

SHENZHEN FITECH CO., LTD.

激光锡膏 FTD-351 系列—规格书

Solder Paste FTD-351 Series

FTD-351 系列 — FTD-3514、FTD-3515、 FTD-3516

技术部

Technical Department

Technical Data Sheet

锡膏（Solder Paste）FTD-351 系

一、简介 Introduction

FTD-351 系列锡膏采用球形度好，粒度均匀，氧含量低的 Sn64Bi35Ag1 焊粉及优良零卤激光助焊剂配制的优质锡膏，焊接前黏着力好，可满足激光焊接工艺，焊接效果好，无飞溅，为高可靠性微凸点窄间距封装的理想焊接材料。

FTD-351 series solder paste is a high-quality solder paste prepared by Sn64Bi35Ag1 ultrafine solder powder with good sphericity, uniform particle size, low oxygen content and excellent halogen-free flux. It has good adhesion before soldering, which can meet the laser welding process and has good soldering effect. Spatter-free. It is an ideal soldering material for high reliability micro-bump and narrow-pitch packaging.

二、产品特性及优势：Features and Advantages

1. FTD-351 型号适用于激光快速焊接，无飞溅。
FTD-351 Suitable for laser fast welding, no spatter.
2. 触变性好，粘度合适，可采用喷印、针转移、点胶、印刷等方式。
Good thixotropy, Appropriate viscosity, can be used to spray print, transfer, point glue needle, printing, etc.
3. 化学活性好，爬锡效果优。
Good chemical activity, good wetting.
4. 符合 RoHS、无卤环保规范要求。
Meet the requirements of RoHS and halogen-free environmental standards

三、技术特性：Technical feature

1. 未焊接熔化特性：Before reflow

产品性能 Feature	指标 Result	备注 Note
外观 Appearance	浅灰色 Light gray	膏状 Paste
金属填料类型 Alloy	Sn64Bi35Ag1	
金属填料粒径 Powder size	FTD-3514 T4 20-38 μ m FTD-3515 T5 15-25 μ m FTD-3516 T6 5-15 μ m	类型 Description
金属填料熔点 Alloy melting point	151-172 $^{\circ}$ C	
金属填料比例 Powder content	点胶型 Dispensing 85 \pm 2%	可进行调整 Adjustable
比重 Solder density	4.0 ~ 5.0	比重瓶
粘度 Viscosity	点胶型 Dispensing 40~60 Pa.s	可按客户要求进行调整 Malcolm (10rpm)
触变指数 Ti	0.5 \pm 0.2	Lg(3rpm/30rpm)
卤素含量 Halogen Cl+Br	< 1500ppm	
保质期 Shelf life	T4/T5 6 month@ 0~10 $^{\circ}$ C T6 4 month@ 0~10 $^{\circ}$ C	密封 Sealed storage

2. 固化后特性: After curing

性能 Feature	指标 Result	备注 Note
导热系数 Thermal conductivity	37 J/M.S.K	
导电率 Electrical conductivity	4.6% of IACS	
抗拉强度 Tensile strength	53Mpa	
铜板腐蚀性 Copper corrosion test	合格 Pass	
锡球测试 Solder ball test	合格 Pass	
润湿测试 Wetting test	合格 Pass	

四、焊接固化工艺: Soldering & curing process

1. 激光快速焊接 Laser fast jointing

a. 预热区: 温度 100 $^{\circ}$ C, 功率 30%, 时间: 0.8s. Preheating zone: temperature 100 $^{\circ}$ C, power 30%, time: 0.8s.

b. 焊接区: 温度 190 $^{\circ}$ C, 最小功率 20%, 最大功率 80%, 时间: 1s. Welding zone: temperature 190 $^{\circ}$ C, min power 20%, max power 80%, time: 1s.

c.退火区: 温度 80℃, 最小功率 20%, 最大功率 30%, 时间: 0.3s。Cooling zone: temperature 80℃, min power 20%, max power 30%, time: 0.3s.

2. 备注 Note

- ★ 上述温度参数是指焊点处的实际温度, 根据不同器件以及焊点大小, 具体工艺参数不同, 需要调整。
The above temperature curve refers to the actual temperature of the solder joint, which need to be adjusted according to different devices and solder joint sizes, and the specific process parameters are different.

- ★ 上述温度曲线仅供参考, 可作为使用者寻找在不同制程应用之最佳曲线的基础。实际温度设定需结合产品性质、支架大小、芯片分布状况及特点、设备工艺条件等因素综合考虑, 事前不妨多做试验, 以确保曲线的最佳化。
The temperature curve are for reference only. It can be used as the user to find the basis of the optimal curve of different process application. Actual temperature setting should be combined with the product properties, stent size, chip distribution, characteristics, equipment and process condition factors. Sample tests should be done in advance to ensure the curve is optimized.

五、包装储存 Package and storage

1. 包装 Package

- ☞ 印刷型: 500g/罐, 可按客户要求进行包装, 宽口型塑胶 (PE) 瓶包装, 并盖上内盖密封封装, 送货时可用泡沫箱盛装。

Printing: 500g/bottle, wide-mouth plastic (PE) bottle, sealed with inner lid and packaged in foam box.

- 点胶型: EFD 针筒 10g/5cc、10g/10cc、20g/10cc 包装, 可按客户要求进行包装, 运输时采用冰袋、泡沫箱+纸箱包装。

Dispensing: The dispensing syringes are packed in 10g/5cc, 10g/10cc, 20g/10cc according to customer's requirements. They are packed in ice bags, foam boxes and cartons during transportation.

2. 运输储存 Transport storage

- 运输条件: 冰袋冷藏运输Transport: Ice pack refrigerated transportation.

- 储存条件: 收到后应尽快将其放进冰箱储存, 建议储存温度为0~10℃。温度过高会相应缩短其使用寿命, 影响其特性。

Storage: It should be stored in the refrigerator as soon as possible after receipt. The recommended storage temperature is 0~10 ℃. If the temperature is too high, it will shorten its service life and affect its characteristics.

- 有效期限: 在0~10℃正常密封储存条件下, 有效期为4~6个月。

Self life: 4~6 months under normal sealed storage conditions of 0~10 °C.

➤ 工作时间: 建议回温后24小时内使用完毕。

Work time: Used within 24 hours after returning to temperature.

六、使用方法: Instructions

✓ 回温方式: 不开启盖子的前提下, 于室温中自然回温; 回温次数不超过两次;

Recovery method: don't open the bottle cap until the solder is close to room temperature, No more than two times of temperature return;

✓ 回温时间: 室温下回温2~3小时。达到热均衡所需要的实际时间因容器大小而异。

Recovery time : Generally, paste should be removed from refrigeration 2~3 hours before use. Actual time to reach thermal equilibrium will vary with container size.

✓ 注 意: 未经充足“回温”, 不要打开瓶盖, 不可用加热的方式缩短“回温”时间;

Note: without enough "recovery", DO NOT open the bottle caps. DO NOT try to heat the paste to lower recovery time.

✓ 使用环境: 锡膏最佳使用环境温度为20~25°C, 相对湿度40~60%RH。建议在氮气保护环境下进行回流焊。

Using environment: The best temperature for using the solder paste is 20 to 25 °C, relative humidity 40~60% RH. Suggestions reflow soldering under nitrogen protection.

✓ 清洗说明: 回流后, 焊盘周围存在少量残留物, 应尽快用去离子水进行清洗, 去离子水温度在25~60°C之间。

Cleaning instructions: After reflow flux residues remain on the circuit and need to be washed. Hot deionized water at a minimum temperature of 25°C~ 60°C as soon after reflow as possible.

七、健康与安全方面应注意事项 Health and safety considerations

注意! Note!

以下资料仅提供给使用者作参考, 用户在使用前应了解清楚。详细内容请查阅本品物料安全数据表(MSDS)。

The following information is provided for users' reference only. Users should know clearly before using it. For details, please refer to the material safety data sheet (MSDS) of this product.

本产品不含受管制的特定化学物质, 也不含有机溶剂中毒预防规则中所规制的有机溶剂, 但仍需作必要的防范措施, 以确保人体健康及安全。

This product does not contain specific chemical substances that are regulated, nor does it contain organic solvents that are regulated in the Organic Solvent Toxicity Prevention Regulations. However, necessary precautions must be taken to ensure human health and safety. For products containing lead, the operation should be carried out in accordance with the Labor Safety and Health Act and lead poisoning prevention rules.

- i. 锡膏是一种化学产品，混合了多种化学成份，应切记避免近距离嗅闻其气味，更不可食用。

Solder paste is a chemical product that is mixed with a variety of chemical ingredients. should remember to avoid close smell of its smell, not to be edible.

- ii. 在焊接固化过程中，锡膏中的焊剂产生的部分烟雾会对人体的呼吸系统产生刺激，长时间或一再暴露在其废气中可能会产生不适，因此应确保作业现场通风良好，焊接设备必须安装充足的排气装置，将废气排走。

In the welding process, part of the smoke generated by the flux in the solder paste will stimulate the respiratory system of the human body, which may cause discomfort if exposed to the exhaust gas for a long time or repeatedly. Therefore, it is necessary to ensure good ventilation in the operation site.

- iii. 应有必要的防范措施避免锡膏接触皮肤和眼睛。若不慎接触到皮肤，则应立即用沾有酒精的布将该处擦干净，再用肥皂和清水彻底清洗干净。若不慎让锡胶接触眼睛，则需立即用清水冲洗 10 分钟以上，并尽快送医院医治。

Necessary precautions should be taken to prevent the paste from touching the skin and eyes. In case of contact with the skin inadvertently, the place should be immediately cleaned with an alcoholic cloth, and then thoroughly cleaned with soap and water. If the tin paste contact the eyes carelessly, it shall be immediately washed with water for more than 10 minutes and sent to the hospital as soon as possible.

- iv. 作业过程中不允许饮食、抽烟，作业后须先用肥皂或温水洗手后才能进食。

No eating or smoking is allowed in the course of homework. After homework, you must wash your hands with soap or warm water before eating.

- v. 虽然本品之溶剂系统闪点较高，但仍然易燃，应避免接近火源。若不慎着火，可用二氧化碳或化学干粉、泡沫灭火器进行灭火，不可用水灭火。

Although the solvent system of this product has a very high flash point, it is still flammable and should be avoided. If you accidentally catch fire, use carbon dioxide or chemical dry powder fire extinguisher to extinguish the fire. Do not use water to extinguish the fire.

- vi. 废弃的锡膏和清理后沾有锡膏污渍的清洁布不能随意掉弃，应将其装入封密容器中，并按国家和地方的相关法规处置。

The waste solder paste and the cleaning cloth with solder paste stains after cleaning shall not be discarded at will. It shall be put into a sealed container and disposed of in accordance with relevant national and local regulations.