Optoplex Corporation	Document Title: **General PCBA Incoming Inspection** 文件标题： **PCBA 的进料检验**	Document No.文件编号: **WI-ISP-025-S** Revision.版本: **03**
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01	03/22/10	3739	Jeff Chen	Initial Release
02	12/10/10	4202	Ben Peng	Updated / Add ed 1)ESD requirements 2) Cosmetics-C3(The color of PCB) 3)Added E5(Connector orientation) 4)IC Soldering-F4 (IC must be right model) 5)Added F5(IC starting number)
03	02/25/13	5215	Ben Peng	Added in C.4: For 401-200-008/009 PCBA Surface Cosmetic Criteria, refer to “WI-ISP-029 PCBA Surface cosmetic criteria”

1. Purpose 目的

The purpose of this document is to provide the general PCBA incoming inspection instruction. It should comply with IPC-A-610D and Optoplex special requirements.

这份文件的目的是，提供一般性 PCBA 的进料检验作业说明。他适用于 IPC-A-610D 和公司的特殊要求。

2. Scope 范围

Apply to all PCBA products including flex PCBA received from PCBA contract manufacturer. The complete inspection includes visual inspection and function test with equipments/devices/machines. The inspection specified in this document only includes visual inspection.

适用于所有的 PCBA 产品，包括从 PCBA 合同制造商接受的软 PCBA。完整的检验包括，外观检验和功能测试

3. Authorities and Responsibilities 权责

QA PCBA IQC leader	Performs PCBA IQC report survey and ensure the environment and the disciplines are maintained.
QA PCBA IQC 班长	执行 PCBA IQC 报告确认，维护检验环境和纪律
PCBA Inspector	Performs daily PCBA inspection and fill up the IQC report.
PCBA 检验员	执行每日 PCBA 检验，并填写 IQC 报告
PCBA IQC Coordinator	Department Manager/Supervisors associated with the PCBA quality should ensure the routine maintenance of this procedure.
PCBA IQC 协调员	与 PCBA 质量有关系的部门经理/主管应该保证该文件的日常维护。

4. ESD Requirement 静电要求

All inspection should be implemented on an ESD safe workstation within ESD safe area. The ESD grade is Class 2-HBM.

Inspector should be effectively grounding by personal grounding devices.

所有的检验活动应在 ESD 工作台上进行。ESD 等级是等级 2-HBM。检验员应佩戴静电手环。

5. Equipments and Tools request 设备与治工具要求

Microscope(40X) with light, Multimeter, Caliper, Fluorescent Lights with magnifier

带灯40倍显微镜、万用表、卡尺、带灯放大镜

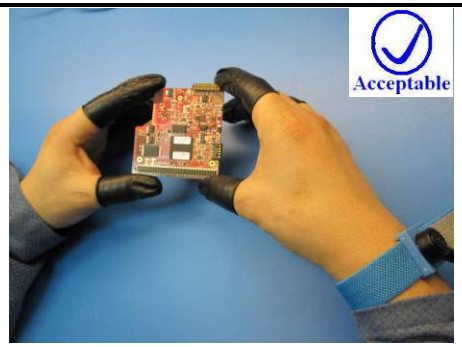


Figure 1: Visual inspection with wrist strap and ESD Fingercots
图1：佩戴静电手环，戴ESD手指套，目视检验

Figure 2: Using 40X microscope to check the soldering status
图2：使用40倍显微镜检验焊接品质

6. Reference Documents and Forms 参考文件与表格

IPC-A-610D	Acceptability of Electronic Assemblies
WI-GEN-004	Optoplex ESD Control Procedure
WI-INT-070	Optoplex Electronic Component Soldering Quality Standard
Form Q066	IQC Lot Inspection Report—PCBA
401-200-008-IQC	IQC Check List and drawing —401-200-008
401-200-001-IQC	IQC Check List and drawing —401-200-001
401-200-003-IQC	IQC Check List and drawing —401-200-003

7. PCBA IQA work flow PCBA IQC 工作流程

1) Follow this work instruction to inspect the PCBA Lot received.
依据此份作业指导书来检验PCBA.
2) Check the PCBA according to the check list of IQC report; refer to the Check Items and Criteria in this work instruction.
根据此作业指导书中的检验项目和判定标准来检验PCBA.
3) Refer to the drawing to locate the check points.
根据图纸来定位检验点。
4) Record the IQC report after inspection.
检验后记录IQC报告上。
5) Finish IQC Lot Inspection Report.
完成IQC批次检验报告。

8. Check Items and Criteria 检验项目与判定标准

A: Label 标签

A.1 Correct label format and content, i.e. part number, revision number and serial number

正确的标签格式与内容，比如PN、版本和SN.

Correct location

正确的位置

Content is readable by manually and the barcode is readable by barcode scanner.

标签上内容是可辨认的，　　并且barcode扫描仪是可读的。

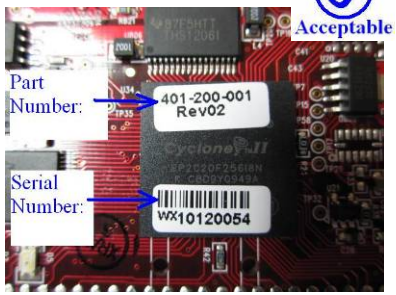


Figure A1-1. Correct label sample

图1 A1-1　正确的标签样品

Figure A1-2: Tilt of label exceeds 15 degrees is not acceptable

图A1-2　标签倾斜超过15度是不可接受的

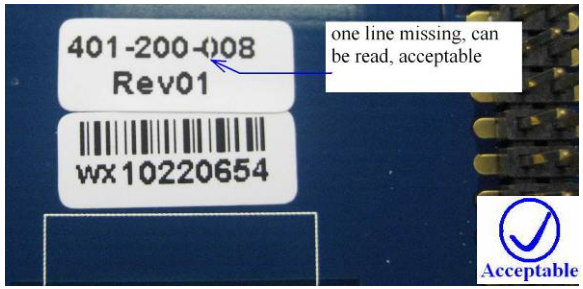


Figure A1-3: Number readable

. 图A1-3：标签上数字可辨认

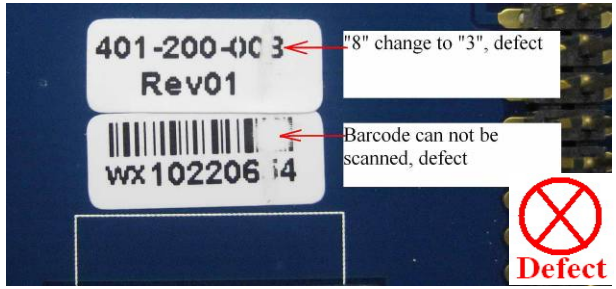


Figure A1-4: "8" change to "3", barcode error

图A1-4：　"8"变成"3"，barcode错误

A.2. PCB Batch Number should be correct and reasonable.PCB的批次号应是正确和可读的

Figure A2-1: Acceptable batch number

图 A2-1：正确的批次号

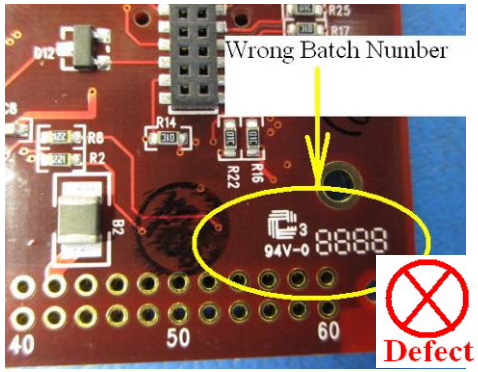


Figure A2-2: Wrong/unreasonable batch number

图 A2-2：错误/不可读的批次号

B: Mechanical 机械方面

Check the mechanical dimension (Length, Width and Thickness) of PCB by using caliper. The tolerance is ± 0.1mm.

用卡尺检验PCB的机械尺寸（长度、宽度和厚度），公差为± 0.1mm。

Refer to the Mechanical drawings in IQC Check List and drawing

根据IQC检验清单和图纸进行检验。

C: Cosmetics外观

C.1 PCB should be in flat condition and no deformation or bumper found.

PCB 板应是平的，没有变形货这凸起。

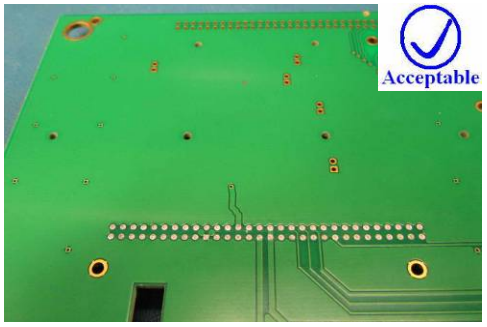


Figure C1-1: No blistering on PCB

图 C1-1：PCB 没有起泡

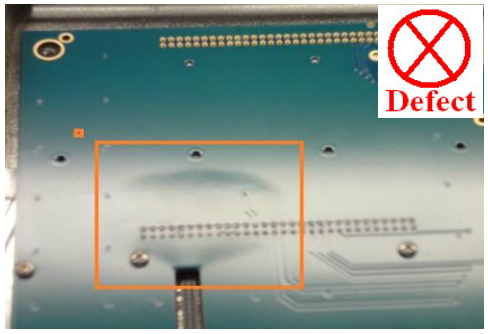
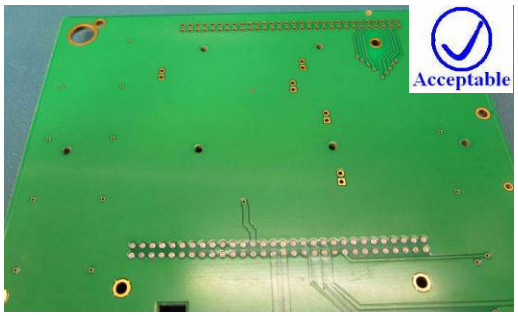


Figure C1-2 :　Blistering

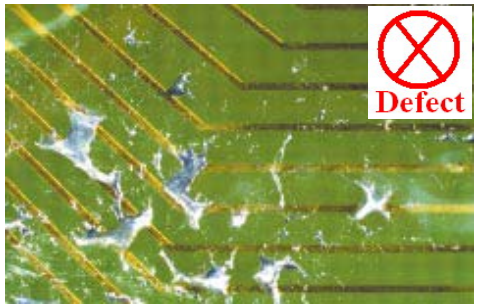
图 C1-2：起泡

C.2 PCBA shall have no contaminations on surface.

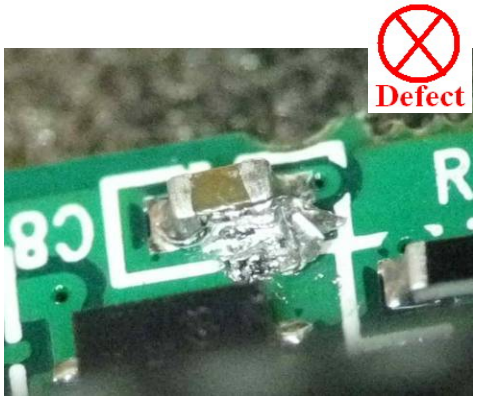
PCB 板的表面应没有脏污。



Figures C2-1: No contaminations 没有脏污



Defect Figures C2-2: Solder webbing 焊锡残留



Defect Figures C2-3: Soldering contaminations 焊锡残留

C.3 Check the color of PCBA, use the Color standard sample to check the color difference, it should not have big color difference under Fluorescent Task Lights in Office.

检验 PCBA 的颜色，使用颜色标准样板去检验颜色差异，在日光灯下检验，应没有很大的颜色差异。

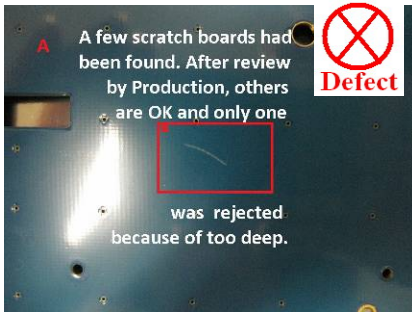
Figures C3-1: Signed Color sample 颜色样板

Defect Figure C3-2: Obviously different color is not acceptable 明显的颜色差异是不可接受

C.4 Check the scratch on PCB, the scratch line can not be too deep(0.1mm), and one scratch line can not be longer than 30mm, one PCB should not have more than 2 scratch lines.

检验 PCB 的划伤，划痕不能太深（0.1mm），一条划痕长度不能长于 30mm，一个 PCB 上划痕不能超过 2 条

Figures C4-1: one small scratch line 一条小划痕



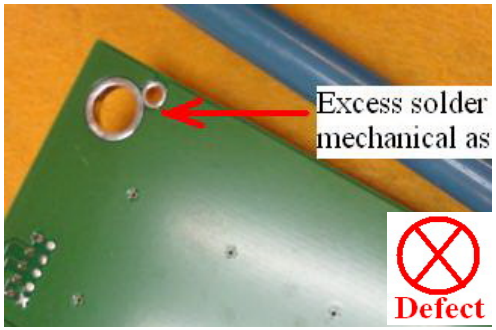
Defect Figure C4-2: Scratch line is too deep 划痕太深

For 401-200-008/009 PCBA Surface Cosmetic Criteria, refer to "WI-ISP-029 PCBA Surface cosmetic criteria"

Acceptable

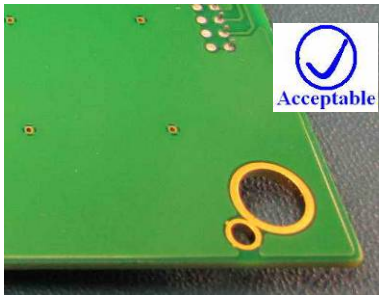
C.5 Check Mounting holes, no excess solder allowed, no rust allowed.检验安装孔，没有多余的焊锡，没有生锈

Figures C5-1: No Solder on mounting hole
图C5-1：没有多余的焊锡在固定孔

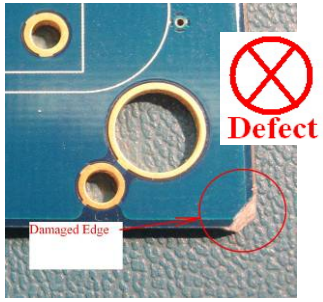


Defect Figures C5-2: Excess solder on mounting hole
图C5-2：过多的焊锡在固定孔

C.6 PCB can not be physically damaged on edge, sides, etc. The damaged edge can not be more than 2mm in each dimension.
PCB 的边缘不能有损伤。每边边缘的损伤不能超过 2mm。



Figures C6-1: No damaged edge 边缘无损伤

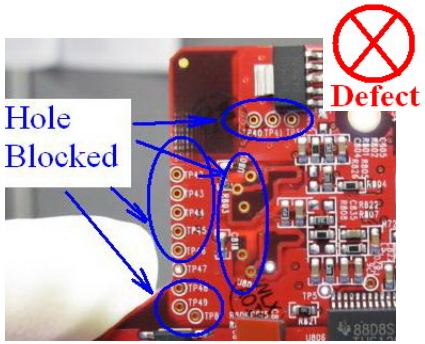


Defect Figures C6-2: Damaged Edge 有损伤的边缘

D: Through hole 通孔

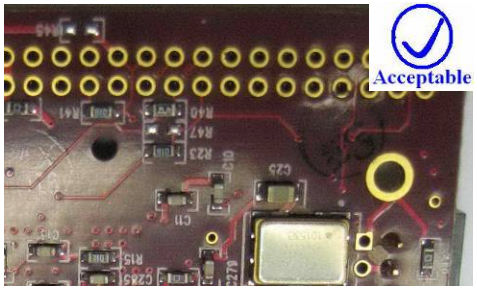
D.1 Handle PCBA with the light on the backside to check the through holes of the PCBA, through holes can not be blocked
将 PCBA 的背面对着光检查 PCBA 的通孔，通孔不能被堵住。

Figure D1-1: the Fluorescent Task Lights on the backside.
PCBA 背对着荧光灯

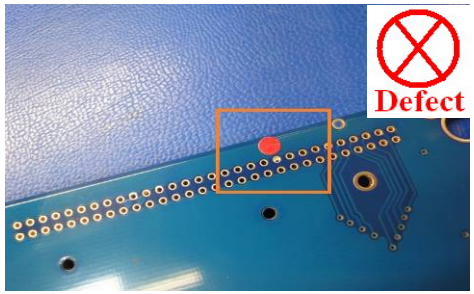


Defect Figure D1-2: Through Holes were blocked
通孔被堵住

D.2 Use the bare eyes to check the status of holes.目视检验孔的状态



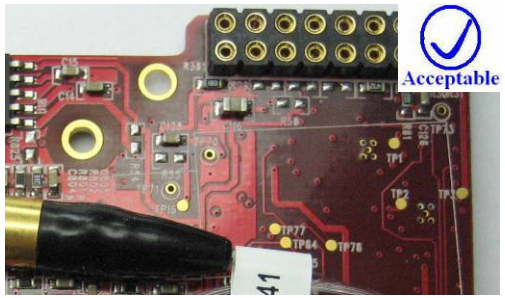
Figures D2-1:No blocked holes 孔未堵住



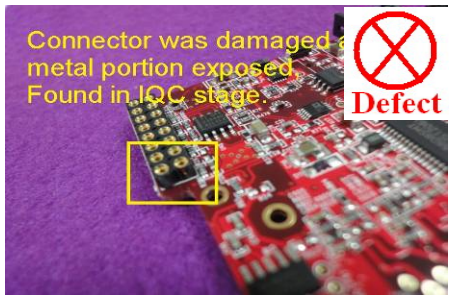
Defect Figure D2-2: Hole was blocked 孔被堵住

E: Connector 连接器

E.1 Check the Integrity of base in connectors. It is not allowed for the exposure of coppers on the main body (Plastics) of connectors.
检验连接器的品质。连接器的主体（塑料部分）有露铜是不可以接受的。



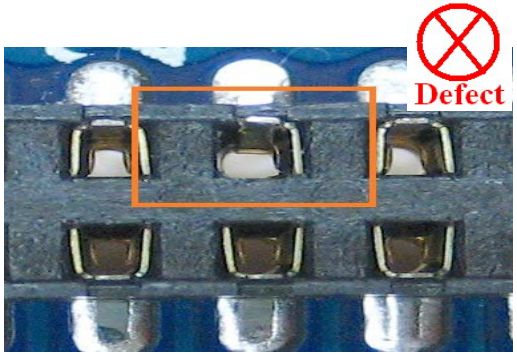
Figures E1-1:Acceptabel connector 可接受的连接器



Defect Figure E1-2: exposure of coppers on connector 连接器露铜

E.2 Check there is no drop or deformation on the metal (Copper) core inside the holes.
检验连接器孔内的铜片没有变形或脱落。

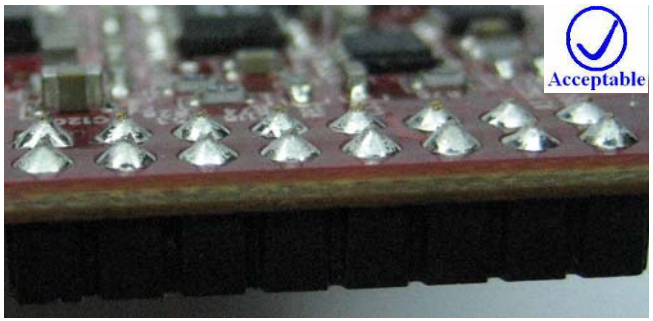
Figures E2-1: Accepted Connector 可接受的连接器



Defect Figure E2-2: Deformation on the metal connector piece 孔内铜片变形

E.3 Check lead length over the board, the lead length shall be less than 1.5 mm.

检验PCBA板上焊点的长度，不可<1.5mm.



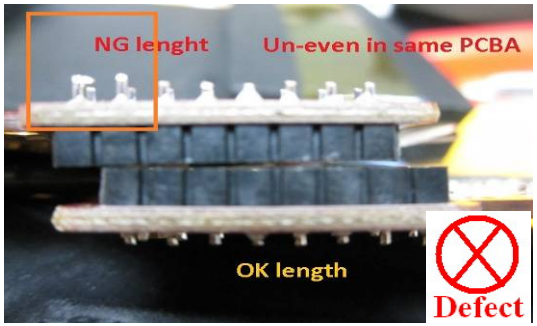
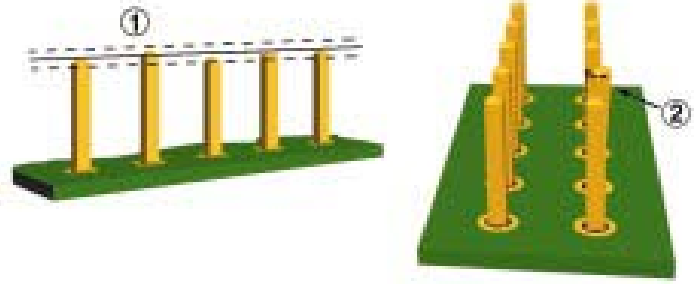


Figure E3-1: J8 lead length is acceptable J8 焊点长度可接受　*Defect Figure E3-2: The lead length is not acceptable 焊点长度不可接受*

E.4 Pins are straight, pin height varies within tolerance of +/- 0.1mm, acceptable pins are slightly bent off center by 50% pin thickness or less.

Pins应是笔直的，pin的高度差应在+/- 0.1mm以内。Pin的弯曲程度不能超过pin厚度的一半

Defect



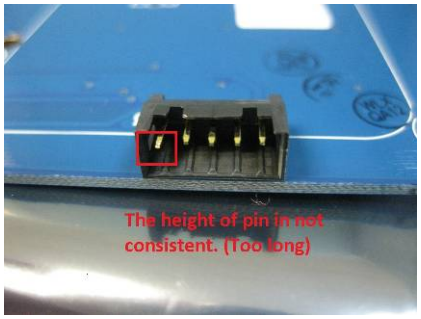
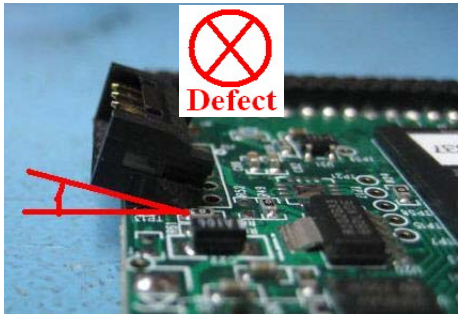


Figure E4-1:1)Pin height tolerance pin高度差 2)Less than 50% pin thickness弯曲少于厚度的一半Defect Figure E4-2: One Pin was bent pin弯曲

E.5 Check the orientation, position of the connectors.检验连接器的方向与位置

Figure E5-1: Acceptable connector J12 J12 可接受连接器



Defect Figure E5-2: Non-Acceptable connector 不可接受的连接器

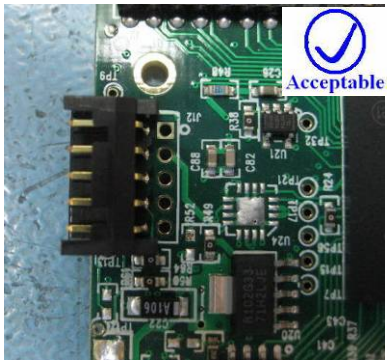
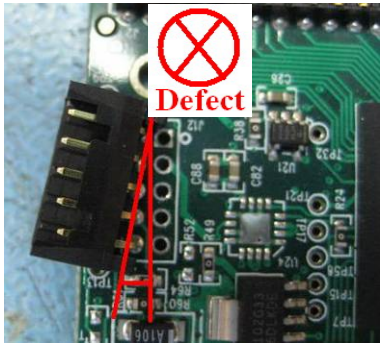


Figure E5-3: Acceptable connector J12 J12 可接受连接器



Defect Figure E5-4: Non-Acceptable connector 不可接受的连接器

E.6 Check if open solder in SMT connector 检验连接器的焊点

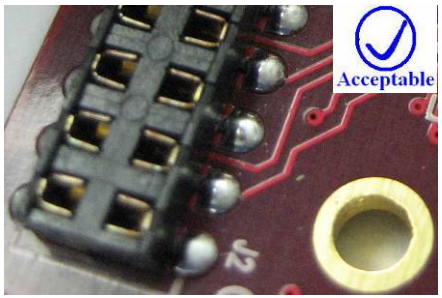
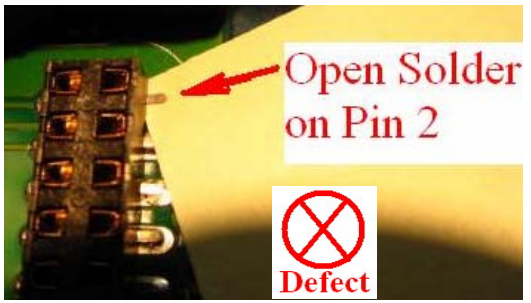


Figure E6-1: J2 soldering is acceptable 焊点可接受



Defect Figure E6-2: Open solder in Pin2 pin2 未焊上

F: IC soldering IC 的焊接

F.1 For every lead of IC soldering, wetted fillet along full length of lead IC的每个焊脚，应充满光亮的焊锡。

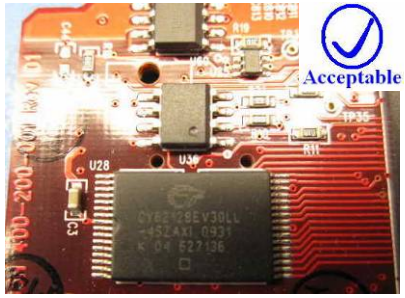
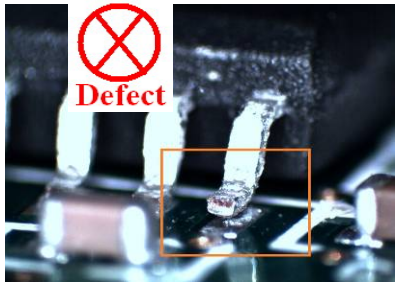


Figure F1-1:Acceptable IC soldering　可接受的IC焊接



Defect Figure F1-2: Lead out of alignment　焊脚无焊锡

F.2 For every lead of IC soldering, should have no short soldering and no solder balls between the leads. IC的Pin之间应无短路，应无残留的锡球等。

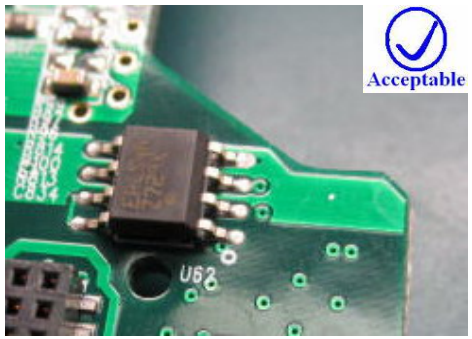
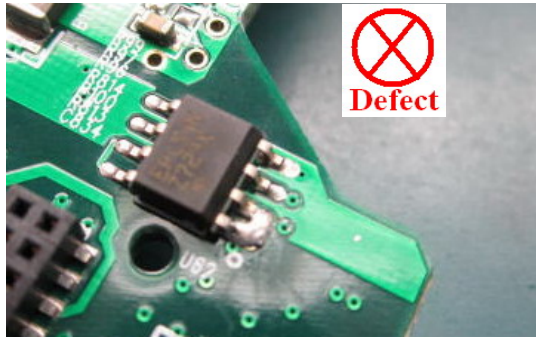


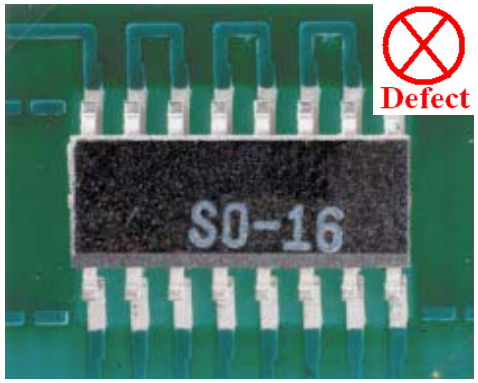
Figure F2-1: Acceptable soldering　可接受的焊接



Defect Figure F2-2: Short soldering between IC leads IC 两 pin 脚间短路

Defect Figure F2-3: Solder balls violate minimum electrical clearance Pin 脚间有锡球

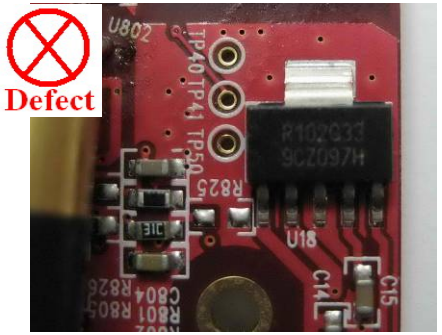
F.3 Check side overhand should be less than 25% lead width or 0.5mm, whichever is less. PIN脚偏移应少于PAD宽度的25%或0.5mm。



Defect Figure F3-1: Side overhand is greater than 50%　Pin偏移超过PAD宽度的50%

F.4 IC must be right model/type and in right orientation. IC必须是正确的型号和正确的方向。

Figure F4-1: U18 use right chipR102G50正确的型号



Defect Figure F4-2: U18 use wrong chipR102G33.　使用错误的型号

F.5 IC must be soldered starting number near the notch or dot. IC的起始数字接近刻痕或锡点。

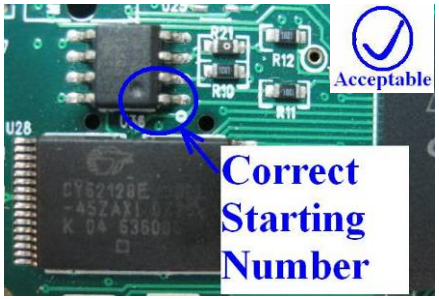
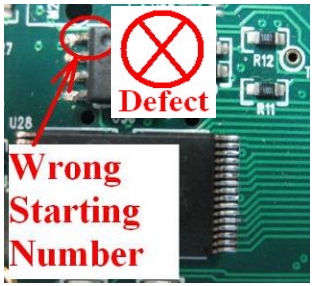


Figure F5-1: U18 use right chipR102G50 IC的放置方向正确



Defect Figure F5-2: U18 use wrong chipR102G33. IC的放置方向错误

G: Electric Components Soldering 电子元件的焊接

G.1 PCBA can not miss any components (refer to the BOM).PCB不能漏掉任何元件（参考BOM）

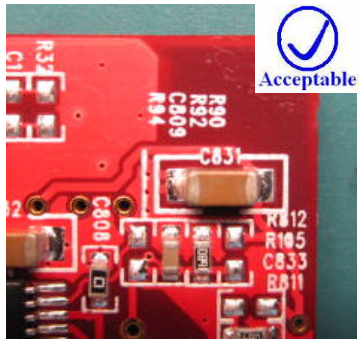


Figure G1-1: C831 is not missed

Defect Figure G1-2: Missing C831

G.2 Solder should be wetted to the land or termination where solder is required. 焊锡必须将元件与焊盘浸润连接。

Defect Figure G2-1: Solder has not wetted to the land / termination元件未与焊盘连接

G.3 End joint width(C) is minimum 50% of component termination width (W) or 50% land width (P), whichever is less.

元件焊接的焊点的宽度必须大于元件宽度的50%或焊盘宽度的50%。

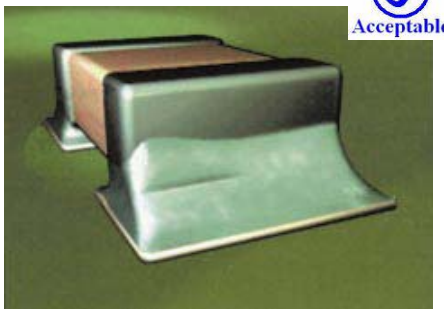
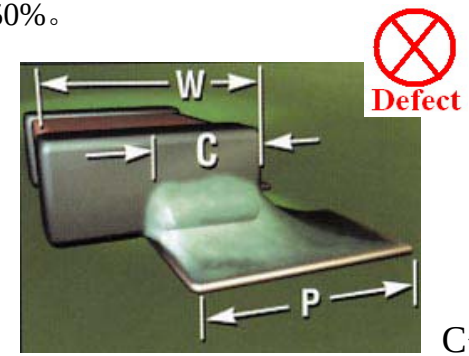


Figure G3-1: End joint width is equal to termination width



C<50%W

Defect Figure G3-2: W: Termination width, C: joint width, P: land width

图G3-1：焊点的宽度与焊盘宽度一致　　不良图G3-2：W是元件焊接处宽度，C是焊点宽度，P是焊盘宽度。

G.4 Electrical component with marking can not be mounted upside down.电子元件的标识不能正反颠倒。

Defect Figure G4-1: the lower component is mounted upside down 下面的一个元件放置反了

G.5 Electrical components can not have any nick, crack, chipout or stress fracture.　　电子元件不能有任何的刻痕，裂痕或破碎。

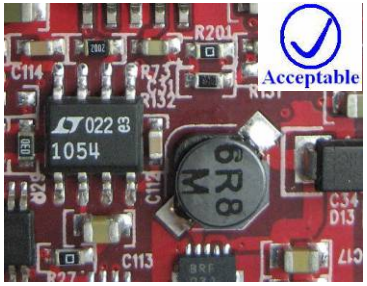
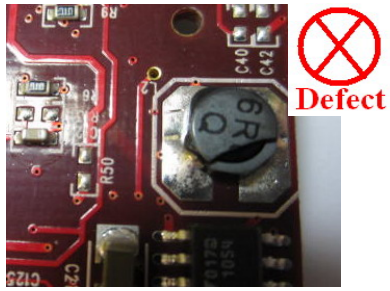
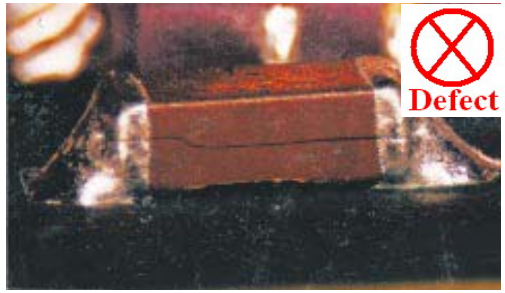


Figure G5-1:Non-damaged inductor.　破裂的元件



Defect Figure G5-2: Broken Inductor Cover　元件表面破裂



Defect Figure G5-3: Cracks, nicks裂痕