Condition of Soldering

Product	Transistor

CONDITION OF SOLDERING FOR SURFACE MOUNTED DEVICE (DISCRETE TRANSISTOR) AND ICP-S LEAD FREE PASTE(Sn-3Ag-0.5Cu)VERSION

1. WASHING LIQUID

Washing liquid	Maker
Water	
Ethanol	
Methanol	
Pine alpha ST-100S	ARAKAWA CHEMICAL
Clean through 750H	KAO
Technocare FRW-1	MOMENTIVE performance materials
Mighty solve AH-V	ASAHI GLASS

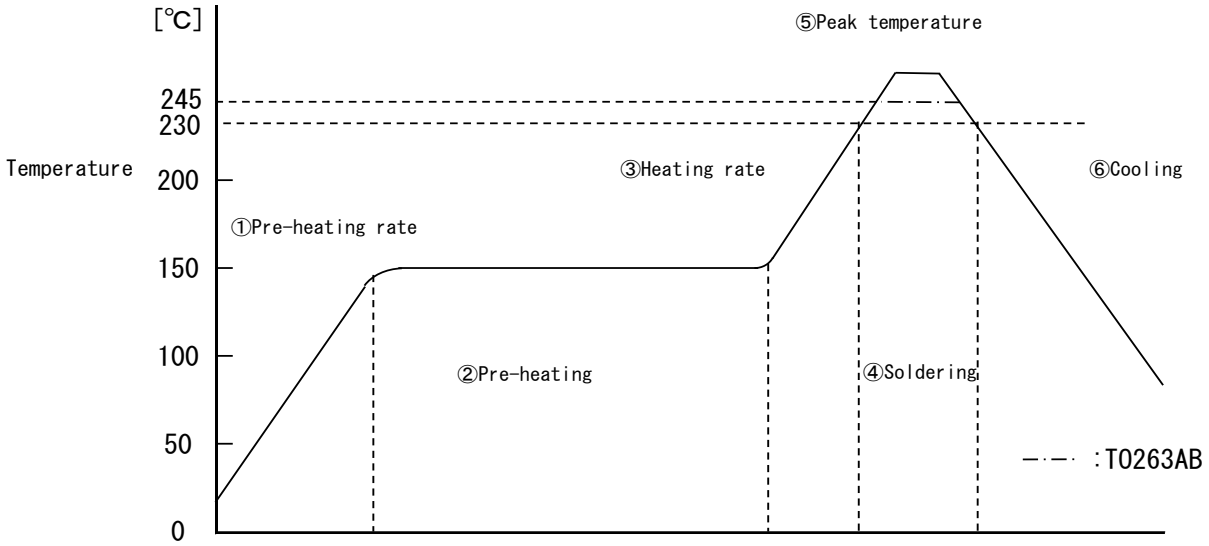
2. CONDITION OF WASHING

Washing bath		Time	Temperature	Remarks
First bath	Ultrasonic bath	～60s	Room temperature	25～28kHz, 15W/L
Second bath	Immersion bath	～60s	Room temperature	
Third bath	Vaper bath	～60s	～44.7℃	Temperature is depending on washing liquid.

※In vaper bath,you can not use ethanol, methanol, and water due to their high boiling points.

©ROHM Co., Ltd. All rights reserved

3.REFERENCE CONDITION FOR REFLOW SOLDERING



①Pre-heating rate・・・・・・・・・・・・1～5℃/s

②Pre-heating・・・・・・・・・・・・・・130～170℃, 50～120s

③Heating rate・・・・・・・・・・・・・1～5℃/s

④Soldering・・・・・・・・・・・・・・・Over 230℃, 20～30s
(High temperature retention time)

⑤-1 Peak temperature・・・・・・・・・245～260℃, 10s Max.

⑤-2 Peak temperature (TO263AB)・・・・245℃, 10s Max.

⑥Cooling・・・・・・・・・・・・・・・・60s Min.

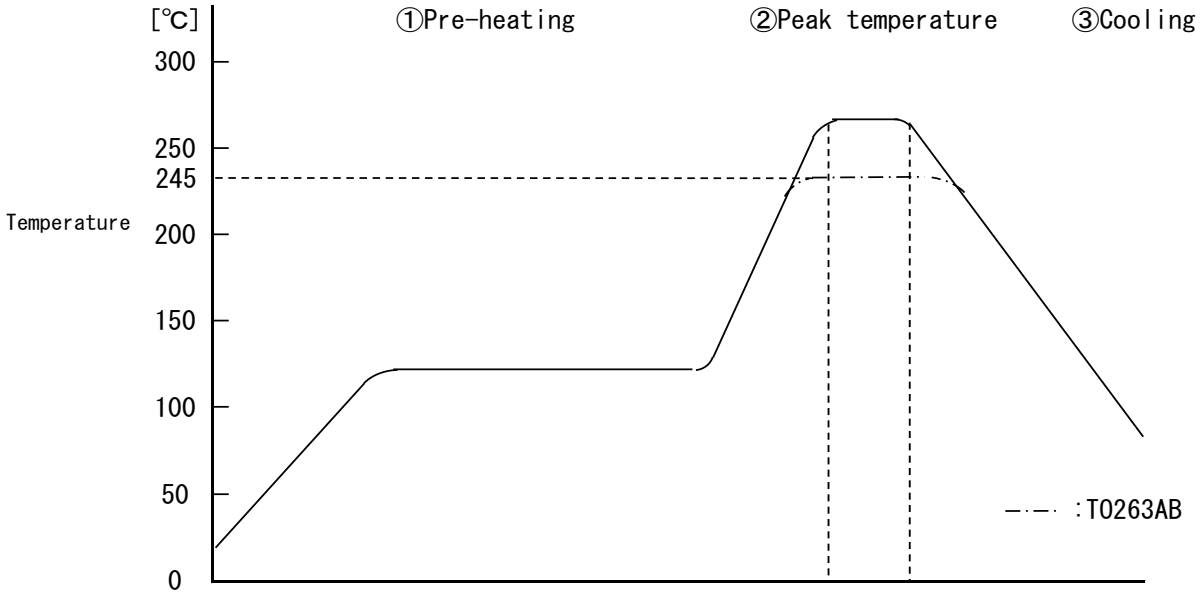
⑦Number of times・・・・・・・・・・・2 Times Max.

If peak temperature is below 245℃,you may adjust the following parameters ;
Time length of peak temperature (longer),Time length of soldering (longer),
Thickness of solder paste (thicker).

(Note)
We concluded that there is no specific problem in characteristics and
reliability under the temperature profile above.
However, since the most appropriate temperature profile condition differs
depending on the solder paste, we highly recommend you examine
whether there is problem in your own condition.

©ROHM Co., Ltd. All rights reserved

4. REFERENCE CONDITION FOR FLOW SOLDERING



①Pre-heating・・・・・・・・・・・・・・100～120℃, 120～300s

②-1 Peak temperature・・・・・・・・・・245～260℃, 10s Max.

②-2 Peak temperature (TO263AB)・・・・245℃ 10s Max.

③ Cooling・・・・・・・・・・・・・・・60s Min.

④ Number of times・・・・・・・・・・・1 TIMES Max.

The below PKGs, which are the leadless lower electrode type, are not suitable to use flow soldering

HSML3030L10、 HUML2020L3、 HUML2020L8、VML1006、VML0806、VML0604、DFN1616－6、 DFN1616－6W、DFN1212－3、DFN1010－3、 DFN1010－3W、HEML1616L7、 HEML6G、 SMM1006、 DFN2020Y7L、DFN2020Y8L、DFN3333T8L DFN8080V5L、DFN5060T8L、DFN8080T8L、DFN3333T9L、DFN3333S9L

5. RECOMMENDABLE CONDITION OF HAND SOLDERING

Temperature・・・refer to table 1 ※1

Duration・・・・ less than 3s

Number of times・・・・one time

table1

※1 Temperature differ from PKG

PKG less than 400℃

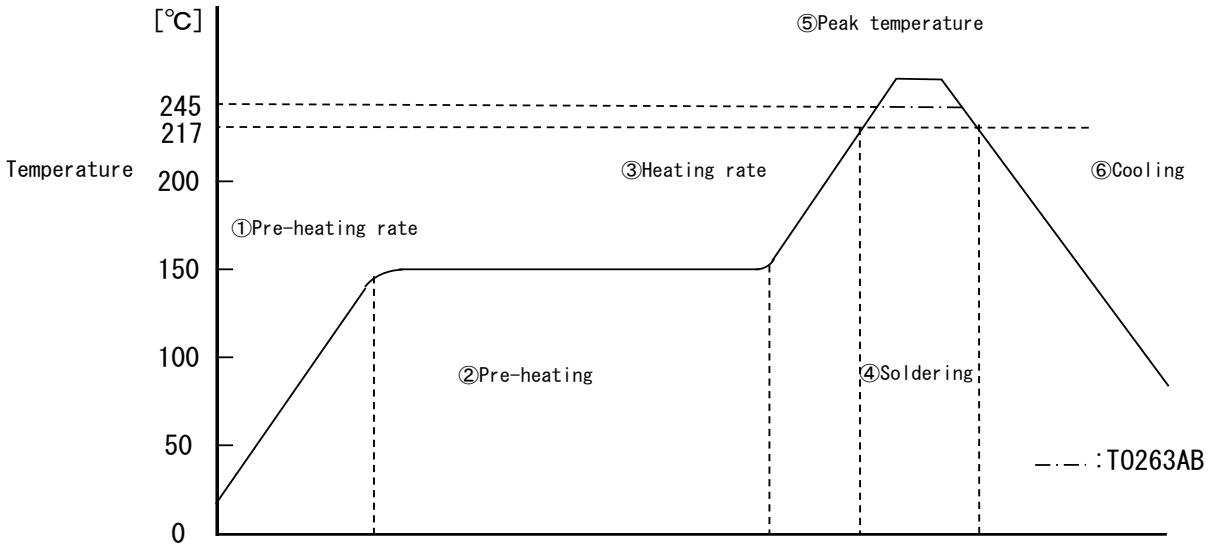
SMT3、SMT4、SMT5、SMT6、SOT-23(SST3)、UMT3、UMT3F、UMT5、UMT6、EMT3、EMT3F、EMT5、EMT6、VMT3、VMT6、VMN3、WEMT6

PKG less than 350℃

MPT3、MPT6、CPT3、TO-252、TCPT3、LPTS、LPTL、PSD、ICP-S、SOP8、PSOP8、PSOP8S、TSSOP8、TSMT3、TSMT5、TSMT6、TSMT8、SMT3、TUMT3、TUMT5、TUMT6、TSST8、HSMT8、HSMT8AG、HSOP8、TO263AB、HPLF5060T5L、SOT-223、TOLL-9L、TOLL-9LKS

©ROHM Co., Ltd. All rights reserved

6.CONDITION OF HEAT-RESISTANT



①Pre-heating rate・・・・・・・・・・・・1～5℃/s

②Pre-heating・・・・・・・・・・・・・・150～200℃, 60～120s

③Heating rate・・・・・・・・・・・・・・1～5℃/s

④Soldering・・・・・・・・・・・・・・・Over 217℃, 60～150s
(High temperature retention time)

⑤-1 Peak temperature・・・・・・・・・・260℃, ≧255℃ for 30s

⑤-2 Peak temperature (TO263AB)・・・・245℃, ≧240℃ for 30s

⑥Cooling・・・・・・・・・・・・・・・・60s Min.

⑦Number of times・・・・・・・・・・・3 TIMES Max.

©ROHM Co., Ltd. All rights reserved

Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications.

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.

7) The Products specified in this document are not designed to be radiation tolerant.

8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

11) ROHM has used reasonable care to ensure the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

ROHM SEMICONDUCTOR

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/

© 2015 ROHM Co., Ltd. All rights reserved.

General Precaution

1. Before you use our Products, you are requested to carefully read this document and fully understand its contents. ROHM shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any ROHM's Products against warning, caution or note contained in this document.

2. All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using ROHM's Products, please confirm the latest information with a ROHM sales representative.

3. The information contained in this document is provided on an "as is" basis and ROHM does not warrant that all information contained in this document is accurate and/or error-free. ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties resulting from inaccuracy or errors of or concerning such information.

© 2015 ROHM Co., Ltd. All rights reserved.