



1. Scope:

This specification shall apply to all Rectron products with “Pb-free” external terminals.

2. Electrical Characteristics:

Refer to individual device datasheet.

3. Thermal Resistance Characteristics:

Refer to individual device datasheet.

4. Reliability Standard:

- a. Pb-free products will continue to meet the same solderability standard as the previous Pb plated versions.

|               | Pb soldering version            | Pb-free soldering version       |
|---------------|---------------------------------|---------------------------------|
| Solderability | MIL-STD-202F METHOD 208D        | MIL-STD-202F METHOD 208D        |
|               | Solder Temp: 230±5°C            | Solder Temp: 230±5°C            |
|               | Immersion time: 5(7)+/- 0.5 Sec | Immersion time: 5(7)+/- 0.5 Sec |
|               | Solder alloy: Pb-Sn             | Solder alloy: Sn-Ag-Cu          |

5. Solder Resistance Conditions:

- a. Pb-free products will continue to meet the same solder resistance conditions as the previous Pb plated versions.

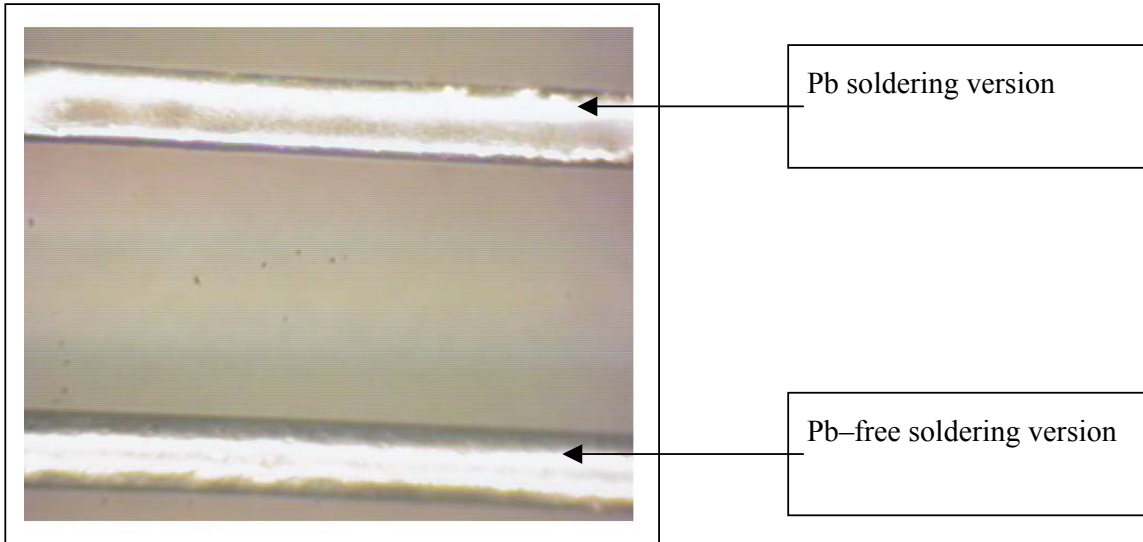
|   | Soldering temp.            | Immersion time | Reference standard          |
|---|----------------------------|----------------|-----------------------------|
| a | 260±5°C<br>(Solder bath)   | 10±2 Sec       | MIL-STD-750C<br>METHOD 2031 |
| b | 350±10°C<br>Hand soldering | 3±0.5 Sec      | MIL-STD-750C<br>METHOD 2031 |

No defects were found after solderability & solder resistance testing.

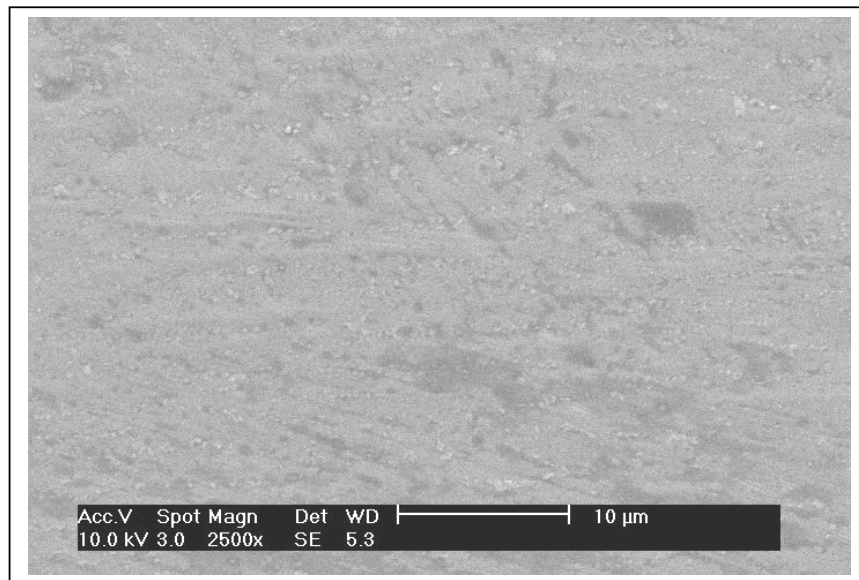
|          |              |          |              |
|----------|--------------|----------|--------------|
| PREPARED | DATE         | APPROVED | DATE         |
| J H Wang | Sep 16, 2004 | Richard  | Sep 16, 2004 |

6. Solderability Test Results:

- a. Test leads under microscope, no abnormalities found.



7. Result of Whisker Growth Test: **no significant whisker growth detected**



**X2500 ( Enlarge )**

8. Labeling:

|          |              |          |              |
|----------|--------------|----------|--------------|
| PREPARED | DATE         | APPROVED | DATE         |
| J H Wang | Sep 16, 2004 | Richard  | Sep 16, 2004 |



Old barcode:  
1. White color



New barcode  
Green color with  
“RoHs compliant  
(Pb-free)” note.

Rectron will switch all Pb-free products to the new barcode on Jan, 1,2005.

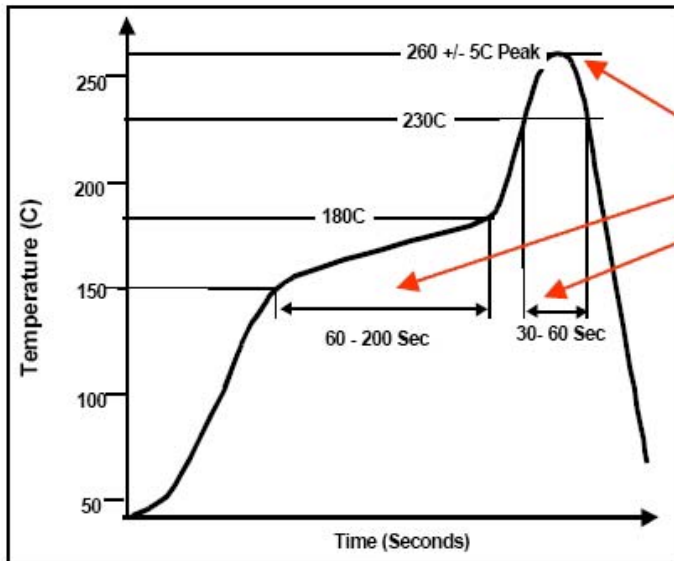
9. Recommended Pb-Free Solder Reflow Profile:

|          |              |          |              |
|----------|--------------|----------|--------------|
| PREPARED | DATE         | APPROVED | DATE         |
| J H Wang | Sep 16, 2004 | Richard  | Sep 16, 2004 |



# RECTRON

## RECTIFIER SPECIALISTS



Pb-Free Benchmark Profile

- \* Peak temp at 260°C
- \* Longer preheat zone
- \* Longer hold time

### 10. Conclusion:

As part of our effort to meet the new environmental regulations of RoHS, Rectron will switch all production to a Pb-free plating process on Jan 1<sup>st</sup>, 2005. After Jan 1<sup>st</sup>, 2005, 100% Sn will replace solder (Pb/Sn) as Rectron's standard terminal plating material. From the above analysis, we see no impact to our customer's processes. However, Pb-free samples of all products are available to any customer seeking to perform trial runs on their soldering lines. Please feel free to contact your local Rectron Sales office.

PREPARED  
J H Wang

DATE  
Sep 16, 2004

APPROVED  
Richard

DATE  
Sep 16, 2004