



communications

**Lead free Products for
WJPCN06MAY05TC1 attachment
May 6, 2005**



Lead Free Product Summary

- WJ will be converting essentially all RF semiconductor products to be lead free by **October 1, 2005**.
- WJ will support our customers with the necessary data and samples during this transition period before October 1 as is required to make the conversion.
- Electrical performance of the lead free (Pb free) products are identical to the leaded versions so **no** circuit redesign is required.
- The lead free products are fully **backward compatible** so they can continue to be processed using a lead-based SMT process as well.



Lead Free Product Definitions

■ Pb-free

- Change of plating on leads of the package and compatible with JEDEC J-STD-020C (260C peak reflow temp)
 - Matte tin (QFN 6x6mm, SOT-86, SOT-363, QFN 4x4mm)
 - NiPdAu (SOT-89, SOIC8)

■ RoHS

- Pb-free
- Compliant with European standards
 - EU 2002/C 90E /02 (WEEE), Directives 2002/96/ EC and 2002/95/EL

■ Green

- Pb-free and RoHS compliant
- Limitations on other chemicals as determined by specific customer requirements and WEEE (Waste from Electrical and Electronic Equipment) requirements per European standards
- Requires change in mold compound to eliminate brominated fire retardants



Lead Free Products

■ Product Marking

- Lead-free (RoHS compliant) – add – F to model number (VG111-F)
- Lead-free and Green (RoHS compliant) – add –G to model number (AH1-G)
- New model numbers will appear on the datasheets under “Ordering Information”. The basic model number does not change (AH1)

■ Interchangeability

- All lead-free and green products are backward compatible with the existing tin/lead (SnPb) SMT processes (240C max reflow temp)

■ MSL Rating – all lead-free and green parts have a minimum MSL rating of 3

■ Other products

- WJ is not currently planning to offer the HMJ mixers or AH4 as Pb free
- The SME series is currently being qualified (Q2 2005) to be RoHS compliant
- AH201 will have a Pb free version (AH202) in Q4 of 2005
- WJ is currently working to make the ECMxxx and APxxx series leadfree and RoHS compliant by early 2006

Lead Free Products

Package Style	RoHS or Green	Plating on leads
SOT-89	Green	NiPdAu
SOT-86	Green	Matte tin over copper with a post plating anneal
SOT-363	Green	Matte tin over copper with a post plating anneal
SOIC-8	Green	NiPdAu
SOIC-8 DS	Green	NiPdAu
QFN 6x6 mm – 28 pin	RoHS	Matte tin over copper with a post plating anneal
QFN 4x4 mm	Green	Matte tin over copper with a post plating anneal
DFN 3x3 mm	Green	Matte tin over copper with a post plating anneal

Lead Free Product Changes

Package Style	RoHS or Green	Product Changes			
		Pkg Supplier	Mold Comp'd	Lead Frame	Lead Plating
SOT-89	Green	★	★	★	★
SOT-86	Green		★		★
SOT-363	Green		★		★
SOIC-8	Green	★	★	★	★
SOIC-8 DS	Green	★	★	★	★
QFN 6x6 mm – 28 pin	RoHS				★
QFN 4x4 mm	Green		★	★	★
DFN 3x3 mm	Green		★	★	★

