



Product Change Notification

ENP-PCN-2011-02
September 12, 2011

PCN Overview

PCN Original Issue Date:	September 12, 2011
Type of Change Notification:	Assembly material change
Copper Wire Qualification:	Complete
Additional Qualification Data for EN5330DC family of devices	November 14, 2011
Sample Availability:	November 1, 2011
Expected First Ship Date:	December 1, 2011
Last Date to Buy Pre-Change Product:	N/A
Products Affected:	EN5310DC, EN5310DI, EN5330DC, EN5330DI

Reference Documents:	JEDEC Standard JESD46C Prod Mark Spec OP-L01a
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PCN Revision History:			
Revision Date: September 12, 2011	Revision Number: 00	Reason: initial issue	

Description of Change

Enpirion is converting to copper wire as a qualified wire bond material for device packaging.

Enpirion reserves the right to ship devices with either gold or copper wire bonds.

Customer Impact of Change and Recommended Action

There is no customer impact since there is no change in form, fit, function, reliability, quality and safety of the products.

Reason for Change

Copper wire is increasingly becoming the material of choice for wire bonding in the semi-conductor industry due to the spiraling cost of gold. Addition of copper wire as a qualified material for assembly is an integral part of Enpirion's cost containment strategy while enabling manufacturing flexibility and ensuring long term continuity of supply.

Product Identification

Products with copper wire will be easily identifiable by the letter C at the end of the Lot Number on the second row of the device marking.

Copper Wire

○ EN5330DC XXXXXC XYWWW

Gold Wire

○ EN5330DC XXXXX XYWWW

Product Qualification Data (Copper Wire)

Over the past one year, Enpirion has manufactured over 3 million devices with copper wire bonds with excellent results. Enpirion also has extensive amount of reliability qualification data for devices in QFN packages and is summarized in the table below.

Item	Reliability Test	Test Condition & Standard	Test Results (Qty: Pass/Fail)					
			4x4x0.75mm QFN	4x6x1.1mm QFN	4x7x1.85mm QFN	5.5x5.5x1.1mm QFN	5.5x10x3mm QFN	8x11x3mm QFN
			Avg Wire Count = 25	Avg Wire Count = 34	Avg Wire Count = 58	Avg Wire Count = 108	Avg Wire Count = 72	Avg Wire Count = 176
1	High Temperature Operating Life (HTOL)	JESD22-A108 (125°C, Vin-max, 1000 hours)	240 / 0	78 / 0	241 / 0	80 / 0	160 / 0	160 / 0
2	High Temperature Storage (HTS)	JESD22-A-103-C (150°C, 1000 hours, Condition B)	80 / 0	240 / 0	240 / 0	80 / 0	160 / 0	80 / 0
3	Pre-Conditioning	JESD22-A-113 and J-STD-020	240 / 0	520 / 0	560 / 0	270 / 0	160 / 0	400 / 0
4	Temperature Humidity Bias with Pre-Conditioned Devices from Item 3	JESD22-A101 (85°C/85%RH, Vin-max, 1000 hours)	80 / 0	40 / 0	80 / 0	78 / 0	80 / 0	80 / 0
5	Autoclave with Pre-Conditioned Devices from Item 3	JESD22-A102C (100%RH, 121°C, 96 hours, Condition C)	80 / 0	240 / 0	240 / 0	80 / 0	80 / 0	160 / 0
6	Temperature Cycle with Pre-Conditioned Devices from Item 3	-65°C to +150°C / 500 cycles JESD22-A104, Condition C, Soak Mode 5	80 / 0	240 / 0	240 / 0	80 / 0	80 / 0	160 / 0

- Additional reliability qualification data for EN5330DC consisting of Pre-Conditioning, Autoclave and Temperature Cycling will be available by 11/14/11

Customer Acknowledgement

Customers are requested to acknowledge this notification within 30 days of its issue date. Lack of response within 30 days of PCN release will constitute an acceptance of the change.

Please contact Enpirion at customerservice@enpirion.com, your manufacturers' representative, or distributor if you have any issues with this PCN or require additional information.

Customer: _____ Name: _____
 Title: _____ Phone: _____ Email: _____
 Customer Comments: _____
 Customer Signature: _____ Date: _____

Contact Information

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To locate your area Representative or Distributor visit the Enpirion Website: www.enpirion.com

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