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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION**  
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**12-MAR-2004**

**SUBJECT: ON Semiconductor Final Product/Process Change Notification #13368**

**TITLE: Qualification of 3X3 QFN (QUAD FLAT NO-LEAD) Package at NSEB**

**EFFECTIVE DATE: 12-May-2004**

**AFFECTED CHANGE CATEGORY: Subcontractor Assembly Site**

**AFFECTED PRODUCT DIVISION:**

**Logic Products**

**ECL Products**

**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Representative or  
Ken Fergus <RRST50@onsemi.com>

**SAMPLES:** Contact your local ON Semiconductor Sales Representative  
or Nilda Lopez <R39140@onsemi.com>

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact Sales Representative or Nilda Lopez <R39140@onsemi.com>

**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 60 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact your local ON Semiconductor Sales Office.

**DESCRIPTION AND PURPOSE:**

ON Semiconductor is pleased to announce expanded capacity on the 3X3 QFN Package utilizing NS Electronics (NSEB). Testing of these products will be performed by ON semiconductor in the Carmona, Philippines and Seremban, Malaysia facilities. NSEB has been building QFN packages for 2 years. They are located in Bangkok, Thailand and are a QS9000, ISO9002, ISO14001 and SAC Level 1 certified facility.

**Final Product/Process Change Notification #13368****RELIABILITY DATA SUMMARY:**

Reliability Test Results:

3 x 3 QFN NLSF1174MN, 3 assembly lots:

Test	Conditions	Results (#fail/total SS)
High Temp Op Life	TA=145C for 1008 hrs	0/240
High Temp Bake	150C for 1008 hrs	0/239
Preconditioning (PC)	MSL 1, 260 C	0/240
PC -Temp Cycle	-65/+150C for 1000 cyc	0/240
PC -Autoclave	121C/100%RH/15psig for 96hrs	0/239
PC -HAST	131C/80%RH for 96 hrs	0/240
Solder Heat	260C 10 seconds	0/30
Physical Dim.	Case Outline	0/30
Wire Pull	Per Factory	0/90, Cpk >1.33
Ball Shear	Per Factory	0/30, Cpk >1.33
Die Shear	Per Factory	0/30, Cpk >1.33
Solderability	Per Jedec	0/45

**ELECTRICAL CHARACTERISTIC SUMMARY:**

All product performance meets existing datasheet specifications.

Data is available upon request.

**CHANGED PART IDENTIFICATION:**

Product with a datecode from WW13 and forward may be manufactured at NSEB.

The NSEB site marking code is G5.

**AFFECTED DEVICE LIST (WITHOUT SPECIALS):****PART**

NBLVEP16VRMN  
 NBLVEP16VRMNR2  
 NBSG11MN  
 NBSG11MNR2  
 NBSG14MN  
 NBSG14MNR2  
 NBSG16MMN  
 NBSG16MMNR2  
 NBSG16MN  
 NBSG16MNR2  
 NBSG16VSMN  
 NBSG16VSMNR2  
 NBSG53AMN  
 NBSG53AMNR2  
 NBSG72AMN  
 NBSG72AMNR2  
 NBSG86AMN  
 NBSG86AMNR2  
 NLAS44599MN  
 NLAS44599MNR2  
 NLAS4684MNR2  
 NLAST44599MN  
 NLAST44599MNR2  
 NLSF1174MNR2  
 NLSF302MNR2  
 NLSF308MNR2  
 NLSF3T125MNR2  
 NLSF3T126MNR2  
 NLSF595MNR2