

Product Change Notices

PCN No.: 20110805

Date: September 1, 2011

Subject: Apply Cu bonding wire on below products

This is to inform you that Cu bonding wire will be applied on the products stated in below (table 1) with below conditions:

1. AME to ensure "Electrical Characteristic" of Cu bonding wire package is 100% compliance AME specifications.
2. AME qualified this new material package reliability.
3. The Part Number of each product is unchanged, but identification through D/C is available.

Table 1

Part Number	Package	Part Number	Package
AME8800 Family	SOT-23 SOT-25 TSOT-23 TSOT-25	AME8802 Family AME8861 Family	SOT-25 TSOT-25
AME8801 Family AME8804 Family AME8812 Family AME8840 Family	SOT-25 SOT-26 TSOT-25 TSOT-26	AME8808 Family AME8810 Family AME8847 Family AME8848 Family	SOT-223
AME8806 Family AME8807 Family AME8809 Family AME8841 Family AME8842 Family	SOP-8	AME8850 Family	SOT-25 SOT-26 TSOT-25 TSOT-26 SOP-8
AME8803 Family AME8814 Family AME8824 Family AME8863 Family	SOT-26 TSOT-26	AME8805 Family	SOT-23 SOT-223

This notification is for your information and concurrence.

If you require AME Qual/Rel data or samples to qualify this change, please contact AME, Inc. directly or AME's authorized Sales Representative or Distributor.

Please note this PCN will be effective after 30 days of issuing date automatically If we do not receive any response, comment or questions from you within 30 calendar days.

If you have any questions concerning this change, please contact:

PCN Originator:

Name: Bill Chou – Director, Engineering Department I

Email: bill_chou@ame.com.tw

Phone: +886.2.2627.8687 # 2110



Expected 1st Device Shipment Date: 10/1/2011

Effective Year/Work Week of Changed Product: NA

Cu bonding wire identification through D/C is available.

A line on top of the last character represents Cu bonding wire such as AA[—]Aww

For example :

Item	Package	ex : Marking rule
One row marking	SOT-23 SOT-25 SOT-26 TSOT-23 TSOT-25 TSOT-26 SOT-223	AME8800AEET SOT-25 
Three row marking	SOP-8	AME8806AEHA SOP-8 

Reason of Change:

Add Cu bonding wire to ensure the sufficient material source.



Qual/Rel Report:

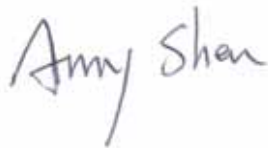
Test Item	Method	Description	Result
HTOL	MIL-STD-883F 1005.8	T _{STRESS} =125 , Duration= 1000hrs Biased	Pass
ESD	MIL-STD-883G Method 3015.7	Human Body Model, Class 2, 2kV minimum	Pass
Latch-up	JEDEC STANDARD NO.78 MARCH 1997	Level A, 100mA minimum	Pass
MSL	IPC/JEDEC J-STD-020C	85/85 168 hours, IR-reflow 3 cycles Peak Temp.= 260	MSL1
HTS	JESD22-A103D	150 , 1000 hrs	Pass
THT (85/85)	JESD22-A101C	85 ,85% RH, 1000hrs	Pass
PCT	JESD22-A102D	121 , 100% RH, 2atm, 168hrs	Pass
TCT	JESD22-A104D	-65 ~ 150 , 500 cycles, DWELL=15min	Pass
Solderability	J-STD-D02C	Temp.=260 , Duration=5sec	Pass
IR-reflow	JESD22-A113F	See IR reflow Profile, Perform 3 cycles test	Pass

AME88xx Cu Wire Reliability Report

Products of this PCN were listed under below

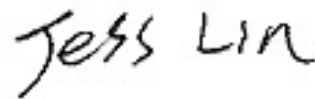
Part Number	Package	Part Number	Package
AME8800 Family	SOT-23	AME8802 Family	SOT-25
	SOT-25		AME8861 Family
	TSOT-23		
	TSOT-25		
AME8801 Family	SOT-25	AME8808 Family	SOT-223
AME8804 Family	SOT-26	AME8810 Family	
AME8812 Family	TSOT-25	AME8847 Family	
AME8840 Family	TSOT-26	AME8848 Family	
AME8806 Family	SOP-8	AME8850 Family	SOT-25
AME8807 Family			SOT-26
AME8809 Family			TSOT-25
AME8841 Family			TSOT-26
AME8842 Family			SOP-8
AME8803 Family	SOT-26 TSOT-26	AME8805 Family	SOT-23
AME8814 Family			SOT-223
AME8824 Family			
AME8863 Family			

Approved by



Amy Shen
Quality & Reliability Dept.
Manager

Prepared by



Jess Lin
Quality & Reliability Dept.
Engineer



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I、 Failures In Time Calculation:

Use HTOL test information mentioned in section , FIT (Failures In Time) can be calculated as below:

$$FIT = (x^2_{(v, CL)} \times 10^9) / (2 \times S \times H \times A_F) = (4.61 \times 10^9) / (2 \times 77 \times 1000 \times 280.59)$$

=106.69 (pieces per 10⁹ hours) @ 40 with 90% Confidence Level.

Where A_F is acceleration factor setting activation energy to 1.0eV as zero failure.

II、 Product Reliability Test Result:

Test Item	Test Condition	Sample Size / Failures	Result
HTOL	T _{STRESS} =125 Duration= 1000hrs Biased, Read at 168/504/1000 hours	77 pcs / 0 pcs	Pass
ESD	Human Body Model Pin-to-Pin test Class 2, 2kV minimum	3 pcs per pin pair / 0 pcs	Pass
Latch-up	Level A, 100mA minimum	3 pcs per pin pair / 0 pcs	Pass



III、 Package Reliability Test Result:

Test Item	Test Condition	Sample Size / Failures	Result
MSL	85/85 168 hours IR-reflow 3 cycles Peak Temp.= 260 IPC/JEDEC J-STD-020C	22 pcs / 0 pcs	Level 1
HTS	Precondition ^{NOTE 2} Temp.=150 Duration=1000 hours Unbiased, Read at 1000 hours	77 pcs / 0 pcs	Pass
THT	Precondition ^{NOTE 2} Temp.=85 , R.H.=85% Duration=1000 hours Unbiased, Read at 1000 hours	77 pcs / 0 pcs	Pass
PCT	Precondition ^{NOTE 2} Temp.=121 , R.H.=100% 15PSIG, Unbiased Duration=168 hours Read at 168 hours	77 pcs / 0 pcs	Pass
TCT	Precondition ^{NOTE 2} -65 ~ 150 500 cycles Unbiased, Read at 500 cycles	77 pcs / 0 pcs	Pass
Solderability	Temp.=260 (lead-free) Duration=5sec	5 pcs / 0 pcs	Pass

NOTE 2: 85/85 168 hours + IR-reflow 3 cycles with Peak Temp.= 260



IV、IR-reflow Test Result:

Test Item	Test Condition	Sample Size / Failures	Result
IR-reflow	See IR reflow Profile Perform 3 cycles test	22 pcs / 0 pcs	Pass

IR reflow Profile:

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate ($T_{s_{max}}$ to T_p)	3 /second max.
Preheat	
- Temperature Min ($T_{s_{min}}$)	150
- Temperature Max ($T_{s_{max}}$)	200
- Time ($t_{s_{min}}$ to $t_{s_{max}}$)	60~180 seconds
Time maintained above	
- Temperature (T_L)	217
- Time (t_L)	60~150 seconds
Peak/Classification Temperature (T_p)	260
Time within 5° of actual Peak Temperature (t_p)	20~40 seconds
Ramp-Down Rate	6 /second max.
Time 25° to Peak Temperature	8 minutes max.

