

ON Semiconductor

Is Now

onsemi™

To learn more about onsemi™, please visit our website at
www.onsemi.com

onsemi and **onsemi** and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi** product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner. Other names and brands may be claimed as the property of others.

Recommendations for Handling ON Semiconductor Hybrids



ON Semiconductor®

<http://onsemi.com>

APPLICATION NOTE

Introduction

ON Semiconductor hybrids are classified as MSL3 (non-RoHS compliant) and MSL4 (RoHS compliant). This classification requires special handling practices in reflow and hand soldering applications. These hybrids are shipped in sealed, dry ESD bags and/or containers to prevent them from absorbing moisture from the air.

For information on how to handle the hybrids after opening of the package, refer to the How to Store, Reflow and Solder ON Semiconductor Hybrids information note (AND8493).

At ON Semiconductor, after opening the package, the hybrids are kept in a nitrogen cabinet or dry box. Dry boxes could be obtained from Fischer Scientific (<http://www.fishersci.ca> – search under desiccator cabinet).

Soldering and Material

For information on how to solder ON Semiconductor hybrids, refer to the How to Store, Reflow and Solder ON Semiconductor Hybrids information note (AND8493).

For hand wired applications of *non-RoHS* compliant hybrids, ON Semiconductor used and qualified solder wire #66/44 from Kester. To enhance the reliability of our parts, they are cleaned after soldering in AK225 or isopropyl alcohol. After that, the parts are conformally coated to seal the assembly from the environment. The risk of dendrite growth is possible when the cleaning process is not followed. It is up to the customer to seek a *no clean* process that would not require any cleaning. We could suggest to try cored wire from AIM with flux NC254 (similar to what we qualified but in solder paste form and not cored wire) or Kester # 66/275, but we have not performed any reliability data using the Kester flux. More information on Kester and AIM products is available from their websites:

- Kester: <http://www.kester.com/en-us/index.aspx>
- AIM: <http://www.aimsolder.com>

For information on how to avoid an ESD damage to ON Semiconductor's ICs and hybrids, refer to Using ON Semiconductor Integrated Circuits information note.

General Practice

- Never power up the hybrid, even for a short period of time, when wet or flux is present (to avoid dendrite growth), in case water-soluble flux or any other flux that require cleaning is used. This does not apply when *no clean* flux is used.
- Follow the flux manufacturing recommendation for any flux removal method if it is required.
- MSDS, provincial and federal regulation must be followed before introducing any new chemical to the manufacturing floor.
- It is strongly recommended that you perform reliability test whenever you change an existing material or introduce any new material; that would qualify and validate in an accelerated process the life of the end product.

Recommendations for Programming of ON Semiconductor Hybrids

When programming an ON Semiconductor hybrid, ensure that you have the following:

- The latest version of ARK installed on your computer
- Good connection between the computer and the programming box (HiPro, ON Semiconductor DSP Programmer)
- Good connection between the programming box and the hybrid
- Programming cable with maximum length of 1.8 meters (6 feet)
- Good 1.3 Vdc supply to the hybrid during programming. It is recommended to supply the hybrid from the programming box rather than a hearing aid battery to avoid possible drop in the supply voltage during programming.

NOTE: Do not disconnect the power or the programming cable during programming.

Not following the above recommendations may result in programming illegal values into the hybrid's EEPROM, which may cause the hybrid not to operate properly or stop working altogether.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local
Sales Representative