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 **0603** **0505** **0709** **0805** **1111** **1206** **1210** **1806** **1808** **1812** **1825** **2211** **2215** **2220** **2225** **3640** **4040** **5550** **8060**	**Y** = FlexiCap™ termination base with nickel barrier (100% matte tin plating). RoHS compliant. **H** = FlexiCap™ termination base with nickel barrier (tin/lead plating with min. 10% lead). Not RoHS compliant. **F** = Silver Palladium. RoHS compliant **J** = nickel barrier (100% matte tin plating). RoHS compliant **A** = nickel barrier (tin/lead plating with min. 10% lead). Not RoHS compliant **G** = nickel barrier (100% gold plating). RoHS compliant **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	**010** = 10V **016** = 16V **025** = 25V **050** = 50V **063** = 63V **100** = 100V **200** = 200V **250** = 250V **500** = 500V **630** = 630V **700 =** 700V **900 =** 900V **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 **A15 =** 115Vac 400Hz **A25** =250Vac 50/60Hz **A30** =305Vac 50/60Hz **A50** =500Vac 50/60Hz	<1.0pF Insert a P for the decimal point as the first character. e.g., **P300** = 0.3pF Values in 0.1pF steps ≥1.0pF & <10pF Insert a P for the decimal point as the second character. e.g., **8P20** = 8.2pF Values are E24 series ≥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	**<4.7pF** **H**: ± 0.05pF **B**: ± 0.10pF **C**: ± 0.25pF **D**: ± 0.5pF **<10pF** **B**: ± 0.10pF **C**: ± 0.25pF **D**: ± 0.5pF **F**: ± 1.0pF **≥10pF** **F**: ± 1% **G**: ± 2% **J**: ± 5% **K**: ± 10% **M**: ± 20%	**A** = C0G/NP0 AEC-Q200 **B** = 2X1/BX **C** = C0G/NP0 **D** = X7R (2R1) with IECQ-CECC **E** = X7R AEC-Q200 **F** = C0G/NP0 with IECQ-CECC **G** = C0G/NP0 **H** = X8G HiQ **J** = X7R (2R1) **K** = C0G/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) **Y** = Hiteca™ AECQ-200 **Z =** Hiteca™ standard commercial	**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 & WS3 = StackiCap construction NC = Mandatory conformal coating E01, E07 & E17 = 3-terminal EMI filter E03 = X2Y 3-terminal EMI filter SY2, PY2, SP, SPU, B16, U16, M16, B17 & U17 = Legacy Safety Rated SYX, UYX, SYM, UYM, SYS, UYS, S2X, U2X, S3X & U3X= Enhanced safety Rated U99 & AG1 = Extended thickness H17, H20 & H25 = High Temperature VC1 = Residual Voltage range AF9 = RF non magnetic AF7 = RF high power HPB = legacy contains lead **S02A** = space range

* 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 (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted List)	Prop 65
Y, J & G	A, C, D, E, F, G, H, J, K, P, Q, S, U, V & X	Yes (Since 1st 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 1st October 2012)	None applied	None present	None present	None present	No risk of exposure
Y, J & G	B, R, N & T	Yes (Since 1st 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 1st February 2017)	None applied	None present	None present	None present	No risk of exposure

Termination Type	Dielectric	RoHS Compliant? 2011/65/EU (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted List)	Prop 65
J, Y	B, R, N & T When suffix code HPB is applied	Voltage Dependent Voltage ≥250Vdc, compliant thru exemption Voltage <250Vdc, not compliant (Since 1st February 2017)	Voltage ≥250Vdc, compliant – exemption 7(C)-II	Lead Titanium Oxide (PbTiO3, 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 ≥250Vdc, compliant thru exemption Voltage <250Vdc, not compliant (Since 1st February 2017)	Voltage ≥250Vdc, compliant – exemption 7(C)-II	Lead Titanium Oxide (PbTiO3, 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 (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted 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 (PbTiO3, 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 **8111N** **8121M** **8121N** **8121T** **8131M** **8131T** **8141M** **8151M** **8161M** **8165M** **8171M** **81112** **81113** **81212** **81213** **81312** **81313**	**010** = 10V **016** = 16V **025** = 25V **050** = 50V **063** = 63V **100** = 100V **200** = 200V **250** = 250V **500** = 500V **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 Insert a P for the decimal point as the second character. e.g., **8P20** = 8.2pF ≥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	**<10pF** **D**: ± 0.5pF **F**: ± 1.0pF **≥10pF** **F**: ± 1% **G**: ± 2% **J**: ± 5% **K**: ± 10% **M**: ± 20% **≥27pF** **G**: ± 2% (C0G/NP0 only)	**C** = C0G/NP0 (1B/CG; CG/BP) **X** = X7R (2R1) To special order **R** = 2C1/BZ **B** = 2X1/BX	Used for specific customer requirements and/or bandolier packing variants	**C42** denotes RoHS compliant **A31** or **A97** denote non-RoHS tin/lead wires. Suffix A97 for 8111 to 8141 Suffix A31 for 8151 to 8171 May also be used for specific customer requirements

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 **2225V** **4040B** **4040V**	**010** = 10V **016** = 16V **025** = 25V **050** = 50V **063** = 63V **100** = 100V **200** = 200V **250** = 250V **500** = 500V **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 Insert a P for the decimal point as the second character. e.g., **8P20** = 8.2pF ≥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	**<10pF** **B**: ± 0.10pF **C**: ± 0.25pF **D**: ± 0.5pF **F**: ± 1.0pF **≥10pF** **F**: ± 1% **G**: ± 2% **J**: ± 5% **K**: ± 10% **M**: ± 20%	**Q =** High Q	**B** = Bulk Pack	RW001 = Ribbon Leaded RW221 = Non Magnetic Ribbon Leaded RW211 = Non Magnetic Leaded Marked May also be used for specific customer requirements

Suffix Code	Dielectric	RoHS Compliant? 2011/65/EU (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted List)	Prop 65
C42	C & X	Yes (Since 1st October 2012)	None applied	None present	None present	None present	No risk of exposure
C42	B & R	Yes (Since 1st 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 (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted List)	Prop 65
B	Q	Yes (Since 1st 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 1st 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 (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted 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	Voltage Dependent Voltage ≥250Vdc, compliant thru exemption Voltage <250Vdc, not compliant (Since 1st February 2017)	Exemption 24 & 7(C)-II (Voltage ≥250Vdc, compliant)	Lead (Pb) CAS number 7439-92-1, Lead Titanium Oxide (PbTiO3, CAS number 12060-00-3)	None present	Nickel, as an undercoat to the plating finish	No risk of exposure
SF** Bolt-in Panel Mount	C & X	Voltage Dependent Voltage ≥250Vdc, compliant thru exemption Voltage <250Vdc, not compliant (Since 1st February 2017)	Exemptions 6(C), 24 & 7(C)-II (Voltage ≥250Vdc, compliant)	Lead (Pb) CAS number 7439-92-1, Lead Titanium Oxide (PbTiO3, CAS number 12060-00-3)	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 (2015/863/EU)	RoHS Exemption?	REACH SVHC (Candidate List) REACH 247 21/01/25	REACH Annex XIV (Authorisation List)	REACH Annex XVII (Restricted 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 4 :

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 machine through-hole discoidal and planar array ceramic multilayer capacitors

7(c) II Lead in dielectric ceramic in capacitors for a rated voltage of 125V AC or 250V DC or higher

Halogen free Compliance Declaration (Br <=900ppm, Cl <=900ppm, Br+Cl <=1500ppm)
We hereby declare that all surface mount capacitors, Radial leaded MLCC and EMI Filter parts delivered by Knowles are compliant with Halogen Free requirements.

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