



Aug 15, 2014
PPCN #140010

PROCESS/ PRODUCT CHANGE NOTIFICATION

This is to inform you that Micrel Inc has qualified MSOP-8L and MSOP-10L package Test and drop ship at STARS Microelectronics, Thailand as an alternative product test subcontractor in addition to the current Test sites Unisem Ipoh.

If you have any questions concerning this change, please contact:

NAME: Hank Chou

EMAIL: hank.chou@micrel.com

PHONE: 408-435-2422

TYPE OF CHANGE

We are adding STARS as a test source in addition to the current qualified test sites. The package type, material, form, fit and function will not be affected. These products will ship with the same packing and shipment format.

EFFECTIVITY

Starting Nov 15th, 2014, Micrel will begin to test and drop ship the listed devices from STARS. After Nov 15th, 2014, the products shipped to customers could be either tested from STARS, Unisem Ipoh, or Micrel San Jose Test site. In order to make on-time deliveries to our growing end customers, we will reserve the flexibility to deliver certain part numbers at earlier date if un-expected material or capacity shortage occurs at UNISEM in the future.

PRODUCT ID (DESCRIPTION)

See the product list in the attached Excel file "PPCN 140010 part list add STARS test site for MSOP" for Micrel's products that would be tested and drop shipped from STARS site.

DESCRIPTION OF CHANGE

Micrel has qualified STARS, Thailand for test and shipment of the listed Micrel products. Test system, hardware, and software currently used at Unisem had been transferred (moved) to STARS to ensure an "exact copy" of the test.

EFFECT OF CHANGE

There is no change in form, fit or function of the product.



QUALIFICATION

STARS is already our qualified assembly, test and drop ship subcontractors for many packages and devices, including SOIC, SC70, SOT-143, and SOT-23. All Micrel customers have been receiving assembled, tested and drop shipped parts from STARS since 2010 in other packages.

Test system, hardware, and software used currently at Unisem had been transferred (moved) to STARS to ensure an "exact copy" of the test to the current sites. Correlation testing has been performed in STARS with comparable test data compared to the products test at Unisem. We attach a correlation and yield comparison result. Traceability is maintained by date code and lot number for all products.



Appendix to Micrel PPCN140010 MSOP Test at STARS

PURPOSE:

Test 2K MSOP units at Micrel Unisem (IPOH) and Stars Microelectronics to check correlations.

QUALIFICATION and REQUIREMENT:

Test at least 2,000 piece or greater sample at the from original test site.

This sample is datalogged 100% (1:1).

This sample is sent to the new test site.

The testing is repeated at new test site. The good as well as the rejects are retested .

If any rejects from 1st test (original test site), pass at new test site, detailed analysis is conducted and explanation is provided if the difference is confirmed.

The test yields at both locations are compared. If there is greater than a 3% difference then analysis and explanation is also required.

LOT and TEST INFORMATION

Lot number: AA06894M31

Device IPN: 11P0BU00KPGT01

Device EPN: SY100EP11UKG

Date Code: 1413CG

Package: 8-pin MSOP (3 x 3 x 0.9mm) Pb Free

ATE: HP83000

Program: ECLMS

Program Rev: 1.10j

Spec Rev: 03

Handler: RASCO

Total units tested: 2444 units.

Original test site: Unisem (IPOH)

New test site: Stars Microelectronics

TEST RESULTS

At Original test site: Unisem (IPOH)

Bin 1: 2407

Rejects: 37

Yield: 98.47%

At New test site: Stars Microelectronics (3 units missing during transportation)

Bin 1: 2393

Rejects: 48 (11 not tested: visual & mechanical rejects)

Reject at original site and Bin1 at new site: identical results.

Yield: 98.03%



Test yields differences between two sites is 0.37%.

Stars yield loss due to missing, visual & mechanical units between sites were not tested.

All test rejects at original site are all test failed at new site.

CONCLUSION:

All test rejects at original site (IPOH) are all test failed at new site (STARS). The test yields at original and new test site are comparable.

New test site Stars Microelectronics has passed the correlation qualification and thus could be released to MSOP test production.