



Product Change Notices

PCN No.: 20110803

Date: September 1, 2011

Subject: Apply Cu bonding wire on AME5258 SOT-25 package

This is to inform you that Cu bonding wire will be applied on the AME5258 SOT-25 series with below conditions:

1. AME to ensure "Electrical Characteristic" of Cu bonding wire package is 100% compliance AME5258 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.

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:

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

Effective Year/Work Week of Changed Product: NA

AME5258 SOT-25 series Part Number – Au bonding wire

Part Number	Marking*	Output Voltage	Package
AME5258-BEVADJ	BWMMXX	ADJ	SOT-25
AME5258-AEV120	BYRMXX	1.2V	SOT-25
AME5258-AEV180	BYJMXX	1.8V	SOT-25
AME5258-AEV250	BYNMXX	2.5V	SOT-25
AME5258-AEV330	BYFMXX	3.3V	SOT-25

AME5258 SOT-25 series Part Number – Cu bonding wire

Part Number	Marking*	Output Voltage	Package
AME5258-BEVADJ	BWMMXX̄	ADJ	SOT-25
AME5258-AEV120	BYRMXX̄	1.2V	SOT-25
AME5258-AEV180	BYJMXX̄	1.8V	SOT-25
AME5258-AEV250	BYNMXX̄	2.5V	SOT-25
AME5258-AEV330	BYFMXX̄	3.3V	SOT-25

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
	JEDEC EIA/JESD22-A115	Machine Model, Class B, 200V minimum	Pass
	JESD22-C101C	Charged Device Model, Class II, 200V 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



Cu Wire Reliability Report for AME5258 SOT-25 Series Product

Approved by

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Quality & Reliability Dept.
Engineer



Conclusion:

The AME5258 SOT-25 series product has successfully met AME's reliability standard that is required on all AME, Inc products.

Furthermore, QRA Dept. of AME, Inc monitors the reliability continuously to make sure that all AME5258 SOT-25 series product will still meet AME's reliability standard in the future.

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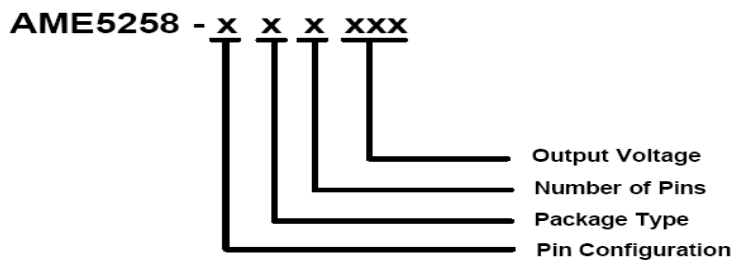
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I、 General Description:

The AME5258 is a high efficiency monolithic synchronous buck regulator using a constant frequency, current mode architecture. The device is available in an adjustable version and fixed output voltages of 1.2V, 1.8V, 2.5V and 3.3V. Supply current with no load is 300 μ A and drops to $<1 \mu$ A in shutdown. The 2.5V to 5.5V input voltage range makes the AME5258 ideally suited for single Li-Ion battery- powered applications. 100% duty cycle provides low dropout operation, extending battery life in portable systems. PWM pulse skipping mode operation provides very low output ripple voltage for noise sensitive applications. At very light load, the AME5258 will automatically skip pulses in pulse skip mode operation to maintain output regulation.

The AME5258 is simple to use. As with standard LDO's, Input and output capacitor are required. The only other element is a small, low cost, 2.2 μ H inductor. Low output voltages are easily supported with the 0.6V feedback reference voltage. And 100% duty cycle when V_{in}

II、 Product Information:



Pin Configuration	Package Type	Number of Pins	Output Voltage
A (SOT-25) 1. EN 2. GND 3. SW 4. IN 5. OUT	E: SOT-2X	V: 5	120: 1.2V 180: 1.8V 250: 2.5V 330: 3.3V
B (SOT-25) 1. EN 2. GND 3. SW 4. IN 5. FB	E: SOT-2X	V: 5	ADJ: Adjustable

III、 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.

IV、 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
	Machine Model Pin-to-Pin test Class B, 200V minimum	3 pcs per pin pair / 0 pcs	Pass
	Charged Device Model Class II, 200V minimum	3 pcs package pair / 0 pcs	Pass
Latch-up	Level A, 100mA minimum	3 pcs per pin pair / 0 pcs	Pass



V、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



VI、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.

