



CARLO GAVAZZI SPACE SpA

# HERSCHEL DPU<sub>s</sub>/ICU

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DRD N°:

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Doc. N°:

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## REGISTRAZIONE DELLE MODIFICHE / CHANGE RECORD

| EDIZIONE<br>ISSUE | DATA<br>DATE | AUTORIZZAZIONE<br>CHANGE AUTHORITY | OGGETTO DELLA MODIFICA E SEZIONI AFFETTE<br>REASON FOR CHANGE AND AFFECTED SECTIONS |
|-------------------|--------------|------------------------------------|---|
| DRAFT             |              |                                    |   |
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## 1. SCOPE

The scope of this document is to define the components to be used in the HERSCHEL DPUs/ICU Project. This document is based on the HERSCHEL DPUs/ICU Project architecture defined for the Critical Design Review.



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## 2. APPLICABLE & REFERENCE DOCUMENTS

### 2.1 APPLICABLE DOCUMENTS

| AD | DOC. N.             | ISSUE | TITLE                                    |
|----|---------------------|-------|--|
| 1  | HERS-GEN-PL-CGS-002 | DRAFT | HERSCHEL DPUs/ICU Product Assurance Plan |
|    |                     |       |  |
|    |                     |       |  |
|    |                     |       |  |
|    |                     |       |  |

### 2.2 REFERENCE DOCUMENTS

| RD | DOC. N. | ISSUE | TITLE |
|----|---------|-------|-------|
|    |         |       |       |
|    |         |       |       |
|    |         |       |       |
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### 3. METHODOLOGY FOR THE COMPILATION OF THE PRESENT DCL

The methodology used in the compilation of the DCL respects the following fields of table:

|                   |  |
|-------------------|--|
| ID                | Sequentially line item number to identify the device type  |
| COMPONENT TYPE    | Description of the part function, generic part number and value, tolerance, max rating for passives  |
| FM COMPONENT P/N  | Specific Hi-Rel Part Number (MIL or DSCC or ESA, ecc.) indicated as would be stated in the relevant procurement specification (Partmarking)                                      |
| CASE              | Component package  |
| SPECIFICATION     | Detail Procurement Specification Number  |
| QPL/QML REFERENCE | Identification reference of qualification status of the parts (ESA or Nasa PPL or QML or QPL)  |
| QUALITY LEV.      | Qualification Level (Failure Rate Level for passive) indicates the screening level to which the part is bring procured   |
| MANUFACTURER      | Manufacturer of the device   |
| REMARKS           | User Specific comments (e.g.: Requested for approval number issued by the part user)   |
| UNIT/BOARD Q.TY   | User need quantity of identified part for Unit/Board ( see Legenda Nr.1 for unit acronyms, Legenda Nr.2 for board acronyms and para. 3.1, 3.2, 3.3 for Unit/Board configuration) |



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## Legenda Nr.1

| ACRONYM | UNIT NAME      |
|---------|----------------|
| HI      | HIFI ICU Unit  |
| SD      | SPIRE DPU Unit |
| PD      | PACS DPU Unit  |

## Legenda Nr.2

| ACRONYM | BOARD NAME                |
|---------|---------------------------|
| DC1     | DC/DC Converter Main      |
| DC2     | DC/DC Converter Redundant |
| PL1     | PL IF Board Main          |
| PL2     | PL IF Board Redundant     |
| CP1     | CPU Board Main            |
| CP2     | CPU Board Redundant       |
| MB      | Motherboard               |





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## 3.1 HIFI ICU UNIT CONFIGURATION

The current HIFI ICU Unit configuration foresees the following boards:

| Board name                | Q.ty |
|---------------------------|------|
| DC/DC Converter Main      | 1    |
| DC/DC Converter Redundant | 1    |
| PL IF Board Main          | 1    |
| PL IF Board Redundant     | 1    |
| CPU Board Main            | 1    |
| CPU Board Redundant       | 1    |
| Motherboard               | 1    |



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## 3.2 SPIRE DPU UNIT CONFIGURATION

The current SPIRE DPU Unit configuration foresees the following boards:

| Board name                | Q.ty |
|---------------------------|------|
| DC/DC Converter Main      | 1    |
| DC/DC Converter Redundant | 1    |
| PL IF Board Main          | 1    |
| PL IF Board Redundant     | 1    |
| CPU Board Main            | 1    |
| CPU Board Redundant       | 1    |
| Motherboard               | 1    |



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## 3.3 PACS DPU UNIT CONFIGURATION

The current PACS DPU Unit configuration foresees the following boards:

| Board name                | Q.ty |
|---------------------------|------|
| DC/DC Converter Main      | 1    |
| DC/DC Converter Redundant | 1    |
| PL IF Board Main          | 1    |
| PL IF Board Redundant     | 1    |
| CPU Board Main            | 1    |
| CPU Board Redundant       | 1    |
| Motherboard               | 1    |

|   |  |   |  |
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## ANNEX 1. DECLARED COMPONENTS LIST

On the next pages, follows an attachment (ANNEX 1) which contains the complete Declared Components List.

**HERSCHEL DPUs/ICU**  
Declared Components List

| ID        | COMPONENT TYPE  | FM COMPONENT PN | CASE      | SPECIFICATION   | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS               | UNIT/BOARD Q.TY  |
|-----------|---|-----------------|-----------|-----------------|-------------------|---------------|--------------|-----------------------|--|
| ANALOG IC |   |                 |           |                 |                   |               |              |                       |  |
| Ana_1     | Operational Amplifier OP27SA J5                           | M38510/13503SGA | CAN 8     | MIL-M-38510/135 | QML-38535         | S             | AD           |                       | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Ana_2     | Instrumentation Amplifier AD524SD/QMLV                    | 5962-8853901VEA | 16 CDIP   | 5962-88539      | QML-38535         | V             | AD           | Part in the CPP list. |  |
| Ana_3     | Positive Voltage Regulator HS2-117RH                      | 5962F9954701VUC | TO 39     | 5962-99547      | QML-38535         | V             | INTERSIL     |                       | HI/DC1:5,<br>HI/DC2:5,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3  |
| Ana_4     | Negative Voltage Regulator LM137H                         | M38510/11803SXA | TO 39     | MIL-M-38510/118 | QML-38535         | S             | NATIONAL     |                       | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Ana_5     | Voltage reference AD584TH/QMLVR                           | 5962R3812802VGA | CAN 8     | 5962-38128      | QML-38535         | V             | AD           |                       | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1,<br>HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Ana_6     | Precision Quad Op. Amp. OP400AY/QML                       | 5962-8777101VCA | 14 CDIP   | 5962-87771      | QML-38535         | V             | AD           | Part in the CPP list. | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2  |
| Ana_7     | Precision Quad.Voltage Comparator HS9-139RH               | 5962F9861301VXC | CDFP3-F14 | 5962-98613      | QML-38535         | V             | INTERSIL     |                       | HI/DC1:3,<br>HI/DC2:3,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3  |
| Ana_8     | Pulse Width Modulator Controller Current Mode UC1846JQMLV | 5962-8680601VEA | 16 DIP    | 5962-86806      | QML-38535         | V             | TI           |                       | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2  |
| Ana_9     | Voltage Reg. High Efficiency UC1834JQMLV                  | 5962-8774201VEA | 16 DIP    | 5962-87742      | QML-38535         | V             | TI           |                       | HI/DC1:3,<br>HI/DC2:3  |

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| ID        | COMPONENT TYPE                         | FM COMPONENT PN | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER     | REMARKS                         | UNIT/BOARD Q.TY  |
|-----------|--|-----------------|------|------------------|-------------------|---------------|------------------|---------------------------------|--|
| Ana_10    | Temperature Trasducer AD590MF/QMLV     | 5962-8757104VXA | 2 FP | 5962-87571       | QML-38535         | V             | AD               | Part in the CPP list.           | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Ana_11    | Voltage Comparator/Buffer RH1011H      | RH1011H         |      | SEE REMARKS      | SEE REMARKS       |               | LINEAR TEC       | Not in QPL, present in CPP list | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| CAPACITOR |  |                 |      |                  |                   |               |                  |                                 |  |
| Cap_1     | Tantalum Capacitor 8,2uF 60V 10% CLR79 | M39006/22-0585  | T1   | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |                                 | HI/PL1:1, HI/PL2:1,<br>HI/CP1:1,<br>HI/CP2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/PL1:1,<br>PD/PL2:1,<br>PD/CP1:1,<br>PD/CP2:1,<br>HI/DC1:14,<br>HI/DC2:14,<br>SD/DC1:9,<br>SD/DC2:9,<br>PD/DC1:9,<br>PD/DC2:9 |
| Cap_2     | Tantalum Capacitor 47uF 10V 10% CLR79  | M39006/22-0485  | T1   | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |                                 | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |

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Declared Components List**

| ID    | COMPONENT TYPE                        | FM COMPONENT PN | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER     | REMARKS | UNIT/BOARD Q.TY  |
|-------|---------------------------------------|-----------------|------|------------------|-------------------|---------------|------------------|---------|--|
| Cap_3 | Tantalum Capacitor 15uF 30V 10% CLR79 | M39006/22-0545  | T1   | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |         | HI/PL1:1, HI/PL2:1,<br>HI/CP1:3,<br>HI/CP2:3,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:3,<br>SD/CP2:3,<br>PD/PL1:1,<br>PD/PL2:1,<br>PD/CP1:3,<br>PD/CP2:3,<br>HI/DC1:9,<br>HI/DC2:9,<br>SD/DC1:9,<br>SD/DC2:9,<br>PD/DC1:9,<br>PD/DC2:9 |
| Cap_4 | Tantalum Capacitor 68uF 30V 10% CLR79 | M39006/22-0551  | T2   | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY          |         |  |
| Cap_5 | Tantalum Capacitor 33uF 15V 10% CLR79 | M39006/22-0505  | T1   | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Cap_6 | Tantalum Capacitor 10uF 50V 10% CLR79 | M39006/22-0565  | T1   | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |         | HI/PL1:2, HI/PL2:2,<br>SD/PL1:2,<br>SD/PL2:2,<br>PD/PL1:2,<br>PD/PL2:2,<br>HI/DC1:10,<br>HI/DC2:10,<br>SD/DC1:10,<br>SD/DC2:10,<br>PD/DC1:10,<br>PD/DC2:10   |
| Cap_7 | Chip Ceramic Capacitor 10nF 100V 10%  | CDR32BX103BKUR  | 1206 | MIL-PRF-55681/8  | QPL-55681         | R             | KEMET            |         | HI/PL1:2, HI/PL2:2,<br>SD/PL1:2,<br>SD/PL2:2,<br>PD/PL1:2,<br>PD/PL2:2   |
| Cap_8 | Chip Ceramic Capacitor 15nF 100V 10%  | CDR33BX153BKUR  | 1210 | MIL-PRF-55681/9  | QPL-55681         | R             | KEMET            |         | PD/CP1:1,<br>PD/CP2:1  |
| Cap_9 | Chip Ceramic Capacitor 47nF 50V 10%   | CDR33BX473AKUR  | 1210 | MIL-PRF-55681/9  | QPL-55681         | R             | KEMET            |         |  |

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| ID     | COMPONENT TYPE                              | FM COMPONENT PN | CASE  | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER     | REMARKS | UNIT/BOARD Q.TY   |
|--------|---|-----------------|-------|------------------|-------------------|---------------|------------------|---------|---|
| Cap_10 | Chip Ceramic Capacitor 100nF 50V 10%        | CDR33BX104AKUR  | 1210  | MIL-PRF-55681/9  | QPL-55681         | R             | KEMET            |         | HI/PL1:56,<br>HI/PL2:56,<br>HI/CP1:73,<br>HI/CP2:73,<br>SD/PL1:48,<br>SD/PL2:48,<br>SD/CP1:73,<br>SD/CP2:73,<br>PD/PL1:33,<br>PD/PL2:33,<br>PD/CP1:99,<br>PD/CP2:99,<br>HI/DC1:27,<br>HI/DC2:27,<br>SD/DC1:16,<br>SD/DC2:16,<br>PD/DC1:16,<br>PD/DC2:16 |
| Cap_11 | Chip Ceramic Capacitor 100pF 100V 1%        | CDR32BP101BFUR  | 1206  | MIL-PRF-55681/8  | QPL-55681         | R             | KEMET            |         | HI/PL1:8, HI/PL2:8,<br>HI/CP1:1,<br>HI/CP2:1,<br>SD/PL1:8,<br>SD/PL2:8,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/PL1:8,<br>PD/PL2:8,<br>PD/CP1:1,<br>PD/CP2:1  |
| Cap_12 | Chip Ceramic Capacitor 30pF 100V 5%         | CDR32BP300BJWR  | 1206  | MIL-PRF-55681/8  | QPL-55681         | R             | KEMET            |         |   |
| Cap_13 | Chip Ceramic Capacitor 39nF 50V 10% (C1210) | CDR33BX393AKWR  | 1210  | MIL-PRF-55681/9  | QPL-55681         | R             | KEMET            |         |   |
| Cap_14 | Chip Ceramic Capacitor 1nF 100V 10%         | CDR32BP102BKWR  | 1206  | MIL-PRF-55681/8  | QPL-55681         | R             | KEMET            |         | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,   |
| Cap_15 | Tantalum Capacitor 6.8µF 35V 10%            | M39003/01-2784  | CSR13 | MIL-PRF-39003/01 | QPL-39003         | R             | KEMET            |         |   |
| Cap_16 | Tantalum Capacitor 15µF 20V 10%             | M39003/01-2769  | CSR13 | MIL-PRF-39003/01 | QPL-39003         | R             | KEMET            |         |   |
| Cap_17 | Chip Ceramic Capacitor 1nF 100V 1%          | CDR32BP102BFUR  | 1206  | MIL-PRF-55681/8  | QPL-55681         | R             | KEMET            |         | PD/CP1:1,<br>PD/CP2:1   |
| Cap_18 | Tantalum Capacitor 20µF 10V 10% CLR79       | M39006/22-0482  | T1    | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1   |
| Cap_19 | Tantalum Capacitor 100µF 25V 10% CLR79      | M39006/22-0531  | T1    | MIL-PRF-39006/22 | QPL-39006         | R             | MALLORY-TANSITOR |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2   |
| Cap_20 | Ceramic Capacitor 100nF 100V 10%            | CKR06BX104KR    | CKR06 | MIL-PRF-39014/2  | QPL-39014         | R             | AVX-KEMET        |         |   |
| Cap_21 | Ceramic Capacitor 470nF 50V 10%             | CKR06BX474KR    | CKR06 | MIL-PRF-39014/2  | QPL-39014         | R             | AVX-KEMET        |         |   |



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| ID     | COMPONENT TYPE                        | FM COMPONENT PN | CASE             | SPECIFICATION   | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS                         | UNIT/BOARD Q.TY   |
|--------|---------------------------------------|-----------------|------------------|-----------------|-------------------|---------------|--------------|---------------------------------|---|
| Cap_22 | Ceramic Capacitor 1µF 50V 10%         | CKR06BX105KR    | CKR06            | MIL-PRF-39014/2 | QPL-39014         | R             | AVX-KEMET    |                                 | HI/DC1:63,<br>HI/DC2:63,<br>SD/DC1:13,<br>SD/DC2:13,<br>PD/DC1:13,<br>PD/DC2:13 |
| Cap_23 | Stack Capacitor 47µF 50V 10%          | 87106-039       | case3(thru hole) | DSCC87106       | SEE REMARKS       |               | AVX-PRESIDIO | Not in QPL, present in CPP list | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1       |
| Cap_24 | Chip Ceramic Capacitor 470pF 100V 1%  | CDR31BP471BFUR  | 0805             | MIL-PRF-55681/7 | QPL-55681         | R             | KEMET        |                                 | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1       |
| Cap_25 | Chip Ceramic Capacitor 1nF 100V 10%   | CDR31BX102BKUR  | 0805             | MIL-PRF-55681/7 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_26 | Chip Ceramic Capacitor 3.3nF 100V 10% | CDR31BX332BKUR  | 0805             | MIL-PRF-55681/7 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_27 | Chip Ceramic Capacitor 4.7nF 100V 10% | CDR31BX472BKUR  | 0805             | MIL-PRF-55681/7 | QPL-55681         | R             | KEMET        |                                 | HI/DC1:6,<br>HI/DC2:6,<br>SD/DC1:6,   |
| Cap_28 | Chip Ceramic Capacitor 10nF 50V 10%   | CDR31BX103AKUR  | 0805             | MIL-PRF-55681/7 | QPL-55681         | R             | KEMET        |                                 | HI/DC1:38,<br>HI/DC2:38,<br>SD/DC1:10,<br>SD/DC2:10,<br>PD/DC1:10,<br>PD/DC2:10 |
| Cap_29 | Chip Ceramic Capacitor 15nF 50V 10%   | CDR31BX153AKUR  | 0805             | MIL-PRF-55681/7 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_30 | Chip Ceramic Capacitor 220pF 100V 1%  | CDR32BP221BFUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1       |
| Cap_31 | Chip Ceramic Capacitor 330pF 100V 1%  | CDR32BP331BFUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_32 | Chip Ceramic Capacitor 430pF 100V 1%  | CDR32BP431BFUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_33 | Chip Ceramic Capacitor 470pF 100V 1%  | CDR32BP471BFUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2       |
| Cap_34 | Chip Ceramic Capacitor 680pF 100V 1%  | CDR32BP681BFUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_35 | Chip Ceramic Capacitor 4.7nF 100V 10% | CDR32BX472BKUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_36 | Chip Ceramic Capacitor 33nF 50V 10%   | CDR32BX333AKUR  | 1206             | MIL-PRF-55681/8 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_37 | Chip Ceramic Capacitor 1nF 100V 1%    | CDR33BP102BFUR  | 1210             | MIL-PRF-55681/9 | QPL-55681         | R             | KEMET        |                                 |   |
| Cap_38 | Chip Ceramic Capacitor 3.3nF 50V 1%   | CDR33BP332AFUR  | 1210             | MIL-PRF-55681/9 | QPL-55681         | R             | KEMET        |                                 | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4       |

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| ID     | COMPONENT TYPE                        | FM COMPONENT PN | CASE  | SPECIFICATION     | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|--------|---------------------------------------|-----------------|-------|-------------------|-------------------|---------------|--------------|---------|---|
| Cap_39 | Chip Ceramic Capacitor 3.3nF 100V 1%  | CDR34BP332BFUR  | 1812  | MIL-PRF-55681/10  | QPL-55681         | R             | KEMET        |         |   |
| Cap_40 | Chip Ceramic Capacitor 33nF 100V 10%  | CDR34BX333BKUR  | 1812  | MIL-PRF-55681/10  | QPL-55681         | R             | KEMET        |         |   |
| Cap_41 | Chip Ceramic Capacitor 47nF 100V 10%  | CDR34BX473BKUR  | 1812  | MIL-PRF-55681/10  | QPL-55681         | R             | KEMET        |         |   |
| Cap_42 | Chip Ceramic Capacitor 100nF 50V 10%  | CDR34BX104AKUR  | 1812  | MIL-PRF-55681/10  | QPL-55681         | R             | KEMET        |         |   |
| Cap_43 | Chip Ceramic Capacitor 180nF 50V 10%  | CDR34BX184AKUR  | 1812  | MIL-PRF-55681/10  | QPL-55681         | R             | KEMET        |         |   |
| Cap_44 | Chip Ceramic Capacitor 4.7nF 100V 1%  | CDR35BP472BFUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
| Cap_45 | Chip Ceramic Capacitor 10nF 100V 1%   | CDR35BP103BFUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1       |
| Cap_46 | Chip Ceramic Capacitor 22nF 50V 1%    | CDR35BP223AFUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
| Cap_47 | Chip Ceramic Capacitor 56nF 100V 10%  | CDR35BX563BKUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/DC1:6,<br>HI/DC2:6,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4       |
| Cap_48 | Chip Ceramic Capacitor 100nF 100V 10% | CDR35BX104BKUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
| Cap_49 | Chip Ceramic Capacitor 150nF 100V 10% | CDR35BX154BKUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
| Cap_50 | Chip Ceramic Capacitor 270nF 50V 10%  | CDR35BX274AKUR  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/DC1:11,<br>HI/DC2:11,<br>SD/DC1:10,<br>SD/DC2:10,<br>PD/DC1:10,<br>PD/DC2:10 |
| Cap_51 | Chip Ceramic Capacitor 470nF 50V 10%  | CDR35BX474AKUS  | 1825  | MIL-PRF-55681/11  | QPL-55681         | R             | KEMET        |         |   |
| Cap_52 | Chip Ceramic Capacitor 510pF 100V 1%  | CDR32BP511BFUR  | 1206  | MIL-PRF-55681/8   | QPL-55681         | R             | AVX, KEMET   |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/PL1:29,<br>HI/PL2:29,<br>SD/PL1:23,<br>SD/PL2:23,<br>PD/PL1:16,<br>PD/PL2:16 |
| Cap_53 | Chip Ceramic Capacitor 2.2nF 50V 1%   | CDR32BP222AFUR  | 1206  | MIL-PRF-55681/8   | QPL-55681         | R             | AVX, KEMET   |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/DC1:1,<br>HI/DC2:1   |
| Cap_54 | Tantalum Chip Capacitor 47uF 15V 10%  | CWR29HK476KCHA  | CWR29 | MIL- PRF-55365/11 | QPL-55365         | C             | AVX Tantalum |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/DC1:13,<br>HI/DC2:13,<br>SD/DC1:8,<br>SD/DC2:8,<br>PD/DC1:8,<br>PD/DC2:8     |
| Cap_55 | Tantalum Chip Capacitor 15uF 35V 10%  | CWR29MK156KCXA  | CWR29 | MIL- PRF-55365/11 | QPL-55365         | C             | AVX Tantalum |         |   |
|        |                                       |                 |       |                   |                   |               |              |         | HI/DC1:7,<br>HI/DC2:7,<br>SD/DC1:5,<br>SD/DC2:5,<br>PD/DC1:5,<br>PD/DC2:5       |
| Cap_56 | Tantalum Chip Capacitor 33uF 25V 10%  | CWR29KK336KCHA  | CWR29 | MIL- PRF-55365/11 | QPL-55365         | C             | AVX Tantalum |         |   |

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|--------|---------------------------------------|-----------------|-------|-------------------|-------------------|---------------|--------------|---------|---|
| Cap_57 | Tantalum Chip Capacitor 4.7uF 50V 10% | CWR29NK475KCHA  | CWR29 | MIL- PRF-55365/11 | QPL-55365         | C             | AVX Tantalum |         | HI/DC1:20,<br>HI/DC2:20,<br>SD/DC1:10,<br>SD/DC2:10,<br>PD/DC1:10,<br>PD/DC2:10 |
| Cap_58 | Tantalum Chip Capacitor 47uF 20V 10%  | CWR29JK476KCXA  | CWR29 | MIL- PRF-55365/11 | QPL-55365         | C             | AVX Tantalum |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2       |
| Cap_59 | Tantalum Chip Capacitor 22uF 10V 10%  | CWR29FK226KCEA  | CWR29 | MIL- PRF-55365/11 | QPL-55365         | C             | AVX Tantalum |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1       |

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| ID        | COMPONENT TYPE   | FM COMPONENT PN        | CASE                 | SPECIFICATION      | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS                         | UNIT/BOARD Q.TY  |
|-----------|--|------------------------|----------------------|--------------------|-------------------|---------------|--------------|---------------------------------|--|
| CONNECTOR |  |                        |                      |                    |                   |               |              |                                 |  |
| Con_1     | 96-pin Female Solder Connector   | KDC 096 2232           | 96-pin               | SEE REMARKS        | SEE REMARKS       | NA            | FRB          | Not in QPL, present in CPP list | HI/MB:12,<br>SD/MB:12,<br>PD/MB:12   |
| Con_2     | 96-pin Male Solder Connector 90°                                       | KDC 096 1310           | 96-pin               | SEE REMARKS        | SEE REMARKS       | NA            | FRB          | Not in QPL, present in CPP list | HI/PL1:2, HI/PL2:2,<br>HI/CP1:2,<br>HI/CP2:2,<br>SD/PL1:2,<br>SD/PL2:2,<br>SD/CP1:2,<br>SD/CP2:2,<br>PD/PL1:2,<br>PD/PL2:2,<br>PD/CP1:2,<br>PD/CP2:2,<br>HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2 |
| Con_3     | 60-pin Micro Strip Connector Male                                      | 536280-2               | 60-pin               | AMP-spec. 108-1272 | SEE REMARKS       | NA            | AMP          | Not in QPL, present in CPP list | HI/CP1:2,<br>HI/CP2:2,<br>SD/CP1:2,<br>SD/CP2:2,<br>PD/CP1:2,<br>PD/CP2:2  |
| Con_4     | 60-pin Micro Strip Connector Female                                    | 536279-2               | 60-pin               | AMP-spec. 108-1272 | SEE REMARKS       | NA            | AMP          | Not in QPL, present in CPP list | HI/CP1:2,<br>HI/CP2:2,<br>SD/CP1:2,<br>SD/CP2:2,<br>PD/CP1:2,<br>PD/CP2:2  |
| Con_5     | 9 removable crimp contacts male rectangular connector (DEMA 9P)        | 340100201BDEMA9PNMBFO  | SEE ESA SCC 3401/002 | ESA SCC 3401/002   | ESA QPL           | B             | ITT CANNON   |                                 | HI:2, SD:2, PD:2   |
| Con_6     | 9 removable crimp contacts female rectangular connector (DEMA 9S)      | 340100201BDEMA9SNMBFO  | SEE ESA SCC 3401/002 | ESA SCC 3401/002   | ESA QPL           | B             | ITT CANNON   |                                 | HI:4, SD:4, PD:4   |
| Con_7     | 15 removable crimp contacts female rectangular connector (DAMA 15S)    | 340100201BDAMA15SNMBFO | SEE ESA SCC 3401/002 | ESA SCC 3401/002   | ESA QPL           | B             | ITT CANNON   |                                 | HI:4   |
| Con_8     | 25 removable crimp contacts female rectangular connector (DBMA 25S)    | 340100201BDBMA25SNMBFO | SEE ESA SCC 3401/002 | ESA SCC 3401/002   | ESA QPL           | B             | ITT CANNON   |                                 | HI:2   |
| Con_9     | 25 removable crimp contacts male rectangular connector (DBMA 25P)      | 340100201BDBMA25PNMBFO | SEE ESA SCC 3401/002 | ESA SCC 3401/002   | ESA QPL           | B             | ITT CANNON   |                                 | HI:8, SD:6   |
| Con_10    | 9 contacts female rectangular connector (MDM 9S)                       | 340102901B9SFR112      | SEE ESA SCC 3401/029 | ESA SCC 3401/029   | ESA QPL           | B             | ITT CANNON   |                                 | PD:6   |
| Con_11    | SCREW LOCK FEMALE (var.01) for connectors ESA SCC 3401/002             | 340102201BNMB          | SEE ESA SCC 3401/022 | ESA SCC 3401/022   | ESA QPL           | B             | ITT CANNON   |                                 | HI:40,<br>SD:24,<br>PD:12  |
| Con_12    | Crimp Contact 20P (for AWG 20, 22, 24) for connectors ESA SCC 3401/002 | 340100501B             | SEE ESA SCC 3401/005 | ESA SCC 3401/005   | ESA QPL           | B             | ITT CANNON   |                                 |  |
| Con_13    | Crimp Contact 20S (for AWG 20, 22, 24) for connectors ESA SCC 3401/002 | 340100502B             | SEE ESA SCC 3401/005 | ESA SCC 3401/005   | ESA QPL           | B             | ITT CANNON   |                                 |  |
| Con_14    | Crimp Contact 26P (for AWG 26, 28) for connectors ESA SCC 3401/002     | 340100503B             | SEE ESA SCC 3401/005 | ESA SCC 3401/005   | ESA QPL           | B             | ITT CANNON   |                                 |  |

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|--------------|--|--------------------------|----------------------|-------------------|-------------------|---------------|---------------|--|--|
| Con_15       | Crimp Contact 26S (for AWG 26, 28) for connectors ESA SCC 3401/002 | 340100504B               | SEE ESA SCC 3401/005 | ESA SCC 3401/005  | ESA QPL           | B             | ITT CANNON    |  |  |
| Con_16       | SAVER TYPE DEBMA 9PS   | 340102001BDEBMA9PSNMBFO  | SEE ESA SCC 3401/020 | ESA SCC 3401/020  | ESA QPL           | B             | ITT CANNON    |  | HI:6, SD:6, PD:6   |
| Con_17       | SAVER TYPE DABMA 15PS  | 340102001BDABMA15PSNMBFO | SEE ESA SCC 3401/020 | ESA SCC 3401/020  | ESA QPL           | B             | ITT CANNON    |  | HI:4   |
| Con_18       | SAVER TYPE DBBMA 25PS  | 340102001BDBBMA25PSNMBFO | SEE ESA SCC 3401/020 | ESA SCC 3401/020  | ESA QPL           | B             | ITT CANNON    |  | HI:10, SD:6  |
| Con_19       | CONTACT 20 FOR SAVERS PIN/SOCKET TYPE D*MA                         | 340102101B               | SEE ESA SCC 3401/021 | ESA SCC 3401/021  | ESA QPL           | B             | ITT CANNON    |  | 622  |
| Con_20       | SAVER TYPE MDM 9PS   | 340104101B9PS            | SEE ESA SCC 3401/041 | ESA SCC 3401/041  | ESA QPL           | B             | ITT CANNON    |  | PD:6   |
| Con_21       | SCREW LOCK (var.02) for connectors ESA SCC 3401/029                | 340103202B               | SEE ESA SCC 3401/032 | ESA SCC 3401/032  | ESA QPL           | B             | ITT CANNON    |  | PD:12  |
| Con_22       | SCREW LOCK (var.06) for savers ESA SCC 3401/020                    | 340102206BNMB            | SEE ESA SCC 3401/022 | ESA SCC 3401/022  | ESA QPL           | B             | ITT CANNON    |  | HI:40, SD:24, PD:12  |
| Con_23       | SCREW LOCK (var.05) for savers ESA SCC 3401/041                    | 340103205B               | SEE ESA SCC 3401/032 | ESA SCC 3401/032  | ESA QPL           | B             | ITT CANNON    |  | PD:12  |
| <b>DIODE</b> |  |                          |                      |                   |                   |               |               |  |  |
| Dio_1        | Switching diode  | JANS1N6642               | DO 35                | MIL-PRF-19500/578 | QML-19500         | JANS          | MICROSEMI     |  |  |
| Dio_2        | Schottky rectifier 40V1A   | JANS1N5819-1             | DO 41                | MIL-PRF-19500/586 | QML-19500         | JANS          | MICROSEMI     |  |  |
| Dio_3        | 1N5711 Rect Schottky diode   | CDS1N5711UR-1            | DO-213AA             | MIL-PRF-19500/444 | SEE REMARKS       | S             | MICROSEMI     | In the CPP list but no JANS level in QML list. |  |
| Dio_4        | Switching diode  | JANS1N6642US             | SMD                  | MIL-PRF-19500/578 | QML-19500         | JANS          | MICROSEMI CDI |  | HI/CP1:2, HI/CP2:2, SD/CP1:2, SD/CP2:2, PD/CP1:2, PD/CP2:2, HI/DC1:14, HI/DC2:14, SD/DC1:13, SD/DC2:13, PD/DC1:13, PD/DC2:13 |
| Dio_5        | Ultra Fast Rectifier Diode   | JANS1N5811US             | SMD                  | MIL-PRF-19500/477 | QML-19500         | JANS          | MICROSEMI     |  | HI/PL1:1, HI/PL2:1, SD/PL1:1, SD/PL2:1, PD/PL1:1, PD/PL2:1, HI/DC1:40, HI/DC2:40, SD/DC1:20, SD/DC2:20, PD/DC1:20, PD/DC2:20 |
| Dio_6        | Schottky Rectifier Diode   | JANS1N5822US             | SMD                  | MIL-PRF-19500/620 | QML-19500         | JANS          | MICROSEMI     |  |  |

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|--------|--------------------------|-----------------|----------|-------------------|-------------------|---------------|--------------|----------------------------|---|
| Dio_7  | Diode Zener 4,7V 0,5W 1% | JANTXV1N6316CUS | SMD      | MIL-PRF-19500/533 | QML-19500         | JANTXV        | MICROSEMI    | No JANS level in QML list. |   |
| Dio_8  | Diode Zener 12V 1,5W 5%  | JANS1N4467US    | SMD      | MIL-PRF-19500/406 | QML-19500         | JANS          | MICROSEMI    |                            | HI/DC1:3,<br>HI/DC2:3,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3 |
| Dio_9  | Diode Zener 5,1V 0,5W 5% | JANS1N6317US    | SMD      | MIL-PRF-19500/533 | QML-19500         | JANS          | MICROSEMI    |                            | HI/DC1:5,<br>HI/DC2:5,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4 |
| Dio_10 | Diode Zener 15V 1,5W 5%  | JANS1N4469US    | SMD      | MIL-PRF-19500/406 | QML-19500         | JANS          | MICROSEMI    |                            |   |
| Dio_11 | Diode Zener 11V 1,5W 5%  | JANS1N4466US    | SMD      | MIL-PRF-19500/406 | QML-19500         | JANS          | MICROSEMI    |                            |   |
| Dio_12 | Diode Zener 8,2V 1,5W 5% | JANTXV1N4463US  | SMD      | MIL-PRF-19500/406 | QML-19500         | JANTXV        | MICROSEMI    | No JANS level in QML list. |   |
| Dio_13 | Diode Zener 5,1V 1,5W 1% | JANS1N6490US    | SMD      | MIL-PRF-19500/406 | QML-19500         | JANS          | MICROSEMI    |                            |   |
| Dio_14 | Diode Zener 20V 1,5W 5%  | JANS1N4472US    | SMD      | MIL-PRF-19500/406 | QML-19500         | JANS          | MICROSEMI    |                            |   |
| Dio_15 | Diode Zener 6,8V 0,5W 5% | JANS1N6320US    | SMD      | MIL-PRF-19500/533 | QML-19500         | JANS          | MICROSEMI    |                            |   |
| Dio_16 | Diode Zener 10V 1,5W 5%  | JANS1N4465US    | SMD      | MIL-PRF-19500/406 | QML-19500         | JANS          | MICROSEMI    |                            | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2 |
| Dio_17 | Dual Power Diode         | JANTXV1N6660R   | TO 254AA | MIL-PRF-19500/608 | QML-19500         | JANTXV        | SENSITRON    | No JANS level in QML list. | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |

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|------------|--|-----------------|------------|---------------|-------------------|---------------|--------------|--|--|
| DIGITAL IC |  |                 |            |               |                   |               |              |  |  |
| Dig_1      | 32/40-bit floating point DSP microprocessor TSC21020F-20SBSV | 5962-9953901VXC | 256 MQFP-F | 5962-99539    | QML-38535         | V             | ATMEL        | Part in the CPP list.                          | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,<br>PD/CP2:1  |
| Dig_2      | 16 eq gates Actel Rad Tolerant FPGA RT54SX32S-CQ208E         | 5962-0150803QYC | 208 CQFP   | 5962-01508    | SEE REMARKS       | Q             | ACTEL        | Part present in CPP list,<br>not QML qualified | HI/PL1:1, HI/PL2:1,<br>HI/CP1:1,<br>HI/CP2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/PL1:1,<br>PD/PL2:1,<br>PD/CP1:1,<br>PD/CP2:1 |
| Dig_3      | MIL-STD-1553 Advanced Communication Engine BU-61582F1        | 5962-9688701KYA | 70 FP      | 5962-96887    | SEE REMARKS       | K             | DDC          | Part present in CPP list,<br>not QML qualified | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Dig_4      | 512K x 8 bit Static RAM 25ns UT9Q512-UCC                     | 5962D0053601TUC | 36 FP      | 5962-00536    | QML-38535         | T             | UTMC         |  | HI/CP1:10,<br>HI/CP2:10,<br>SD/CP1:10,<br>SD/CP2:10,<br>PD/CP1:10,<br>PD/CP2:10  |
| Dig_5      | 32K x 8 bit Radation Hardened PROM UT28F256-45PCCH           | 5962R9689103VYC | 28 DIP     | 5962-96891    | SEE REMARKS       | V             | UTMC         | Part present in CPP list,<br>not QML qualified | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,<br>PD/CP2:1  |
| Dig_6      | IEEE-1355 Communication Controller TSS901EASV                | 5962-01A1701VXC | 196 MQFP   | 5962-01A17    | QML-38535         | V             | ATMEL        | Part present in the CPP list                   | PD/CP1:1,<br>PD/CP2:1  |
| Dig_7      | 256K x 32 bit EEPROM   | 79C0832RT2QK-20 | 96 QFP     | SEE REMARKS   | SEE REMARKS       |               | MAXWELL      | Part present in CPP list,<br>not QML qualified | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,<br>PD/CP2:1  |
| Dig_8      | 8K x 16 Dual Port Ram SMK2-67025EV-30SV                      | 5962-9161709VZC | 84 MQFPF   | 5962-91617    | QML-38535         | V             | ATMEL        | Part in the CPP list.                          | PD/CP1:2,<br>PD/CP2:2  |
| Dig_9      | Quad LVDS Driver UT54LVDS031UCC                              | 5962R9583302VXC | 16 FP      | 5962-95833    | SEE REMARKS       | V             | UTMC         | Part present in CPP list,<br>not QML qualified | PD/CP1:3,<br>PD/CP2:3  |

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| ID     | COMPONENT TYPE                                   | FM COMPONENT PN | CASE    | SPECIFICATION | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS                                     | UNIT/BOARD Q.TY  |
|--------|--|-----------------|---------|---------------|-------------------|---------------|--------------|---|--|
| Dig_10 | Quad LVDS Receiver UT54LVDS032UCC                | 5962R9583402VXC | 16 FP   | 5962-95834    | SEE REMARKS       | V             | UTMC         | Part present in CPP list, not QML qualified | PD/CP1:2,<br>PD/CP2:2  |
| Dig_11 | Quad RS422 Driver HS9-26C31RH-Q                  | 5962F9666301VXC | 16 CDFP | 5962-96663    | QML-38535         | V             | INTERSIL     |   | HI/PL1:4, HI/PL2:4,<br>SD/PL1:2,<br>SD/PL2:2   |
| Dig_12 | Quad RS422 Receiver HS9-26C32RH-Q                | 5962F9568901VXC | 16 CDFP | 5962-95689    | QML-38535         | V             | INTERSIL     |   | HI/PL1:4, HI/PL2:4,<br>SD/PL1:4,<br>SD/PL2:4   |
| Dig_13 | 16K x 9 bit FIFO Memory SMDP67206FV-15SV         | 5962-9317704VNC | 28 CDFP | 5962-93177    | QML-38535         | V             | ATMEL        |   | HI/PL1:12,<br>HI/PL2:12,<br>SD/PL1:6,<br>SD/PL2:6  |
| Dig_14 | Triple Programmable Interval Timer HS9-82C54RH-Q | 5962R9571301VXC | 24 CDFP | 5962-95713    | QML-38535         | V             | INTERSIL     |   |  |
| Dig_15 | 16-bit Buffer 54ACTQ16244K                       | 54ACTQ16244K02V | 48 CFP  | SEE REMARKS   | SEE REMARKS       |               | STM          | Part present in CPP list, not QML qualified | HI/PL1:1, HI/PL2:1,<br>HI/CP1:3,<br>HI/CP2:3,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:3,<br>SD/CP2:3,<br>PD/PL1:1,<br>PD/PL2:1,<br>PD/CP1:3,<br>PD/CP2:3 |
| Dig_16 | 8-bit Buffer 54ACTQ244K02V                       | 54ACTQ244K02V   | 20 CFP  | SEE REMARKS   | QML-38535         |               | STM          | Part present in CPP list                    | HI/PL1:2, HI/PL2:2,<br>HI/CP1:1,<br>HI/CP2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,<br>PD/CP2:1                           |
| Dig_17 | 8-bit Transceiver 54ACTQ245K02V                  | 54ACTQ245K02V   | 20 CFP  | SEE REMARKS   | QML-38535         |               | STM          | Part present in CPP list                    |  |
| Dig_18 | 16-bit Transceiver 54ACTQ16245K02V               | 54ACTQ16245K02V | 48 CFP  | SEE REMARKS   | SEE REMARKS       |               | STM          | Part present in CPP list, not QML qualified | HI/CP1:4,<br>HI/CP2:4,<br>SD/CP1:4,<br>SD/CP2:4,<br>PD/CP1:4,<br>PD/CP2:4  |
| Dig_19 | 16-bit Latch 54ACTQ16374K02V                     | 54ACTQ16374K02V | 48 CFP  | SEE REMARKS   | SEE REMARKS       |               | STM          | Part present in CPP list, not QML qualified | HI/CP1:3,<br>HI/CP2:3,<br>SD/CP1:3,<br>SD/CP2:3,<br>PD/CP1:3,<br>PD/CP2:3  |



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| ID       | COMPONENT TYPE                            | FM COMPONENT PN | CASE    | SPECIFICATION                      | QPL/QML REFERENCE | Quality Level | MANUFACTURER   | REMARKS                  | UNIT/BOARD Q.TY  |
|----------|---|-----------------|---------|------------------------------------|-------------------|---------------|----------------|--------------------------|--|
| Dig_20   | 8-bit Latch 54ACTQ374K02V                 | 54ACTQ374K02V   | 20 CFP  | SEE REMARKS                        | QML-38535         |               | STM            | Part present in CPP list |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/PL1:1, HI/PL2:1,<br>HI/CP1:1,<br>HI/CP2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/PL1:1,<br>PD/PL2:1,<br>PD/CP1:1,<br>PD/CP2:1 |
| Dig_21   | Hex Inverter Schmitt Trigger 54HC14K      | 940900702BF     | 14 FP   | ESA/SCC 9409/007                   | SEE REMARKS       | B             | STM            | Part in the CPP list.    |  |
| Dig_22   | 8-bit Buffer 54ACTQ541K02V                | 54ACTQ541K02V   | 20 CFP  | SEE REMARKS                        | QML-38535         |               | STM            | Part in the CPP list.    |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Dig_23   | 12-bit A/D Converter AD574ATD/QMLV        | 5962-8512702VXA | 28 CDIP | 5962-85127                         | QML-38535         | V             | AD             | Part in the CPP list.    |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Dig_24   | 8 Channel Analog Multiplexer HS1-508BRH-Q | 5962F9674202VEC | 16 DIP  | 5962-96742                         | QML-38535         | V             | INTERSIL       |                          |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Dig_25   | Quad 2-Input OR Gate 54ACTQ32WRQMLV       | 5962R8973601VDA | 20CFP   | 5962-89736                         | QML-38535         | V             | NATIONAL       |                          |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1   |
| INDUCTOR |   |                 |         |                                    |                   |               |                |                          |  |
| Ind_1    | Common mode filter inductor L1            | DPU-EM-310.09-0 |         | SEE DRAWING<br>DPU-EM-<br>310.09-0 | SEE REMARKS       |               | BLU ELECTRONIC | PAD: DPU-PA-CGS-001      |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Ind_2    | Differential mode filter inductor L2      | DPU-EM-310.10-0 |         | SEE DRAWING<br>DPU-EM-<br>310.10-0 | SEE REMARKS       |               | BLU ELECTRONIC | PAD: DPU-PA-CGS-001      |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Ind_3    | Output power inductor L3                  | DPU-EM-310.11-0 |         | SEE DRAWING<br>DPU-EM-<br>310.11-0 | SEE REMARKS       |               | BLU ELECTRONIC | PAD: DPU-PA-CGS-001      |  |
|          |   |                 |         |                                    |                   |               |                |                          | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |

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| ID                  | COMPONENT TYPE                              | FM COMPONENT PN       | CASE                        | SPECIFICATION | QPL/QML REFERENCE | Quality Level | MANUFACTURER   | REMARKS                         | UNIT/BOARD Q.TY   |
|---------------------|---|-----------------------|-----------------------------|---------------|-------------------|---------------|----------------|---------------------------------|---|
| Ind_4               | Output power inductor L4                    | DPU-EM-310.12-0       | SEE DRAWING DPU-EM-310.12-0 | SEE REMARKS   | SEE REMARKS       |               | BLU ELECTRONIC | PAD: DPU-PA-CGS-001             | HI/DC1:1,<br>HI/DC2:1   |
| Ind_5               | Differential mode filter inductor L5        | DPU-EM-310.13-0       | SEE DRAWING DPU-EM-310.13-0 | SEE REMARKS   | SEE REMARKS       |               | BLU ELECTRONIC | PAD: DPU-PA-CGS-001             | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Ind_6               | Common mode filter inductor L7              | DPU-EM-310.15-0       | SEE DRAWING DPU-EM-310.15-0 | SEE REMARKS   | SEE REMARKS       |               | BLU ELECTRONIC | PAD: DPU-PA-CGS-001             | HI/DC1:6,<br>HI/DC2:6   |
| OPTOISOLATOR        |   |                       |                             |               |                   |               |                |                                 |   |
| Opt_1               | Quad Optoisolator 66179                     | 66179-300             |                             | SEE REMARKS   | SEE REMARKS       |               | MICROPAC       | Not in QPL, present in CPP list | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4 |
| QUARTZ / OSCILLATOR |   |                       |                             |               |                   |               |                |                                 |   |
| Osc_1               | 20MHz, TTL CLOCK OSCILLATOR QT6T9-20M000000 | MCM4114-3M 20.000 MHZ | 14 DIP                      | SEE REMARKS   | SEE REMARKS       |               | Q-TECH         | Not in QPL, present in CPP list | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,<br>PD/CP2:1 |
| Osc_2               | 16MHz, TTL CLOCK OSCILLATOR QT6T9-16M000000 | MCM4114-1M 16.000 MHZ | 14 DIP                      | SEE REMARKS   | SEE REMARKS       |               | Q-TECH         | Not in QPL, present in CPP list | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1    |

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| ID       | COMPONENT TYPE                               | FM COMPONENT PN  | CASE  | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY  |
|----------|--|------------------|-------|------------------|-------------------|---------------|--------------|---------|--|
| RESISTOR |  |                  |       |                  |                   |               |              |         |  |
| Res_1    | Resistor 0,1 Ohm 1W 1%                       | RWR81NR100FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         | HI/DC1:7,<br>HI/DC2:7,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4  |
| Res_2    | Resistor 1 Ohm 1W 1%                         | RWR81N1R00FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |  |
| Res_3    | Resistor 10 Ohm 1W 1%                        | RWR81N10R0FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2  |
| Res_4    | Resistor 22,1 Ohm 1W 1%                      | RWR81N22R1FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         | HI/PL1:24,<br>HI/PL2:24,<br>SD/PL1:12,<br>SD/PL2:12  |
| Res_5    | Network Resistor 13+1 pin 10K0 Ohm 0,325W 1% | M8340103M1002FB  | 14 FP | MIL-PRF-83401/3  | QPL-83401         | M             | DALE         |         | HI/PL1:5, HI/PL2:5,<br>HI/CP1:8,<br>HI/CP2:8,<br>SD/PL1:5,<br>SD/PL2:5,<br>SD/CP1:8,<br>SD/CP2:8,<br>PD/PL1:5,<br>PD/PL2:5,<br>PD/CP1:10,<br>PD/CP2:10 |
| Res_6    | Chip Resistor 51,1 Ohm 0,1W 1%               | M55342K06B51D1R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_7    | Chip Resistor 75 Ohm 0,1W 1%                 | M55342K06B75D0R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_8    | Chip Resistor 100 Ohm 0,2W 1%                | 400101701C1000F4 | 0705  | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:7,<br>PD/CP2:7  |
| Res_9    | Chip Resistor 110 Ohm 0,1W 1%                | M55342K06B110DR  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_10   | Chip Resistor 150 Ohm 0,1W 1%                | M55342K06B150DR  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_11   | Chip Resistor 200 Ohm 0,1W 1%                | M55342K06B200DR  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_12   | Chip Resistor 249 Ohm 0,2W 1%                | 400101701C2490F4 | 0705  | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         | PD/CP1:1,<br>PD/CP2:1  |
| Res_13   | Chip Resistor 301 Ohm 0,1W 1%                | M55342K06B301DR  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_14   | Chip Resistor 332 Ohm 0,2W 1%                | 400101701C3320F4 | 0705  | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         | SD/PL1:18,<br>SD/PL2:18  |
| Res_15   | Chip Resistor 511 Ohm 0,1W 1%                | M55342K06B511DR  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_16   | Chip Resistor 1K Ohm 0,1W 1%                 | M55342K06B1E00R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_17   | Chip Resistor 1,21K Ohm 0,1W 1%              | M55342K06B1E21R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_18   | Chip Resistor 1,5K Ohm 0,1W 1%               | M55342K06B1E50R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_19   | Chip Resistor 1,69K Ohm 0,1W 1%              | M55342K06B1E69R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_20   | Chip Resistor 2K Ohm 0,1W 1%                 | M55342K06B2E00R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |
| Res_21   | Chip Resistor 2,26K Ohm 0,1W 1%              | M55342K06B2E26R  | 0705  | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |  |

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| ID     | COMPONENT TYPE                      | FM COMPONENT PN  | CASE   | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|--------|-------------------------------------|------------------|--------|------------------|-------------------|---------------|--------------|---------|---|
| Res_22 | Chip Resistor 3,01K Ohm 0,2W 1%     | 400101701C3011F4 | 0705   | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         | SD/PL1:6,<br>SD/PL2:6   |
| Res_23 | Chip Resistor 3,92K Ohm 0,1W 1%     | M55342K06B3E92R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_24 | Chip Resistor 5,11K Ohm 0,1W 1%     | M55342K06B5E11R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_25 | Chip Resistor 5,36K Ohm 0,1W 1%     | M55342K06B5E36R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_26 | Chip Resistor 5,9K Ohm 0,1W 1%      | M55342K06B5E90R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_27 | Chip Resistor 6,81K Ohm 0,1W 1%     | M55342K06B6E81R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_28 | Chip Resistor 7,5K Ohm 0,1W 1%      | M55342K06B7E50R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
|        |                                     |                  |        |                  |                   |               |              |         | HI/PL1:17,<br>HI/PL2:17,<br>HI/CP1:4,<br>HI/CP2:4,<br>SD/PL1:16,<br>SD/PL2:16,<br>SD/CP1:4,<br>SD/CP2:4,<br>PD/PL1:13,<br>PD/PL2:13,<br>PD/CP1:6,<br>PD/CP2:6 |
| Res_29 | Chip Resistor 10K Ohm 0,2W 1%       | 400101701C1002F4 | 0705   | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_30 | Chip Resistor 12,1K Ohm 0,1W 1%     | M55342K06B12E1R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_31 | Chip Resistor 13,3K Ohm 0,1W 1%     | M55342K06B13E3R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_32 | Chip Resistor 15K Ohm 0,1W 1%       | M55342K06B15E0R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_33 | Chip Resistor 18,7K Ohm 0,1W 1%     | M55342K06B18E7R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_34 | Chip Resistor 20K Ohm 0,1W 1%       | M55342K06B20E0R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_35 | Chip Resistor 30,1K Ohm 0,1W 1%     | M55342K06B30E1R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
|        |                                     |                  |        |                  |                   |               |              |         | PD/CP1:6,<br>PD/CP2:6   |
| Res_36 | Chip Resistor 33,2K Ohm 0,2W 1%     | 400101701C3322F4 | 0705   | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_37 | Chip Resistor 40,2K Ohm 0,1W 1%     | M55342K06B40E2R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_38 | Chip Resistor 46,4K Ohm 0,1W 1%     | M55342K06B46E4R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_39 | Chip Resistor 53,6K Ohm 0,1W 1%     | M55342K06B53E6R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_40 | Chip Resistor 68,1K Ohm 0,1W 1%     | M55342K06B68E1R  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
|        |                                     |                  |        |                  |                   |               |              |         | HI/PL1:28,<br>HI/PL2:28,<br>SD/PL1:24,<br>SD/PL2:24,<br>PD/CP1:6,<br>PD/CP2:6   |
| Res_41 | Chip Resistor 100K Ohm 0,2W 1%      | 400101701C1003F4 | 0705   | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_42 | Chip Resistor 121K Ohm 0,1W 1%      | M55342K06B121ER  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_43 | Chip Resistor 178K Ohm 0,1W 1%      | M55342K06B178ER  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_44 | Chip Resistor 200K Ohm 0,1W 1%      | M55342K06B200ER  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_45 | Chip Resistor 221K Ohm 0,1W 1%      | M55342K06B221ER  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
| Res_46 | Chip Resistor 825K Ohm 0,1W 1%      | M55342K06B825ER  | 0705   | MIL-PRF-55342/6  | QPL-55342         | R             | DALE         |         |   |
|        |                                     |                  |        |                  |                   |               |              |         | HI/PL1:1, HI/PL2:1,<br>HI/CP1:1,<br>HI/CP2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/PL1:1,<br>PD/PL2:1,<br>PD/CP1:1,<br>PD/CP2:1          |
| Res_48 | Chip Resistor 1M Ohm 0,2W 1%        | 400101701C1004F4 | 0705   | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_49 | Network Resistor SIP 9+1 470 Ohm 5% | M8340109M4700JC  | 10 SIP | MIL-PRF-83401/9  | QPL-83401         | M             | IRC, VISHAY  |         |   |

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| ID     | COMPONENT TYPE                          | FM COMPONENT PN  | CASE   | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|--------|---|------------------|--------|------------------|-------------------|---------------|--------------|---------|---|
| Res_50 | Network Resistor SIP 9+1 330 Ohm 5%     | M8340109M3300JC  | 10 SIP | MIL-PRF-83401/9  | QPL-83401         | M             | IRC, VISHAY  |         | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4       |
| Res_51 | Chip Resistor 1,0M Ohm 0,25W 1%         | 400102003C1004F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2       |
| Res_52 | Chip Resistor 100K Ohm 0,25W 1%         | 400102003C1003F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:6,<br>HI/DC2:6,<br>SD/DC1:6,<br>SD/DC2:6,<br>PD/DC1:6,<br>PD/DC2:6       |
| Res_53 | Chip Resistor 10 Ohm 0,25W 1%           | 400102003C10R0F6 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_54 | Chip Resistor RM1206 20 Ohm 1/4W 1%     | D55342K07B20D0R  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_55 | Chip Resistor RM1206 5.62K Ohm 1/4 W 1% | D55342K07B5E62R  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_56 | Chip Resistor 33,2K Ohm 0,25W 1%        | 400102003C3322F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_57 | Chip Resistor 1K Ohm 0,25W 1%           | 400102003C1001F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:24,<br>HI/DC2:24,<br>SD/DC1:19,<br>SD/DC2:19,<br>PD/DC1:19,<br>PD/DC2:19 |
| Res_58 | Chip Resistor 10K Ohm 0,25W 1%          | 400102003C1002F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:16,<br>HI/DC2:16,<br>SD/DC1:11,<br>SD/DC2:11,<br>PD/DC1:11,<br>PD/DC2:11 |
| Res_59 | Chip Resistor 2K Ohm 0,25W 1%           | 400102003C2001F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3       |
| Res_60 | Chip Resistor RM1206 121 Ohm 1/4 W 1%   | D55342K07B121DR  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_61 | Chip Resistor RM1206 681 Ohm 1/4 W 1%   | D55342K07B681DR  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_62 | Chip Resistor RM1206 147 Ohm 1/4 W 1%   | D55342K07B147DR  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_63 | Chip Resistor RM1206 169 Ohm 1/4 W 1%   | D55342K07B169DR  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_64 | Chip Resistor 4,75K Ohm 0,25W 1%        | 400102003C4751F4 | 1206   | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_65 | Chip Resistor RM1206 71.5 Ohm 1/4 W 1%  | D55342K07B71D5R  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_66 | Chip Resistor RM1206 5.62K Ohm 1/4 W 1% | D55342K07B5E62R  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_67 | Chip Resistor RM1206 221 Ohm 1/4 W 1%   | D55342K07B221DR  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |
| Res_68 | Chip Resistor RM1206 340 Ohm 1/4 W 1%   | D55342K07B340DR  | 1206   | MIL-PRF-55342/7  | QPL-55342         | R             | DALE         |         |   |

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| ID     | COMPONENT TYPE                   | FM COMPONENT PN  | CASE  | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|--------|----------------------------------|------------------|-------|------------------|-------------------|---------------|--------------|---------|---|
| Res_69 | Chip Resistor 2,21K Ohm 0,25W 1% | 400102003C2211F4 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:5,<br>HI/DC2:5,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4       |
| Res_72 | Resistor 56,2 Ohm 1W 1%          | RWR81N56R2FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_73 | Chip Resistor 10 Ohm 0,2W 1%     | 400101701C10R0F6 | 0705  | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         | HI/CP1:88,<br>HI/CP2:88,<br>SD/CP1:88,<br>SD/CP2:88,<br>PD/CP1:88,<br>PD/CP2:88 |
| Res_74 | Chip Resistor 1.82K Ohm 0,2W 1%  | 400101701C1821F4 | 0705  | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         | HI/CP1:1,<br>HI/CP2:1,<br>SD/CP1:1,<br>SD/CP2:1,<br>PD/CP1:1,<br>PD/CP2:1       |
| Res_75 | Resistor 75 Ohm 1W 1%            | RWR81N75R0FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         | HI/DC1:8,<br>HI/DC2:8,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4       |
| Res_76 | Resistor 10 Ohm 3W 1%            | RWR89N10R0FR     | RWR89 | MIL-PRF-39007/11 | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_77 | Resistor 0.1 Ohm 3W 1%           | RWR89NR100FR     | RWR89 | MIL-PRF-39007/11 | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_78 | Resistor 0,150 Ohm 1W 1%         | RWR81NR150FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_79 | Resistor 0,332 Ohm 1W 1%         | RWR81NR332FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_80 | Resistor 0,562 Ohm 1W 1%         | RWR81NR562FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_81 | Resistor 0,750 Ohm 1W 1%         | RWR81NR750FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_82 | Resistor 1,10 Ohm 1W 1%          | RWR81N1R10FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_83 | Resistor 1,50 Ohm 1W 1%          | RWR81N1R50FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_84 | Resistor 4,99 Ohm 1W 1%          | RWR81N4R99FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_85 | Resistor 15 Ohm 1W 1%            | RWR81N15R0FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2       |
| Res_86 | Resistor 49,9 Ohm 1W 1%          | RWR81N49R9FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_87 | Resistor 100 Ohm 1W 1%           | RWR81N1000FR     | RWR81 | MIL-PRF-39007/9  | QPL-39007         | R             | DALE-IRC     |         |   |
| Res_88 | Metal film 100 Ohm 0,05% 5ppm    | 400101104C1000W  | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1          |

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| ID     | COMPONENT TYPE                  | FM COMPONENT PN | CASE  | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY  |
|--------|---------------------------------|-----------------|-------|------------------|-------------------|---------------|--------------|---------|--|
| Res_89 | Metal film 1K Ohm 0.05% 5ppm    | 400101104C1001W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/PL1:2, HI/PL2:2,<br>SD/PL1:2,<br>SD/PL2:2,<br>PD/PL1:2,<br>PD/PL2:2,<br>HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4 |
| Res_90 | Metal film 1,1K Ohm 0.05% 5ppm  | 400101104C1101W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         |  |
| Res_91 | Metal film 1,24K Ohm 0.05% 5ppm | 400101104C1241W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Res_92 | Metal film 1,5K Ohm 0.05% 5ppm  | 400101104C1501W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2  |
| Res_93 | Metal film 2,43K Ohm 0.05% 5ppm | 400101104C2431W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Res_94 | Metal film 3,61K Ohm 0.05% 5ppm | 400101104C3611W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         |  |
| Res_95 | Metal film 3,74K Ohm 0.05% 5ppm | 400101104C3741W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/PL1:1, HI/PL2:1,<br>SD/PL1:1,<br>SD/PL2:1,<br>PD/PL1:1,<br>PD/PL2:1   |
| Res_96 | Metal film 4,99K Ohm 0.05% 5ppm | 400101104C4991W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |
| Res_97 | Metal film 5,11K Ohm 0.05% 5ppm | 400101104C5111W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         |  |
| Res_98 | Metal film 8,66K Ohm 0.05% 5ppm | 400101104C8661W | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1  |

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| ID      | COMPONENT TYPE                  | FM COMPONENT PN  | CASE  | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|---------|---------------------------------|------------------|-------|------------------|-------------------|---------------|--------------|---------|---|
| Res_99  | Metal film 10K Ohm 0.05% 5ppm   | 400101104C1002W  | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_100 | Metal film 15K Ohm 0.05% 5ppm   | 400101104C1502W  | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,                                       |
| Res_101 | Metal film 20K Ohm 0.05% 5ppm   | 400101104C2002W  | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_102 | Metal film 100K Ohm 0.05% 5ppm  | 400101104C1003W  | RNC90 | ESA/SCC 4001/011 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_103 | Chip Resistor 475 Ohm 0.2W 1%   | 400101701C4750F4 | 0705  | ESA/SCC 4001/017 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_104 | Chip Resistor 1 Ohm 0,25W 1%    | 400102003C1R00F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_105 | Chip Resistor 1,10 Ohm 0,25W 1% | 400102003C1R10F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_106 | Chip Resistor 1,50 Ohm 0,25W 1% | 400102003C1R50F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_107 | Chip Resistor 2 Ohm 0,25W 1%    | 400102003C2R00F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_108 | Chip Resistor 2,49 Ohm 0,25W 1% | 400102003C2R49F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2 |
| Res_109 | Chip Resistor 5,11 Ohm 0,25W 1% | 400102003C5R11F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_110 | Chip Resistor 5,62 Ohm 0,25W 1% | 400102003C5R62F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_111 | Chip Resistor 7,5 Ohm 0,25W 1%  | 400102003C7R50F6 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_112 | Chip Resistor 33,2 Ohm 0,25W 1% | 400102003C33R2F4 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_113 | Chip Resistor 47,5 Ohm 0,25W 1% | 400102003C47R5F4 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:3,<br>HI/DC2:3   |
| Res_114 | Chip Resistor 75 Ohm 0,25W 1%   | 400102003C75R0F4 | 1206  | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |



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| ID      | COMPONENT TYPE                   | FM COMPONENT PN  | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|---------|----------------------------------|------------------|------|------------------|-------------------|---------------|--------------|---------|---|
| Res_115 | Chip Resistor 100 Ohm 0.25W 1%   | 400102003C1000F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:5,<br>HI/DC2:5,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2 |
| Res_116 | Chip Resistor 243 Ohm 0.25W 1%   | 400102003C2430F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4 |
| Res_117 | Chip Resistor 332 Ohm 0.25W 1%   | 400102003C3320F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:6,<br>HI/DC2:6,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3 |
| Res_118 | Chip Resistor 475 Ohm 0.25W 1%   | 400102003C4750F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_119 | Chip Resistor 825 Ohm 0.25W 1%   | 400102003C8250F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_120 | Chip Resistor 1,5K Ohm 0.25W 1%  | 400102003C1501F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:3,<br>HI/DC2:3,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3 |
| Res_121 | Chip Resistor 1,82K Ohm 0.25W 1% | 400102003C1821F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:6,<br>HI/DC2:6,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2 |
| Res_122 | Chip Resistor 2,49K Ohm 0.25W 1% | 400102003C2491F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_123 | Chip Resistor 2,74K Ohm 0.25W 1% | 400102003C2741F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:7,<br>HI/DC2:7,<br>SD/DC1:3,<br>SD/DC2:3,<br>PD/DC1:3,<br>PD/DC2:3 |
| Res_124 | Chip Resistor 3,32K Ohm 0.25W 1% | 400102003C3321F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:5,<br>HI/DC2:5,<br>SD/DC1:2,<br>SD/DC2:2,<br>PD/DC1:2,<br>PD/DC2:2 |

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| ID      | COMPONENT TYPE                   | FM COMPONENT PN  | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|---------|----------------------------------|------------------|------|------------------|-------------------|---------------|--------------|---------|---|
| Res_125 | Chip Resistor 3,65K Ohm 0,25W 1% | 400102003C3651F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_126 | Chip Resistor 4,32K Ohm 0,25W 1% | 400102003C4321F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1   |
| Res_127 | Chip Resistor 5,11K Ohm 0,25W 1% | 400102003C5111F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:6,<br>HI/DC2:6,<br>SD/DC1:6,<br>SD/DC2:6,<br>PD/DC1:6,<br>PD/DC2:6 |
| Res_128 | Chip Resistor 6,19K Ohm 0,25W 1% | 400102003C6191F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:3,<br>HI/DC2:3,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_129 | Chip Resistor 7,50K Ohm 0,25W 1% | 400102003C7501F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_130 | Chip Resistor 8,25K Ohm 0,25W 1% | 400102003C8251F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_131 | Chip Resistor 11,0K Ohm 0,25W 1% | 400102003C1102F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_132 | Chip Resistor 12,1K Ohm 0,25W 1% | 400102003C1212F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_133 | Chip Resistor 13,0K Ohm 0,25W 1% | 400102003C1302F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_134 | Chip Resistor 15K Ohm 0,25W 1%   | 400102003C1502F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_135 | Chip Resistor 17,4K Ohm 0,25W 1% | 400102003C1742F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_136 | Chip Resistor 20K Ohm 0,25W 1%   | 400102003C2002F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_137 | Chip Resistor 22,1K Ohm 0,25W 1% | 400102003C2212F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_138 | Chip Resistor 24,3K Ohm 0,25W 1% | 400102003C2432F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1   |
| Res_139 | Chip Resistor 27,4K Ohm 0,25W 1% | 400102003C2742F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_140 | Chip Resistor 47,5K Ohm 0,25W 1% | 400102003C4752F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |

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|---------|----------------------------------|------------------|------|------------------|-------------------|---------------|--|---------|---|
| Res_141 | Chip Resistor 51,1K Ohm 0,25W 1% | 400102003C5112F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_142 | Chip Resistor 56,2K Ohm 0,25W 1% | 400102003C5622F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:1,<br>HI/DC2:1   |
| Res_143 | Chip Resistor 68,1K Ohm 0,25W 1% | 400102003C6812F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:2,<br>HI/DC2:2   |
| Res_144 | Chip Resistor 82,5K Ohm 0,25W 1% | 400102003C8252F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_145 | Chip Resistor 121K Ohm 0,25W 1%  | 400102003C1213F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_146 | Chip Resistor 150K Ohm 0,25W 1%  | 400102003C1503F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_147 | Chip Resistor 174K Ohm 0,25W 1%  | 400102003C1743F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_148 | Chip Resistor 200K Ohm 0,25W 1%  | 400102003C2003F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_149 | Chip Resistor 332K Ohm 0,25W 1%  | 400102003C3323F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:3,<br>HI/DC2:3   |
| Res_150 | Chip Resistor 475K Ohm 0,25W 1%  | 400102003C4753F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:2,<br>HI/DC2:2,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_151 | Chip Resistor 511K Ohm 0,25W 1%  | 400102003C5113F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_152 | Chip Resistor 681K Ohm 0,25W 1%  | 400102003C6813F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_153 | Chip Resistor 768K Ohm 0,25W 1%  | 400102003C7683F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         |   |
| Res_154 | Chip Resistor 100 Ohm 0,1W 1%    | M55342K06B100DR  | 0705 | MIL-PRF-55342/6  | QPL-55342         | R             | IRC, MINI-SYSTEMS,<br>STATE OF THE ART,<br>VISHAY DALE |         |   |
| Res_155 | Chip Resistor 2,21K Ohm 0,1W 1%  | M55342K06B2E21R  | 0705 | MIL-PRF-55342/6  | QPL-55342         | R             | IRC, MINI-SYSTEMS,<br>STATE OF THE ART,<br>VISHAY DALE |         | HI/PL1:4,<br>HI/PL2:4   |
| Res_156 | Chip Resistor 221 Ohm 0,1W 1%    | M55342K06B221DR  | 0705 | MIL-PRF-55342/6  | QPL-55342         | R             | IRC, MINI-SYSTEMS,<br>STATE OF THE ART,<br>VISHAY DALE |         | HI/PL1:24,<br>HI/PL2:24   |
| Res_157 | Chip Resistor 68 Ohm 0,1W 2%     | M55342K06B68G0R  | 0705 | MIL-PRF-55342/6  | QPL-55342         | R             | IRC, MINI-SYSTEMS,<br>STATE OF THE ART,<br>VISHAY DALE |         | HI/PL1:6, HI/PL2:6,<br>SD/PL1:6,<br>SD/PL2:6,<br>PD/PL1:6,<br>PD/PL2:6    |
| Res_158 | Chip Resistor 19,6 Ohm 0,25W 1%  | 400102003C19R6F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE   |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |

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| ID      | COMPONENT TYPE                  | FM COMPONENT PN  | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|---------|---------------------------------|------------------|------|------------------|-------------------|---------------|--------------|---------|---|
| Res_159 | Chip Resistor 40,2 Ohm 0,25W 1% | 400102003C40R2F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_160 | Chip Resistor 59 Ohm 0,25W 1%   | 400102003C59R0F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_161 | Chip Resistor 71,5 Ohm 0,25W 1% | 400102003C71R5F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_162 | Chip Resistor 78,7 Ohm 0,25W 1% | 400102003C78R7F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_163 | Chip Resistor 90,9 Ohm 0,25W 1% | 400102003C90R9F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_164 | Chip Resistor 196 Ohm 0,25W 1%  | 400102003C1960F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_165 | Chip Resistor 301 Ohm 0,25W 1%  | 400102003C3010F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_166 | Chip Resistor 402 Ohm 0,25W 1%  | 400102003C4020F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |

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| ID      | COMPONENT TYPE                   | FM COMPONENT PN  | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY   |
|---------|----------------------------------|------------------|------|------------------|-------------------|---------------|--------------|---------|---|
| Res_167 | Chip Resistor 511 Ohm 0,25W 1%   | 400102003C5110F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_168 | Chip Resistor 590 Ohm 0,25W 1%   | 400102003C5900F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_169 | Chip Resistor 715 Ohm 0,25W 1%   | 400102003C7150F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_170 | Chip Resistor 787 Ohm 0,25W 1%   | 400102003C7870F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_171 | Chip Resistor 909 Ohm 0,25W 1%   | 400102003C9090F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Res_172 | Chip Resistor 3,01K Ohm 0,25W 1% | 400102003C3011F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_173 | Chip Resistor 7,15K Ohm 0,25W 1% | 400102003C7151F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |
| Res_174 | Chip Resistor 9,09K Ohm 0,25W 1% | 400102003C9091F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |   |

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| ID      | COMPONENT TYPE                   | FM COMPONENT PN  | CASE | SPECIFICATION    | QPL/QML REFERENCE | Quality Level | MANUFACTURER | REMARKS | UNIT/BOARD Q.TY |
|---------|----------------------------------|------------------|------|------------------|-------------------|---------------|--------------|---------|-----------------|
| Res_175 | Chip Resistor 30,1K Ohm 0,25W 1% | 400102003C3012F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_176 | Chip Resistor 40,2K Ohm 0,25W 1% | 400102003C4022F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_177 | Chip Resistor 78,7K Ohm 0,25W 1% | 400102003C7872F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_178 | Chip Resistor 90,9K Ohm 0,25W 1% | 400102003C9092F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_179 | Chip Resistor 196K Ohm 0,25W 1%  | 400102003C1963F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_180 | Chip Resistor 402K Ohm 0,25W 1%  | 400102003C4023F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_181 | Chip Resistor 590K Ohm 0,25W 1%  | 400102003C5903F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |
| Res_182 | Chip Resistor 715K Ohm 0,25W 1%  | 400102003C7153F4 | 1206 | ESA/SCC 4001/020 | ESA QPL           | C             | SFERNICE     |         |                 |

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| ID          | COMPONENT TYPE                                      | FM COMPONENT PN  | CASE                        | SPECIFICATION              | QPL/QML REFERENCE | Quality Level | MANUFACTURER     | REMARKS                         | UNIT/BOARD Q.TY  |
|-------------|---|------------------|-----------------------------|----------------------------|-------------------|---------------|------------------|---------------------------------|--|
| Res_183     | Chip Resistor 787K Ohm 0,25W 1%                     | 400102003C7873F4 | 1206                        | ESA/SCC 4001/020           | ESA QPL           | C             | SFERNICE         |                                 |  |
| Res_184     | Chip Resistor 909K Ohm 0,25W 1%                     | 400102003C9093F4 | 1206                        | ESA/SCC 4001/020           | ESA QPL           | C             | SFERNICE         |                                 |  |
| Res_185     | Resistor 0.499 Ohm 1W 1%                            | RWR81NR499FR     | RWR81                       | MIL-PRF-39007/9            | QPL-39007         | R             | DALE-IRC         |                                 |  |
| Res_186     | Chip Resistor 30,1 Ohm 0,25W 1%                     | 400102003C30R1F4 | 1206                        | ESA/SCC 4001/020           | ESA QPL           | C             | SFERNICE         |                                 |  |
| TRANSFORMER |   |                  |                             |                            |                   |               |                  |                                 |  |
| Trf_1       | MIL-STD-1553 Long Stub Transformer, Turns Ratio 2:1 | HLP6002          |                             | MIL-PRF-21038, MIL-STD-202 | SEE REMARKS       |               | BETA TRANSFORMER | Not in QPL, present in CPP list | HI/PL1:2, HI/PL2:2, SD/PL1:2, SD/PL2:2, PD/PL1:2, PD/PL2:2 |
| Trf_2       | GALVANIC ISOLATION TRANSFORMER TRF1                 | DPU-EM-310.04-0  | SEE DRAWING DPU-EM-310.04-0 | SEE REMARKS                | SEE REMARKS       |               | BLU ELECTRONIC   | PAD: DPU-PA-CGS-002             | HI/DC1:1, HI/DC2:1, SD/DC1:1, SD/DC2:1, PD/DC1:1, PD/DC2:1 |
| Trf_3       | MAIN POWER TRANSFORMER TRF2                         | DPU-EM-310.05-0  | SEE DRAWING DPU-EM-310.05-0 | SEE REMARKS                | SEE REMARKS       |               | BLU ELECTRONIC   | PAD: DPU-PA-CGS-002             | HI/DC1:1, HI/DC2:1, SD/DC1:1, SD/DC2:1, PD/DC1:1, PD/DC2:1 |
| Trf_4       | PRIMARY CURRENT SENS TRANSFORMER TRF3               | DPU-EM-310.06-0  | SEE DRAWING DPU-EM-310.06-0 | SEE REMARKS                | SEE REMARKS       |               | BLU ELECTRONIC   | PAD: DPU-PA-CGS-002             | HI/DC1:2, HI/DC2:2, SD/DC1:1, SD/DC2:1, PD/DC1:1, PD/DC2:1 |

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|------------|---|-----------------|--------------------------------|-------------------|-------------------|---------------|-------------------|--------------------------|---|
| Trf_5      | MAIN POWER TRANSFORMER TRF4               | DPU-EM-310.07-0 | SEE DRAWING<br>DPU-EM-310.07-0 | SEE REMARKS       | SEE REMARKS       |               | BLU ELECTRONIC    | PAD: DPU-PA-CGS-002      | HI/DC1:1,<br>HI/DC2:1   |
| TRANSISTOR |   |                 |                                |                   |                   |               |                   |                          |   |
| Trs_1      | Transistor NPN 2N2222A                    | 520100202B      | TO 18                          | ESA/SCC 5201/002  | ESA QPL           | B             | STM               |                          |   |
| Trs_2      | N Channel Power MOSFET 100V               | JANSR2N7261     | TO-205AF                       | MIL-PRF-19500/601 | QML-19500         | JANS          | IR                | Part present in CPP list |   |
| Trs_3      | PNP Transistor 2N2905A                    | 520200202B      | TO 39                          | ESA/SCC 5202/002  | ESA QPL           | B             | STM               |                          |   |
| Trs_4      | NPN Signal Transistor 2N2222A             | 520100205B      | SMD                            | ESA/SCC 5201/002  | ESA QPL           | B             | STM               |                          | HI/DC1:5,<br>HI/DC2:5,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4 |
| Trs_5      | PNP Signal Transistor 2N2907A             | 520200105B      | SMD                            | ESA/SCC 5202/001  | ESA QPL           | B             | STM               |                          | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Trs_6      | N Channel Power MOSFET 100V               | JANSR2N7268     | TO 254AA                       | MIL-PRF-19500/603 | QML-19500         | JANS          | IR                |                          | HI/DC1:4,<br>HI/DC2:4,<br>SD/DC1:4,<br>SD/DC2:4,<br>PD/DC1:4,<br>PD/DC2:4 |
| Trs_7      | NPN Power Transistor 2A, 2N5154           | 520301002B      | TO 39                          | ESA/SCC 5203/010  | ESA QPL           | B             | STM               |                          | HI/DC1:1,<br>HI/DC2:1   |
| Trs_8      | P Channel Power MOSFET 100V               | JANSR2N7422     | TO-254AA                       | MIL-PRF-19500/662 | QML-19500         | JANS          | IR                |                          | HI/DC1:1,<br>HI/DC2:1,<br>SD/DC1:1,<br>SD/DC2:1,<br>PD/DC1:1,<br>PD/DC2:1 |
| Trs_9      | PNP Power Transistor High Speed Switching | JANTXV2N5153    | TO 39                          | MIL-PRF-19500/545 | QML-19501         | JANTXV        | MICROSEMI-SEMICOA |                          | HI/DC1:3,<br>HI/DC2:3   |
| CABLE      |   |                 |                                |                   |                   |               |                   |                          |   |
| Cab_1      | SPM TYPE AWG 26 PAIR TWISTED WIRE         | 390101813B      | SEE ESA<br>ESCC<br>3901/018    | ESA ESCC 3901/018 | ESCC QPL          | B             | W.L.GORE          |                          |   |
| Cab_2      | SPM TYPE AWG 20 PAIR TWISTED WIRE         | 390101816B      | SEE ESA<br>ESCC<br>3901/018    | ESA ESCC 3901/018 | ESCC QPL          | B             | W.L.GORE          |                          |   |



