

SUBJECT: V-HBseries Surface Mount Type Aluminum Electrolytic Capacitors
EEV parts

BULLETIN #: **NRFND.PG44.06.05.09-2**

Date: June 5, 2009

Page 1 of 4

Details: V-HB series Non-RoHS Surface Mount Type Aluminum Electrolytic Capacitors are **NOT RECOMMENDED FOR NEW DESIGN**, in compliance with Restriction of Hazardous Substances (RoHS) directive.

Please refer to the attached list of specific part numbers affected and their recommended replacements.

V-HB series

| W.V. (V) | Cap (uF) | Case size | Part No. | | Part No. | | Part No. | |
|-------------|-------------|--------------|------------------------|--------|--------------------|--------|-------------------------------------------------------------|--------|
| | | | RoHS: not compliant | Reflow | RoHS: compliant | Reflow | RoHS: compliant <i>high temp reflow (suffix - A)</i> | Reflow |
| 4 | 47 | B | EEV-HB0G470R | 12 | EEE-HB0G470R | 1 | | |
| 4 | 100 | C | EEV-HB0G101R | 12 | EEE-HB0G101R | 1 | | |
| 4 | 150 | D | EEV-HB0G151P | 12 | EEE-HB0G151P | 1 | | |
| 4 | 220 | D | EEV-HB0G221P | 12 | EEE-HB0G221P | 1 | | |
| 6.3 | 22 | B | EEV-HB0J220R | 12 | EEE-HB0J220R | 1 | EEE-HB0J220AR | 5 |
| 6.3 | 33 | B | EEV-HB0J330R | 12 | EEE-HB0J330R | 1 | EEE-HB0J330AR | 5 |
| 6.3 | 47 | B | | | | | EEE-HBJ470UAR | 5 |
| 6.3 | 47 | C | EEV-HB0J470R | 12 | EEE-HB0J470R | 1 | EEE-HB0J470AR | 5 |
| 6.3 | 100 | C | | | | | EEE-HBJ101UAR | 5 |
| 6.3 | 100 | D | EEV-HB0J101P | 12 | EEE-HB0J101P | 1 | EEE-HB0J101AP | 5 |
| 6.3 | 220 | D | | | | | EEE-HBJ221UAP | 5 |
| 6.3 | 220 | F | EEV-HB0J221P | 13 | EEE-HB0J221P | 2 | EEE-HB0J221AP | 7 |
| 6.3 | 330 | E | | | | | EEE-HBJ331UAP | 7 |
| 6.3 | 330 | F | EEV-HB0J331P | 13 | EEE-HB0J331P | 2 | EEE-HB0J331AP | 7 |
| 6.3 | 470 | F | | | | | EEE-HBJ471UAP | 7 |
| 6.3 | 1500 | G | | | | | EEE-HBJ152UAP | 7 |
| 10 | 33 | B | | | | | EEE-HBA330UAR | 5 |
| 10 | 33 | C | EEV-HB1A330R | 12 | EEE-HB1A330R | 1 | EEE-HB1A330AR | 5 |
| 10 | 68 | D | | | | | EEE-HB1A680AP | 5 |
| 10 | 100 | D | | | | | EEE-HBA101UAR | 5 |
| 10 | 100 | E | EEV-HB1A101P | 13 | EEE-HB1A101P | 2 | EEE-HB1A101AP | 7 |
| 10 | 150 | D | | | | | EEE-HBA151UAR | 5 |
| 10 | 220 | E | | | | | EEE-HBA221UAR | 7 |
| 10 | 220 | F | EEV-HB1A221P | 13 | EEE-HB1A221P | 2 | EEE-HB1A221AP | 7 |
| 10 | 470 | F | | | | | EEE-HBA471UAR | 7 |
| 10 | 470 | G | EEV-HB1A471P | 13 | EEE-HB1A471P | 2 | EEE-HB1A471AP | 7 |
| 16 | 10 | B | EEV-HB1C100R | 12 | EEE-HB1C100R | 1 | EEE-HB1C100AR | 5 |
| 16 | 22 | B | | | | | EEE-HBC220UAR | 5 |
| 16 | 22 | C | EEV-HB1C220R | 12 | EEE-HB1C220R | 1 | EEE-HB1C220AR | 5 |
| 16 | 33 | D | | | | | EEE-HB1C330AP | 5 |
| 16 | 47 | C | | | | | EEE-HBC470UAR | 5 |
| 16 | 47 | D | EEV-HB1C470P | 12 | EEE-HB1C470P | 1 | EEE-HB1C470AP | 5 |
| 16 | 47 | D8 | | | | | EEE-HBC470XAP | 5 |
| 16 | 100 | D | | | | | EEE-HBC101UAR | 5 |
| 16 | 100 | F | EEV-HB1C101P | 13 | EEE-HB1C101P | 2 | EEE-HB1C101AP | 7 |
| 16 | 220 | F | | | | | EEE-HBC221UAR | 7 |
| 16 | 220 | G | EEV-HB1C221P | 13 | EEE-HB1C221P | 2 | EEE-HB1C221AP | 7 |
| 16 | 330 | G | EEV-HB1C331P | 13 | EEE-HB1C331P | 2 | EEE-HB1C331AP | 7 |
| 16 | 470 | F | | | | | EEE-HBC471UAR | 7 |
| 16 | 470 | G | | | | | EEE-HB1C471AP | 7 |
| 25 | 4.7 | B | EEV-HB1E4R7R | 12 | EEE-HB1E4R7R | 1 | EEE-HB1E4R7AR | 5 |
| 25 | 6.8 | B | EEV-HB1E6R8R | 12 | EEE-HB1E6R8R | 1 | EEE-HB1E6R8AR | 5 |
| 25 | 10 | B | | | | | EEE-HBE100UAR | 5 |
| 25 | 10 | C | | | | | EEE-HB1E100AR | 5 |
| 25 | 22 | D | | | | | EEE-HB1E220AP | 5 |
| 25 | 33 | C | | | | | EEE-HBE330UAR | 5 |
| 25 | 33 | D | EEV-HB1E330P | 12 | EEE-HB1E330P | 1 | EEE-HB1E330AP | 5 |

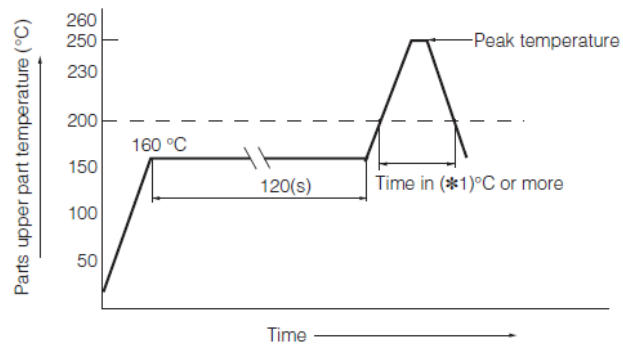
| | | | | | | | | |
|----|------|----|--------------|----|--------------|---|---------------|---|
| 25 | 47 | D | | | | | EEE-HBE470UAP | 5 |
| 25 | 47 | E | EEV-HB1E470P | 13 | EEE-HB1E470P | 2 | EEE-HB1E470AP | 7 |
| 25 | 100 | E | | | | | EEE-HBE101UAP | 7 |
| 25 | 100 | F | EEV-HB1E101P | 13 | EEE-HB1E101P | 2 | EEE-HB1E101AP | 7 |
| 25 | 220 | F | | | | | EEE-HBE221UAP | 7 |
| 25 | 220 | G | EEV-HB1E221P | 13 | EEE-HB1E221P | 2 | EEE-HB1E221AP | 7 |
| 25 | 330 | F | | | | | EEE-HBE331UAP | 7 |
| 25 | 330 | G | | | | | EEE-HB1E331AP | 7 |
| 25 | 470 | G | | | | | EEE-HBE471UAP | 7 |
| 35 | 4.7 | B | | | | | EEE-HB1V4R7AR | 5 |
| 35 | 6.8 | B | | | | | EEE-HBV6R8UAR | 5 |
| 35 | 10 | C | EEV-HB1V100R | 12 | EEE-HB1V100R | 1 | EEE-HB1V100AR | 5 |
| 35 | 22 | D | EEV-HB1V220P | 12 | EEE-HB1V220P | 1 | EEE-HB1V220AP | 5 |
| 35 | 33 | E | EEV-HB1V330P | 13 | EEE-HB1V330P | 2 | EEE-HB1V330AP | 7 |
| 35 | 47 | D8 | | | | | EEE-HBV470YAP | 5 |
| 35 | 47 | E | | | | | EEE-HBV470UAP | 7 |
| 35 | 47 | F | EEV-HB1V470P | 13 | EEE-HB1V470P | 2 | EEE-HB1V470AP | 7 |
| 35 | 100 | F | | | | | EEE-HBV101UAP | 7 |
| 35 | 100 | G | EEV-HB1V101P | 13 | EEE-HB1V101P | 2 | EEE-HB1V101AP | 7 |
| 35 | 220 | G | | | | | EEE-HBV221UAP | 7 |
| 50 | 0.1 | B | EEV-HB1HR10R | 12 | EEE-HB1HR10R | 1 | EEE-HB1HR10AR | 5 |
| 50 | 0.22 | B | EEV-HB1HR22R | 12 | EEE-HB1HR22R | 1 | EEE-HB1HR22AR | 5 |
| 50 | 0.33 | B | EEV-HB1HR33R | 12 | EEE-HB1HR33R | 1 | EEE-HB1HR33AR | 5 |
| 50 | 0.47 | B | EEV-HB1HR47R | 12 | EEE-HB1HR47R | 1 | EEE-HB1HR47AR | 5 |
| 50 | 0.68 | B | | | | | EEE-HB1HR68AR | 5 |
| 50 | 1 | B | EEV-HB1H1R0R | 12 | EEE-HB1H1R0R | 1 | EEE-HB1H1R0AR | 5 |
| 50 | 2.2 | B | EEV-HB1H2R2R | 12 | EEE-HB1H2R2R | 1 | EEE-HB1H2R2AR | 5 |
| 50 | 3.3 | B | EEV-HB1H3R3R | 12 | EEE-HB1H3R3R | 1 | EEE-HB1H3R3AR | 5 |
| 50 | 4.7 | C | EEV-HB1H4R7R | 12 | EEE-HB1H4R7R | 1 | EEE-HB1H4R7AR | 5 |
| 50 | 6.8 | C | EEV-HB1H6R8R | 12 | EEE-HB1H6R8R | 1 | EEE-HB1H6R8AR | 5 |
| 50 | 10 | D | EEV-HB1H100P | 12 | EEE-HB1H100P | 1 | EEE-HB1H100AP | 5 |
| 50 | 22 | D | | | | | EEE-HBH220UAP | 5 |
| 50 | 22 | E | EEV-HB1H220P | 13 | EEE-HB1H220P | 2 | EEE-HB1H220AP | 7 |
| 50 | 33 | F | EEV-HB1H330P | 13 | EEE-HB1H330P | 2 | EEE-HB1H330AP | 7 |
| 50 | 47 | D8 | | | | | EEE-HBH470YAP | 5 |
| 50 | 47 | F | | | | | EEE-HBH470UAP | 7 |
| 50 | 47 | G | EEV-HB1H470P | 13 | EEE-HB1H470P | 2 | EEE-HB1H470AP | 7 |
| 50 | 100 | G | | | | | EEE-HBH101UAP | 7 |
| 50 | 220 | G | | | | | EEE-HBH221UAP | 7 |

V-HB (Bi-polar) series

| W.V. (V) | Cap (uF) | Case size | Part No. | | Part No. | |
|----------|----------|-----------|------------------------|--------|--------------------|--------|
| | | | RoHS: not compliant | Reflow | RoHS: compliant | Reflow |
| 6.3 | 47 | D | EEV-HP0J470P | 12 | EEE-HP0J470P | 1 |
| 10 | 10 | B | EEV-HP1A100R | 12 | EEE-HP1A100R | 1 |
| 10 | 33 | D | EEV-HP1A330P | 12 | EEE-HP1A330P | 1 |
| 16 | 10 | C | EEV-HP1C100R | 12 | EEE-HP1C100R | 1 |
| 25 | 3.3 | B | EEV-HP1E3R3R | 12 | EEE-HP1E3R3R | 1 |
| 25 | 4.7 | B | EEV-HP1E4R7R | 12 | EEE-HP1E4R7R | 1 |
| 25 | 10 | D | EEV-HP1E100P | 12 | EEE-HP1E100P | 1 |
| 25 | 22 | D | EEV-HP1E220P | 12 | EEE-HP1E220P | 1 |
| 35 | 2.2 | B | EEV-HP1V2R2R | 12 | EEE-HP1V2R2R | 1 |
| 50 | 0.22 | B | EEV-HP1HR22R | 12 | EEE-HP1HR22R | 1 |
| 50 | 0.33 | B | EEV-HP1HR33R | 12 | EEE-HP1HR33R | 1 |
| 50 | 0.47 | B | EEV-HP1HR47R | 12 | EEE-HP1HR47R | 1 |
| 50 | 1 | B | EEV-HP1H1R0R | 12 | EEE-HP1H1R0R | 1 |
| 50 | 3.3 | D | EEV-HP1H3R3P | 12 | EEE-HP1H3R3P | 1 |
| 50 | 4.7 | D | EEV-HP1H4R7P | 12 | EEE-HP1H4R7P | 1 |

■ Reflow guaranteed condition

● RoHS compliant



Reflow condition

| Reflow | Pre-fix | Suffix | Case Diameter | RoHS | Terminal Finish | Peak temp Deg C | Time of actual peak or near temp. | | Time in (*1) degC or more | Time above 200degC | Reflow Freq |
|--------|---------|--------|---------------|------|-----------------|-----------------|-----------------------------------|-----------|---------------------------|--------------------|-------------|
| 1 | EEE- | R | 3mm to 5mm | Yes | Sn-Bi | 250degC | 250degC | 5 seconds | 200degC | 60 seconds | Once |
| 1 | EEE- | P | 6.3mm | Yes | Sn-Bi | 250degC | 250degC | 5 seconds | 200degC | 60 seconds | Once |
| 2 | EEE- | P | 8mm to 10mm | Yes | Sn-Bi | 235degC | 235degC | 5 seconds | 200degC | 60 seconds | Once |
| 5 | EEE- | AR | 4mm to 5mm | Yes | Sn-Bi | 260 degC | 250degC | 5 seconds | 200degC | 70 seconds | Twice |
| 5 | EEE- | AP | 6.3mm | Yes | Sn-Bi | 260 degC | 250degC | 5 seconds | 200degC | 70 seconds | Twice |
| 7 | EEE- | AP | 8mm to 10mm | Yes | Sn-Bi | 260 degC | 250degC | 5 seconds | 200degC | 70 seconds | Once |
| 12 | ECE-V | R | 3mm to 5mm | No | Sn-Pb | 240degC | | | 200degC | 20 seconds | Once |
| 12 | ECE-V | P | 6.3mm | No | Sn-Pb | 240degC | | | 200degC | 20 seconds | Once |
| 12 | EEV- | R | 4mm to 5mm | No | Sn-Pb | 240degC | | | 200degC | 20 seconds | Once |
| 12 | EEV- | P | 6.3mm | No | Sn-Pb | 240degC | | | 200degC | 20 seconds | Once |
| 13 | ECE-V | P | 8mm to 10mm | No | Sn-Pb | 230degC | | | 200degC | 20 seconds | Once |
| 13 | EEV- | P | 8mm to 10mm | No | Sn-Pb | 230degC | | | 200degC | 20 seconds | Once |