

**Honeywell International Inc.**  
 Honeywell Aerospace Defense & Space  
 12001 Highway 55 N  
 Plymouth, MN 55441

14 June 2011

**Process/ Product Change Notification (PCN) #: 11-02**

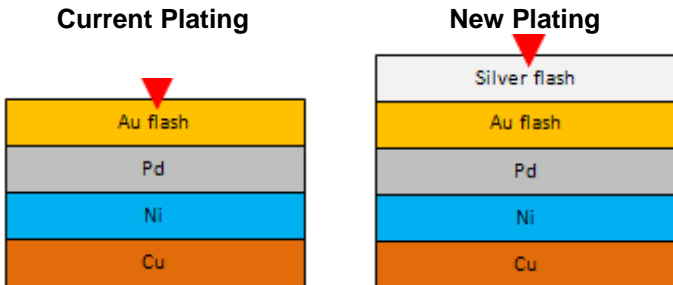
**Title of PCN:** Leadframe plating and peripheral pad dimensions change on all products in the Honeywell Microwave Product Line.

**Product IDs affected:**

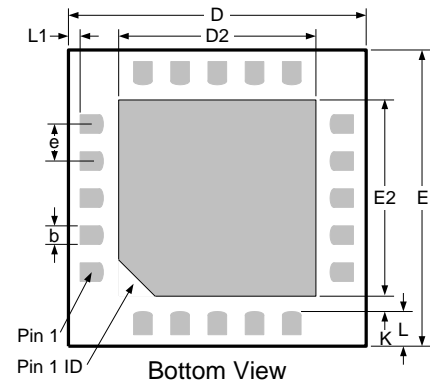
HRF-AT4511-GR	HRF-AT4610-GR	HRF-SW1020-GR
HRF-AT4520-GR	HRF-AT4611-GR	HRF-SW1030-GR
HRF-AT4521-GR	HRF-SW1000-GR	HRF-SW1031-GR

**Reason for the change:** Current product has variable solderability in lead-free applications with the current leadframe configuration and assembly process.

**Description of Change:** Pre-plated leadframe changes from half-etch NiPdAu peripheral pads to full-lead NiPdAu+Ag peripheral pads. The peripheral pad length increases from a typical of 0.4 mm reduced by the half-etch pull-back ( L1 < 0.15 mm) to the full typical 0.4 mm (L1 = 0).



Plating Layer	Current		Proposed	
	Min	Max	Min	Max
Ni	0.500	2.00	0.25400	
Pd	0.020	0.15	0.00254	
Au Flash / Au+Ag	0.003	N/A	0.00508	
Au Composition	100 %	100 %	30 %	70 %
L1 (Lead Pullback)		0.15	0	0



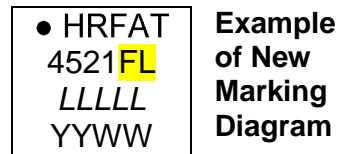
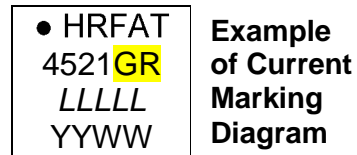
**NOTE:** Different products may have a different number of peripheral pads than shown

The marketing number suffix for all products in the product family will change from “GR” to “FL”. The new parts can be distinguished from the current parts in several ways:

1. The parts will be marked with “FL” instead of “GR” (see marking diagrams that follow)
2. The peripheral pads will be full-etch extending to the edge and wrapping up the sides of the package instead of being half-etch and have a pull-back from the package edge.
3. The color of the peripheral pads will be different as the plating composition is different. There should be increased contrast between the pads and the mold compound.

Here is a table of the affected products showing the change in marketing number suffix and a diagram showing the marking change:

Current Marketing Number	New Marketing Number
HRF-AT4511-GR	HRF-AT4511-FL
HRF-AT4520-GR	HRF-AT4520-FL
HRF-AT4521-GR	HRF-AT4521-FL
HRF-AT4610-GR	HRF-AT4610-FL
HRF-AT4611-GR	HRF-AT4611-FL
HRF-SW1000-GR	HRF- SW1000-FL
HRF- SW1020-GR	HRF- SW1020-FL
HRF-SW1030-GR	HRF- SW1030-FL
HRF-SW1031-GR	HRF- SW1031-FL



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**Projected timing of change and implementation date:** All products with the new leadframe will be fully qualified and available for shipment in August 2011.

**Anticipated impact on Quality and Reliability:** New product will have improved solderability line yield especially in lead-free applications.

**Qualification Plan**

	STRESS	REFERENCE STANDARD	CONDITIONS	DURATION	# Lots / SS per lot
<b>SD</b>	Solderability	JESD22-B102	Pb-Free Dip & Look	—	3 / 22
<b>ED</b>	Electrical Parameter Assessment	JESD86		—	Qual lots
	Wire Bond Pull Strength	—	30 wires; per leadframe	—	3 / 5
	Bond Shear	—	30 wires; per leadframe	—	3 / 5
	Die Shear	—	Per leadframe	—	3 / 5
<b>MSL</b>	Moisture Sensitivity Level	J-STD-020 JESD22-A111	3@260°C: 30°C,60%RH	192 hours	3 / 25
<b>PC</b>	Preconditioning (MSL 3)	JESD22-113	Prior to TC & 85/85	—	Yes
<b>85/85</b>	Unbiased Temperature / Humidity	JESD22-A101B	85 °C, 85 % RH	168 hours	3 / 25
<b>TC</b>	Temperature Cycle	JESD22-104	-65 to 150 °C, Unbiased	500 cycles	3 / 25
<b>HTSL</b>	High Temperature Storage	JESD22-A103	+150 °C Unbiased	500 hours	3 / 25