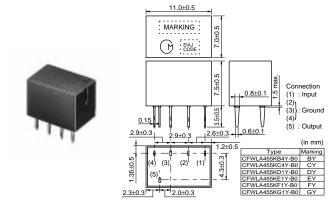
CERAFIL® Plastic Case Group Delay Flat Type CFWLA_Y Series

CFWLA_Y 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 GDT characteristics.

■ Features

- 1. High selectivity.
- 2. A variety of bandwidths are available.
- 3. Excellent GDT characteristics are available within pass bandwidth.
- 4. Easily mounted on a printed circuit board
- 5. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWLA455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 50dB]	40 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	30.0 max. [within fn±10kHz]	1500
CFWLA455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 50dB]	40 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	30.0 max. [within fn±8kHz]	1500
CFWLA455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 50dB]	40 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	30.0 max. [within fn±7kHz]	1500
CFWLA455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 50dB]	40 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	30.0 max. [within fn±5kHz]	1500
CFWLA455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 50dB]	40 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	40.0 max. [within fn±4kHz]	2000
CFWLA455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 50dB]	40 min. [within fn±100kHz]	11.0 max. [at minimum loss point]	40.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

■ Test Circuit

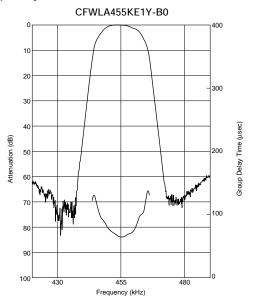
Rg Rg RF Voltmeter Connection (1): Input (5): Output (2)(3)(4): Ground

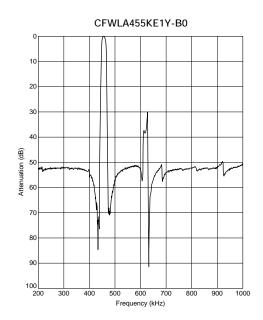
Rg+R1=R2=Input/Output Impedance





The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.







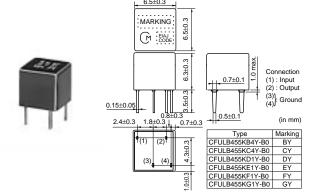
CERAFIL® Plastic Case Group Delay Flat Type Miniaturized Type CFULB_Y Series

Ceramic filter CFULB_Y series are miniature and high performance filters. These filters, with only 6.3mm high, are 65% the volume of conventional types (CFULA455K_Y series).

Well suited for miniaturizing the communications equipment, especially for a cellular phone.

■ Features

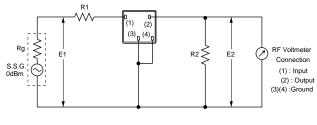
- 1. Miniature, flat GDT characteristics.
- 2. Suitable for a cellular phone.
- 3. A variety of band width are available.
- 4. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFULB455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	15.0 max. [within fn±10kHz]	1500
CFULB455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	15.0 max. [within fn±8kHz]	1500
CFULB455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	20.0 max. [within fn±7kHz]	1500
CFULB455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	20.0 max. [within fn±5kHz]	1500
CFULB455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 40dB]	23 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	20.0 max. [within fn±4kHz]	2000
CFULB455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 40dB]	23 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	20.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

■ Test Circuit



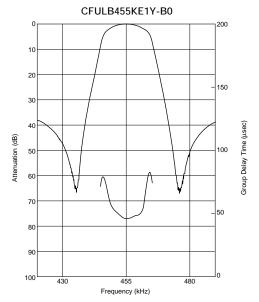
Rg+R1=R2=Input/Output Impedance

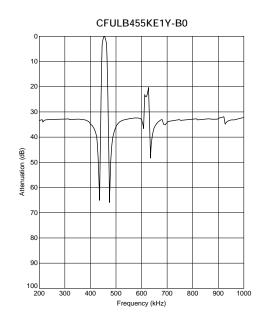




The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

CFULB455K_Y series filters are 4-element ceramic filters and miniature versions of CFULA455K_Y series.







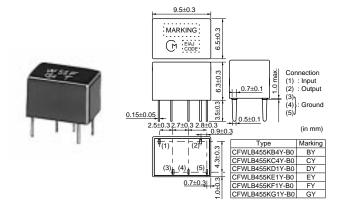
CERAFIL® Plastic Case Group Delay Flat Type CFWLB_Y Series

Ceramic filter CFWLB_Y series are miniature and high-performance filters. These filters, with only 6.3mm high, are 67% the volume of conventional types (CFWLA455K_Y series).

Well suited for miniaturizing the communications equipment, especially for a cellular phone.

■ Features

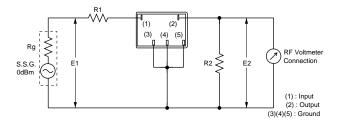
- 1. Miniature, flat GDT characteristics.
- 2. Suitable for a cellular phone.
- 3. A variety of band width are available.
- 4. Operating temperature range : -20 to +80 (degree C) Storage temperature range : -40 to +85 (degree C)



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWLB455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±30.0 max. [within 50dB]	40 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	30.0 max. [within fn±10kHz]	1500
CFWLB455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±27.5 max. [within 50dB]	40 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	30.0 max. [within fn±8kHz]	1500
CFWLB455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 50dB]	40 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	30.0 max. [within fn±7kHz]	1500
CFWLB455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 50dB]	40 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	30.0 max. [within fn±5kHz]	1500
CFWLB455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 50dB]	40 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	40.0 max. [within fn±4kHz]	2000
CFWLB455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 50dB]	40 min. [within fn±100kHz]	11.0 max. [at minimum loss point]	40.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. (fn) means nominal center frequency 455kHz.

■ Test Circuit



Rg+R1=R2=Input/Output Impedance



The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

CFWLB455K_Y series filters are 4-element ceramic filters and miniature versions of CFWLA455K_Y series

