

# PROBLEM ADVISORY

1. TITLE (Class, Function, Type, etc.)  <b>Class K Element Evaluation, Sampling Deviation</b>		2. DOCUMENT NUMBER <b>FV5-P-09-02</b>	
4. MANUFACTURER AND ADDRESS <b>International Rectifier, HiRel Products 2270 Martin Ave. Santa Clara, CA 95050</b>		3. DATE (DD-MMM-YY) <b>30 APRIL 2009</b>	
		6. NATIONAL STOCK NUMBER <b>Not Applicable</b>	
		8. TYPE DESIGNATOR <b>QML</b>	
5. PART NUMBER <b>FSC 5962</b>		10. LOT DATE CODE END <b>Jan 2009</b>	
7. SPECIFICATION <b>MIL-PRF-38534</b>		11. MANUFACTURER'S POINT OF CONTACT <b>Granville Rains or Paul Hebert</b>	
9. LOT DATE CODE START <b>Jan 2003</b>		12. CAGE <b>52467</b>	
14. MFR. POC PHONE <b>(408) 450-5886 or (978) 514-6180</b>		15. MANUFACTURER'S E-MAIL <b>grains1@irf.com or phebert@irf.com</b>	
16. CROSS REFERENCE VENDOR <b>Not Available</b>		17. CROSS REFERENCE CAGE <b>Not Available</b>	18. CROSS REFERENCE PART <b>Not Available</b>
19. PROBLEM DESCRIPTION / DISCUSSION / EFFECT <p>International Rectifier has become aware of discrepancies in its internal Class K Element Evaluations (EE) performed on microcircuit and semiconductor die elements. Specifically in some instances, it was discovered that the element evaluation sampling distribution did not adhere to the full extent of MIL-PRF-38534. Class K sample requirement consist of 3 die from each wafer and a total of at least 10 die from each wafer lot. In <u>some cases</u> where multiple wafers were present, sampling distribution consisted of 10 die taken from a single wafer only. In other cases, the traceability of individual wafers within the lot was not clearly identified or was not available from the OEM.</p> <p>The overall reliability impact due to these discrepancies is considered minimal for the following reasons:</p> <ol style="list-style-type: none"> <li>1) International Rectifier has no record of any field failure that is attributable to the EE sampling discrepancies noted above.</li> <li>2) Class K hybrids are screened 100% in accordance with MIL-PRF-38534, which includes electrical test, burn-in at 125C, PDA calculations and environmental testing.</li> <li>3) In several cases, hybrid lots have been subjected to and have passed MIL-PRF-38534 QCI Group C requirements, which includes life test. To date we have not experienced any failures in life test related to EE sampling discrepancies noted.</li> <li>4) In all cases, a minimum sample of 10 die were evaluated from each wafer lot.</li> <li>5) To date no element evaluation failures on record have been determined to be wafer related as opposed to wafer lot related.</li> <li>6) IR in all cases has maintained wafer lot traceability in accordance with MIL-PRF-38534 Appendix A 3.8.1</li> </ol>			
20. ACTION TAKEN/PLANNED <p>International Rectifier has taken the following actions to correct the <u>current</u> die inventories and work in process (WIP).</p> <ol style="list-style-type: none"> <li>1) Evaluate each hybrid lot in-process to determine impact and contact each affected customer for notification.</li> <li>2) Where possible, perform element evaluation to meet the full extent of the MIL-PRF-38534, Class K.</li> <li>3) In cases where the individual wafer identity cannot be determined for specific die, removed individual die lots from use on Class K hybrids and propose alternate element evaluation which may include an expanded sampling plan to be agreed upon by customer and DSCC.</li> </ol> <p>Based upon the nature of this discrepancy, the risk to class K hybrids currently in the field is deemed minimal and should require no further actions. While the discrepancy is undesirable, International Rectifier believes product reliability is not impacted and our full warranty remains in effect.</p> <p><b>This Problem Advisory has been coordinated with DSCC-VQH prior to its release.</b></p>			
21. DATE MFR. NOTIFIED  <b>Not Applicable</b>	22. MANUFACTURER'S RESPONSE <input type="checkbox"/> REPLY ATTACHED <input checked="" type="checkbox"/> <b>Not Applicable</b> <input type="checkbox"/> NO REPLY	23. ORIGINATOR ADDRESS/POINT OF CONTACT <b>Paul Hebert, International Rectifier – HiRel Products (978) 514-6180 phebert@irf.com</b>	
24. GIDEP REPRESENTATIVE  <b>Paul Hebert</b>		25. SIGNATURE  	26. DATE  <b>29 Apr. 2009</b>