



## Stackpole Electronics Inc. Lead Free / RoHS Status

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS). As part of this ongoing program, we periodically update this document with the status regarding the availability of our lead-free components. Most of our products are either currently lead-free or are available as lead-free. Our lead-free part numbers are also fully RoHS compliant. The part numbers that are listed as provisional (PROV) are now manufactured lead-free and RoHS compliant. Compliant product will be shipped as pre-existing inventory of product with terminations containing lead is depleted. In cases where receipt of compliant product must be assured now, please order the alternate RoHS compliant part number.

| Package / Termination Type | Standard Product Series | Description                         | Standard Series Currently Lead Free / RoHS Compliant? | Alternate RoHS Compliant Version Available? | Alternate RoHS Compliant Part Number | Lead Free Termination Composition | Lead Free Manufacturing Effective Date (Standard Product Series) | Lead Free Effective Date Code (YY/WW) |
|----------------------------|-------------------------|-------------------------------------|---|---|--------------------------------------|-----------------------------------|--|---------------------------------------|
| <b>Resistors</b>           |                         |                                     |   |   |                                      |                                   |  |                                       |
| SMD                        | RMC                     | General Purpose Thick Film Chip     | PROV *  | YES   | RMCF                                 | 100% Matte Sn over Ni             | Jan-04 [Japan]<br>Jan-05 [Taiwan]<br>Jan-05 [China]              | 04/01<br>05/01<br>05/01               |
|                            | HMC                     | High Resistance Value Chip          | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jan-04   | 04/01                                 |
|                            | RGC                     | Semi-Precision Chip                 | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jul-04   | 04/27                                 |
|                            | RVC                     | Medium Voltage Chip                 | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jan-03   | 03/01                                 |
|                            | RPC                     | Pulse Chip Resistor                 | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jan-03   | 03/01                                 |
|                            | HVC                     | High Voltage Chip                   | YES   | -   | -                                    | 100 % Matte Sn ("T")              | Always   | Always                                |
|                            | FCR                     | Thick Film Trimmable Chip           | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jan-04   | 04/01                                 |
|                            | RNC                     | Thin Film, Nichrome, Precision      | PROV *  | YES   | RNCF                                 | 100% Matte Sn over Ni             | May-04   | 04/18                                 |
|                            | RNCS                    | Anti-Corrosive Chip                 | YES   | -   | -                                    | 100% Matte Sn over Ni             | May-04   | 04/18                                 |
|                            | RAV                     | Thick Film, Array, Convex           | PROV *  | YES   | RAVF                                 | 100% Matte Sn over Ni             | Jan-04 (Japan)<br>Jul-04 (Taiwan)                                | 04/01<br>04/27                        |
|                            | RAC                     | Thick Film, Array, Concave          | PROV *  | YES   | RACF                                 | 100% Matte Sn over Ni             | Jan-04   | 04/01                                 |
|                            | RAF                     | Thick Film, Array, Flat Termination | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jul-04   | 04/27                                 |
|                            | HPC                     | High Power Chip                     | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| SIP                        | LC                      | Thick Film SIP Resistor Network     | NO  | NO  | N/A                                  | -                                 | N/A  | N/A                                   |
|                            | HVD                     | High Voltage Leaded Resistors       | YES   | -   | -                                    | 96.3/3.7 Sn/Ag                    | Always   | Always                                |

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| <b>Resistors</b>           |                         |   |   |   |                                      |                                   |  |                                       |
| SMD                        | CSR/CSRN                | Current Sensing Chip                        | PROV *  | YES   | CSF                                  | 100% Matte Sn over Ni             | May-04   | 04/18                                 |
|                            | CSRL                    | Metal Strip Current Sensing Chip            | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jul-04   | 04/27                                 |
|                            | CSNL                    | Metal Strip Current Sensing Chip            | YES   | -   | -                                    | 100% Matte Sn over Ni             | May-04   | 04/18                                 |
|                            | CSRF                    | Foil on Ceramic Current Sensing Chip        | YES   | -   | -                                    | 100% Matte Sn over Ni             | Jul-04   | 04/27                                 |
| Radial / Special           | BR                      | Open Air, Bare Element Current Sense        | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Axial / Kelvin             | MR/TMR                  | Low Resistance - Current Sensing            | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Special                    | HLD                     | High Current Shunt / Sensing                | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Axial                      | RN/RNM                  | General Purpose Metal Film                  | PROV *  | YES   | RNF/RNMF                             | 99.3/0.7 Sn/Cu                    | Apr-05 (Japan)   | 05/14                                 |
|                            |                         |   |   |   |                                      | 100% Matte Sn                     | Jan-04 (Taiwan, China)   | 04/01                                 |
|                            | UP                      | Ultra Precision, Metal Film                 | NO  | NO  | N/A                                  | -                                 |  |                                       |
|                            | RS/RSM                  | Metal Oxide                                 | PROV *  | YES   | RSF/RSMF                             | 99.3/0.7 Sn/Cu                    | Apr-05 (Japan)   | 05/14                                 |
|                            |                         |   |   |   |                                      | 100% Matte Sn                     | Jan-04 (Taiwan, China)   | 04/01                                 |
|                            | ASR/ASRM                | Anti-Surge                                  | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Apr-05   | 05/14                                 |
|                            | SPR                     | Discharge Path                              | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Apr-05   | 05/14                                 |
|                            | RSPF/R SPL              | Flameproof Power                            | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Apr-05   | 05/14                                 |
|                            | FRN                     | Fusing                                      | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Apr-05   | 05/14                                 |
|                            | JW                      | Jumper Wire                                 | YES   | -   | -                                    | 100% Matte Sn                     | Jan-04   | 04/01                                 |
|                            | CD                      | Zero-Ohm                                    | YES   | -   | -                                    | 100% Matte Sn                     | Jan-04   | 04/01                                 |
|                            | RC                      | Carbon Composition                          | YES   | -   | -                                    | 100% Matte Sn                     | Jan-86   | 86/01                                 |
|                            | CF/CFM                  | Carbon Film                                 | YES   | -   | -                                    | 100% Matte Sn                     | Apr-05 (Japan)   | 05/14                                 |
| 100% Matte Sn              |                         |   |   |   |                                      | Jan-04 (Taiwan, China)            | 04/01  |                                       |
| SMD                        | SM                      | Wirewound, Molded Package                   | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
|                            | SMX                     | Metal Oxide, Molded Package                 | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Special                    | KAL                     | General Purpose, Aluminum Housed            | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Axial                      | WRF                     | Consumer Grade - Conformal Coated Wirewound | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Jan-04   | 04/01                                 |
|                            | GP                      | Commercial Grade WW, conformal coated       | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
|                            | WW/MWW                  | General Purpose WW conformal coated         | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
|                            | NSP                     | Ceramic Housed - Consumer Grade             | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Jan-04   | 04/01                                 |

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| <b>Resistors</b>           |                              |   |   |   |                                      |                                   |  |                                       |
| Special                    | NSZ                          | Specialty Lead, Ceramic Housed - Consumer Grade   | YES   | -   | -                                    | 99.3/0.7 Sn/Cu                    | Jan-04   | 04/01                                 |
| Axial                      | CB                           | General Purpose, Ceramic Housed                   | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| PC Mount                   | PCB                          | General Purpose, C.H., PC mount                   | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Axial                      | LCB                          | General Purpose, C.H., Low resistance             | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Special / 4 Leads          | TCB                          | General Purpose, C.H., Low Resistance, 4 terminal | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Radial                     | VM/MVM/LVM/WVM               | General Purpose, Ceramic Housed, Vertical Mount   | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Axial                      | EL/CEL                       | Commercial Power                                  | YES   | -   | -                                    | 100% Matte Sn                     | Always   | Always                                |
| Special                    | SHP                          | Thick Film on Metal Technology                    | YES   | -   | -                                    | -                                 |  |                                       |
| <b>Varistors</b>           |                              |   |   |   |                                      |                                   |  |                                       |
| SMD                        | PV                           | Plastic Encapsulated Varistor                     | YES   | -   | -                                    | Tinned Cu                         | Always   | Always                                |
|                            | DV, AV, ZV, ZVX, ZVE         | Multilayer Varistor Chip Varistor                 | YES   | -   | -                                    | AgPd                              | Always   | Always                                |
| Leaded                     | CV, CV+, SV, ZV              | Disc Varistors                                    | YES   | -   | -                                    | 100% Matte Sn                     | Jul-05   | 05/27                                 |
|                            | ZV, AV, MV, OV               | Through-hole Varistors                            | YES   | -   | -                                    | 100% Matte Sn                     | Jul-05   | 05/27                                 |
| <b>Inductors</b>           |                              |   |   |   |                                      |                                   |  |                                       |
| SMD                        | VLH                          | Miniature Power Inductor                          | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |
| SMD                        | NL                           | SMD Ferrite Wirewound Inductor                    | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |
| SMD                        | Power Inductor - Shielded    | Shielded Power Inductor                           | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |
| SMD                        | Power Inductor - Nonshielded | Nonshielded Power Inductor                        | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |
| SMD                        | AL                           | Thin Film Chip Inductor                           | YES   | -   | -                                    | 100% Matte Sn over Ni             | May-04   | 04/18                                 |
| SMD                        | WL                           | Wirewound Ceramic Chip Inductor                   | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |
| SMD                        | CL                           | Multilayer Chip Inductor                          | YES   | -   | -                                    | 100% Matte Sn over Ni             | Aug-05   | 05/31                                 |
| Through-hole               | KL                           | DIP Power Choke                                   | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |
| SMD                        | PCMC                         | High Current Power Choke                          | YES   | -   | -                                    | 100% Matte Sn                     | Aug-05   | 05/31                                 |

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