

FIELD SERVICE BULLETIN

FSB Number: LVCCFSB2004-187
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Date: September 21, 2004
Total No. of Pages: 3
Subject: Skyworks Eagle IC – Low Output Power Failure
Model Affected: V300, V303, V400, V600, V220, E398, C650, C550, V180,
C380
Level of Repair: 3

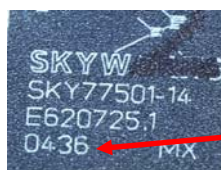
Problem

Service is aware of an issue with the 5189818N01 Skyworks Eagle IC used on current GSM Products. Several GSM NPI customer return units, returned with customer complaints of "No Service", "Can't Make Calls", and "Drops Calls" were found to have very Low or No Output Power in Low and/or High bands. The low power failures have been confirmed to be caused by a defective Skyworks Eagle PA. In-depth analysis by Skyworks/Motorola Team found an open internal to component at the Bias Control IC. Internal current measurements show a high resistance to ground from top of the 2nd stage PA Die. The root cause of this open is believed to a die attach epoxy failure where the 1079B conductive epoxy becomes weak and does not properly adhere to the die and substrate surfaces.

Note: This failure mode can be temporarily recovered by applying heat to the component's surface. Our data shows that these recovered components have a very high risk to re-fail if not replaced.

Solution

Short Term: As of July 14, 2004, A HCDT (High Current Density Test) Screen was implemented at the supplier to screen potentially weaker components. The Rev. A version of the HCDT Screen, Lot Code 0430 and later, effectively screened out the Low Power/Low Current failure mode. Several modifications were incorporated into the Rev. D version of the HCDT Screen, 0436 and later, which is effective in screening out potential High Current failures as well.



HCDT Rev A = 0430
HCDT Rev D = 0436



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600 North US Highway 45
Libertyville, Illinois 60048
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Long Term: Skyworks will qualify the 1290s Sumitomo Die Attach Epoxy to replace the 1079B Epoxy. The 1290s Epoxy has a better thermal conductivity and will also qualify for all lead-free solder applications.

Field Service Action

Customer Returns:

When servicing customer returns for the affected products listed above, with Voice Call related complaints, then:

1. Prior to applying heat, Verify units exhibit very low or no RF Output Power in Low and/or High Bands at a lower than normal current draw (~ 100-200mA). In most cases, when the failure mode is confirmed in one band, the other band functions properly with normal power and current.
 - a. If failure symptoms do not match above, follow normal troubleshooting techniques to determine the defect.

Note: This failure mode can be temporarily recovered by applying heat to the component's surface. Our data shows that these recovered components have a very high risk to re-fail if not replaced. After removal of the PA Shield with heat failure symptoms may disappear.

2. Replace the PA with a 5189818N01 part with a lot code 0430 or later. See image above.
3. Perform required re-phasing and completely retest the unit to confirm successful repair of the failure.

An Engineering Sample Request has been issued for this issue. Please view the details and status of this request at:

NA: http://gs.mot.com/cc/field_returns/field_sample_requests.cfm

EMEA: http://compass.mot.com/doc/150810385/Sample_Request_-_Skyworks_PA.doc

Service Inventory:

Existing inventory of the 5189818N01 Skyworks Eagle IC should be purged of Lot Codes prior to 0430.

Call Center Action:

If the customer calls with any call related complaints mentioned above, then have the customer return the unit to an authorized service center for repair.



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Service Entry Code:

Please ensure that repairs of this type are logged on the Service Link database as follows:

Global M-Claims Codes:

Customer Complaint Code:

CPR01 (Voice Call – Can't Make Calls)

CPR03 (Voice Call – No Service)

CPR05 (Voice Call – Drop Call/Poor Reception)

Problem Found Code: CPR01 (Voice Call – Can't Make Calls)

Reference Designator Code: U (Integrated Circuit/Module)

Repair Code:

REP01 (Replace Electrical Part – Defective)

PRC E-Service Codes:

Fault Code: 1201 (Voice Call – Can't Make Calls)

Repair Code: 1201 (Replace Electrical Part – Defective)