



July 5, 2005
PPCN #050002

PROCESS/ PRODUCT CHANGE NOTIFICATION

This is to inform you that Micrel intends to change remaining standard solder plated product to an ROHS compliant alternative in order to align ourselves with ROHS and similar requirements. Micrel is NOT discontinuing any existing tin-lead, Sn-Pb, package options. Micrel will continue to support our customers that are exempt from ROHS requirements and wish to continue to purchase solder plated products. During this transitional period we will continue to ship remaining solder plated inventory but when we reach a point that this inventory is depleted we will ask our customers to convert to a lead (Pb)-free alternative. If you have any questions concerning this change, please contact:

NAME: Richard Zelenka
EMAIL: rzelenka@micrel.com
PHONE: 408-435-3409

TYPE OF CHANGE

Terminal plating change from tin-lead solder to matte tin or nickel-palladium-gold (NiPdAu) depending on package and product type.
Part number and product marking will change corresponding to plating change.
Products with PdNiAu lead finish will also include a halogen free mold compound.

EFFECTIVITY

Micrel intends to ship FIFO and to exhaust existing supplies of solder plated product where possible prior to shipping Pb-free alternatives. In most products it is anticipated that this changeover is more than 90 days from now but in selected cases where our existing solder plated inventories are low we may ask that you convert sooner.

PRODUCT ID (DESCRIPTION)

All Micrel standard products (see list).



July 5, 2005
PPCN #050002

DESCRIPTION OF CHANGE:

Micrel is changing its terminal lead finish to either matte tin or NiPdAu depending on product or package. Products using NiPdAu will also use a halogen free mold compound. Micrel will also change the part number, part marking, and package labeling to differentiate ROHS compliant product from solder plated product.

All matte tin and NiPdAu lead finishes are ROHS compliant.

Matte tin and NiPdAu are both backward compatible with tin lead solder. Both finishes can be used in combination with tin-lead devices and solder systems.

Pb-free products are rated for 260C maximum reflow temperature and are compliant to Jedec J-STD-020C. All Pb-free products have been evaluated for moisture sensitivity level and are appropriately packaged and labeled with respect to moisture sensitivity. Moisture sensitivity rating of products by package is located in the quality section of our website.

Part Numbering

Micrel will change the temperature code in the part number to designate products that are ROHS compliant. Products using a W,X,Y, or Z designator may be either matte tin or NiPdAu. Micrel also has a designation, F, G or H, for "Green" products that are exclusively NiPdAu and use a halogen free compound. See table below for more information.

Part Marking

For large packages, Micrel will use the part number as the identifier. For small packages Micrel will use underscore bars or other small symbols for identification. Information will be available at our website under the Quality section that explains the part marking strategy.

High Bandwidth Products

Our High Bandwidth products (products typically beginning with an SY.....) will use primarily a NiPdAu lead finish with a halogen free mold compound ("green package"). NiPdAu and the associated halogen free mold compounds have successfully completed reliability testing. Qualification data for NiPdAu may be found at our website under quality and reliability. Where NiPdAu alternatives are not available matte tin will be used.

Analog and Ethernet

The primary lead finish will be matte tin. It is our intent to increase the NiPdAu alternatives in the near future for our analog and ethernet products. Change notifications will be sent when matte tin finishes are converted to NiPdAu. Matte Sn has been fully characterized and qualified. The Nemi recommended 1 hour at

150C anneal for whisker remediation has been adopted. Whisker testing which closely follows the Nemi recommendations, solderability, and other tests is available on our website (www.micrel.com) in the Quality section. Micrel has adopted a standard of 400 microinch minimum for solder thickness.

Customers exempt from ROHS

Some customers, primarily in networking, military, and aerospace applications, may wish to continue using devices with lead (Pb) bearing solders. To ensure supply of products with lead (Pb) solders please contact:

Kim Harmon

Kim.harmon@micrel.com

408-435-2462

Summary of Change:

- Micrel will convert solder plated devices to matte tin or nickel-palladium gold
- Matte tin and nickel palladium gold devices from Micrel are ROHS compliant
- Matte tin and nickel palladium gold are backward compatible with lead-tin solder systems.
- Micrel is NOT discontinuing any existing tin-lead solder plated package options.
- Matte tin and NiPdAu versions of our product are certified for peak reflow temperatures of 260C in compliance with Jedec J-STD-020C.
- Micrel will change the part number and part marking for all ROHS compliant product to uniquely identify ROHS compliance.
- Micrel will affix labels to outer packaging identifying that the product is ROHS compliant
- Nickel-palladium-gold plated lead frames will also use a halogen free mold compound and are deemed as "green" packages by Micrel
- Matte tin lead finish is a minimum of 400 microinches and incorporates the NEMI recommended 150C, 1 hour anneal

Additional Information

Information regarding qualification of matte tin, qualification of NiPdAu, device part numbers, part marking, package labeling, moisture sensitivity, solder joint reliability, and environmental certifications may be found on the quality ROHS/Pb-free page of our website. Click on the orange Quality button at www.micrel.com or paste the following link in your browser <http://www.micrel.com/product-info/qual&rel.shtml>



July 5, 2005
 PPCN #050002

AFFECTED MICREL PRODUCT ID's

See Excel Spreadsheet sent with this PPCN

Note: In some cases, especially for HBW products, the commercial temperature range ROHS compliant product was eliminated and only an industrial temperature range ROHS compliant part will be offered. This should not be an issue since the industrial temperature range is wider than the commercial temperature range.

MICREL Pb-Free/ROHS Compliant Option Table

	"Green" Package	Pb-free, ROHS Compliant	Standard Product		
			Analog	HBW	Ethernet
Part Numbers			MICxxxxx	Syxxxxx	KSxxxxx
Maximum IR Reflow Temperature	260C	260C	240C*		
Mold Compound Composition	Without Organic Bromide/SbO3	May contain organic bromide/SbO3	May contain organic bromide/SbO3		
Lead Finish	Pd/Ni/Au	PdNiAu or 100% matte Sn	Pd/Ni/Au or Sn/Pb (85/15 or 8020)		
Temperature Code and PB Free Mark**					
Commercial	H	Z	C	C	no code
Industrial	G	Y	B	I	I
Military	F	X	A	-	-
Industrial ROHS Compliant with high melting Pb/Sn solder die attach		W			
* - Many standard products will withstand 260C. Check with the factory if this is a requirement					
** - For Ethernet the Pb-free mark will be the letter following the KS prefix (e.g. KSZ8721BL). For Analog and HBW the letter designated for operating temperature range in the standard part marking will be replaced by the appropriate Pb-free temperature code.					