KPS Series, X7R Dielectric, 10 – 250 VDC (Commercial Grade)

Electronic Components KEMET CHARGED.

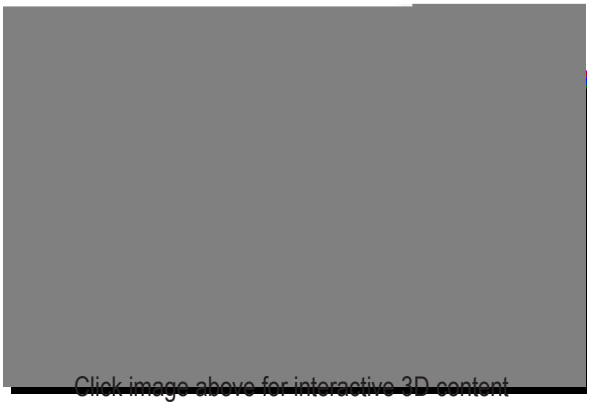
Overview

KEMET Power Solutions (KPS) Commercial Series stacked capacitors utilize a proprietary lead-frame technology to vertically stack one or two multilayer ceramic chip capacitors into a single compact surface mount package. The attached lead-frame mechanically isolates the capacitor/s from the printed circuit board, therefore offering advanced mechanical and thermal stress performance. Isolation also addresses concerns for audible, microphonic noise that may occur when a bias voltage is applied. A two chip stack offers up to double the capacitance in the same or smaller design footprint when compared to traditional surface mount MLCCs devices. Providing up to 10 mm of board flex capability, KPS Series capacitors are environmentally friendly and in compliance with RoHS legislation. Available in X7R dielectric, these devices are capable of Pb-Free reflow profiles and provide lower ESR, ESL and higher ripple current capability when compared to other dielectric solutions.

Combined with the stability of an X7R dielectric, KEMET's KPS Series devices exhibit a predictable change in capacitance with respect to time and voltage and boast a minimal change in capacitance with reference to ambient temperature. Capacitance change is limited to ±15% from −55°C to +125°C.

Benefits

- −55°C to +125°C operating temperature range
- Reliable and robust termination system
- EIA 1210, 1812, and 2220 case sizes
- DC voltage ratings of 10 V, 16 V, 25 V, 50 V, 100 V, and 250 V
- Capacitance offerings ranging from 0.1 µF up to 47 µF
- Available capacitance tolerances of ±10% and ±20%
- Higher capacitance in the same footprint
- Potential board space savings



Ordering Information

C	2220	C	106	M	5	R	2	C	7186
Ceramic	Case Size (L" x W")	Specification/ Series	Capacitance Code (pF)	Capacitance Tolerance[1]	Rated Voltage (VDC)	Dielectric	Failure Rate/Design	Leadframe Finish[2]	Packaging/ Grade (C-Spec)
	1210 1812 2220	C = Standard	Two significant digits + number of zeros	K = ±10% M = ±20%	8 = 10 4 = 16 3 = 25 5 = 50 1 = 100 A = 250	R = X7R	1 = KPS Single Chip Stack 2 = KPS Double Chip Stack	C = 100% Matte Sn	See "Packaging C-Spec Ordering Options Table" below

[1] *Double chip stacks ("2" in the 13th character position of the ordering code) are only available in M (±20%) capacitance tolerance. Single chip stacks ("1" in the 13th character position of the ordering code) are available in K (±10%) or M (±20%) tolerances.*

[2] Additional leadframe finish options may be available. Contact KEMET for details.

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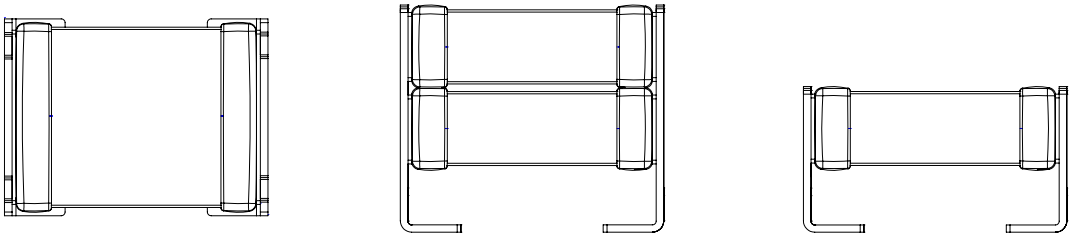
Packaging C-Spec Ordering Options Table

Packaging Type[1]	Packaging/Grade Ordering Code (C-Spec)[2]
7" Reel (Embossed Plastic Tape)/Unmarked	7186
13" Reel (Embossed Plastic Tape)/Unmarked	7289

1

Dimensions – Millimeters (Inches)



Post Environmental Limits

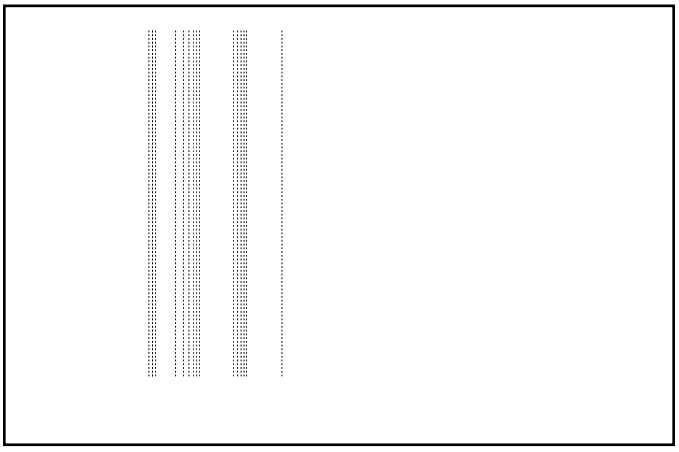
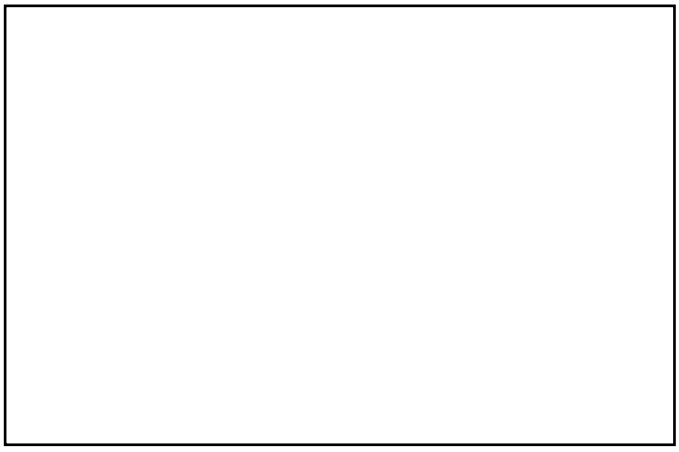
High Temperature Life, Biased Humidity, Moisture Resistance					
Dielectric	Rated DC Voltage	Capacitance Value	Dissipation Factor (Maximum %)	Capacitance Shift	Insulation Resistance
X7R	> 25	All	3.0	±20%	10% of Initial Limit
	16/25		5.0		
	< 16		7.5		

Insulation Resistance Limit Table

EIA Case Size	1,000 Megohm Microfarads or 100 GΩ	500 Megohm Microfarads or 10 GΩ
1210	< 0.39 µF	≥ 0.39 µF
1812	< 2.2 µF	≥ 2.2 µF
2220	< 10 µF	≥ 10 µF

Electrical Characteristics

Z and ESR C1210C475M5R1C



Z and ESR C2220C225MAR2C