文件编号 Document No.	ESP-00-2-007-03	文件名称 Document Name	产品/工艺变更通知 Product/Process Change Notice (PCN)
文件版本 Document Version	1.1	保存期限 Retention Period	3 年 3 years

ESP8285 技术规格书变更

ESP8285 Datasheet Change

PCN 编号 PCN No.	PCN-04-20190625	提出日期 Issue Date of PCN	2019/6/25
产品名称 Product Name	ESP8285	变更日期 Proposed Date of Change	2019/8/25
封装类型/尺寸 Package Type/Size	QFN 5X5	样品日期 Proposed Date of Sample	ESP8285N08: 2019/7/20 ESP8285H08: 2019/6/1 ESP8285H16: 2019/6/1
首次出货日期 Proposed Date of First Mass Production Shipment		ESP8285N08: 2019/7/20 ESP8285H08: 2019/6/25 ESP8285H16: 2019/8/28	

客户批准/Customer Consent：☑需要批准/Approval Required

☐通知，无需批准/Notification, Approval Not Required

变更等级/Classification of Change: ☑主要变更/Major ☐轻微变更/Minor

变更原因/Reason for Change:

更新 ESP8285 芯片中所采用的 Flash 工作温度规格，以更好地适应 LED 照明等高温场景。

The working temperature specification of flash used in ESP8285 chip is updated to better adapt to the high temperature scene such as LED lighting.

变更描述/Description of Change:

更新 ESP8285 芯片中所采用的 Flash 工作温度规格为－40 ℃~105 ℃。芯片内部 flash 均在 105 ℃的条件下完成了 100% 测试，可以保证 105 ℃及以下温度条件下的稳定工作，以适应在 LED 照明等高温场景中的应用。考虑到旧版本 ESP8285 芯片内部 Flash 并没有在高温点 125 ℃环境中完成 100%全检测试，因此调低了最大工作温度。同时更新了部分技术参数和 eFuse 保留位，详细见如下“变更对比”和“变更识别方式”描述。

The working temperature specification of flash used in ESP8285 chip is updated to -40 ℃ ~ 105 ℃. The flash used in ESP8285 chip has completed 100% function test at 105 ℃, which can ensure the stable operation at 105 ℃ and below, so as to adapt to the application in high temperature scene such as LED lighting. Considering that the flash used in the old version of ESP8285 chip has not been completely 100% full inspection tested in the 125 ℃ environment, the upper working temperature limit has been reduced. At the same time, some technical parameters and eFuse bits are updated, as described in the following "Before and After the Change" and “Change Identification Method”.

变更对比/Before and After the Change:

Item	Before change	After change
MPN (Internally used)	ESP8285	ESP8285N08 ESP8285H08 ESP8285H16
Flash	8M bit	ESP8285N08 (8 M bit) ESP8285H08 (8 M bit) ESP8285H16 (16 M bit)
Operating temperature range	-40 ℃~125 ℃	ESP8285N08 (-40 ℃~85 ℃) ESP8285H08 (-40 ℃~105 ℃) ESP8285H16 (-40 ℃~105 ℃)
Marking	ESP8285 	ESP8285N08 (8 M bit, 85℃)  ESP8285H08 (8 M bit, 105 ℃)  ESP8285H16 (16 M bit, 105 ℃) 
1.2 技术参数 Specifications：发射功率 TX Power	802.11 b: +20 dBm 802.11 g: +17 dBm 802.11 n: +14 dBm	802.11 b: +19 dBm 802.11 g: +19 dBm (6 M) 802.11 g: +15 dBm (54 M) 802.11 n: +19 dBm (MCS0) 802.11 n: +14 dBm (MCS7)
1.2 技术参数 Specifications：接受灵敏	802.11 b: －91 dBm (11 Mbps)	802.11 b: －97 dBm (1 Mbps)

度 Rx Sensitivity	802.11 g: －75 dBm (54 Mbps) 802.11 n: －72 dBm (MCS7)	802.11 g: －74 dBm (54 Mbps) 802.11 n: －70 dBm (MCS7)
3.3.3. 2.4 GHz 发射器 2.4 GHz Transmitter	数字校准的使用进一步改善了功率放大器的线性，从而在 802.11b 传输中达到+19.5 dBm 的平均发射功率，在 802.11n(MSC0)传输中达到+18 dBm 的平均发射功率，功能超强。 The function of digital calibration further improves the linearity of the power amplifier, enabling a state of art performance of delivering +19.5 dBm average TX power for 802.11b transmission and +18 dBm for 802.11n (MSC0) transmission.	数字校准的使用进一步地改善了功率放大器的线性，从而在 802.11b 传输中达到 19 dBm 的平均发射功率，在 802.11n (MSC0) 传输中达到 19 dBm 的平均发射功率，功能超强。 The function of digital calibration further improves the linearity of the power amplifier, enabling a state of art performance of delivering +19 dBm average TX power for 802.11b transmission and +19 dBm for 802.11n (MSC0) transmission.
3.4.1Wi-Fi 射频和基带 Wi-Fi Radio and Baseband	发射功率高达 20.5 dBm Up to 20.5 dBm of transmitting power	详细性能见后面章节具体数据 For detailed performance, see the specific data in the later section.

表 5-2 射频功耗 Table 5-2

变更前 Before Change

参数	最小值	典型值	最大值	单位
TX802.11b, CCK 11Mbps, P_{OUT}=+17 dBm	-	170	-	mA
TX 802.11g, OFDM 54 Mbps, P_{OUT} =+15 dBm	-	140	-	mA
TX 802.11n, MCS7, P_{OUT}=+13 dBm	-	120	-	mA
RX 802.11b，1024 Bytes 包长，–80 dBm	-	50	-	mA
RX 802.11g，1024 Bytes 包长，–70 dBm	-	56	-	mA
RX 802.11n，1024 Bytes 包长，–65 dBm	-	56	-	mA

变更后 After Change

参数	最小值	典型值	最大值	单位
TX 802.11b, CCK 11 Mbps, P_{OUT} = +19 dBm	-	197	-	mA
TX 802.11g, OFDM 54Mbps, P_{OUT}= +15 dBm	-	147	-	mA
TX 802.11n, MCS7, P_{OUT}=+13 dBm	-	142	-	mA
Rx 802.11b，1024 字节包长，–80 dBm	-	73	-	mA
Rx 802.11g，1024 字节包长，–70 dBm	-	72	-	mA
Rx 802.11n，1024 字节包长，–65 dBm	-	72	-	mA

表 5-3 Wi-Fi 射频特征 Table 5-3

变更前 Before Change

参数	最小值	典型值	最大值	单位
输入频率	2412	-	2484	MHz
输出阻抗	-	39+j6	-	Ω
72.2 Mbps 下，PA 的输出功耗	15.5	16.5	17.5	dBm
11b 模式下，PA 的输出功耗	19.5	20.5	21.5	dBm
灵敏度				
DSSS，1 Mbps	-	–98	-	dBm
CCK, 11Mbps	-	–91	-	dBm
6 Mbps (1/2 BPSK)	-	–93	-	dBm
54 Mbps (3/4 64-QAM)	-	–75	-	dBm
HT20, MCS7 (65 Mbps, 72.2 Mbps)	-	–72	-	dBm
邻道抑制				
OFDM, 6 Mbps	-	37	-	dB
OFDM, 54 Mbps	-	21	-	dB
HT20, MCS0	-	37	-	dB
HT20, MCS7	-	20	-	dB

变更后 After Change

参数	最小值	典型值	最大值	单位
输入频率	2412	-	2483.5	MHz
72.2 Mbps 下，PA 的输出功耗	13	14	15	dBm
11b 模式下，PA 的输出功耗	18	19	20	dBm
灵敏度				
DSSS，1 Mbps	-	–97	-	dBm
CCK, 11Mbps	-	–87	-	dBm
6 Mbps (1/2 BPSK)	-	–91	-	dBm
54 Mbps (3/4 64-QAM)	-	–74	-	dBm
HT20, MCS7 (65 Mbps, 72.2 Mbps)	-	–70	-	dBm
邻道抑制				
OFDM, 6 Mbps	-	31	-	dB
OFDM, 54 Mbps	-	14	-	dB
HT20, MCS0	-	31	-	dB
HT20, MCS7	-	13	-	dB

变更影响/Impact of Change:

最高工作温度由 125 ℃降低到 105 ℃，将无法继续支持 105 ℃以上的工作环境，对于有该温度需求的客户有影响。建议受影响的客户反馈意见至 pcn@espressif.com，由 Espressif 提供后续解决方案。

The maximum operating temperature has been reduced from 125 ℃ to 105 ℃, and the chip will not be able to continue to support the operating environment above 105 ℃, which will have an impact on customers with this temperature demand. It is recommended that affected customers contact pcn@espressif.com and Espressif. And Espressif will provide a follow-up solution.

变更识别方式/ Change Identification Method:

1. 通过芯片本体丝印可区分变更前后的产品，具体见“变更对比”。
   The products before and after the change can be distinguished by chip body marking, see "Before and After the Change".
2. 通过芯片内部 eFuse 标识位可区分变更前后的产品，方式如下：
   The product before and after the change can be distinguished by the eFuse identification bit inside the chip, as follows:

Product	Max Operating Temperature	Flash	eFuse bit	Value
ESP8285N08	85℃	1M Byte	EFUSE_DATA_OUT0[4]	1
			EFUSE_DATA_OUT0[5]	0
			EFUSE_DATA_OUT3[27:26]	00
ESP8285H08	105℃	1M Byte	EFUSE_DATA_OUT0[4]	1
			EFUSE_DATA_OUT0[5]	1
			EFUSE_DATA_OUT3[27:26]	00
ESP8285H16	105℃	2M Byte	EFUSE_DATA_OUT0[4]	1

				EFUSE_DATA_OUT0[5]	1
				EFUSE_DATA_OUT3[27:26]	01

变更前后产品处理/:How to Deal with Products:

建议客户根据应用环境调整所购买产品。

Customers are advised to adjust the purchased products according to the product application environment.

相关报告/Report(s) Attached:

☑Related ECN No.: ECN-04-20190605

邮件订阅

Espressif Email Notifications

乐鑫为注册用户提供电子邮件通知服务，用户可通过乐鑫订阅系统接收技术文档更新、新闻通讯、PCN 等邮件通知。

Espressif sends email notifications of technical documentation changes, along with newsletters, PCNs and other valuable information, to subscribed customers only. If you wish to stay updated on our products and services, please subscribe here.

客户响应要求

Customer Response Requirements

客户须按照如下要求给予 Espressif PCN 反馈：

Customers are required to respond to Espressif, according to the following guidelines, and confirm receipt of the PCN:

主要变更/For Major Changes：

a) 客户须在乐鑫发出 PCN 后的 30 天内告知已收到 PCN。
Customers should confirm receipt of the PCN within 30 calendar days from the date Espressif sends it to them.

b) 如客户未在接收到 PCN 后的 30 天内告知已收到，则视为客户接受变更。
If customers do not confirm receipt of the PCN within 30 calendar days, they will be regarded as having accepted the proposed changes.

c) 客户告知确认收到 PCN 后，如未在 90 天内反馈其他要求，则视为客户接受变更。
After the customers confirm receipt of the PCN, the lack of any additional responses on their part within 90 calendar days constitutes acceptance of the proposed changes.

轻微变更/For Minor Changes：

a) 如客户未在接收到 PCN 后的 7 天内告知已收到，则视为客户接受变更。
If customers do not confirm receipt of the PCN within 7 calendar days, they will be regarded as having accepted the proposed changes.

请反馈至 pcn@espressif.com。

Please send feedback to pcn@espressif.com.

客户批准/确认信息 **Customer Approval/Acknowledgement and Remarks**			
客户公司全称： Customer's Company Name:			
PCN 评审结果/PCN Review Result：	☐批准/Approval ☐不批准/Disapproval ☐需要分析/Further Analysis Required		
客户意见/Comment:			
公司代表人姓名 Representative's Name:		公司代表人职责 Representative's Job Title:	
公司代表人签名 Representative's Signature:		日期 Date:	