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Mar 31<sup>st</sup>, 2023

**RE: LFPCN 41476- SIDACTor DO-214AC(SMA), DO-214AA(SMB) and DO-214AB(SMC) packages additional Epoxy Molding Compound approval**

To: Our Valued Customers,

Effective Jul 1<sup>st</sup>, 2023, Littelfuse will be adding a new epoxy molding compound (EMC) for our SIDACTor **DO-214AC(SMA)**, **DO-214AA(SMB)** and **DO-214AB(SMC)** packages. The addition of an extra EMC supplier will improve the robustness of our supply chain and enhance security of supply for our customers.

There will be no change to the datasheet specifications for the affected products. There will be no change to the form, fit, function, or reliability of the products.

All affected products have been fully qualified in accordance with established performance and reliability criteria. Please refer to the attached affected parts list and documentation for qualification result and change details. Samples and qualification data are available upon request.

**Form, fit, function changes: None**

**Part number changes: None**

**Effective date: Jul 1<sup>st</sup>, 2023**

**Replacement products: N/A**

**Last time buy: N/A**

This notification is for your information and acknowledgement. If you have any other questions or concerns, please contact your local sales team or product team below for further assistance.

We highly value your business and look forward to assisting you whenever possible.

Best Regards,

Cathy Wu  
Inside Product Specialist  
Hi-Rel TVS & SIDACTor  
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800 E. Northwest Highway Des Plaines, IL 60016

## Product/Process Change Notice (PCN)

**PCN# : 41476** Date : Mar 31<sup>st</sup>, 2023

**Product Identification:**

Adding a new epoxy molding compound (EMC) for our SIDACTor DO-214AC(SMA), DO-214AA(SMB) and DO-214AB(SMC) packages.

**Implementation Date for Change:**

Jul 1<sup>st</sup>, 2023

**Contact Information**

Name: Cathy Wu

Title: Inside Product Specialist

Phone # : +86 510 85277701 ext. 7673

Fax# : NA

E-mail : CWu4@Littelfuse.com

**Category of Change:**

- Assembly Process
- Data Sheet
- Technology
- Discontinuance/Obsolescence
- Equipment
- Manufacturing Site
- Raw Material
- Testing
- Fabrication Process
- Other: \_\_\_\_\_

**Description of Change:**

Littelfuse will be adding a new epoxy molding compound (EMC) for our SIDACTor **DO-214AC(SMA), DO-214AA(SMB) and DO-214AB(SMC)** packages.

**Important Dates:**

- Qualification Samples Available: sample available upon request  Last Time Buy:
- Final Qualification Data Available: Mar, 23th ,2023
- Date of Final Product Shipment:

**Method of Distinguishing Changed Product**

- Product Mark,
- Date Code, traceability data available upon request
- Other

**Demonstrated or Anticipated Impact on Form, Fit, Function or Reliability:**

N/A

**LF Qualification Plan/Results:**

Littelfuse Qualification Report is Available as attached and full detail data available upon request

**Customer Acknowledgement of Receipt:** Littelfuse requests you acknowledge receipt of this PCN. In your acknowledgement, you can grant approval or request additional information. Littelfuse will assume the change is acceptable if no acknowledgement is received within 30 days of this notice. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of the change.



# PCN Report

**Prepared By** : Kimi Xiong Product Engineer,  
 Hellen Yang Product Engineering Manager,  
**Date** : 3/23/2023  
**Device** : DO-214AA/AB/AC SIDACTor Package Product  
**Revision** : A

## 1.0 Objective:

The purpose of this project is to qualify EMC 2<sup>nd</sup> source of DO-214AA/AB/AC package for SIDACTor series  
 Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

## 2.0 Applicable Devices:

SIDACTor EMC 2<sup>nd</sup> source

### 2.1 Qualify samples:

| Part No.     | Package  | Wafer Lot No. | Assembly Lot No. |
|--------------|----------|---------------|------------------|
| P0080S1BLRP  | DO-214AC | 060TF2BP-01L  | 002KA14ZPEE      |
| P1800S1ALRP  |          | 060FN4B-28    | 002KA13ZPEE      |
| P0640S1BLRP  |          | 060FN4B-45L   | 002KA15ZPEE      |
| PLED18S      | DO-214AA | 070TL5C-07    | 002KA9ZPEE       |
| P0641CA2LRP  |          | 105D25CM-101  | 002KA12ZPEE      |
| P0220SALRP-A |          | 065TF2BPA-03  | 002KA18ZPEE      |
| P3100SALRP-A |          | 065FN4BPA-32  | 002KA20ZPEE      |
| P3100S3NLRP  | DO-214AB | 241FN5CP-11   | 002FA3ZPEE       |
| P3100S3NLRP  |          | 241FN5CP-11   | 002FA4ZPEE       |
| P3100S3NLRP  |          | 241FN5CP-11   | 002FA5ZPEE       |

### 2.2 Impacted PN

Please refer to attached Affected part number list.

## 3.0 Assembly, Process & Material Differences/Changes:

### 3.1 Assembly and Process Changes

There are no significant changes in the assembly and process method.

### EMC 2<sup>nd</sup> source

| Process | Package        | Series   | Before               |                  | After                      |                  |
|---------|----------------|----------|----------------------|------------------|----------------------------|------------------|
|         |                |          | Type                 | Supplier         | Type                       | Supplier         |
| Molding | DO-214AA/AB/AC | SIDACTor | EME-E110G<br>KLG100S | Sumikon<br>Hysol | EME-E110G VER A<br>KLG100S | Sumikon<br>Hysol |

## 4.0 Packing Method

There will be no changes in the packing method.



### 5.0 Physical Differences/Changes:

There is no change in mechanical specification or package outline dimension (POD).

### 6.0 Reliability Test Results Summary:

| Test Category                   | Description           | Sample P/N   | Package  | Sample Qty | Littelfuse test Ref#   | Contents/ Conditions  | Standard               | Result Summary            |
|---------------------------------|-----------------------|--------------|----------|------------|--|---|------------------------|---------------------------|
| Parametric                      | Electrical Parameters | P0080S1BLRP  | DO-214AC | 238        | 182153   | VBR, IR   |                        | 100% meet published spec. |
|                                 |                       | P1800S1ALRP  | DO-214AC | 238        | 183070   |   |                        |                           |
|                                 |                       | P0640S1BLRP  | DO-214AC | 238        | 183070   |   |                        |                           |
|                                 |                       | P3100SALRP-A | DO-214AA | 349        | 182151   |   |                        |                           |
|                                 |                       | P0220SALRP-A | DO-214AA | 349        | 183071   |   |                        |                           |
|                                 |                       | PLED18S      | DO-214AA | 278        | 183070   |   |                        |                           |
|                                 |                       | P0641CA2LRP  | DO-214AA | 238        | 183071   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 238        | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 238        | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 238        | 174392   |   |                        |                           |
| Reliability                     | Pre-condition         | P0080S1BLRP  | DO-214AC | 120        | 182153   | TC H3TRB, UHAST   | JESD22- A113           | 0 failures post test      |
|                                 |                       | P1800S1ALRP  | DO-214AC | 120        | 183070   |   |                        |                           |
|                                 |                       | P0640S1BLRP  | DO-214AC | 120        | 183070   |   |                        |                           |
|                                 |                       | P3100SALRP-A | DO-214AA | 231        | 182151   |   |                        |                           |
|                                 |                       | P0220SALRP-A | DO-214AA | 231        | 183071   |   |                        |                           |
|                                 |                       | PLED18S      | DO-214AA | 120        | 183070   |   |                        |                           |
|                                 |                       | P0641CA2LRP  | DO-214AA | 120        | 183071   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 120        | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 120        | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 120        | 174392   |   |                        |                           |
|                                 | DC Blocking (HTRB)    | P0080S1BLRP  | DO-214AC | 77         | 182153   | bias VR@125C, 1008h   | JESD22- A108           | 0 failures at 1008hours   |
|                                 |                       | P1800S1ALRP  | DO-214AC | 77         | 183070   |   |                        |                           |
|                                 |                       | P0640S1BLRP  | DO-214AC | 77         | 183070   |   |                        |                           |
|                                 |                       | P3100SALRP-A | DO-214AA | 77         | 182151   |   |                        |                           |
|                                 |                       | P0220SALRP-A | DO-214AA | 77         | 183071   |   |                        |                           |
|                                 |                       | PLED18S      | DO-214AA | 77         | 183070   |   |                        |                           |
|                                 |                       | P0641CA2LRP  | DO-214AA | 77         | 183071   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 77         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 77         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 77         | 174392   |   |                        |                           |
| Temp Cycle                      |                       | P3100SALRP-A | DO-214AA | 77         | 182151   | JESD22- A10168/500/1000 hours at Tj = 85C/85% RH with device reverse biased at 80% VDRM , not excess 100v | JESD22-A101            | 0 failures at 1008hours   |
|                                 |                       | P0220SALRP-A | DO-214AA | 77         | 183071   |   |                        |                           |
|                                 |                       | P0080S1BLRP  | DO-214AC | 40         | 182153   |   |                        |                           |
|                                 |                       | P1800S1ALRP  | DO-214AC | 40         | 183070   |   |                        |                           |
|                                 |                       | P0640S1BLRP  | DO-214AC | 40         | 183070   |   |                        |                           |
|                                 |                       | PLED18S      | DO-214AA | 40         | 183070   |   |                        |                           |
|                                 |                       | P0641CA2LRP  | DO-214AA | 40         | 183071   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P0080S1BLRP  | DO-214AC | 40         | 182153   | JESD22- A10168/500/1000 hours at Tj = 85C/85% RH with device reverse biased at 80% VDRM , not excess 52v  | JESD22-A101            | 0 failures at 1008hours   |
|                                 |                       | P1800S1ALRP  | DO-214AC | 40         | 183070   |   |                        |                           |
|                                 |                       | P0640S1BLRP  | DO-214AC | 40         | 183070   |   |                        |                           |
|                                 |                       | PLED18S      | DO-214AA | 40         | 183070   |   |                        |                           |
|                                 |                       | P0641CA2LRP  | DO-214AA | 40         | 183071   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P0080S1BLRP  | DO-214AC | 40         | 182153   | 1000cycles, -55°C & +150°C , dwell time 15mins  | JESD22-A104            | 0 failures at 1000cycles  |
|                                 |                       | P1800S1ALRP  | DO-214AC | 40         | 183070   |   |                        |                           |
|                                 |                       | P0640S1BLRP  | DO-214AC | 40         | 183070   |   |                        |                           |
|                                 |                       | P3100SALRP-A | DO-214AA | 77         | 182151   |   |                        |                           |
|                                 |                       | P0220SALRP-A | DO-214AA | 77         | 183071   |   |                        |                           |
|                                 |                       | PLED18S      | DO-214AA | 40         | 183070   |   |                        |                           |
|                                 |                       | P0641CA2LRP  | DO-214AA | 40         | 183071   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
|                                 |                       | P3100S3NLRP  | DO-214AB | 40         | 174392   |   |                        |                           |
| UHAST                           | P0080S1BLRP           | DO-214AC     | 40       | 182153     | TA=130C/85%RH 96H  | EIA/JESD22- A102B   | 0 failures at 96hours  |                           |
|                                 | P1800S1ALRP           | DO-214AC     | 40       | 183070     |  |   |                        |                           |
|                                 | P0640S1BLRP           | DO-214AC     | 40       | 183070     |  |   |                        |                           |
|                                 | P3100SALRP-A          | DO-214AA     | 77       | 182151     |  |   |                        |                           |
|                                 | P0220SALRP-A          | DO-214AA     | 77       | 183071     |  |   |                        |                           |
|                                 | PLED18S               | DO-214AA     | 40       | 183070     |  |   |                        |                           |
|                                 | P0641CA2LRP           | DO-214AA     | 40       | 183071     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 40       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 40       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 40       | 174392     |  |   |                        |                           |
| IOL                             | PLED18S               | DO-214AA     | 40       | 183070     | ΔTjP=100°C<br>Power on: 2/5 minutes<br>Power off: 2/5 minutes<br>Testing cycle: 15000 cycles | MIL-STD-750-1   | 0 failures at 504hours |                           |
|                                 | P0080S1BLRP           | DO-214AC     | 30       | 182153     |  |   |                        |                           |
|                                 | P1800S1ALRP           | DO-214AC     | 30       | 183070     |  |   |                        |                           |
|                                 | P0640S1BLRP           | DO-214AC     | 30       | 183070     |  |   |                        |                           |
|                                 | P3100SALRP-A          | DO-214AA     | 30       | 182151     |  |   |                        |                           |
|                                 | P0220SALRP-A          | DO-214AA     | 30       | 183071     |  |   |                        |                           |
|                                 | PLED18S               | DO-214AA     | 30       | 183070     |  |   |                        |                           |
|                                 | P0641CA2LRP           | DO-214AA     | 30       | 183071     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 30       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 30       | 174392     |  |   |                        |                           |
| Resistance to Solder Heat (RSH) | P0080S1BLRP           | DO-214AC     | 30       | 182153     | 260°C, 10 seconds  | JESD22- B106  | 0 failure after RSH    |                           |
|                                 | P1800S1ALRP           | DO-214AC     | 30       | 183070     |  |   |                        |                           |
|                                 | P0640S1BLRP           | DO-214AC     | 30       | 183070     |  |   |                        |                           |
|                                 | P3100SALRP-A          | DO-214AA     | 30       | 182151     |  |   |                        |                           |
|                                 | P0220SALRP-A          | DO-214AA     | 30       | 183071     |  |   |                        |                           |
|                                 | PLED18S               | DO-214AA     | 30       | 183070     |  |   |                        |                           |
|                                 | P0641CA2LRP           | DO-214AA     | 30       | 183071     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 30       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 30       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 30       | 174392     |  |   |                        |                           |
| MSL                             | P0080S1BLRP           | DO-214AC     | 11       | 182153     | MSL LEVEL1   | JESD-020D   | 0 failure after MSL    |                           |
|                                 | P1800S1ALRP           | DO-214AC     | 11       | 183070     |  |   |                        |                           |
|                                 | P0640S1BLRP           | DO-214AC     | 11       | 183070     |  |   |                        |                           |
|                                 | P3100SALRP-A          | DO-214AA     | 11       | 182151     |  |   |                        |                           |
|                                 | P0220SALRP-A          | DO-214AA     | 11       | 183071     |  |   |                        |                           |
|                                 | PLED18S               | DO-214AA     | 11       | 183070     |  |   |                        |                           |
|                                 | P0641CA2LRP           | DO-214AA     | 11       | 183071     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 11       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 11       | 174392     |  |   |                        |                           |
|                                 | P3100S3NLRP           | DO-214AB     | 11       | 174392     |  |   |                        |                           |



**MTBF Calculation**

Estimate of Failure Rate, MTBF, FITS for a Given Operation Temperature (See note)  
**EMC 2nd source -SMA(DO-214AC)**

| Temp °C | % FR/khrs   | MTBF (K) | FITS     |
|---------|-------------|----------|----------|
| 30      | 0.00000760  | 13163062 | 0.07597  |
| 55      | 0.000140319 | 712659.5 | 1.403195 |
| 85      | 0.002713363 | 36854.63 | 27.13363 |
| 100     | 0.0099802   | 10020    | 99.802   |
| 125     | 0.070331476 | 1421.839 | 703.3148 |

**EMC 2nd source -SMB(DO-214AA)**

| Temp °C | % FR/khrs   | MTBF (K) | FITS     |
|---------|-------------|----------|----------|
| 30      | 0.00000570  | 17550749 | 0.056978 |
| 55      | 0.00010524  | 950212.6 | 1.052396 |
| 85      | 0.002035022 | 49139.51 | 20.35022 |
| 100     | 0.0074851   | 13360    | 74.851   |
| 125     | 0.00000570  | 17550749 | 0.056978 |

**EMC 2nd source -SMC(DO-214AB)**

| Temp °C | % FR/khrs   | MTBF (K) | FITS     |
|---------|-------------|----------|----------|
| 30      | 0.00000760  | 13163062 | 0.07597  |
| 55      | 0.000140319 | 712659.5 | 1.403195 |
| 85      | 0.002713363 | 36854.63 | 27.13363 |
| 100     | 0.0099802   | 10020    | 99.802   |
| 125     | 0.070331476 | 1421.839 | 703.3148 |

Note: The **Mean-Time-Between-Failure** (MTBF) in hours and the percent failure rate per 1000 hours (%FR/khr) are computed at a 60% confidence level using the chi square method and the Arrhenius derating model for various junction operating temperatures. For the calculations, a value of 1 eV was used for the activation energy.

**7.0 Electrical Characteristic Summary:**

There is no change in electrical characteristics.



**8.0 Changed Part Identification:**

NA

**9.0 Recommendations & Conclusions:**

Based on the test results, it is determined that the EMC 2<sup>nd</sup> source is qualified and certified for production of Littelfuse DO-214AA DO-214AB DO-214AC SIDACTor Product Series.

**10.0 Approvals:**

**Hellen Yang**  
**Product Manager**  
**Littelfuse, Inc.**

| <b>SIDACtor EMC 2nd source</b> |
|--------------------------------|
| P0080S1ALRP                    |
| P0080S1BLRP                    |
| P833P0080S1BLRP                |
| P0220S1ALRP                    |
| P0220S1BLRP                    |
| P0300S1ALRP                    |
| P0300S1BLRP                    |
| P863P0300S1BLRP                |
| P0640S1ALRP                    |
| P0640S1BLRP                    |
| P1800S1ALRP                    |
| P1800S1BLRP                    |
| P2300S1ALRP                    |
| P2300S1BLRP                    |
| P2600S1ALRP                    |
| P2600S1BLRP                    |
| P3100S1ALRP                    |
| P3100S1BLRP                    |
| P3500S1ALRP                    |
| P3500S1BLRP                    |
| P869P0080S1CLRP                |
| P0080S3NLRP                    |
| P0300S3NLRP                    |
| P0640S3NLRP                    |
| P0720S3NLRP                    |
| P0900S3NLRP                    |
| P1100S3NLRP                    |
| P1300S3NLRP                    |
| P1500S3NLRP                    |
| P1900S3NLRP                    |
| P2300S3NLRP                    |
| P2600S3NLRP                    |
| P3100S3NLRP                    |
| P3500S3NLRP                    |
| P3800S3NLRP                    |
| P0640SALRP                     |
| P659P0640SARP                  |
| P712P0640SARP                  |
| P0641SALRP                     |
| P0720SALRP                     |
| P0721SALRP                     |
| P506P0721SALRP                 |
| P0900SALRP                     |
| P0901SALRP                     |
| P1100SALRP                     |
| P675P1100SARP                  |
| P688P1100SARP                  |
| P1101SALRP                     |
| P1200SALRP                     |

|                       |
|-----------------------|
| P811P1200SALRP        |
| P1300SALRP            |
| P697P1300SARP         |
| P1301SALRP            |
| P1500SALRP            |
| P1701SALRP            |
| P1800SALRP            |
| P779P1800SALRP        |
| P2000SALRP            |
| P776P2000SALRP        |
| P2100SALRP            |
| P2300SALRP            |
| P2500SALRP            |
| P2600SALRP            |
| P3100SALRP            |
| P651P3100SARP         |
| P707P3100SARP         |
| P3500SALRP            |
| P716P3500SARP         |
| P4500SBLHLP           |
| P887P4500SBLHLP       |
| PLED64S               |
| PLED70S               |
| PLED90S               |
| PLED110S              |
| PLED130S              |
| PLED150S              |
| PLED180S              |
| PLED230S              |
| PLED260S              |
| PLED310S              |
| PLED350S              |
| PLED380S              |
| P874PLED480S          |
| P880PLED480S          |
| P0640SBLRP            |
| P0640SBLRP-B          |
| P0720SBLRP            |
| P0900SBLRP            |
| <i>P858P0900SCLRP</i> |
| P1100SBLRP            |
| P1200SBLRP            |
| P1300SBLRP            |
| P1500SBLRP            |
| <i>P1500SBLRP-N</i>   |
| P1800SBLRP            |
| P2000SBLRP            |
| P2100SBLRP            |
| P2300SBLRP            |
| P686P2300SBRP         |



|                     |
|---------------------|
| P708P2300SBRP       |
| <i>P2300SBLRP-N</i> |
| P2500SBLRP          |
| P2600SBLRP          |
| P591P2600SBLRP      |
| P653P2600SBRP       |
| P831P2600SBLRP      |
| P3100SBLRP          |
| P486P3100SBRP       |
| P640P3100SBRP       |
| P654P3100SBRP       |
| P654P3100SBRPH      |
| P654P3100SBRPHF     |
| P809P3100SBLRP      |
| P842P3100SBLRP      |
| <i>P3100SBLRP-</i>  |
| P3100SBLRPH         |
| P3500SBLRP          |
| P496P3500SBLRP      |
| P655P3500SBRP       |
| P770P3500SBLRP      |
| P784P3500SBLRP      |
| 3T130BLC-CSMT       |
| 3T130BLC-CSMT7      |
| 3T150B-CSMT         |
| 3T150B-CSMT7        |
| 3T150BLC-CSMT       |
| 3T150BLC-CSMT7      |
| 3T180B-CSMT         |
| 3T180B-CSMT7        |
| 3T180BLC-CSMT       |
| 3T180BLC-CSMT7      |
| 3T230B-CSMT7        |
| 3T310B-CSMT7        |
| 3T350A-CSMT         |
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| PP0720SA-LF-T       |
| PP1100SA-LF-T       |
| PP1800SA-LF-T       |
| PP2300SA-LF-T       |
| PP2600SA-LF-T       |
| PP3500SA-LF-T       |
| PP0300SB-LF-T       |
| PP0640SB-LF-T       |
| PP0800SB-LF-T       |
| PP1100SB-LF-T       |
| PP2300SB-LF-T       |
| PP2600SB-LF-T       |
| PP3100SB-LF-T       |

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| PP3500SB-LF-T  |
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| 3T080ALC-CSMT  |
| 3T080ALC-CSMT7 |
| 3T110A-CSMT    |
| 3T110A-CSMT7   |
| 3T110ALC-CSMT  |
| 3T110ALC-CSMT7 |
| 3T130A-CSMT    |
| 3T130A-CSMT7   |
| 3T130ALC-CSMT  |
| 3T130ALC-CSMT7 |
| 3T150A-CSMT    |
| 3T150A-CSMT7   |
| 3T150ALC-CSMT  |
| 3T150ALC-CSMT7 |
| 3T180A-CSMT    |
| 3T180A-CSMT7   |
| 3T180ALC-CSMT  |
| 3T180ALC-CSMT7 |
| 3T230A-CSMT7   |
| 3T230ALC-CSMT  |
| 3T230ALC-CSMT7 |
| 3T260A-CSMT    |
| 3T260ALC-CSMT  |
| 3T260ALC-CSMT7 |
| 3T310A-CSMT    |
| 3T310A-CSMT7   |
| 3T310ALC-CSMT  |
| 3T310ALC-CSMT7 |
| 3T350A-CSMT7   |
| 3T400A-CSMT    |
| 3T400A-CSMT7   |
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| 3T072BLC-CSMT  |
| 3T072BLC-CSMT7 |
| 3T080BLC-CSMT  |
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| 3T110B-CSMT    |
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| 3T110BLC-CSMT  |
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| 3T130B-CSMT    |
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| P2600SCMCLRP        |
| P3100SCLRP          |
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| P3100SDLHLRP        |
| P3500SCLRP          |
| P794P3500SCLRP      |
| P681P3500SCRCP      |
| <i>P3500SCL-N</i>   |
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| P4500SCLRP          |
| P4500SCMCLRP        |
| <i>P4500SDLHLRP</i> |
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| P3100STLRP          |
| P3500STLRP          |
| P3100SCLRP-ER       |
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| SMTBJ070B           |
| SMTBJ100B           |
| SMTBJ200B           |
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| 3T110C-CSMT7        |
| 3T130C-CSMT         |
| 3T130C-CSMT7        |
| 3T150C-CSMT         |
| 3T150C-CSMT7        |
| 3T180C-CSMT         |

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| 3T260C-CSMT    |
| 3T310C-CSMT    |
| 3T310C-CSMT7   |
| 3T350C-CSMT    |
| 3T400C-4T7     |
| 3T400C-CSMT    |
| 3T400C-CSMT7   |
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| PP0800SC-LF-T  |
| PP1100SC-LF-T  |
| PP1500SC-LF-T  |
| PP1800SC-LF-T  |
| PP2300SC-LF-T  |
| PP2600SC-LF-T  |
| PP3100SC-LF-T  |
| PP3500SC-LF-T  |
| PP4500SD-LF-T  |
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| 3T072CLC-CSMT  |
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| 3T080CLC-CSMT  |
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| 3T110CLC-CSMT  |
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| 3T130CLC-CSMT  |
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| 3T150CLC-CSMT  |
| 3T150CLC-CSMT7 |
| 3T180C-CSMT7   |
| 3T180CLC-CSMT  |
| 3T180CLC-CSMT7 |
| 3T230CLC-CSMT  |
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| 3T260C-CSMT7   |
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| 3T310CLC-CSMT  |
| 3T310CLC-CSMT7 |
| 3T350C-CSMT7   |
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| 3T260BLC-CSMT                  |
| 3T260BLC-CSMT7                 |
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| P884P3500SDLRP                 |
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| P641P3100SCR                   |
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| P754BP3100SCLRP                |
| P754CP3100SCLRP                |
| P754DP3100SCLRP                |
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| 3T350B-CSMT                    |
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| 3T400B-CSMT                    |
| 3T400B-CSMT7                   |
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| <i>P0080SAMCLRP-</i>           |
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| P0300SALRP                     |
| P566P0300SALRP                 |
| P658P0300SARP                  |
| P695P0300SARP                  |
| P0300SAMCLRP                   |
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| P0181SALRP                     |
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| PLED9US                        |
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| PLED13S                        |

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| P857P0080SCLRP                 |
| P0080SBMCLRP                   |
| P0220SBLRP                     |
| P0220SBMCLRP                   |
| P0300SBLRP                     |
| P0300SBMCLRP                   |
| PP0300SB-LF-T                  |
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| P763AP0080SCLRP                |
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| P0080SCMCLRP-N                 |
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| <i>P0080SCLRP-N2</i>           |
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| P931WRP                        |
| P0300SCMCLRP                   |
| P691P0300SCMCRP                |
| <b><i>P0300SCMCLRP-HRB</i></b> |
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| <i>P0300SCLRP-N2</i>           |
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| P676P0640SCR                   |
| P764P0640SCLRP                 |
| P764AP0640SCLRP                |
| P832P0640SCLRP                 |
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| P0640SCMCLRP                   |
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| <i>P0640SCLRP-N2</i>           |
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| <i>P873P0640SCLRP</i>          |
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| P923WRP              |
| P1100SCMCLRP         |
| <i>P1101SCLRP-N</i>  |
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| <i>P1200SCLRP-N</i>  |
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| P753CP1500SCLRP      |
| P753DP1500SCLRP      |
| P926WRP              |
| P927WRP              |
| P465P1500SCR         |
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| <i>P1500SCLRP-N2</i> |
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| <i>P1500SCMCL-N</i>  |
| P1800SCLRP           |
| P677P1800SCR         |
| <i>P1800SCLRP-N</i>  |
| <i>P1800SCLRP-</i>   |
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| P925CRP              |
| P1500SDLRP           |
| P376P1500SCR         |
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| P927CRP              |

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| P3100SDLRP           |
| P3100SCHRP           |
| P765P3100SDLRP       |
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| P1301SCLRP           |
| P465P1500SCRCP       |
| P1701SCLRP           |
| P0641SDLRP           |
| P0721SDLRP           |
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| <i>P1701SDLRP</i>    |
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| P0902SALRP           |
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| P2602SALRP           |
| P3002SALRP           |
| P3502SALRP           |
| P4202SALRP           |
| P4802SALRP           |
| P6002SALRP           |
| <i>P6002SALRP-HM</i> |
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| P1500SALRP-A      |
| P1800SALRP-A      |

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| P2100SALRP-A               |
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| P2600SALRP-A               |
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| P0080SALRP-A               |
| P0220SALRP-A               |
| P0300SALRP-A               |
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| PLED6US-A                  |
| PLED9S-A                   |
| PLED9US-A                  |
| PLED13S-A                  |
| PLED13US-A                 |
| PLED18S-A                  |
| PLED18US-A                 |
| PLED35US-A                 |
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| P3100SCLRP841              |
| <i>P3100SCL-N</i>          |
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| <b><i>P3500SBLRP-S</i></b> |
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| P4500SBLRP                 |
| P839P4500SCLRP             |
| P844P4500SCLRP             |
| P4500SCLHLRP               |
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| SPH0004CRP                 |
| P3100SXLRP                 |
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| SMTBJ108A-006              |
| SMTBJ120A                  |
| SMTBJ162A-006              |
| SMTBJ170A                  |
| SMTBJ180A-006              |
| SMTBJ200A                  |
| SMTBJ216A-006              |
| SMTBJ240A                  |
| SMTBJ056A                  |
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| 3T064BLC-89T7              |
| 3T230A-86SMT               |
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| 3T230B-CSMT                |
| 3T260A-CSMT7               |
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| 3T260B-CSMT7               |
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| P760LRP                    |

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| A0709SCLRP |