

## 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<br>016 = 16V<br>025 = 25V<br>050 = 50V<br>063 = 63V<br>100 = 100V<br>200 = 200V<br>250 = 250V<br>500 = 500V<br>630 = 630V<br>1K0 = 1kV<br>1K2 = 1.2kV<br>1K5 = 1.5kV<br>2K0 = 2kV<br>2K5 = 2.5kV<br>3K0 = 3kV<br>4K0 = 4kV<br>5K0 = 5kV<br>6K0 = 6kV<br>8K0 = 8kV<br>10K = 10kV<br>12K = 12kV<br>A15 = 115Vac 400Hz<br>A25 = 250Vac 50/60Hz | <1.0pF<br>Insert a P for the decimal point as the first character.<br>e.g., P300 = 0.3pF<br>Values in 0.1pF steps<br>≥1.0pF & <10pF<br>Insert a P for the decimal point as the second character.<br>e.g., 8P20 = 8.2pF<br>Values are E24 series<br>≥10pF<br>First digit is 0.<br>Second and third digits are significant figures of capacitance code.<br>The fourth digit is the number of zeros following.<br>e.g., 0101 = 100 pF<br>Values are E12 series | <4.7pF<br>H: ± 0.05pF<br>B: ± 0.10pF<br>C: ± 0.25pF<br>D: ± 0.5pF<br><br><10pF<br>B: ± 0.10pF<br>C: ± 0.25pF<br>D: ± 0.5pF<br>F: ± 1.0pF<br><br>≥10pF<br>F: ± 1%<br>G: ± 2%<br>J: ± 5%<br>K: ± 10%<br>M: ± 20% | A = COG/NP0 AEC-Q200<br>B = 2X1/BX<br>C = COG/NP0<br>D = X7R (2R1) with IECQ-CECC<br>E = X7R AEC-Q200<br>F = COG/NP0 with IECQ-CECC<br>G = COG/NP0<br>H = X8G HIQ<br>J = X7R (2R1)<br>K = COG/NP0 AEC-Q200<br>N = X8R<br>P = X5R<br>Q = High Q<br>R = 2C1/BZ<br>S = X7R AEC-Q200<br>T = X8R AEC-Q200<br>U = Ultra Low ESR<br>V = X8G HIQ AEC-Q200<br>X = X7R (2R1) | T = 178mm (7") reel<br>R = 330mm (13") reel<br>B = Bulk pack – tubs or trays | Used for specific customer requirements<br><br><b>Standard Suffix Codes that Apply</b><br>M01 = Open Mode<br>T01 = Tandem design<br>WS2 = StackiCap construction<br>NC = Mandatory conformal coating<br>E01 = 3-terminal EMI filter<br>E07 = 3-terminal EMI filter<br>E03 = X2Y 3-terminal EMI filter<br>SY2, PY2, SP, SPU, B16, U16, B17 & U17 = Safety Rated<br>U99 & AG1 = Extended thickness<br>H20 & H25 = High Temperature<br>VC1 = Residual Voltage range<br>AF9 = RF non magnetic<br>AF7 = RF high power<br>HPB = legacy contains lead |
| 0603      |  |   |   |  |  |  |  |
| 0505      |  |   |   |  |  |  |  |
| 0805      | H = FlexiCap™ termination base with nickel barrier (tin/lead plating with min. 10% lead).<br>Not RoHS compliant.   |   |   |  |  |  |  |
| 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).<br>Not RoHS compliant  |   |   |  |  |  |  |
| 3640      |  |   |   |  |  |  |  |
| 4040      | G = nickel barrier (100% gold plating). RoHS compliant   |   |   |  |  |  |  |
| 5550      |  |   |   |  |  |  |  |
| 8060      | 2 = non-magnetic (100% matt tin plating) RoHS compliant.<br><br>3 = FlexiCap™ base with non-magnetic (100% matt tin plating) RoHS compliant.<br><br>4 = non-magnetic (Tin/Lead Plating) Not RoHS compliant<br><br>5 = FlexiCap™ base with non-magnetic (Tin/Lead Plating) Not RoHS compliant.<br><br>6 = nickel barrier (tin/lead plating with min. 5% lead).<br>Not RoHS compliant<br><br>7 = FlexiCap™ base nickel barrier (tin/lead plating with min. 5% lead).<br>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 (2015/863/EU)     | RoHS Exemption? | REACH SVHC (Candidate List) REACH197 15/01/19 | 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<br>(Since 1 <sup>st</sup> 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<br>(Since 1 <sup>st</sup> October 2012)  | None applied    | None present                                  | None present                         | None present                                  | No risk of exposure |
| Y, J & G         | B, R, N & T                                  | Yes<br>(Since 1 <sup>st</sup> 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<br>(Since 1 <sup>st</sup> 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) REACH197 15/01/19                    | REACH Annex XIV (Authorisation List) | REACH Annex XVII (Restricted List)   | Prop 65  |
|---|--|--|--|--|--------------------------------------|--|--|
| J, Y                                      | B, R, N & T<br>When suffix code HPB is applied           | Voltage Dependent<br>Voltage $\geq 250\text{Vdc}$ , compliant thru exemption<br>Voltage $< 250\text{Vdc}$ , not compliant<br>(Since 1 <sup>st</sup> February 2017) | Voltage $\geq 250\text{Vdc}$ , compliant – exemption 7(C)-II | Lead Titanium Oxide (PbTiO <sub>3</sub> , CAS number 12060-00-3) | None present                         | Nickel, as an undercoat to the plating finish<br><br>Lead – as per SVHC / Authorisation List | No risk of exposure  |
| F, Q                                      | B, R, N & T<br>When suffix code HPB is applied           | Voltage Dependent<br>Voltage $\geq 250\text{Vdc}$ , compliant thru exemption<br>Voltage $< 250\text{Vdc}$ , not compliant<br>(Since 1 <sup>st</sup> February 2017) | Voltage $\geq 250\text{Vdc}$ , compliant – exemption 7(C)-II | Lead Titanium Oxide (PbTiO <sub>3</sub> , CAS number 12060-00-3) | None present                         | Lead – as per SVHC / Authorisation List  | No risk of exposure  |
| H, A, 6 & 7<br>(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<br><br>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?<br>2011/65/EU<br>(2015/863/EU) | RoHS Exemption? | REACH SVHC<br>(Candidate List)<br>REACH197<br>15/01/19  | REACH Annex XIV<br>(Authorisation List) | REACH Annex XVII<br>(Restricted List)  | Prop 65  |
|---|--|--|-----------------|---|---|--|--|
| 4 & 5<br>(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<br>(SnPb plated terminations) | B, R, N & T<br>When suffix code HPB is applied | No   | N/A             | Lead Titanium Oxide (PbTiO <sub>3</sub> , CAS number 12060-00-3)<br>And<br>Lead (Pb) CAS number 7439-92-1 | None present                            | Nickel, as an undercoat to the plating finish<br><br>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 and/or bandolier packing variants | 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)        |                            |   |                            |
| 81112     | 1K5 = 1.5kV                  |  |                       |                            |   |                            |
| 81113     | 2K0 = 2kV                    |  |                       |                            |   |                            |
| 81212     | 2K5 = 2.5kV                  |  |                       |                            |   |                            |
| 81213     | 3K0 = 3kV                    |  |                       |                            |   |                            |
| 81312     | 4K0 = 4kV                    |  |                       |                            |   |                            |
| 81313     | 5K0 = 5kV                    |  |                       |                            |   |                            |
| 81313     | 6K0 = 6kV                    |  |                       |                            |   |                            |
| 81313     | 8K0 = 8kV                    |  |                       |                            |   |                            |
| 81313     | 10K = 10kV                   |  |                       |                            |   |                            |
| 81313     | 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?<br>2011/65/EU<br>(2015/863/EU) | RoHS<br>Exemption? | REACH SVHC<br>(Candidate<br>List)<br>REACH197<br>15/01/19 | REACH<br>Annex XIV<br>(Authorisation<br>List) | REACH<br>Annex XVII<br>(Restricted<br>List)      | Prop 65   |
|-------------|------------|--|--------------------|---|---|--|---|
| C42         | C & X      | Yes<br>(Since 1 <sup>st</sup> October 2012)    | None applied       | None present  | None present                                  | None present                                     | No risk of exposure   |
| C42         | B & R      | Yes<br>(Since 1 <sup>st</sup> February 2017)   | None applied       | None present  | None present                                  | None present                                     | No risk of exposure   |
| A31 & A97   | C & X      | No   | N/A                | Lead (Pb) CAS<br>number 7439-92-1                         | None present                                  | Lead – as per<br>SVHC /<br>Authorisation<br>List | Terminations have<br>exposed lead (CAS 7439-<br>92-1) that could<br>represent a risk of<br>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?<br>2011/65/EU<br>(2015/863/EU) | RoHS Exemption?               | REACH SVHC<br>(Candidate List)<br>REACH197<br>15/01/19 | REACH Annex XIV<br>(Authorisation List) | REACH Annex XVII<br>(Restricted List)            | Prop 65   |
|------------------|------------|--|-------------------------------|--|---|--|---|
| B                | Q          | Yes<br>(Since 1 <sup>st</sup> October 2012)    | Compliant –<br>exemption 7(a) | Lead (Pb) CAS<br>number 7439-92-1                      | None present                            | Lead – as per<br>SVHC /<br>Authorisation<br>List | Terminations have<br>exposed lead (CAS 7439-<br>92-1) that could<br>represent a risk of<br>exposure through touch |
| V                | Q          | Yes<br>(Since 1 <sup>st</sup> October 2012)    | Compliant –<br>exemption 7(a) | Lead (Pb) CAS<br>number 7439-92-1                      | None present                            | Lead – as per<br>SVHC /<br>Authorisation<br>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) REACH197 15/01/19 | 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**<br>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 (2015/863/EU) | RoHS Exemption? | REACH SVHC (Candidate List) REACH197 15/01/19 | REACH Annex XIV (Authorisation List) | REACH Annex XVII (Restricted List)                                  | Prop 65  |
|--|------------|--|-----------------|---|--------------------------------------|---|--|
| SF** Bolt-in Panel Mount<br>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](http://www.knowlescapacitors.com)

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

- Europe : [KPD-Europe-sales@knowles.com](mailto:KPD-Europe-sales@knowles.com)
- Asia : [KPD-KC-CS@knowles.com](mailto:KPD-KC-CS@knowles.com)
- USA : [KPD-NA-sales@knowles.com](mailto:KPD-NA-sales@knowles.com)