1138877

Features:

- General purpose.
- Coupling and decoupling.
- Space saving.

Applications:

In electronic circuits where non-linear change of capacitance with temperature is permissible and low losses are not essential, i.e. coupling and decoupling. Because of their small size the capacitors are suitable for use in circuitry with high component density.

Description:

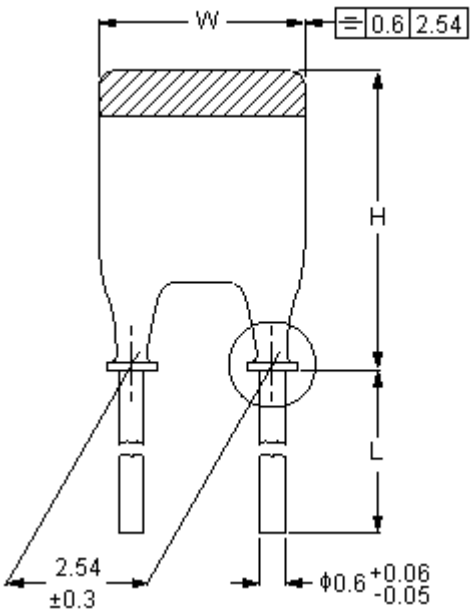
The capacitors consist of a thin rectangular ceramic plate, both sides of which are metallized. The tinned connecting leads are secured using a high melting point solder. The capacitors are encapsulated in epoxy lacquer, which is resistant to all commonly used cleaning solvents. They have small dimensions and narrow tolerances on the lead spacing. The leads are provided with a flange, which guarantees that the leads are free of lacquer, and its shape allows soldering gasses to escape freely, ensuring excellent solderability. This makes the capacitors suitable for both hand-mounting and automatic insertion.

Quick Reference Data

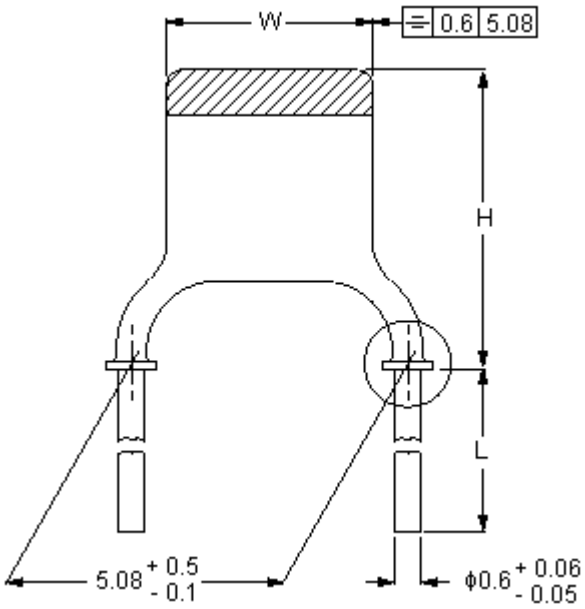
Description	Value	
	2222 630	**2222 629**
Capacitance range	180 to 6800 pF (E12 series)	1000 to 47,000pF (E3 series)
Dielectric material	K2000	K14000
Rated DC voltage	100V	63V
Tolerance on capacitance	±10%	+80%/-20%
Sectional specification	IEC 60384-9 (2C2 and 2D1); EIA (X5S/X7T)	IEC 60384-9 (2F6); EIA (Y5V)
Climatic category (IEC 60068)	55/125/56	10/085/21

Mechanical Data:

Style 1

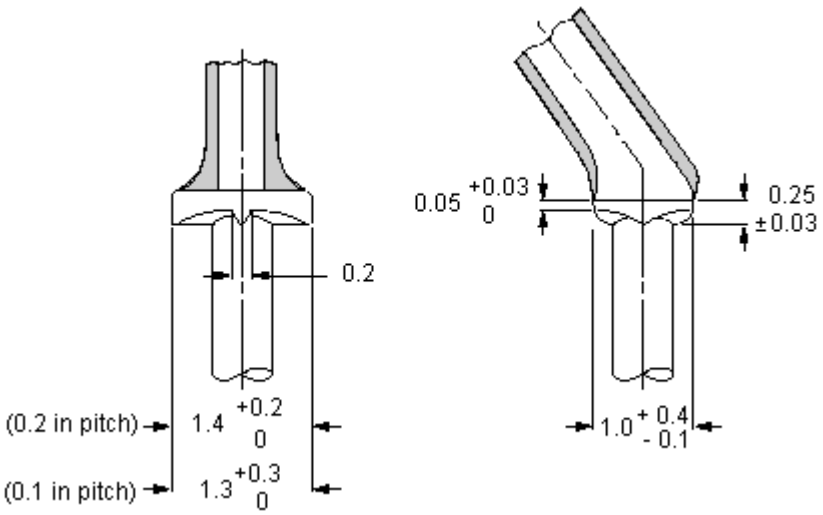


Style 2



Dimensions : Millimetres

Detail of Flange



Dimensions : Millimetres

Physical Dimensions

Capacitor Dimensions (Table 1)

Size	W(1)	H(1)	
		Style 1	Style 2
I	3.6 (-1.1)	5.0 (-1.5)	6.3 (-1.8)
IIA	3.9 (-1.4)	5.3 (-1.7)	6.7 (-2.0)
IIB	4.5 (-1.8)	6.0 (-2.1)	7.3 (-2.4)
III	5.3 (-1.8)	6.8 (-2.3)	8.1 (-2.6)
IV	6.2 (-2.0)	7.7 (-2.4)	9.0 (-2.7)
V		10.3 (-2.8)	11.2 (-3.1)

Dimensions : Millimetres

Notes:
1. Tolerances are given between parentheses.

Marking:

The body of the capacitor is tan coloured. The capacitors also have a colour mark on top indicating the temperature dependency of the capacitance:
Yellow for type 2222 630 series
Green for type 2222 629 series
The capacitance value is indicated by a marking code in a contrasting colour on the body.

Mounting:

When bending, cutting or flattening, the leads should be relieved of the applied load by supporting them at the capacitor body.

Soldering conditions:
Maximum 265°C, maximum 10s.
The capacitors are suitable for mounting on printed-circuit boards (hand-mounting or automatic insertion).

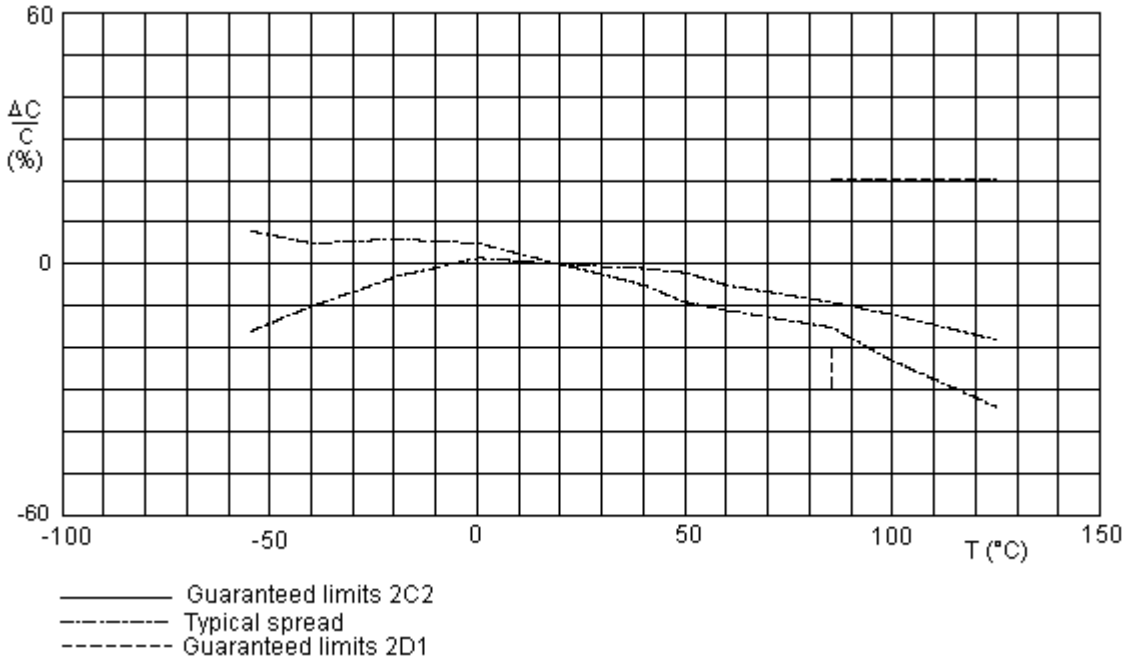
Electrical Characteristics:

Capacitors 2222 630 (Colour Mark Yellow):

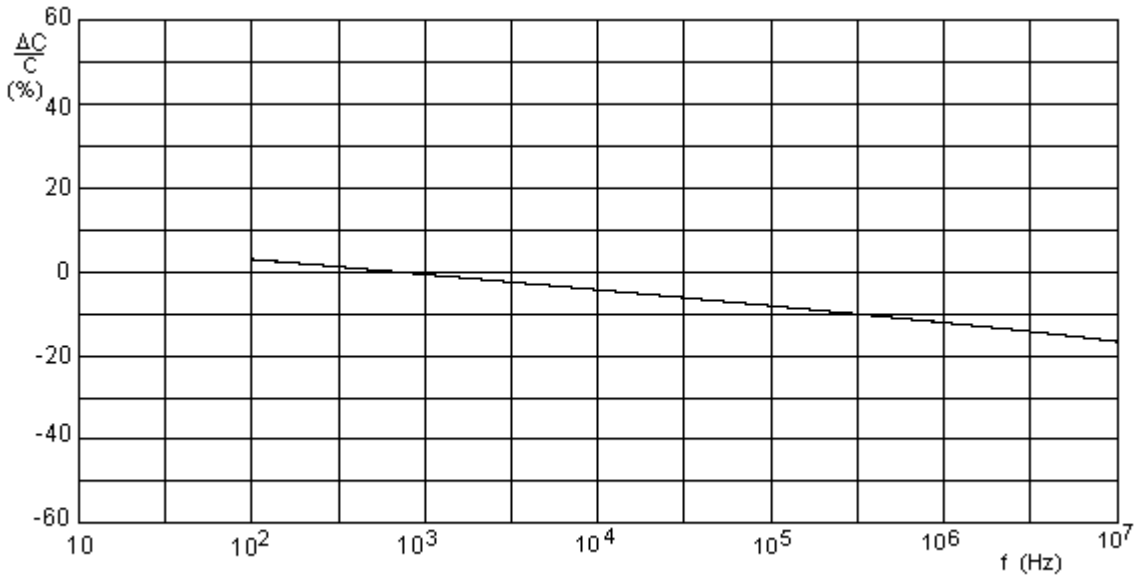
The capacitors meet the essential requirements of “IEC 60384-8” (2C2 and 2D1) “EIA” (X5S and X7T). Unless stated otherwise all electrical values apply at an ambient temperature of 20 ±1°C, an atmospheric pressure of 86 to 106kPa and a relative humidity of 63 to 67%.

Description	Value
Capacitance values measured at 1kHz, 1V	180 to 6800pF; E12 series
Dielectric material	K2000
Tolerance on capacitance, after 1000 hours	±10%
Maximum capacitance change with respect to capacitance value at 20°C	+20 to -20% from -55 to +85°C; +20 to -30% from -55 to +125°C
Rated DC voltage	100V
DC test voltage; duration 1 minute	300V
DC test voltage of coating; duration 1 minute	300V
Insulation resistance at 100V dc after 1 minute	≥4000MΩ
Tan δ measured at 1kHz, 1V	≤3.5%
Maximum voltage dependency of the capacitance between 0 and 40V	-5%
Category temperature range	-55 to +85°C (2C2) and -55 to +125°C (2D1)
Storage temperature range	-55 to +85°C
Ageing	Typical 1.5% per time decade
Climatic category (IEC 60068)	55/125/56

Typical Capacitance Change with Respect to Capacitance Value at 20°C as a Function of Temperature

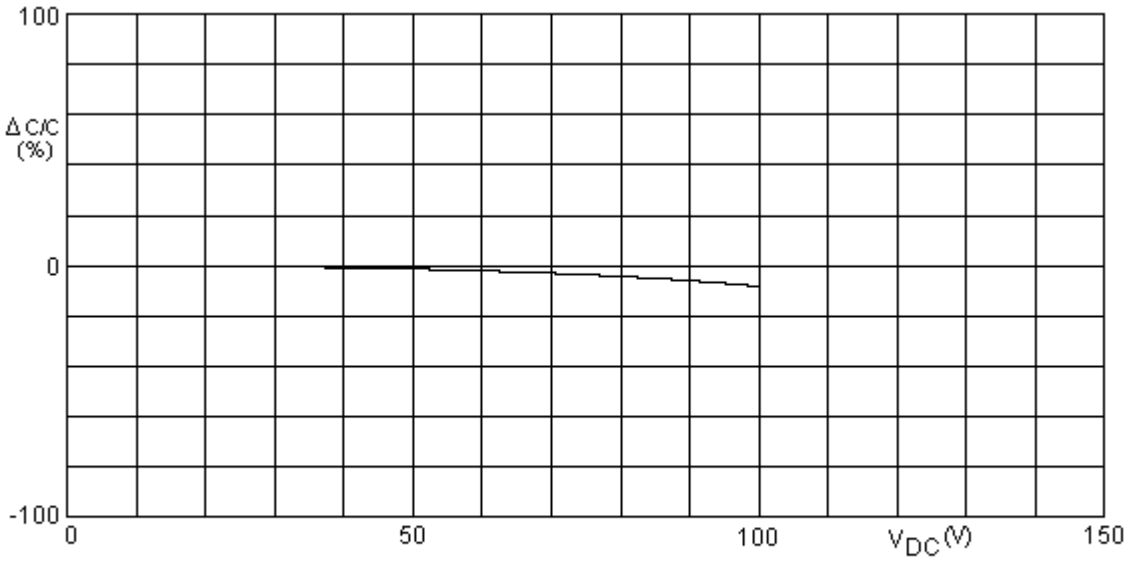


Typical Capacitance Change with Respect to the Capacitance Value at 1kHz as a Function of Frequency



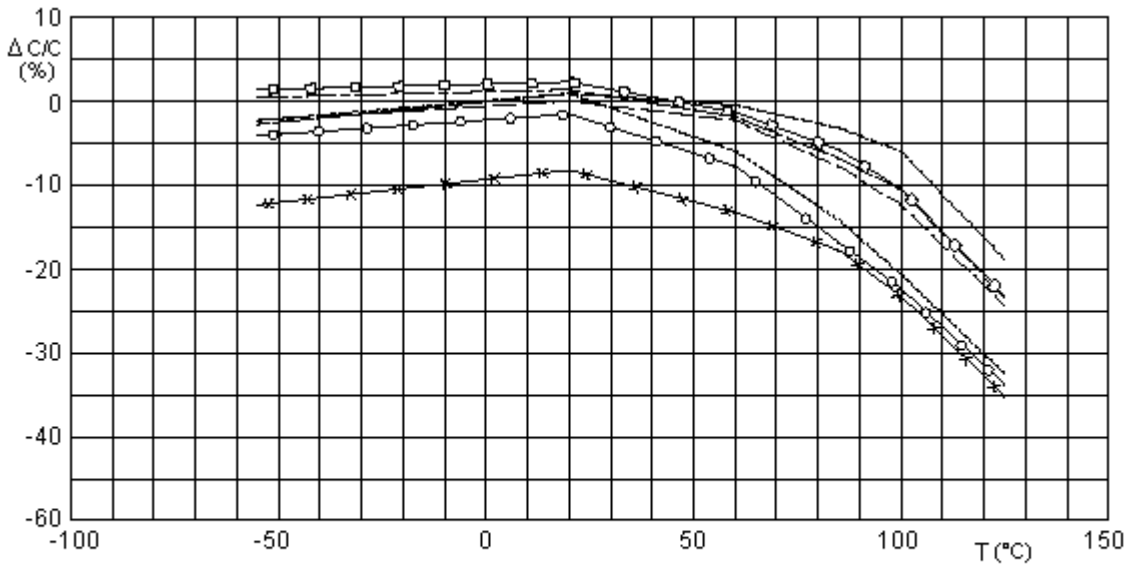
U = 1V

Typical Capacitance Change with Respect to the Capacitance Value at 0V as a Function of DC Voltage



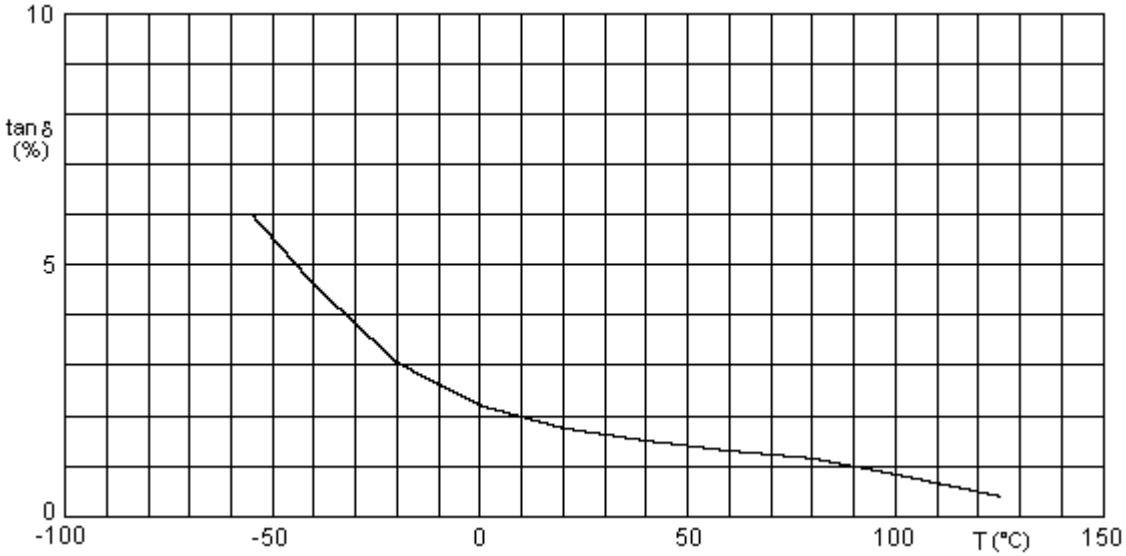
f = 1kHz
U = 1V
T = 20°C

Typical Capacitance Change with Respect to the Capacitance Value at 0V and 20°C as a Function of Temperature at Different DC Voltages

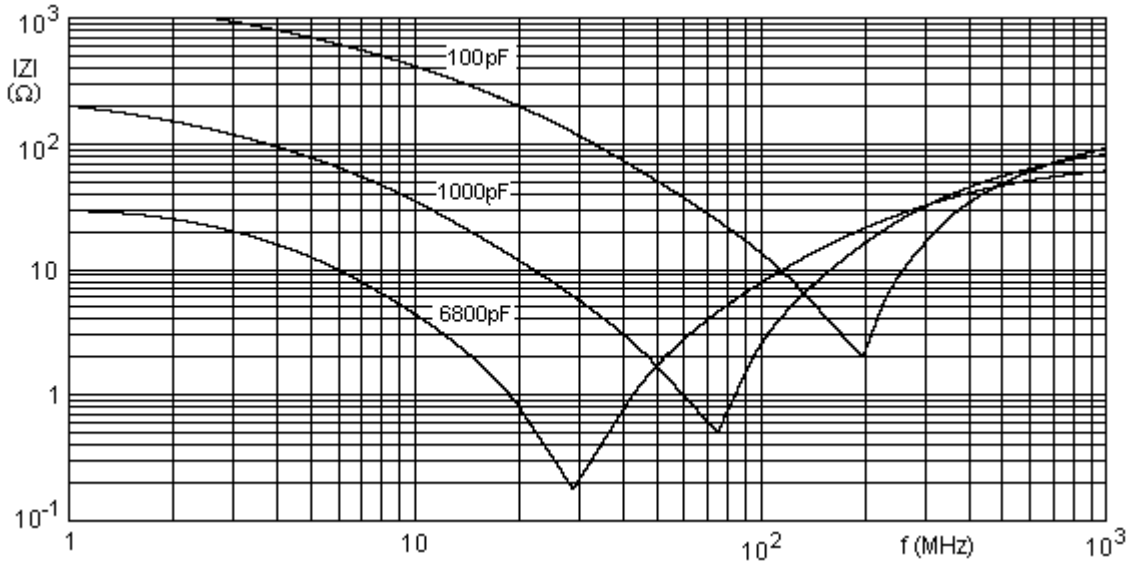


1 nF to 6.8nF; 100V dc
1 nF to 6.8nF; 50V dc
1 nF to 6.8nF; 10V dc
470pF; 100V dc
470pF; 50V dc
470pF; 10V dc
180pF; 100V dc

Typical Tan δ as a Function of Temperature



Typical Impedance | Z| as a Function of Frequency

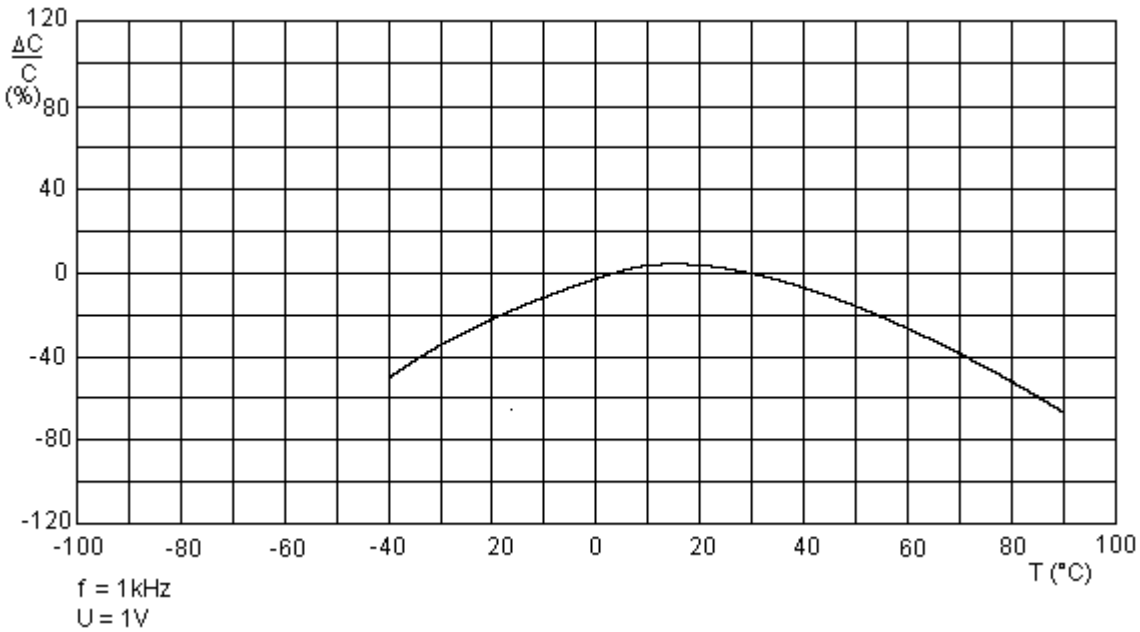


Electrical Characteristics:

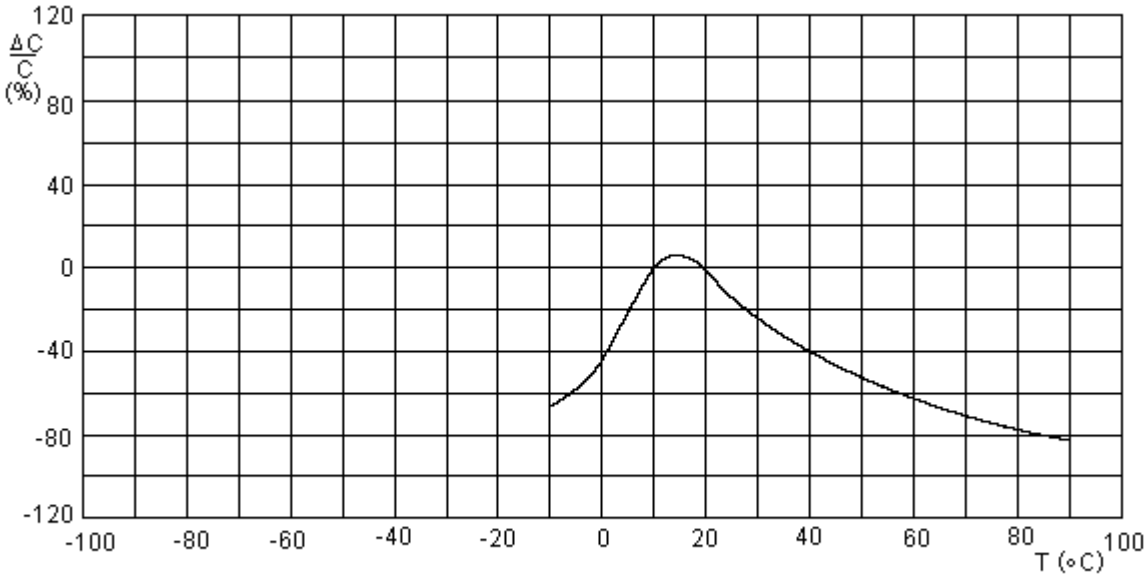
Capacitors 2222 629 (Colour Mark Green):
The capacitors meet the essential requirements of “IEC 60384-9” (2F6), “EIA” (Y5U). Unless stated otherwise all electrical values apply at an ambient temperature of 20 ±1°C, an atmospheric pressure of 86 to 106kPa and a relative humidity of 63 to 67%.

Description	Value
Capacitance values measured at 1kHz, 1V	1000 to 47,000 pF; E3 series
Tolerance on capacitance, after 1000 hours	-20 to +80%
Dielectric Material	K14000
Maximum capacitance change with respect to capacitance value at 20°C	-20 to -85%
Rated DC voltage at 85°C	63V
DC test voltage; duration 1 minute	200V
DC test voltage of coating; duration 1 minute	200V
Insulation resistance at 100V dc after 1 minute	≥4000MΩ
Tan δ measured at 1kHz, 1V	≤3.5%
Category temperature range	-10 to +85°C
Storage temperature range	-55 to +85°C
Ageing	Typical 1.5% per time decade
Climatic category (IEC 60068)	10/085/21

Typical Capacitance Change with Respect to Capacitance Value at 20°C as a Function of Temperature for Capacitance Value 1000pF

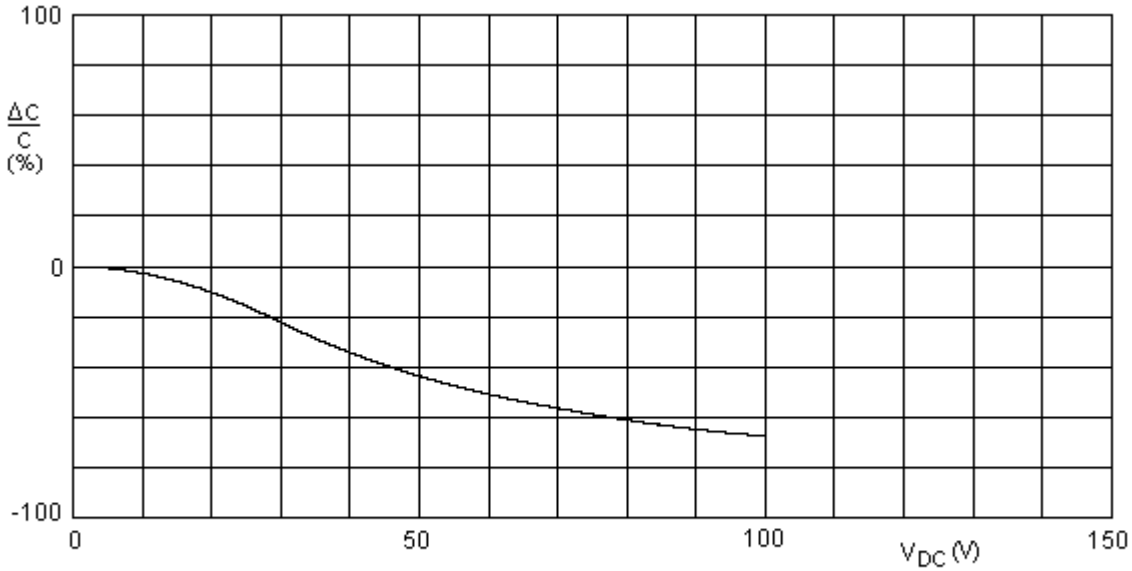


Typical Capacitance Change with Respect to Capacitance Value at 20°C as a Function of Temperature for Capacitance Values 2200pF to 47,000pF



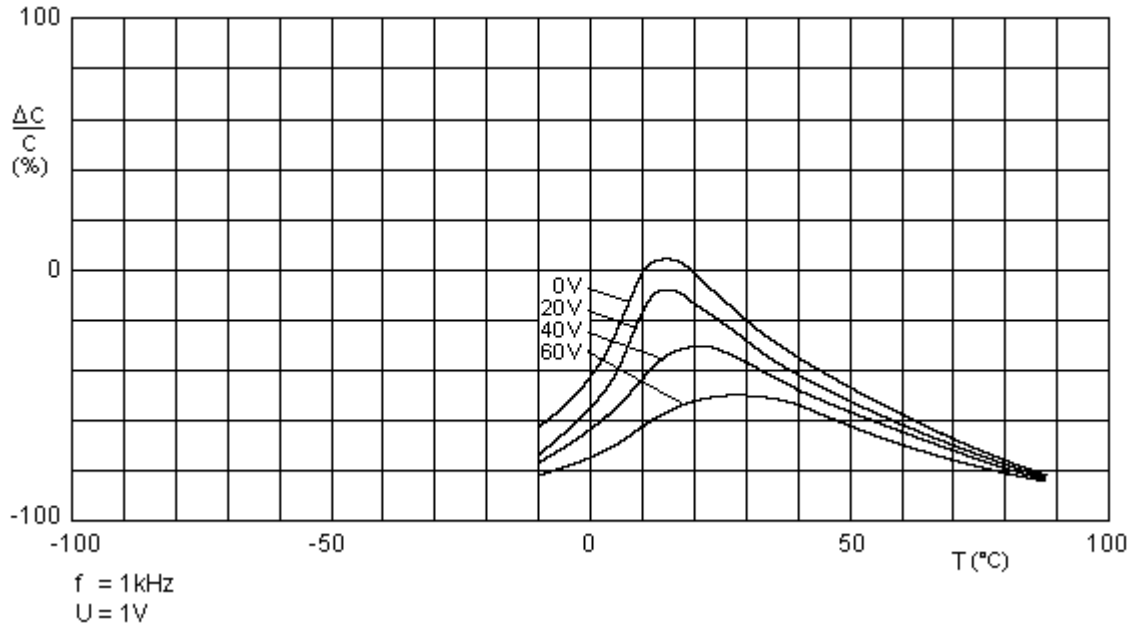
f = 1kHz
U = 1V

Typical Capacitance Change with Respect to the Capacitance Value at 0V as a Function of DC Voltage for Capacitance Values 2200pF to 47,000pF

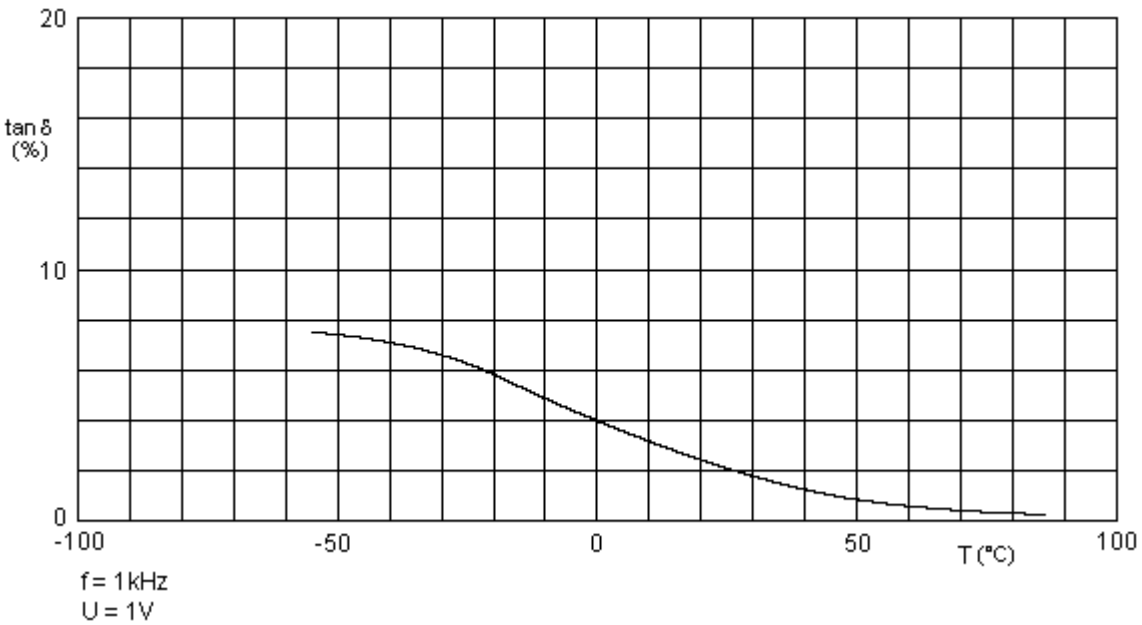


f = 1kHz
U = 1V
T = 20°C

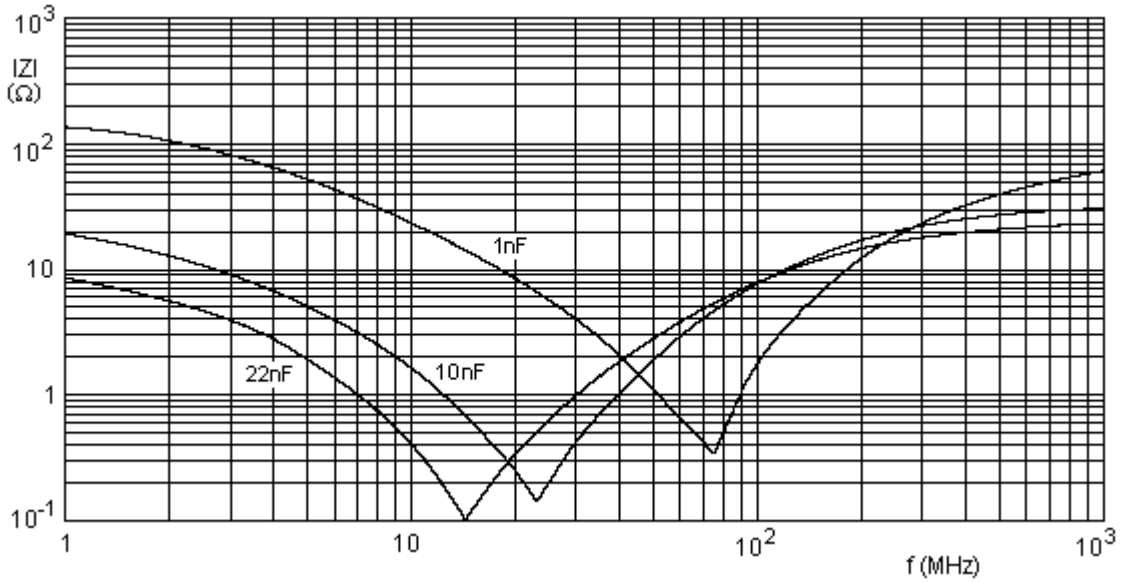
Typical Capacitance Change with Respect to the Capacitance Value at 0V and 20°C as a Function of Temperature at Different DC Voltages for Capacitance Values 2200pF to 47,000pF



Typical Tan δ as a Function of Temperature for Capacitance Values 2200pF to 47,000pF



Typical Impedance | Z| as a Function of Frequency



Preferred Capacitance Range for 2222 629 Series

Capacitance Value (pF)	Voltage (V)	Size (See Table 1)	Style	Pitch (P)	Lead Diameter (d)	Length	Marking	Part Number
1000	63	I	1	2.54 (0.1)	0.6 (0.024)	≥13 (0.051)	1n0	2222 629 08102
								2222 629 08102.
10,000		IIB					10n	2222 629 08103
								2222 629 08103.
2200		I					2n2	2222 629 08222
								2222 629 08222.
22,000		IV					22n	2222 629 08223
								2222 629 08223.
4700		I					4n7	2222 629 08472
								2222 629 08472.

Dimensions : Millimetres (Inches)

Preferred Capacitance Range for 2222 629 Series

Capacitance Value (pF)	Voltage (V)	Size (See Table 1)	Style	Pitch (P)	Lead Diameter (d)	Length	Marking	Part Number
10,000	63	-	1	2.54 (0.1)	0.6 (0.024)	4 ±0.5 (0.015 ±0.001)	-	2222 629 18013
1000		I	2	5.08 (0.2)			1n0	2222 629 19102
								2222 629 19102.
10,000		IIB					10n	2222 629 19103
								2222 629 19103.
2200		I					2n2	2222 629 19222
								2222 629 19222.
22,000		IV					22n	2222 629 19223
								2222 629 19223.
4700		I					4n7	2222 629 19472
								2222 629 19472.
47,000		V					47n	2222 629 19473
								2222 629 19473.

Dimensions : Millimetres (Inches)

Preferred Capacitance Range for 2222 630 Series

Capacitance Value (pF)	Voltage (V)	Size (See Table 1)	Style	Pitch (P)	Lead Diameter (d)	Length	Marking	Part Number
1000	100	I	1	2.54 (0.1)	0.6 (0.024)	≥13 (0.051)	1n0	2222 630 08102
								2222 630 08102.
1200		IIA					1n2	2222 630 08122
								2222 630 08122.
1500							1n5	2222 630 08152
								2222 630 08152.
1800		IIB					1n8	2222 630 08182
								2222 630 08182.
2200							2n2	2222 630 08222
								2222 630 08222.
2700		III					2n7	2222 630 08272
								2222 630 08272.
3300							3n3	2222 630 08332
								2222 630 08332.
390		I					n39	2222 630 08391
								2222 630 08391.
470							n47	2222 630 08471
								2222 630 08471.
4700		IV					4n7	2222 630 08472
								2222 630 08472.
560		I					n56	2222 630 08561
								2222 630 08561.
680							n68	2222 630 08681
								2222 630 08681.
820							n82	2222 630 08821
								2222 630 08821.
1000						4 ±0.5 (0.015 ±0.001)	1n0	2222 630 18102
2200		IIB					2n2	2222 630 18222
3300		III					3n3	2222 630 18332
470		I					n47	2222 630 18471
4700		IV					4n7	2222 630 18472
1000		I	2	5.08 (0.2)			1n0	2222 630 19102
								2222 630 19102.

Dimensions : Millimetres (Inches)

Preferred Capacitance Range for 2222 630 Series

Capacitance Value (pF)	Voltage (V)	Size (See Table 1)	Style	Pitch (P)	Lead Diameter (d)	Length	Marking	Part Number
1500	100	IIA	2	5.08 (0.2)	0.6 (0.024)	4 ±0.5 (0.015 ±0.001)	1n5	2222 630 19152
								2222 630 19152.
1800		IIB					1n8	2222 630 19182
								2222 630 19182.
2200							2n2	2222 630 19222
								2222 630 19222.
2700		III					2n7	2222 630 19272
								2222 630 19272.
3300							3n3	2222 630 19332
								2222 630 19332.
390		I					n39	2222 630 19391
								2222 630 19391.
3900		IV					3n9	2222 630 19392
								2222 630 19392.
470		I					n47	2222 630 19471
								2222 630 19471.
4700		IV					4n7	2222 630 19472
								2222 630 19472.
560		I					n56	2222 630 19561
								2222 630 19561.
680							n68	2222 630 19681
								2222 630 19681.
820							n82	2222 630 19821
								2222 630 19821.

Dimensions : Millimetres (Inches)