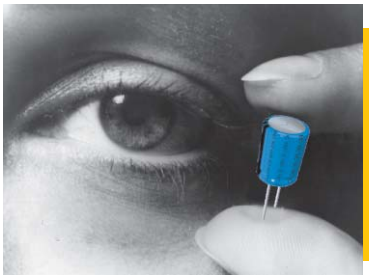


High Voltage Ceramic Chip Capacitors
Type CFV

Δ Features

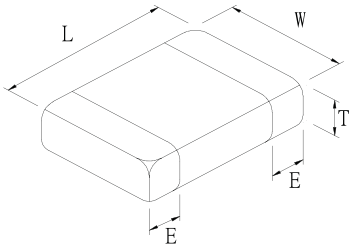
- Rated Voltage: 6000VDC
- Chip Size: 2211

Δ Applications

- Modems
- LAN / WAN Interface
- Industrial Controls
- Power Supply
- Back-Lighting Inverter
- Telecom Devices

Δ Dimensions

Size		1808	1812	2211
(L) Length	mm	4.60±0.30	4.60±0.30	5.70±0.40
	(in)	(.181±.012)	(0.181±.012)	(0.224±0.016)
(W) Width	mm	2.00±0.25	3.20±0.30	2.80±0.30
	(in)	(.080±.008)	(.126±.012)	(0.112±0.012)
(E) Termination	mm	0.64±0.38	0.64±0.38	0.85±0.55
	(in)	(.025±.015)	(.025±.015)	(0.033±0.022)
(T) Thickness	mm	2.20	2.70	2.75
	(in)	(0.087)	(0.106)	(0.108)



Δ Specifications

	Size	Length / Width	Volt	Capacitance
NPO	1808	L: 4.60±0.30mm (0.181±0.012) W: 2.00±0.20mm (0.080±0.012)	4000	3pF±100μF
	1812	L: 4.60±0.30mm (0.181±0.012) W: 3.20±0.30mm (0.126±0.012)	5000	1.5pF±100μF
	2211	L: 5.70±0.040mm (0.224±0.016) W: 2.80±0.030mm (0.112±0.012)	6000	2pF±100μF
X7R	1808	L: 4.60±0.30mm (0.181±0.012) W: 2.00±0.20mm (0.080±0.012)	4000	120pF±1000μF
	1812	L: 4.60±0.30mm (0.181±0.012) W: 3.20±0.30mm (0.126±0.012)	4000	150pF±1000μF
	2211	L: 5.70±0.040mm (0.224±0.016) W: 2.80±0.030mm (0.112±0.012)	4000	120pF±2200μF

Liberty Bell Components, Inc. 11631 Seaboard Circle, Stanton, CA 90680 (888)820-8885
Fax: (888)820-8884 email: sales@libertycomponents.com website: www.libertycomponents.com

High Voltage Ceramic Chip Capacitors
Type CFV

∆ Electrical

Dielectric Code EIA IEC	COG 1BCG	X7R 2R1
Temperature Characteristics	0±30ppm/°C, C>20pF 0-40+120ppm/°C, C>20pF	∆C ± 15% maximum over -55°C tp +125°C
Operating Temperature Range	-55°C to +125°C	-55°C to +125°C
Measuring Conditions for Capacitance and D.F.	1MHz, 1Vrms, C≤1000pF 1KHz, 1Vrms, C>1000pF	1KHz, 1Vrms
Dissipation Factor (D.F.) and Tangent of Loss Angle (tan δ)	≤0.1% for C≥30pF ≤100% / (400+20C) for C≥30pF	≤2.5%
Insulation Resistance (I.R.) UR<500V:I.R. after 60secs. Charging at UR (DC) UR≥500V: I.R. after 60 secs. Charging at 500V (DC) 25°C, 55% RH max.	≥100GΩ or ≥1000MΩ·µF whichever is less	≥10GΩ or ≥100MΩ·µF whichever is less
Withstanding Voltage, 25°C, 1-5sec.	Rated Voltage ≤100V 2.5xUR 200V/250V 2.0xUR 500V 1.5xUR 1KV≤UR≤3KV 1.2xUR >3KV 1.1xUR	Rated Voltage ≤100V 2.5xUR 200V/250V 2.0xUR 500V 1.5xUR ≥1KV 1.2xUR
Capacitance Aging	Not Applicable	≈1.5% per decade hour

Liberty Bell Components, Inc. 11631 Seaboard Circle, Stanton, CA 90680 (888)820-8885
Fax: (888)820-8884 email: sales@libertycomponents.com website: www.libertycomponents.com

High Voltage Ceramic Chip Capacitors
Type CFV

∆ Environmental

Test	Test Conditions	Post-Test Inspection Requirements			
Solderability	Immersed in Solder bath at 245 ± 5°C for 5 ± 0.5 sec.	No Visible Damage At least 75% of termination area should be well tinned			
Resistance to Soldering Heat	Immersed in Solder bath at 260 ± 5°C for 10 ± 1 sec. Recovery: 6 ~ 24hr. (COG) 24 ± 2hr. (X7R, Z5U)	No Visible Damage At least 75% of termination area should be well tinned			
			COG(1BCG)	**X7R(2R1)**	**Z5U(2E6)**
		∆C/C	≤±1% or ±1pF whichever is larger	≤±1%	≤-10%+20%
Rapid Change of Temperature	-55°C to +125°C, 5 cycles (COG,X7R) Duration: 30 Min. Recovery: 6 ~ 24hr. (COG) 24 ± 2hr. (X7R, Z5U)	No Visible Damage			
			COG(1BCG)	**X7R(2R1)**	
		∆C/C	≤±1% or ±1pF whichever is larger	≤±15%	
		D.F.	≤2.0x initial requirement	≤1.5x initial requirement	
		I.R.	≥0.25x initial requirement		
Endurance (Life Test)	1000+48-0 hr. at maximum temperature with ≤3KV: 1.2 x rated voltage applied >3KV: 1.2 x rated voltage applied Recovery: 6 ~ 24hr. (COG) 24 ± 2hr. (X7R, Z5U)	No Visible Damage			
			COG(1BCG)	**X7R(2R1)**	
		∆C/C	≤±1% or ±1pF whichever is larger	≤±15%	
		D.F.	≤2.0x initial requirement	≤1.5x initial requirement	
		I.R.	≥0.25x initial requirement		
Humidity Test (Damp heat, steady state)	500+24-0 hr. at 40 ± 2°C, 90~95% RH Recovery: 6 ~ 24hr. (COG) 24 ± 2hr. (X7R, Z5U)	No Visible Damage			
			COG(1BCG)	**X7R(2R1)**	
		∆C/C	≤±2% or ±2pF whichever is larger	≤±15%	
		D.F.	≤2.0x initial requirement	≤7x initial requirement	
		I.R.	≥0.25x initial requirement		
Adhesion Strength of Termination	Capacitors mounted on a substrate. A force of 5N applied perpendicular to the place of substrate and parallel the line joining the center of terminations for 10±1 sec.	No Visible Damage			
Resistance to Flexure Stress	Capacitors mounted on a substrate. The board shall then be bent by 1mm at a rate of 1mm/sec.	No Visible Damage Change in capacitance is less than 10%			

Liberty Bell Components, Inc. 11631 Seaboard Circle, Stanton, CA 90680 (888)820-8885
Fax: (888)820-8884 email: sales@libertycomponents.com website: www.libertycomponents.com

High Voltage Ceramic Chip Capacitors
Type CFV

∆ Ordering

CFV	2211	N	-	100	J	-	602	E	F	G
(1)	(2)	(3)		(4)	(5)		(6)	(7)	(8)	(9)

(1)	Series	CFV:	
(2)	Size Code	1808	
		1812	
		2211	
(3)	Dielectric Code	N:	COG (1BCG)
		X:	X7R (2R1)
(4)	Capacitance Code	Capacitance expressed in pF. First two digits are significant figures. The third Digit denotes number of zeros. Use R for decimal point for values less than 10pF. (eg. R47: 0.47pF)	
(5)	Tolerance Code	Code	Tolerance
		C	±0.25pF
		D	±0.5pF
		F	±1%
		G	±2%
		J	±5%
		K	±10%
		M	±20%
		Z	+80% -20%
		Other Tolerances Available Upon Request	
(6)	Rated Voltage Code	402	4000V
		502	5000V
		602	6000V
(7)	Packaging Code	TR:	Tape and Reel, Cardboard Tape
		ER:	Tape and Reel, Embossed Tape
		No Code:	Bulk
(8)	Thickness Code	Code	Tolerance (mm)
		E	1.51-1.80
		F	1.81-2.20
		G	2.21-2.70
(9)	Special Code	G:	Cd/Pb Free

Liberty Bell Components, Inc. 11631 Seaboard Circle, Stanton, CA 90680 (888)820-8885
Fax: (888)820-8884 email: sales@libertycomponents.com website: www.libertycomponents.com