



東莞嵩隆電子有限公司

Song Long Electronics (Dong Guan) Co., Ltd

Title: Control Plan of Radial parts - Song Long (Silver disc operation)

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| Part name : Varistor                          |                       |  |   |   | Product Engineering Designated, |   |  |                               |  | Document No. : STQ-502-02          |  |               |
|---|-----------------------|--|---|---|---------------------------------|---|--|-------------------------------|--|------------------------------------|--|---------------|
| Part type : All black disc series 5~20mm dia. |                       |  |   |   | Designated, Yes <u>No</u>       |   |  |                               |  | First Issue Date : 2005 / 09 / 01  |  |               |
| Plant : Song Long                             |                       |  |   |   | Control item ( * )              |   |  |                               |  | Revision Date :                    |  |               |
| End Item and Customer : All Customer          |                       |  |   |   | Producer : Song Long            |   |  |                               |  | Last drawing / specification date: |  |               |
| Process flow                                  |                       | Machine device<br>jig tools for<br>manufacturing | Characteristics                           |   | Special<br>class<br>/ SPCC#     | Methods   |  |                               |  | Reference<br>Document              | Out or Control Reaction<br>Plan  | Resp.         |
| No.   | Process<br>Name       |  | Process<br>parameters                     | Product<br>Characteristi<br>cs                            |                                 | Product /<br>Process specs                                | Evaluation<br>method   | Sample size<br>/<br>Frequency | Control<br>Method /<br>format #  |                                    |  |               |
| 1   | Material<br>Input     |  |   |   |                                 |   |  |                               |  |                                    |  |               |
| 2   | Powder<br>formulation | Balance  | Additive<br>Weight,<br>Material           | All electrical<br>properties                              | *                               | Powder<br>formulation Spec.<br>Powder<br>formulation list | Total Weight<br>confirm  | Every lot                     | Format #<br>Powder<br>formulation list                                       | Spec #<br>STP-709-72               | 1.Stop operation and<br>quarantine affected<br>products then notice<br>engineer and lead.<br>2.Scrap.<br>3.Ref # STQ-807   | Engg.<br>Mfg. |
| 3   | Ball Mill             | Ball Mill<br>Equipment                           | RPM.Timing.                               | PH value<br>Slurry<br>Emplastic.                          |                                 | Ball Mill Spec.   | Timer.<br>Viscosimeter.<br>PH meter  | Every Lot                     | Format #<br>STP-709-00-12<br>STP-709-74-01<br>STP-709-74-02<br>STP-709-74-03 | Spec #<br>STP-709-73<br>STP-709-74 | 1.Stop operation and<br>notice engineer Inspector<br>and lead.<br>2.According to engineer<br>and QA confirm Rework or<br>scrap.  | Mfg.          |
|   |                       |  |   |   |                                 | IPQC Spec.  | Timer.   | Every Lot                     | Format #<br>STQ-805-00-01  | Spec #<br>STQ-805-01               | 3.Ref # STQ-807  | IPQC.         |
| 4   | Spray<br>drying       | Spray Dryer                                      | RPM, Inlet and<br>Outlet<br>temp.Pressure | Flowability,<br>Humidity, Tap<br>density                  | *                               | Spray Drying<br>Spec.                                     | Speed Meter.<br>Temperature<br>Controler. Hull<br>meter, Humidity<br>meter | Every Lot                     | Format #<br>STP-709-00-12<br>STP-709-75-01<br>STP-709-75-02                  | Spec #<br>STP-709-75               | 1.Stop operation and<br>quarantine affected<br>products then notice<br>engineer and leader.<br>2.M/C check and adjusted.<br>3.Quarantine affected<br>products control by<br>engineer, scrap or<br>engineering treatment. | Mfg.          |
|   |                       |  |   |   |                                 | IPQC Spec.  | Visual   | Every 3<br>Hours              | Format #<br>STQ-805-00-01  | Spec #<br>STQ-805-01               | 4.Ref # STQ-807  | IPQC.         |
| 5   | Powder<br>Inspection  | Disc Press<br>Equipment                          | Thickness.<br>Weight. Density             | Vunit, Surge<br>current, Vb,<br>Alpha, IL,△<br>V,Clamping |                                 | Powder<br>Preprocess Spec.                                | Preprocess   | Each Lot<br>(powder )         | Format #<br>STP-709-81-01  | Spec #<br>STP-709-81               | 1.Stop operation and<br>quarantine affected<br>products.<br>2.Rework.<br>3.Ref # STQ-807   | Engg.         |



|    |                      |                                |  |                       |   |  |                                    |  |   |                                    |   |                           |
|----|----------------------|--------------------------------|--|-----------------------|---|--|------------------------------------|--|---|------------------------------------|---|---------------------------|
| 6  | Powder storage       | Balance                        | Weight, Lot No.  |                       |   | Product Protect Procedural   | Label                              | Every lot                                | Format #<br>STF-714-00-07   | Spec #<br>STF-714                  | N/A   | Mfg.<br>Warehouse<br>-man |
| 7  | Disc Press           | Disc Press Equipment           | Thickness.<br>Weight.<br>Density. RPM                                      | Vunit, Surge Curent   | * | Disc Press Spec.   | Visual. Caliper.<br>Timer. Balance | Every Lot and every 50 min<br>SS = 16pcs | Format #<br>STP-709-00-12<br>STP-709-76-01<br>STP-709-76-02<br>STP-709-76-03<br>STP-709-76-04 | Spec #<br>STP-709-76               | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.NRB or scrap.<br>4.Ref # STQ-807.        | Mfg.                      |
|    |                      |                                |  |                       |   | IPQC Spec.   |                                    | Every 3 Hours                            | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.                     |
| 8  | De-bindering         | De-binder Oven                 | Temp. Timing   | Binder burned off     |   | De-Binding Spec  | Temp. Record                       | Continuous                               | Format #<br>STP-709-00-12<br>STP-709-77-01  | Spec #<br>STP-709-77               | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework or scrap.<br>4.Ref # STQ-807.     | Mfg.                      |
| 9  | Disc load            | Mannually by fixtures          | Load type of discs per Sagger .<br>Partition powder type. Partition board. | Alpha, IL, $\Delta V$ |   | Disc Load Spec.  | Visual                             | Every Lot                                | Format #<br>STP-709-00-12<br>STP-709-78-01  | Spec #<br>STP-709-78               | 1.Stop operation and quarantine affected products.<br>2.Check partition powder type<br>3.Rework or scrap.<br>4.Ref # STQ-807  | Mfg.                      |
|    |                      |                                |  |                       |   | IPQC Spec.   | Visual                             | Every 3 Hours                            | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.                     |
| 10 | Sintering            | Sintering Furnace              | Slab Speed .<br>Temp. Sagger<br>Arrange type                               | Vunit.<br>Dimension   | * | Sintering Spec.  | Visual, Caliper,                   | Continuous                               | Format #<br>STP-709-00-12<br>STP-709-79-01<br>STP-709-79-02                                   | Spec #<br>STP-709-79               | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.NRB, rework or scrap.<br>4.Ref # STQ-807 | Mfg.                      |
|    |                      |                                |  |                       |   | IPQC Spec.   |                                    |  | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   |                           |
| 11 | Black disc Vibration | Black disc vibration equipment | Q'ty, Timing, Frequency  | Black Disc Lap over   |   | Sintering Spec.<br>Disc Vibvation<br>And Bend<br>Thinkness Sorting<br>Spec | Visual                             | Every Lot                                | Format #<br>STP-709-00-12<br>STP-709-80-01  | Spec #<br>STP-709-80<br>STP-709-79 | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework or scrap.<br>4.Ref # STQ-807      | Mfg.                      |



|    |                       |   |  |                                      |   |   |                                |                            |  |                              |  |                     |
|----|-----------------------|---|--|--------------------------------------|---|---|--------------------------------|----------------------------|--|------------------------------|--|---------------------|
| 12 | Black disc Inspection | TTK Tester. Surge Generator             | Vn, DV, Vclamp leakage & surge test.       | Samples within specs and Surge Grade |   | IPQC Spec. IQC Spec.                    | Sampling, Visual               | Every Lot SS =100pcs       | Format # STQ-708-00-06 STQ-708-00-11 STQ-708-00-12 STQ-805-00-04 | Spec # STQ-805-01            | 1.Quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807                    | IPQC.               |
| 13 | Black disc storage    | Balance                                 | P/N, Q'ty. Lot No.                         |                                      |   | Product Protect Procedural              | Label                          | Every lot                  | Format # STF-714-00-07   | Spec # STF-714               | N/A  | Mfg. Warehouse      |
| 14 | Silver Print & Drying | Silver Print Equipment & Drying Furnace | Ag weight. Drying Temp. Timing             | Clamping, Surge Current              | * | Silver Print Spec. Silver Drying Spec.  | Visual. Temperature Controller | Every Lot                  | Format # STP-709-00-06 STP-709-02-01                             | Spec # STP-709-02 STP-709-66 | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807 | Mfg.                |
|    |                       |   |  |                                      |   | IPQC Spec.                              |                                | Every 3 Hours              | Format # STQ-805-00-01   | Spec # STQ-805-01            | 4.Re-inspection<br>5.Ref # STQ-807   | IPQC                |
| 15 | Silver disc firing    | Firing oven                             | Firing Temp. Cling Strength.               | Vb, Alpha, IL, ΔV. Surge             | * | Silver Firing Spec.                     | Temperature Controller         | Every Lot                  | Format # STP-709-00-06 STP-709-02-01                             | Spec # STP-709-68            | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807 | Mfg.                |
|    |                       |   |  |                                      |   | IPQC Spec.                              |                                | Every 3 Hours              | Format # STQ-805-00-01 STQ-805-02-01                             | Spec # STQ-805-01            | 4.Re-inspection<br>5.Ref # STQ-807   | IPQC                |
| 16 | Disc sorting          | Disc sorting equipment / TTK Tester     | Electrical Specs. RPM. Stylet              | Sort to required electrical specs    | * | Electrical Characteristic Sorting Spec. | 100% Sorting                   | 100% Sorting               | Format # STP-709-00-06 STP-709-03-01                             | Spec # STP-709-03            | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Ref # STQ-807                    | Mfg.                |
|    |                       |   |  |                                      |   | IPQC Spec.                              | Sampling                       | Visual. Check List         | Format # STQ-805-00-01 STQ-708-00-08                             | Spec # STQ-805-01            | 4.Re-inspection<br>5.Ref # STQ-807   | IPQC                |
| 17 | OQC                   | TTK Tester                              | Vb, Alpha, ΔV, IL, Clamping, Surge Current | Discs within electrical specs        |   | IPQC Spec. IQC Spec.                    | Sampling                       | Every Lot SS = II AQL 0.4% | format # STQ-708-00-12   | Spec # STQ-805-01            | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807 | IPQC                |
| 18 | Silver Disc Storage   | Balance                                 | Part No. Q'ty, Lot No.                     |                                      |   | Product Protect Procedural.             | Label                          | Every Lot.                 | Format # STQ-708-00-12 STQ-708-00-11 STQ-708-00-06 STQ-805-00-04 | Spec # STF-714               | N/A  | Mfg. Warehouse -man |



東莞嵩隆電子有限公司

Song Long Electronics (Dong Guan) Co., Ltd

Title: 銀片品保工程圖

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| 產品：Varistor(壓敏電阻) |       |        |                  | 工程指定產品  |      |                        |                                  | 文件編號：STQ-502-02     |   |                                    |   |               |
|-------------------|-------|--------|------------------|---|------|------------------------|----------------------------------|---------------------|---|------------------------------------|---|---------------|
| 產品型號：5~20mm 銀素片.  |       |        |                  | Yes No  |      |                        |                                  | 發行日期：2005 / 09 / 01 |   |                                    |   |               |
| 製造廠：東莞嵩隆電子有限公司    |       |        |                  | 控制項目 (*)  |      |                        |                                  | 改版日期：               |   |                                    |   |               |
| 客戶：所有客戶           |       |        |                  | 製造者：嵩隆  |      |                        |                                  | 最新圖紙及規範日期：          |   |                                    |   |               |
| 流程                |       | 設備/治工具 | 特性               |   | 特性等級 | 管理方法                   |                                  |                     |   | 指導書                                | 緊急處置  | 責任者           |
| No.               | 製程    |        | 參數               | 產品特性  |      | 標準                     | 方法                               | 檢驗頻率                | 管理表單  |                                    |   |               |
| 1                 | 原物料投入 |        |                  |   |      |                        |                                  |                     |   |                                    |   |               |
| 2                 | 配粉    | 電子秤    | 重量,原料            | 所有電性特性  | *    | 配粉作業標準書<br>依配方單        | 總重確認                             | 每批                  | Format #<br>Powder<br>formulation list  | Spec #<br>STP-709-72               | 1.立即停止作業並進行隔離。<br>2.報廢。<br>3.參考文件 STQ-807   | Engg.<br>Mfg. |
| 3                 | 球磨    | 球磨機    | 轉速,時間            | PH值,黏度  |      | 球磨作業標準書<br>PVA 溶解作業標準書 | 計時器,<br>黏度計,<br>PH計              | 每批                  | Format #<br>STP-709-00-12<br>STP-709-73-01<br>STP-709-74-01<br>STP-709-74-02<br>STP-709-74-03 | Spec #<br>STP-709-73<br>STP-709-74 | 1.立即停止作業並通知主管及工程品保人員。<br>2.經工程及品保人員確認後重工或報廢。<br>3.參考文件STQ-807                         | Mfg.          |
|                   |       |        |                  |   |      | QC製程檢驗規範               | 秒表,                              | 1次/批                | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.         |
| 4                 | 造粒    | 造粒機    | Disk轉速,出入風溫度, 壓力 | 流動性, 含水率, 鬆裝密度                                  | *    | 噴霧造粒作業標準書              | 轉速表,<br>溫控器, 水份天平,<br>Hull meter | 每批                  | Format #<br>STP-709-00-12<br>STP-709-75-01<br>STP-709-75-02                                   | Spec #<br>STP-709-75               | 1.立即停止作業並將異常品隔離, 通知工程人員及主管。<br>2.檢查及調整設備。<br>3.異常品由工程管控, 進行報廢或工程處置。<br>4.參考文件 STQ-807 | Mfg. Engg.    |
|                   |       |        |                  |   |      | QC製程檢驗規範               | 目視                               | 1次/3H               | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.         |
| 5                 | 先行試作  | 成型機    | 厚度,重量, 密度,       | 單位電壓,<br>雷擊, Vb,<br>Alpha, IL, Δ<br>V, Clamping |      | 先行試做工作指導書              | 試作                               | 1次/批(造粒粉)           | Format #<br>STP-709-81-01   | Spec #<br>STP-709-81               | 1.停止作業並將不良粉末進行隔離。<br>2.重新試做。<br>3.參考文件 STQ-807  | Engg.         |



|    |      |     |                            |                |   |                        |                  |               |   |                                    |   |                      |
|----|------|-----|----------------------------|----------------|---|------------------------|------------------|---------------|---|------------------------------------|---|----------------------|
| 6  | 粉末入庫 | 電子秤 | 重量、批號                      |                |   | 產品防護控制程序               | 標籤               | 每批            | Format #<br>STF-714-00-07   | Spec #<br>STF-714                  | N/A   | Mfg.<br>Warehouseman |
| 7  | 成型   | 成型機 | 厚度,重量, 密度, 轉速              | Vb, 雷擊         | * | 成型作業標準書                | 目視, 秒表, 百分表, 電子秤 | 每批, 每50分16pcs | Format #<br>STP-709-00-12<br>STP-709-76-01<br>STP-709-76-02<br>STP-709-76-03<br>STP-709-76-04 | Spec #<br>STP-709-76               | 1.停止作業並將異常品隔離。<br>2.檢查及調整設備。<br>3.特采或報廢。<br>4.參考文件 STQ-807    | Mfg.                 |
|    |      |     |                            |                |   | QC製程檢驗規範               |                  | 1次/3H         | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.                |
| 8  | 排膠   | 排膠爐 | 溫度,時間                      | IL, 燒結品質       |   | 箱型排膠作業標準書              | 爐溫記錄器            | 24小時          | Format #<br>STP-709-00-12<br>STP-709-77-01  | Spec #<br>STP-709-77               | 1.停止作業並將異常品隔離。<br>2.檢查及調整設備。<br>3.重工或報廢。<br>4.參考文件 STQ-807    | Mfg.                 |
| 9  | 排片   | 搖盤  | 排片方式, 數量, 敷粉種類, 匣鉢種類, 隔板種類 | Alpha, IL, Δ V |   | 排片作業標準書                | 目視               | 1次/批          | Format #<br>STP-709-00-12<br>STP-709-78-01  | Spec #<br>STP-709-78               | 1.停止作業並將異常品隔離。<br>2.檢查使用敷粉型號。<br>3.重工或報廢。<br>4.參考文件 STQ-807   | Mfg.                 |
|    |      |     |                            |                |   | QC製程檢驗規範               | 目視               | 1次/3H         | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.                |
| 10 | 燒結   | 燒結爐 | 溫度,擺放方式,推板速度               | 基本電性特性         | * | 燒結作業標準書                | 目視, 測溫環, 秒表      | 每批, 1次/每週     | Format #<br>STP-709-00-12<br>STP-709-79-01<br>STP-709-79-02                                   | Spec #<br>STP-709-79               | 1.停止作業並將異常品隔離。<br>2.檢查及調整設備。<br>3.特采、重工或報廢。<br>4.參考文件 STQ-807 | Mfg.                 |
|    |      |     |                            |                |   | QC製程檢驗規範               |                  | 1次/3H         | Format #<br>STQ-805-00-01   | Spec #<br>STQ-805-01               |   | IPQC.                |
| 11 | 震片   | 震片機 | 數量, 時間, 頻率                 | 黏片             |   | 燒結作業標準書<br>彎曲厚薄分選作業標準書 | 目視               | 每批            | Format # :<br>STP-709-00-12<br>STP-709-80-01  | Spec #<br>STP-709-80<br>STP-709-79 | 1.停止作業並將異常品隔離。<br>2.檢查及調整設備。<br>3.重工或報廢。<br>4.參考文件 STQ-807    | Mfg.                 |



|    |                       |   |  |                                      |   |   |                                |                            |  |                              |  |                     |
|----|-----------------------|---|--|--------------------------------------|---|---|--------------------------------|----------------------------|--|------------------------------|--|---------------------|
| 12 | Black disc Inspection | TTK Tester. Surge Generator             | Vn, DV, Vclamp leakage & surge test.       | Samples within specs and Surge Grade |   | IPQC Spec. IQC Spec.                    | Sampling, Visual               | Every Lot SS =100pcs       | Format # STQ-708-00-06 STQ-708-00-11 STQ-708-00-12 STQ-805-00-04 | Spec # STQ-805-01            | 1.Quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807                    | IPQC.               |
| 13 | Black disc storage    | Balance                                 | P/N, Q'ty. Lot No.                         |                                      |   | Product Protect Procedural              | Label                          | Every lot                  | Format # STF-714-00-07   | Spec # STF-714               | N/A  | Mfg. Warehouse      |
| 14 | Silver Print & Drying | Silver Print Equipment & Drying Furnace | Ag weight. Drying Temp. Timing             | Clamping, Surge Current              | * | Silver Print Spec. Silver Drying Spec.  | Visual. Temperature Controller | Every Lot                  | Format # STP-709-00-06 STP-709-02-01                             | Spec # STP-709-02 STP-709-66 | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807 | Mfg.                |
|    |                       |   |  |                                      |   | IPQC Spec.                              |                                | Every 3 Hours              | Format # STQ-805-00-01   | Spec # STQ-805-01            | 4.Re-inspection<br>5.Ref # STQ-807   | IPQC                |
| 15 | Silver disc firing    | Firing oven                             | Firing Temp. Cling Strength.               | Vb, Alpha, IL, ΔV. Surge             | * | Silver Firing Spec.                     | Temperature Controller         | Every Lot                  | Format # STP-709-00-06 STP-709-02-01                             | Spec # STP-709-68            | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807 | Mfg.                |
|    |                       |   |  |                                      |   | IPQC Spec.                              |                                | Every 3 Hours              | Format # STQ-805-00-01 STQ-805-02-01                             | Spec # STQ-805-01            | 4.Re-inspection<br>5.Ref # STQ-807   | IPQC                |
| 16 | Disc sorting          | Disc sorting equipment / TTK Tester     | Electrical Specs. RPM. Stylet              | Sort to required electrical specs    | * | Electrical Characteristic Sorting Spec. | 100% Sorting                   | 100% Sorting               | Format # STP-709-00-06 STP-709-03-01                             | Spec # STP-709-03            | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Ref # STQ-807                    | Mfg.                |
|    |                       |   |  |                                      |   | IPQC Spec.                              | Sampling                       | Visual. Check List         | Format # STQ-805-00-01 STQ-708-00-08                             | Spec # STQ-805-01            | 4.Re-inspection<br>5.Ref # STQ-807   | IPQC                |
| 17 | OQC                   | TTK Tester                              | Vb, Alpha, ΔV, IL, Clamping, Surge Current | Discs within electrical specs        |   | IPQC Spec. IQC Spec.                    | Sampling                       | Every Lot SS = II AQL 0.4% | format # STQ-708-00-12   | Spec # STQ-805-01            | 1.Stop operation and quarantine affected products.<br>2.M/C check and adjusted.<br>3.Rework, NRB or scrap.<br>4.Re-inspection<br>5.Ref # STQ-807 | IPQC                |
| 18 | Silver Disc Storage   | Balance                                 | Part No. Q'ty, Lot No.                     |                                      |   | Product Protect Procedural.             | Label                          | Every Lot.                 | Format # STQ-708-00-12 STQ-708-00-11 STQ-708-00-06 STQ-805-00-04 | Spec # STF-714               | N/A  | Mfg. Warehouse -man |