**GOVERNMENT - INDUSTRY DATA EXCHANGE PROGRAM**

**ALERT**

1. **TITLE (Class, Function, Type, etc.)**
   Hybrid, AMA Series, Cold Operation

2. **DOCUMENT NUMBER**
   FV5-A-14-01

3. **DATE (DD-MM-YY)**
   26-Aug-14

4. **MANUFACTURER AND ADDRESS**
   International Rectifier, HiRel
   2520 Junction Ave
   San Jose, CA 95134

5. **PART NUMBER**
   See attached

6. **NATIONAL STOCK NUMBER**
   Not Applicable

7. **SPECIFICATION**
   MIL-PRF-38534

8. **TYPE DESIGNATOR**
   QML

9. **LOT DATE CODE START**
   01XX

10. **LOT DATE CODE END**
    1433

11. **MANUFACTURER’S POINT OF CONTACT**
    Granville C. Rains

12. **CAGE**
    52467

13. **MANUFACTURER’S FAX**
    ( )

14. **MFR. POC PHONE**
    (408) 434-5086

15. **MANUFACTURER’S E-MAIL**
    grains1@irf.com

16. **CROSS REFERENCE VENDOR**
    No Applicable

17. **CROSS REFERENCE CAGE**
    Not Applicable

18. **CROSS REFERENCE PART**
    Not Applicable

19. **PROBLEM DESCRIPTION / DISCUSSION / EFFECT**
    International Rectifier (IR) has received a field report indicating a performance issue at -55C with some AMA hybrids. Specifically, some units failed to meet the Turn-On Overshoot parameter at -55C which resulted in an OVER-Voltage event in the customer’s application. The hybrids were soaked at an ambient temperature of -55C for 30 minutes before the test. Refer to figure 1 and 2 below for reference.

   ![Fig 1 - Normal Turn-On Overshoot at -55C](image1)
   ![Fig 2 - Abnormal Turn-On Overshoot at -55C](image2)

20. **ACTION TAKEN/PLANNED**
    1) An internal investigation was performed by IR which confirmed the issue. A total of 15 AMA series hybrids with date codes ranging from 2009 through 2013 were obtained for extended cold temperature testing. All 15 units failed the Turn-On Overshoot parameter at -55C. The soak temperature was then gradually increased to measure Turn-On Overshoot during cold operation - the following results were obtained: 5 units passed at -50C, 10 units passed at -45C, 12 units passed at -40C, 14 units passed at -35C and all 15 units passed at -30C.

    2) The Turn-On Overshoot is related to the in-circuit magnetic core performance at cold. In order to ensure AMA performance at cold temperatures, IR will now test the inductance characteristics across the converter’s operating frequency range during magnetic assembly and screen versus the previous single point.

    3) The typical soak time at cold during production is less than 1 minute which is sufficient to bring all components internal to the device to the specified temperature as required by MIL-STD-883 paragraph 4.5.9.2, but is insufficient to detect the latency issue within the original magnetic core used in this model series. In addition to ensuring magnetic assemblies are adequately screened, IR will perform extended temperature soak tests on a sample basis at the hybrid level to ensure the AMA performance at cold, i.e. First and last Hybrid as a minimum of each assembly lot will be evaluated at an extended temperature soak to ensure the lots performance.

    4) Customers in receipt of the AMA product listed herein are requested to evaluate their application to determine if their circuit is sensitive to the potential of a Turn-on Overshoot during normal operations at cold. For technical consultations customers may contact IR for additional details via the normal customer service channels.

    5) This GIDEP Alert has been reviewed and coordinated with DLA-VQH prior to its release.

21. **DATE MFR. NOTIFIED**
    N/A

22. **MANUFACTURER’S RESPONSE**
    [ ] REPLY ATTACHED
    [ ] NO REPLY

23. **ORIGINATOR ADDRESS/POINT OF CONTACT**
    Manager, Quality Assurance- Granville C. Rains
    International Rectifier
    2520 Junction Ave
    San Jose, CA 95134

24. **GIDEP REPRESENTATIVE**
    Granville C. Rains

25. **SIGNATURE**
    [Signature]

26. **DATE**
    Sept 4th, 2014

GIDEP Form 97-1 (October 2000)
### Affected Material:

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<thead>
<tr>
<th>SMD No.</th>
<th>IR PN</th>
<th>Part Description</th>
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<tbody>
<tr>
<td>5962-0424701</td>
<td>AMA2805S</td>
<td>DC/DC CONVERTER, SINGLE CHANNEL, 5 VOLT, HYBRID</td>
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- Custom No.: 8613, 8616, 8688, 10314FM, 10347FM, 10349FM, 10459FM, 10460FM