

Knowles (KPD)

Syfer Branded Product Range

Environmental Status

Surface Mount Capacitor Status

1210	Y	100	0103	J	X	T	□□□
Chip Size	Termination	Voltage d.c. (unless stated)	Capacitance in Pico farads (pF)	Capacitance Tolerance	Dielectric	Packaging	Suffix Code*
0402	Y = FlexiCap™ termination base with nickel barrier (100% matte tin plating). RoHS compliant.	010 = 10V 016 = 16V 025 = 25V 050 = 50V 063 = 63V 100 = 100V 200 = 200V 250 = 250V 500 = 500V	<1.0pF Insert a P for the decimal point as the first character. e.g., P300 = 0.3pF Values in 0.1pF steps	<4.7pF H: ± 0.05pF B: ± 0.10pF C: ± 0.25pF D: ± 0.5pF	A = COG/NP0 AEC-Q200 B = 2X1/BX C = COG/NP0 D = X7R (2R1) with IECQ-CECC E = X7R AEC-Q200 F = COG/NP0 with IECQ-CECC G = COG/NP0 H = X8G HIQ J = X7R (2R1) K = COG/NP0 AEC-Q200 N = X8R P = X5R Q = High Q R = 2C1/BZ S = X7R AEC-Q200 T = X8R AEC-Q200 U = Ultra Low ESR V = X8G HIQ AEC-Q200 X = X7R (2R1)	T = 178mm (7") reel R = 330mm (13") reel B = Bulk pack – tubs or trays	Used for specific customer requirements Standard Suffix Codes that Apply M01 = Open Mode T01 = Tandem design WS2 = StackiCap construction NC = Mandatory conformal coating E01 = 3-terminal EMI filter E07 = 3-terminal EMI filter E03 = X2Y 3-terminal EMI filter SY2, PY2, SP, SPU, B16, U16, B17 & U17 = Safety Rated U99 & AG1 = Extended thickness H20 & H25 = High Temperature VC1 = Residual Voltage range AF9 = RF non magnetic AF9 = RF high power HPB = legacy contains lead
0603		630 = 630V 1K0 = 1kV 1K2 = 1.2kV 1K5 = 1.5kV 2K0 = 2kV 2K5 = 2.5kV 3K0 = 3kV 4K0 = 4kV 5K0 = 5kV 6K0 = 6kV 8K0 = 8kV 10K = 10kV 12K = 12kV	≥1.0pF & <10pF Insert a P for the decimal point as the second character. e.g., 8P20 = 8.2pF Values are E24 series	<10pF B: ± 0.10pF C: ± 0.25pF D: ± 0.5pF F: ± 1.0pF			
0505	H = FlexiCap™ termination base with nickel barrier (tin/lead plating with min. 10% lead). Not RoHS compliant.	630 = 630V 1K0 = 1kV 1K2 = 1.2kV 1K5 = 1.5kV 2K0 = 2kV 2K5 = 2.5kV 3K0 = 3kV 4K0 = 4kV 5K0 = 5kV 6K0 = 6kV 8K0 = 8kV 10K = 10kV 12K = 12kV	≥10pF First digit is 0. Second and third digits are significant figures of capacitance code. The fourth digit is the number of zeros following. e.g., 0101 = 100 pF Values are E12 series	≥10pF F: ± 1% G: ± 2% J: ± 5% K: ± 10% M: ± 20%			
0805		A15 = 115Vac 400Hz A25 = 250Vac 50/60Hz					
1111							
1206							
1210							
1808	F = Silver Palladium. RoHS compliant						
1812							
1825	J = nickel barrier (100% matte tin plating). RoHS compliant						
2220							
2225	A = nickel barrier (tin/lead plating with min. 10% lead). Not RoHS compliant						
3640							
4040	G = nickel barrier (100% gold plating). RoHS compliant						
5550							
8060	2 = non-magnetic (100% matt tin plating) RoHS compliant. 3 = FlexiCap™ base with non-magnetic (100% matt tin plating) RoHS compliant. 4 = non-magnetic (Tin/Lead Plating) Not RoHS compliant 5 = FlexiCap™ base with non-magnetic (Tin/Lead Plating) Not RoHS compliant. 6 = nickel barrier (tin/lead plating with min. 5% lead). Not RoHS compliant 7 = FlexiCap™ base nickel barrier (tin/lead plating with min. 5% lead). Not RoHS compliant						

* Parts with customisation suffix codes applied (2 or 3 digit codes added to the end of the standard part number) may have a different RoHS status to the basic part number. In case of doubt, always check the status of customised parts with the factory.

Standard suffix codes shown follow the rules in the following table

Termination Type	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
Y, J & G	A, C, D, E, F, G, H, J, K, P, Q, S, U, V & X	Yes (Since 1 st October 2012)	None applied	None present	None present	Nickel, as an undercoat to the plating finish	No risk of exposure
F, Q, 2 & 3	A, C, D, E, F, G, H, J, K, P, Q, S, U, V & X	Yes (Since 1 st October 2012)	None applied	None present	None present	None present	No risk of exposure
Y, J & G	B, R, N & T	Yes (Since 1 st February 2017)	None applied	None present	None present	Nickel, as an undercoat to the plating finish	No risk of exposure
F, Q, 2 & 3	B, R, N & T	Yes (Since 1 st February 2017)	None applied	None present	None present	None present	No risk of exposure

Termination Type	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
J, Y	B, R, N & T When suffix code HPB is applied	Voltage Dependent Voltage \geq 250Vdc, compliant thru exemption Voltage <250Vdc, not compliant (Since 1 st February 2017)	Voltage \geq 250Vdc, compliant – exemption 7(C)-II	Lead Titanium Oxide (PbTiO ₃ , CAS number 12060-00-3)	None present	Nickel, as an undercoat to the plating finish Lead – as per SVHC / Authorisation List	No risk of exposure
F, Q	B, R, N & T When suffix code HPB is applied	Voltage Dependent Voltage \geq 250Vdc, compliant thru exemption Voltage <250Vdc, not compliant (Since 1 st February 2017)	Voltage \geq 250Vdc, compliant – exemption 7(C)-II	Lead Titanium Oxide (PbTiO ₃ , CAS number 12060-00-3)	None present	Lead – as per SVHC / Authorisation List	No risk of exposure
H, A, 6 & 7 (SnPb plated terminations)	A, B, C, D, E, F, G, H, J, K, N, P, Q, R, S, T, U, V & X	No	N/A	Lead (Pb) CAS number 7439-92-1	None present	Nickel, as an undercoat to the plating finish Lead – as per SVHC / Authorisation List	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch

Termination Type	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
4 & 5 (SnPb plated terminations)	C, Q, & X	No	N/A	Lead (Pb) CAS number 7439-92-1	None present	Lead – as per SVHC / Authorisation List	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch
H, A, 6 & 7 (SnPb plated terminations)	B, R, N & T When suffix code HPB is applied	No	N/A	Lead Titanium Oxide (PbTiO ₃ , CAS number 12060-00-3) And Lead (Pb) CAS number 7439-92-1	None present	Nickel, as an undercoat to the plating finish Lead – as per SVHC / Authorisation List	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch

Table 1: Surface Mount Capacitor RoHS Status

Note:

- X8R (N & T) dielectric material was changed to lead free RoHS compliant from 1st February 2017. If suffix HPB is applied, then the 'old' lead containing dielectric is used

Radial Leaded Capacitor Status

8111M	100	0102	J	C	□□□	□□□
Chip Size	Voltage d.c. (unless stated)	Capacitance in Pico farads (pF)	Capacitance Tolerance	Dielectric	Suffix Code	Suffix Code
8111M	010 = 10V	<10pF	<10pF	C = COG/NPO (1B/CG; CG/BP)	Used for specific customer requirements	C42 denotes RoHS compliant
8111N	016 = 16V	Insert a P for the decimal point as the second character.	D: ± 0.5pF	X = X7R (2R1)		
8121M	025 = 25V	e.g., 8P20 = 8.2pF	F: ± 1.0pF	To special order		
8121N	050 = 50V	≥10pF	≥10pF	R = 2C1/BZ		
8121T	063 = 63V	First digit is 0.	F: ± 1%	B = 2X1/BX		
8131M	100 = 100V	Second and third digits are significant figures of capacitance code.	G: ± 2%			
8131T	200 = 200V	The fourth digit is the number of zeros following.	J: ± 5%			
8141M	250 = 250V	e.g., 0101 = 100 pF	K: ± 10%			
8151M	500 = 500V		M: ± 20%			
8161M	630 = 630V		≥27pF			
8165M	1K0 = 1kV		G: ± 2%			
8171M	1K2 = 1.2kV		(COG/NPO only)			
	1K5 = 1.5kV					
	2K0 = 2kV					
	2K5 = 2.5kV					
	3K0 = 3kV					
	4K0 = 4kV					
	5K0 = 5kV					
	6K0 = 6kV					
	8K0 = 8kV					
	10K = 10kV					
	12K = 12Kv					

Ribbon Leaded Capacitor Status

4040B	7K0	0470	J	Q	B	RW221
Chip Size	Voltage d.c. (unless stated)	Capacitance in Pico farads (pF)	Capacitance Tolerance	Dielectric	Packing	Suffix Code
2225B	010 = 10V	<10pF	<10pF	Q = High Q	B = Bulk Pack	RW001 = Ribbon Leaded
2225V	016 = 16V	Insert a P for the decimal point as the second character.	B: ± 0.10pF			RW221 = Non Magnetic Ribbon Leaded
4040B	025 = 25V	e.g., 8P20 = 8.2pF	C: ± 0.25pF			RW211 = Non Magnetic Leaded Marked
4040V	050 = 50V	≥10pF	D: ± 0.5pF			
	063 = 63V	First digit is 0.	F: ± 1.0pF			
	100 = 100V	Second and third digits are significant figures of capacitance code.	≥10pF			
	200 = 200V	The fourth digit is the number of zeros following.	F: ± 1%			
	250 = 250V	e.g., 0101 = 100 pF	G: ± 2%			
	500 = 500V		J: ± 5%			
	630 = 630V		K: ± 10%			
	1K0 = 1kV		M: ± 20%			
	1K2 = 1.2kV					
	1K5 = 1.5kV					
	2K0 = 2kV					
	2K5 = 2.5kV					
	3K0 = 3kV					
	4K0 = 4kV					
	5K0 = 5kV					
	6K0 = 6kV					
	8K0 = 8kV					
	10K = 10kV					
	12K = 12Kv					

Suffix Code	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
C42	C & X	Yes (Since 1 st October 2012)	None applied	None present	None present	None present	No risk of exposure
C42	B & R	Yes (Since 1 st February 2017)	None applied	None present	None present	None present	No risk of exposure
A31 & A97	C & X	No	N/A	Lead (Pb) CAS number 7439-92-1	None present	Lead – as per SVHC / Authorisation List	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch

Table 2: Radial Capacitor Status

Notes:

- BX & RX (B & R) dielectric material was changed to lead free RoHS compliant from 1st February 2017

Termination Code	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
B	Q	Yes (Since 1 st October 2012)	Compliant – exemption 7(a)	Lead (Pb) CAS number 7439-92-1	None present	Lead – as per SVHC / Authorisation List	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch
V	Q	Yes (Since 1 st October 2012)	Compliant – exemption 7(a)	Lead (Pb) CAS number 7439-92-1	None present	Lead – as per SVHC / Authorisation List	No risk of exposure

Table 3: Ribbon Lead Capacitor Status

Filter Component RoHS Status

If part number has a suffix code other than listed below, then refer to factory.

Filter Series / Suffix Code	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
SB**	C & X	Yes	None applied	None present	None present	Nickel, as an undercoat to the plating finish	No risk of exposure
SB** Suffix /0107	X	No	N/A	Lead (Pb) CAS number 7439-92-1	None present	Nickel, as an undercoat to the plating finish	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch
SFS* Solder-in Panel Mount	C & X	Yes	Exemption 24	Lead (Pb) CAS number 7439-92-1	None present	Nickel, as an undercoat to the plating finish	No risk of exposure
SF** Bolt-in Panel Mount	C & X	Yes	Exemptions 6(C) & 24	Lead (Pb) CAS number 7439-92-1	None present	Nickel, as an undercoat to the plating finish of internal component	No risk of exposure

Filter Series / Suffix Code	Dielectric	RoHS Compliant? 2011/65/EU (2056/863/EU)	RoHS Exemption?	REACH SVHC (Authorisation List)	REACH Annex XIV (Restricted List)	REACH Annex XVII (Candidate List)	Prop 65
SF** Bolt-in Panel Mount Suffix /0100	C & X	No	N/A	Lead (Pb) CAS number 7439-92-1	None present	Nickel, as an undercoat to the plating finish of internal component	Terminations have exposed lead (CAS 7439-92-1) that could represent a risk of exposure through touch

Table 4: EMI Filter Status

Exemptions that may apply to Table 3 :

- 6(c) Lead as an alloying element in aluminium Copper alloy containing up to 4 % lead by weight
- 24 Lead in solders for the soldering to machined through-hole discoidal and planar array ceramic multilayer capacitors

Individual datasheets and environmental certificates are available by part number direct from the Knowles website www.knowlescapacitors.com

For further enquiries, please contact us through the following e-mail addresses:

- Europe : KPD-Europe-sales@knowles.com
- Asia : KPD-KC-CS@knowles.com
- USA : KPD-NA-sales@knowles.com