



Microsemi Corporation

March 2016

Product/Process Change Notification No: 2017- 007

Change Classification: Minor

Subject: Change in lead frame structure for TO-220AB products

Description of Change: Change in lead frame structure

Reason for Change: To enhance the heat dissipation capability, Microsemi will change the lead frame pad size of TO-220AB product. The pad size will be increased by 15%

Application Impact: This PCN is a notice for lead frame structure change from trapezoid to rectangular shape to enhance products heat dissipation capability; the change won't impact layout on the PCB.

Method of Identifying Changed Product: New products will be available from June.01, 2017. It can be identified by the lot number 76013XXXX (1st digit "7" denotes year 2017, 2nd digit "6" denotes June, 3rd and 4th digits denote day, 5th digits denote line (3-TO) ,and digits XXXX denote production line and serial number.)

Products Affected by this Change: See below

Production Shipment Schedule: 01st June 2017

Samples Availability: Contact your Microsemi Sales representative

Template: ICG-F-0003 rev 2



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Qualification Plan: TO-220AB passed the reliability testing and summarized as below.

TEST#	DESCRIPTION	TEST CONDITION	Standard / Reference	DURATION	FAILURE RATE
1	TEMPERATURE CYCLING(air to air) (TC)	Ta = -55+0°C/-10°C 10mins Ta = +150+15°C/-0°C 10mins Transfer time \approx 1 min. The load should reach temp. within 15mins	JESD22-A104E	1000 CYCLES	0/77 PCS
2	HIGH TEMPERATURE STORAGE LIFE (H.T.S.L)	TA=150°C	JESD22-A103D	1000HRS	0/77 PCS
3	SOLDERABILITY(SD)	Temp of solder POT=245 \pm 5°C. Time for dipping in solder 5 \pm 0.5sec Dipping depth=1.27mm max from the body (96.5%Sn-3.0%Ag-0.5%Cu)	J-STD-002D	1 CYCLE	0/32 PCS
4	CONTINUE FORWARD OPERATING LIFE(C.F.O.L)	I=IF \pm 10% DC supply	MIL-STD-750D METHOD 1027.3	168 HRS	0/77 PCS
5	THERMALSHOCK TEST(T.S.T)	Hot TA=100+10/-2°C Time=5mins Cold TA=0+2/-10°C Time= 5mins transfer time<10sec	JESD22-A106B	15 CYCLES	0/77 PCS
6	AUTOCLAVE(AC)	TA=121°C. P=29.7psia/205kPa or 2.088kg/cm2 Relative Humidity = 100%	JESD22-A102E	96 HRS	0/77 PCS

7	INTERMITTENT FORWARD OPERATING LIFE(I.F.O.L)	I=1.0 \times IF \pm 10% DC supply On time=30sec Off time=50sec	MIL-STD-750D METHOD 1036.3	15000 CYCLES	0/77 PCS
8	FORWARD SURGE CURRENT (F.S.C)	SQ wave or sine wave I _{FSM} =datasheet Spec. Duration of pulses(tp)=8.3ms Number of current pulses (n) =1cycle	MIL-STD-750D METHOD 4066-3	1 CYCLE	0/22 PCS
9	TEMPERATURE HUMIDITY STORAGE (T.H.S)	TA=85°C +/-2°C RH=85% +/-5%	EIAJED-470 1/100 METHOD 103	1000 HRS	0/77 PCS
10	RESISTANCE SOLDER TO HEAT (R.S.H)	Temperature of solder pot=260 \pm 5°C Time for dipping in solder=10 \pm 1sec Dipping depth=within 1.27mm of the body	JESD22-B106D	1 CYCLE	0/30 PCS
11	THERMAL RESISTANCE (T.R)	1. Shall be keep Tj-Tjmax +0/-5°C during the Rthj-A test. 2. Give the device rate current ,also keep the Tj \leq Tjmax during the Rθj-C&Rθj-L test. 3.Rθ \leq Datasheet spec.	JESD51	1 CYCLE	0/3 PCS

Pad size of TO-220AB product.

Item	Before	After
Package	TO-220	TO-220
C: Top length(mm)	8.6	8.8
A: Bottom length(mm)	8.8	8.8
B: High(mm)	5	5.7
Area(mm ²)	43.5	50.16
Structure image		

Appendix

MSC part number	Device type	Description	Package	Package Type	Reel Size
MBR20100CTe3/TU	Schottky (dual)	20A, 100V, VF=0.80V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR20150CTe3/TU	Schottky (dual)	20A, 150V, VF=0.90V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR20200CTe3/TU	Schottky (dual)	20A, 200V, VF=0.90V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR2040CTe3/TU	Schottky (dual)	20A, 40V, VF=0.70V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR2045CTe3/TU	Schottky (dual)	20A, 45V, VF=0.70V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR2050CTe3/TU	Schottky (dual)	20A, 50V, VF=0.75V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR2060CTe3/TU	Schottky (dual)	20A, 60V, VF=0.75V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR2080CTe3/TU	Schottky (dual)	20A, 80V, VF=0.80V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR2090CTe3/TU	Schottky (dual)	20A, 90V, VF=0.80V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR30100CTe3/TU	Schottky (dual)	30A, 100V, VF=0.80V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR30150CTe3/TU	Schottky (dual)	30A, 150V, VF=0.90V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR30200CTe3/TU	Schottky (dual)	30A, 200V, VF=0.90V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR3040CTe3/TU	Schottky (dual)	30A, 40V, VF=0.70V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR3045CTe3/TU	Schottky (dual)	30A, 45V, VF=0.70V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR3050CTe3/TU	Schottky (dual)	30A, 50V, VF=0.75V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR3060CTe3/TU	Schottky (dual)	30A, 60V, VF=0.75V, TJMAX = 175C	TO220AB	Thru hole	Tube

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MBR3080CTe3/TU	Schottky (dual)	30A, 80V, VF=0.80V, TJMAX = 175C	TO220AB	Thru hole	Tube
MBR3090CTe3/TU	Schottky (dual)	30A, 90V, VF=0.80V, TJMAX = 175C	TO220AB	Thru hole	Tube

Contact Information:

If you have any questions concerning this change please contact your regional
Microsemi Sales person: <http://www.microsemi.com/sales-contacts/0>

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Microsemi Corporation

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Microsemi Corporation intends to implement this change 90 days after this notification. Acknowledgement of your company's acceptance of this change is requested per contractual agreement. Response within 30 days is required.

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Name Title

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