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| |  |  | | --- | --- | | Перв. примен. |  | | Справ. № |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | |  | Устройства |  |  | | A1 | VRB4812ZP-6WR3 ф. MORNSUN | 1 |  | | A2 | GeoS-5M ф. Geostar | 1 |  | |  |  |  |  | |  | Преобразователи неэлектрических величин |  |  | | BL1 | TEMD5510FX01 | 1 |  | | BL2 | APA3010P3BT | 1 |  | |  |  |  |  | |  | Конденсаторы |  |  | | C1 | керам. – чип 0603 – NP0 – 50 В – 1 пФ ± 0,1 пФ | 1 |  | | C2 | керам. – чип 0603 – X7R – 50 В – 0,1 мкФ ± 10 % | 1 |  | | C3 | ECHU1H184GX9 ф. Panasonic (плён. – чип 2416 – PPS – 50 В – | 1 |  | |  | 0,18 мкФ ± 2 %) |  |  | | C4 | GRM32EC81C476KE15 ф. Murata (керам. – чип 1210 – X6S – 16 В – | 1 |  | |  | 47 мкФ ± 10 %) |  |  | | C5 | 593D476X9016C ф. Vishay (тант. – чип C – 16 В – | 1 |  | |  | 47 мкФ ± 10 %) |  |  | | C6 | B41858C9477M ф. EPCOS (алюм. эл-лит – рад. 18\*35мм – 100 В – | 1 | не старше 1 года | |  | 470 мкФ ± 20 % – низк. имп.) |  |  | | C7 | A755MS108M1CAAE012 ф. KEMET (алюм. полим. – рад. 10\*12мм – | 1 |  | |  | 16 В – 1000 мкФ ± 20 %) |  |  | | C8 | Конденсатор К58-26 – 2,7В – 100Ф (+50…-20)% – | 1 |  | |  | ЕВАЯ.673811.006ТУ ф. АО «Элеконд» (ионистор – рад. 20\*40мм – |  |  | |  | 2,7 В – 100 Ф + 50 … - 20 %) |  |  | | C9–C13 | керам. – чип 0603 – X7R – 50 В – 0,1 мкФ ± 10 % | 5 |  | | C14–C18 | керам. – чип 0603 – X7R – 50 В – 0,1 мкФ ± 10 % | 5 | не устанавливать | | C19–C21 | керам. – чип 0603 – X7R – 16 В – 1 мкФ ± 10 % | 24 |  | |  |  |  |  | | C22A | керам. – чип 0603 – X7R – 50 В – 0,01 мкФ ± 10 % | 1 |  | |
| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | BCAD.123456.001 ПЭ3 | | | | | | |  |  |  |  |  | | Изм. | Лист | № докум. | Подп. | Дата | | Разраб. | | Иванов И.И. |  | 03.07.2025 | BoM Converter отладочный проект AD  Перечень элементов | Лит. | | | Лист | Листов | | Проверил | | Петров П.П. |  | 03.07.2025 |  |  |  | 1 | 7 | |  | |  |  |  | ООО "НИИ БАЦА" | | | | | | Н контр. | | Зюзина В.Н. |  | 03.07.2025 | | Утв. | | Горшков А.С. |  | 03.07.2025 | |

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| |  |  | | --- | --- | |  |  | |  |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | | C22B | керам. – чип 0603 – X7R – 50 В – 0,022 мкФ ± 10 % | 1 |  | | C22C | керам. – чип 0603 – X7R – 50 В – 0,033 мкФ ± 10 % | 1 |  | | C22D | керам. – чип 0603 – X7R – 50 В – 0,047 мкФ ± 10 % | 1 |  | | C22E | керам. – чип 0603 – X7R – 50 В – 0,056 мкФ ± 10 % | 1 |  | | C22F | керам. – чип 0603 – X7R – 50 В – 0,068 мкФ ± 10 % | 1 |  | | C22G | керам. – чип 0603 – X7R – 50 В – 0,1 мкФ ± 10 % | 1 | не устанавливать | | C22H | керам. – чип 0603 – X7R – 50 В – 0,082 мкФ ± 10 % | 1 |  | |  |  |  |  | | C23A | керам. – чип 0603 – X7R – 50 В – 0,01 мкФ ± 10 % | 1 |  | | C23B | керам. – чип 0603 – X7R – 50 В – 0,022 мкФ ± 10 % | 1 |  | | C23C | керам. – чип 0603 – X7R – 50 В – 0,033 мкФ ± 10 % | 1 |  | | C23D | керам. – чип 0603 – X7R – 50 В – 0,047 мкФ ± 10 % | 1 |  | | C23E | керам. – чип 0603 – X7R – 50 В – 0,056 мкФ ± 10 % | 1 |  | | C23F | керам. – чип 0603 – X7R – 50 В – 0,068 мкФ ± 10 % | 1 |  | | C23G | керам. – чип 0603 – X7R – 50 В – 0,1 мкФ ± 10 % | 1 | не устанавливать | | C23H | керам. – чип 0603 – X7R – 50 В – 0,082 мкФ ± 10 % | 1 |  | |  |  |  |  | | C24A | керам. – чип 0603 – X7R – 50 В – 0,01 мкФ ± 10 % | 1 |  | | C24B | керам. – чип 0603 – X7R – 50 В – 0,022 мкФ ± 10 % | 1 |  | | C24C | керам. – чип 0603 – X7R – 50 В – 0,033 мкФ ± 10 % | 1 |  | | C24D | керам. – чип 0603 – X7R – 50 В – 0,047 мкФ ± 10 % | 1 |  | | C24E | керам. – чип 0603 – X7R – 50 В – 0,056 мкФ ± 10 % | 1 |  | | C24F | керам. – чип 0603 – X7R – 50 В – 0,068 мкФ ± 10 % | 1 |  | | C24G | керам. – чип 0603 – X7R – 50 В – 0,1 мкФ ± 10 % | 1 | не устанавливать | | C24H | керам. – чип 0603 – X7R – 50 В – 0,082 мкФ ± 10 % | 1 |  | |  |  |  |  | |  | Микросхемы |  |  | | DA1 | MOC3063M (детектор нуля) | 1 |  | | DA2 | TPS561201DDC ф. Texas Instruments | 1 |  | |  | доп. замена TPS562201DDC ф. Texas Instruments (огр. тока 2А) |  |  | |  | доп. замена TPS563201DDC ф. Texas Instruments (огр. тока 3А) |  |  | | DA3 | LP5907MFX-3.3 ф. Texas Instruments | 1 |  | |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | BCAD.123456.001 ПЭ3 | |  | | --- | | Лист | | 2 | | |  |  |  |  |  | | Изм. | Лист | № докум. | Подп. | Дата | |

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| |  |  | | --- | --- | |  |  | |  |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | | DD1 | SN74LVC1G126DBV ф. Texas Instruments | 1 |  | | DD2 | SCM3725ASA ф. MORNSUN | 1 |  | | DD3 | ECS-3225MV-250-CN ф. ECS Inc. (кварц. – 25 МГц ± 25 ppm – | 1 |  | |  | -40 … +85 °C) |  |  | |  |  |  |  | |  | Элементы разные |  |  | | EF1 | SMTSO-M2-2ET ф. PEM (стойка – SMD – M2\*0.4 – 2мм) | 1 |  | | ER1 | FK 244 13 D2 PAK ф. Fischer Elektronik | 1 |  | |  |  |  |  | |  | Устройства защитные |  |  | | FP1 | MF-MSMF014 ф. Bourns (самовосст. – чип 1812 – 140 мА – 60 В) | 1 |  | | FU1 | 0451001. ф. Littelfuse (плавкий – чип 2410 – 1 А – 0,6029 А²с – | 1 |  | |  | быстрый) |  |  | | FU2 | ZH242 (держатель) | 1 |  | | FU3 | ZH250 (держатель) | 1 |  | | FU4 | ZH242 (держатель) | 1 |  | | FU5 | ZH250 (держатель) | 1 |  | | FV1 | B72540T0400K062 ф. TDK (варистор – чип 2220 – 68 В – 9 Дж) | 1 |  | | FV2 | SMBJ6.5CA (супрессор – двунаправ. – 6,5 В – | 1 |  | |  | 600 Вт (10/1000 мкс) – корпус SMB) |  |  | | FV3 | SMBJ5.0A (супрессор – однонаправ. – 5 В – 600 Вт (10/1000 мкс) | 1 |  | |  | – корпус SMB) |  |  | | FV4 | GSOT05C-E3-08 (супрессор – корпус SOT-23) | 1 |  | | FV5 | CDSOT23-T24CAN ф. Bourns (супрессор – корпус SOT-23) | 1 |  | |  |  |  |  | |  | Генераторы, источники питания |  |  | | GB1 | CR 1/2 AA S PCBD ф. VARTA | 1 |  | | GB2 | BR-2325/2HAN | 1 |  | | GB3 | DS1092-04-B6P ф. Connfly (держатель – – CR2032) | 1 |  | |  | доп. замена BH-25F-1 ф. Adam Tech |  |  | |  | доп. замена BS-7 ф. Memory Protection Devices |  |  | |  |  |  |  | |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | BCAD.123456.001 ПЭ3 | |  | | --- | | Лист | | 3 | | |  |  |  |  |  | | Изм. | Лист | № докум. | Подп. | Дата | |

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| |  |  | | --- | --- | |  |  | |  |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | | GB4 | BH-25F-1 ф. Adam Tech (держатель – – CR2032) | 1 |  | |  | доп. замена DS1092-04-B6P ф. Connfly |  |  | |  | доп. замена BS-7 ф. Memory Protection Devices |  |  | |  |  |  |  | |  | Устройства сигнальные |  |  | | HG1 | CC56-12SRWA ф. Kingbright | 1 |  | | HL1 | KP-1608F3C ф. Kingbright (инфракрасный – 940 нм – 150 град.) | 1 |  | | HL2 | KPT-1608SURCK (красный – 645 / 630 нм – 230 мкд (20 мА) – | 1 |  | |  | 120 град.) |  |  | | HL3 | KPA-3010CGCK (зелёный – 574 / 570 нм – 50 мкд (20 мА) – | 1 |  | |  | 120 град.) |  |  | | HL4 | KPT-1608QBC-D (синий – 460 / 465 нм – 100 мкд (20 мА) – | 1 |  | |  | 130 град.) |  |  | | HL5 | KPT-1608SYCK (жёлтый – 590 нм – 150 мкд (20 мА) – 120 град.) | 1 |  | | HL6 | XPCWHT-L1-0000-008E5 ф. Cree (белый –  4000 К – CRI 75 – | 1 |  | |  | 73,9 лм (350 мА)) |  |  | | HL7 | SMP6-RGB ф. Bivar (многоцветный) | 1 |  | | HL8 | KPBDA-3020SURKCGKC-PF ф. Kigbright (многоцветный – сборка) | 1 |  | | HL9 | AM23ESGW ф. Kingbright (многоцветный – сборка) | 1 |  | |  |  |  |  | | J1 | Перемычка чип 0402 | 1 |  | |  |  |  |  | |  | Реле |  |  | | K1 | RZ03-1A4-D012 ф. TE Connectivity | 1 |  | | K2 | T9GV2L24-12 ф. TE Connectivity | 1 |  | | K3 | RT214012 ф. TE Connectivity | 1 |  | | K4 | V23105A5476A201 ф. TE Connectivity | 1 |  | |  |  |  |  | |  | Катушки индуктивности |  |  | | L1 | чип 1812 – 10 мкГн ± 10 % – 250 мА | 1 |  | | L2 | SRU1048-470Y ф. Bourns (47 мкГн ± 30 % – 1,5 А) | 1 |  | | L3–L5 | чип 1812 – 10 мкГн ± 10 % – 250 мА | 3 |  | |
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| |  |  | | --- | --- | |  |  | |  |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | | L6–L8 | SRU1048-470Y ф. Bourns (47 мкГн ± 30 % – 1,5 А) | 3 |  | | L9, L10 | SRN6045TA-2R2Y ф. Bourns (2,2 мкГн ± 30 % – 6 А) | 2 |  | | L11 | SRR0604-100ML ф. Bourns (10 мкГн ± 20 % – 1,3 А) | 1 |  | | L12 | SRN6045TA-2R2Y ф. Bourns (2,2 мкГн ± 30 % – 6 А) | 1 | не устанавливать | |  |  |  |  | |  | Резисторы |  |  | | R1 | чип 0603 – 10 кОм ± 5 % | 1 |  | | R2 | чип 0603 – 47 кОм ± 0,5 % – ± 25 ppm/°C | 1 |  | | R3 | RV0805JR-071ML ф. YAGEO (чип 0805 – 400 В – 10 кОм ± 5 %) | 1 |  | | R4–R7 | чип 0603 – 100 кОм ± 1 % | 4 |  | | R8 | чип 0603 – 200 кОм ± 1 % | 1 |  | | R9–R12 | чип 0603 – 300 кОм ± 1 % | 4 |  | | R13 | чип 0603 – 470 кОм ± 5 % | 1 |  | |  |  |  |  | | R14–R19 | чип 0603 – 1 кОм ± 1 % | 36 |  | | R17E–R17H | чип 0603 – 4,7 кОм ± 1 % | 4 |  | | R18E–R18H | чип 0603 – 4,7 кОм ± 1 % | 4 |  | | R19E–R19H | чип 0603 – 4,7 кОм ± 1 % | 4 |  | |  |  |  |  | | RK1 | NCP18XQ102J03RB ф. Murata (чип 0603 – 1 кОм ± 5 %) | 1 |  | | RK2 | TFPT0805L1000FV ф. Vishay (чип 0805 – 100 Ом ± 1 %) | 1 |  | | RP1 | 3006P-1-103 ф. Bourns (10 кОм ± 10 % – – подстроечный – лин. | 1 |  | |  | хар-ка) |  |  | |  |  |  |  | |  | Устройства коммутационные |  |  | | SA1 | CHS-01TA ф. Copal Electronics Inc. | 1 |  | | SA2 | SWD-08L | 1 |  | | SA3 | MS-22D18 (движковый) | 1 |  | | SA4 | GPTS203211B ф. CW Industries | 1 |  | | SA5 | SSSF012100 | 1 |  | | SA6 | PN12SHNA03QE ф. C&K | 1 |  | | SB1 | DTSM-61N ф. Diptronics (кнопочный) | 1 |  | |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | BCAD.123456.001 ПЭ3 | |  | | --- | | Лист | | 5 | | |  |  |  |  |  | | Изм. | Лист | № докум. | Подп. | Дата | |

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| |  |  | | --- | --- | |  |  | |  |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | | T1 | Трансформатор HX1188NL ф. Pulse | 1 |  | |  |  |  |  | |  | Диоды |  |  | | VD1 | BAS316 (100 В – 250 мА – корпус SOD-323) | 1 |  | | VD2 | BAT20JFILM (Шоттки – 23 В – 1 А – корпус SOD-323) | 1 |  | | VD3 | BZT52H-B13 (13 В ± 2 % – 830 мВт – корпус SOD-123F) | 1 |  | | VD4 | BB545E7904 ф. Infineon | 1 |  | | VD5 | BAT54AFILM (Шоттки – 40 В – 300 мА – корпус SOT-23) | 1 |  | | VD6 | BAT54СFILM (Шоттки – 40 В – 300 мА – корпус SOT-23) | 1 |  | | VD7 | BAT54SFILM (Шоттки – 40 В – 300 мА – корпус SOT-23) | 1 |  | |  |  |  |  | |  | Тиристоры |  |  | | VS1 |  | 1 |  | | VS2 | TYN412RG ф. STMicroelectronics (400В – 12А – 15мА) | 1 |  | | VS3 | TMMDB3TG ф. STMicroelectronics (двунаправ. – 32В – 2А – 15мкА) | 1 |  | | VS4 | BTA24-600BWRG | 1 |  | |  |  |  |  | |  | Транзисторы |  |  | | VT1 | BCR108 (биполярный цифровой) | 1 |  | | VT2 | IRLML2030 | 1 |  | | VT3 | BC817 | 1 |  | | VT4 | BCR158 (биполярный цифровой) | 1 |  | | VT5 | IRLML5103 | 1 |  | | VT6 | BC807 | 1 |  | |  |  |  |  | | VU1 | Оптопара LTV-357T | 1 |  | |  |  |  |  | |  | Соединители |  |  | | X1 | 15EDGRC-3.5-04P ф. Degson | 1 |  | | X2 | 5035000993 ф. Molex | 1 |  | |  | доп. замена 5035000991 |  |  | | X3 | 292303-1 ф. TE Connectivity | 1 |  | |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | BCAD.123456.001 ПЭ3 | |  | | --- | | Лист | | 6 | | |  |  |  |  |  | | Изм. | Лист | № докум. | Подп. | Дата | |

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| |  |  | | --- | --- | |  |  | |  |  | |  |  | | Подп. И дата |  | | Инв. № дубл. |  | | Взам. Инв. № |  | | Подп. И дата |  | | Инв. № подл. |  | | |  |  |  |  | | --- | --- | --- | --- | | Поз. Обозначе- ние | Наименование | Кол. | Примечание | |  | Фильтры |  |  | | ZC1 | WCM4532F2SF-142T20-HI ф. TAI-TECH Advanced Electronics Co., Ltd. | 1 |  | |  | (синф. дроссель – 1,4 кОм (100 МГц) – 100 мОм – 2 А) |  |  | | ZF1 | MMZ1608B102C ф. TDK (фер. бус. – чип 0603 – | 1 |  | |  | 1 кОм ± 25 % (100 МГц) – 600 мОм – 300 мА) |  |  | | ZQ1 | FY0800018 ф. Diodes Incorporated (кварц. – 8 МГц ± 30 ppm – | 1 |  | |  | фунд. – 18 пФ – 100 Ом – -40 … +85 °C) |  |  | | ZQ2 | ABS07-32.768KHZ-T ф. Abracon (кварц. – 32,768 кГц ± 20 ppm – | 1 |  | |  | 12,5 пФ – 70 кОм – -40 … +85 °C) |  |  | |  |  |  |  | |  | Сопутствующие элементы |  |  | |  | Батарея CR2032 (3 В – 225 мАч) | 2 | для GB3, GB4 | |  | Предохранитель 0215002.MXP ф. Littlefuse (плавкий – цил. 5\*20 – | 1 | для FU3 | |  | 2 А – 11,68 А²с – 250 В – медленный) |  |  | |  | Предохранитель 520.517 ф. ESKA Erich Schweizer (плавкий – | 4 | для FU2, FU4; один | |  | цил. 5\*20 – 1 А – 0,2 А²с – 250 В – быстрый) |  | запасной | |  | Предохранитель 520.517 ф. ESKA Erich Schweizer (плавкий – | 1 | для FU5 | |  | цил. 5\*20 – 1 А – 0,2 А²с – 250 В – быстрый) |  |  | |  | Радиатор FK 231 SA 220 ф. Fischer Elektronik (TO220 – 24К/Вт) | 1 | для VS4 | |  | Соединитель 15EDGK-3.5-04P-14 ф. Degson | 1 | для X1 | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |
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