

BoM, for Fabrication, with X, Y Position

| ref | value | Position X | Position Y | Orientation | Layer | Vendor | Vendor P/N | NOTE1 | NOTE 2 |
|-----|-------------------|------------|------------|-------------|-------|-------------------------|-----------------------|-------|--------------------------------------|
| BT1 | BATT_RTC | 6.3400 | 1.8550 | 0 | Front | DigiKey | 3003K-ND | | Battery Socket |
| * | 3V CR2032 Battery | | | | | DigiKey | P189-ND | | LR2032 Coin Battery |
| C1 | 100u | 1.7975 | 9.0375 | 180 | Front | DigiKey | P833-ND | | Capacitor Voltage Rating >= 16V |
| C2 | 100u | 7.0775 | 8.8800 | 0 | Front | DigiKey | P833-ND | | Capacitor Voltage Rating >= 16V |
| C3 | 100n | 3.6450 | 9.1600 | 180 | Front | DigiKey | 399-5863-ND | | Decoupling capacitor |
| C4 | 100n | 6.5075 | 9.0300 | 270 | Front | DigiKey | 399-5863-ND | | Decoupling capacitor |
| C5 | 100n | 1.4625 | 2.1250 | 270 | Front | DigiKey | 399-5863-ND | | Decoupling capacitor |
| C6 | 100n | 5.8325 | 9.5175 | 270 | Front | DigiKey | 399-5863-ND | | Decoupling capacitor |
| C7 | 100n | 2.0000 | 9.2450 | 270 | Front | DigiKey | 399-5863-ND | | FTDI Reset |
| C8 | 100u | 6.6950 | 8.8800 | 270 | Front | DigiKey | P833-ND | | Capacitor Voltage Rating >= 16V |
| C9 | 100n | 6.8925 | 9.0300 | 270 | Front | DigiKey | 399-5863-ND | | Decoupling capacitor |
| C10 | 100n | 6.8650 | 2.1050 | 270 | Front | DigiKey | 399-5863-ND | | Decoupling capacitor |
| D1 | LED | 1.2000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D2 | LED | 1.6000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D3 | LED | 2.0000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D4 | LED | 2.4000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D5 | LED | 2.8000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D6 | LED | 3.2000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D7 | LED | 3.6000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D8 | LED | 4.0000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D9 | LED | 4.4000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D10 | LED | 4.8000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D11 | LED | 5.2000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D12 | LED | 5.6000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D13 | LED | 6.0000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D14 | LED | 6.4000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D15 | LED | 6.8000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D16 | LED | 7.2000 | 3.0500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D17 | LED | 1.2000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D18 | LED | 1.6000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D19 | LED | 2.0000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D20 | LED | 2.4000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D21 | LED | 2.8000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D22 | LED | 3.2000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D23 | LED | 3.6000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D24 | LED | 4.0000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D25 | LED | 4.4000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |

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| D26 | LED | 4.8000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D27 | LED | 5.2000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D28 | LED | 5.6000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D29 | LED | 6.0000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D30 | LED | 6.4000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D31 | LED | 6.8000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D32 | LED | 7.2000 | 3.7500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D33 | LED | 1.2000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D34 | LED | 1.6000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D35 | LED | 2.0000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D36 | LED | 2.4000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D37 | LED | 2.8000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D38 | LED | 3.2000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D39 | LED | 3.6000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D40 | LED | 4.0000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D41 | LED | 4.4000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D42 | LED | 4.8000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D43 | LED | 5.2000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D44 | LED | 5.6000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D45 | LED | 6.0000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D46 | LED | 6.4000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D47 | LED | 6.8000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D48 | LED | 7.2000 | 4.4500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D49 | LED | 1.2000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D50 | LED | 1.6000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D51 | LED | 2.0000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D52 | LED | 2.4000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D53 | LED | 2.8000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D54 | LED | 3.2000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D55 | LED | 3.6000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D56 | LED | 4.0000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D57 | LED | 4.4000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D58 | LED | 4.8000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D59 | LED | 5.2000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D60 | LED | 5.6000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D61 | LED | 6.0000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D62 | LED | 6.4000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |

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|-----|-------|------------|------------|-------------|-------|-------------------------|-----------------------|-------|--------------------------------------|
| D63 | LED | 6.8000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D64 | LED | 7.2000 | 5.1500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D65 | LED | 1.2000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D66 | LED | 1.6000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D67 | LED | 2.0000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D68 | LED | 2.4000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D69 | LED | 2.8000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D70 | LED | 3.2000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D71 | LED | 3.6000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D72 | LED | 4.0000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D73 | LED | 4.4000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D74 | LED | 4.8000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D75 | LED | 5.2000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D76 | LED | 5.6000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D77 | LED | 6.0000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D78 | LED | 6.4000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D79 | LED | 6.8000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D80 | LED | 7.2000 | 5.8500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D81 | LED | 1.2000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D82 | LED | 1.6000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D83 | LED | 2.0000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D84 | LED | 2.4000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D85 | LED | 2.8000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D86 | LED | 3.2000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D87 | LED | 3.6000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D88 | LED | 4.0000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D89 | LED | 4.4000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D90 | LED | 4.8000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D91 | LED | 5.2000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D92 | LED | 5.6000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D93 | LED | 6.0000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D94 | LED | 6.4000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D95 | LED | 6.8000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D96 | LED | 7.2000 | 6.5500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D97 | LED | 1.2000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D98 | LED | 1.6000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D99 | LED | 2.0000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |

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| D100 | LED | 2.4000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D101 | LED | 2.8000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D102 | LED | 3.2000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D103 | LED | 3.6000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D104 | LED | 4.0000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D105 | LED | 4.4000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D106 | LED | 4.8000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D107 | LED | 5.2000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D108 | LED | 5.6000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D109 | LED | 6.0000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D110 | LED | 6.4000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D111 | LED | 6.8000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D112 | LED | 7.2000 | 7.2500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D113 | LED | 1.2000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D114 | LED | 1.6000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D115 | LED | 2.0000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D116 | LED | 2.4000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D117 | LED | 2.8000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D118 | LED | 3.2000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D119 | LED | 3.6000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D120 | LED | 4.0000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D121 | LED | 4.4000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D122 | LED | 4.8000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D123 | LED | 5.2000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D124 | LED | 5.6000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D125 | LED | 6.0000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D126 | LED | 6.4000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D127 | LED | 6.8000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D128 | LED | 7.2000 | 7.9500 | 90 | Front | DigiKey | C535A-WJN-CU0V0231-ND | | CREE LED 5mm Cool White Clear 110deg |
| D258 | DBG | 3.5400 | 9.8000 | 180 | Front | DigiKey | 1080-1134-ND | | Debug LED, 3mm or 5mm LED, any Color |
| D260 | PWR | 4.2300 | 1.8100 | 90 | Front | DigiKey | 1080-1134-ND | | Power On LED, 3mm or 5mm LED, any Color |
| J1 | V_IN | 7.1900 | 9.4800 | 180 | Front | DigiKey | H2960CT-ND | | USB-Mini Socket |
| K1 | PWR | 2.3000 | 9.7000 | 180 | Front | DigiKey | SAM1031-50-ND | | Header, Male, 3 pin, for PWR_SEL |
| * | | | | | | DigiKey | S9341-ND | | Jumper socket for PWR_SEL K1 |
| K2 | LED_ENABLE | 2.3000 | 9.5000 | 180 | Front | DigiKey | SAM1031-50-ND | | Header, Male, 3 pin, for LED_ENABLE |
| * | | | | | | DigiKey | S9341-ND | | Jumper socket for LED_ENABLE K2 |
| K4 | SCL | 7.1200 | 2.0100 | 0 | Front | DigiKey | SAM1031-50-ND | | Header, Male, 2 pin, Link for INT, OPEN for EXT |

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| * | | | | | | DigiKey | S9341-ND | | Jumper socket for SCL, K4 |
| K5 | SDA | 7.1200 | 1.8600 | 0 | Front | DigiKey | SAM1031-50-ND | | Header, Male, 2 pin, Link for INT, OPEN for EXT |
| * | | | | | | DigiKey | S9341-ND | | Jumper socket for SDL, K5 |
| P7 | FTDI | 1.7500 | 9.5000 | 0 | Back | DigiKey | SAM1031-50-ND | | Header, Male, 6 pin |
| Q1 | 2N5401 | 6.8350 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q2 | 2N5401 | 6.5150 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q3 | 2N5401 | 6.1800 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q4 | 2N5401 | 5.8200 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q5 | 2N5401 | 5.4600 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q6 | 2N5401 | 5.1000 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q7 | 2N5401 | 4.7400 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q8 | 2N5401 | 4.3800 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q9 | 2N5401 | 4.0200 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q10 | 2N5401 | 3.6600 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q11 | 2N5401 | 3.3000 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q12 | 2N5401 | 2.9400 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q13 | 2N5401 | 2.5800 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q14 | 2N5401 | 2.2200 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q15 | 2N5401 | 1.9000 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q16 | 2N5401 | 1.6600 | 8.5000 | 90 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| Q17 | 2N5401 | 3.0500 | 1.8550 | 270 | Front | DigiKey | 2N5401GOS-ND | | Transistor, TO-92-3 |
| R1 | 100 | 6.7600 | 8.7000 | 0 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R2 | 100 | 6.6300 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R3 | 100 | 6.2950 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R4 | 100 | 5.9500 | 8.5550 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R5 | 100 | 5.5900 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R6 | 100 | 5.2300 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R7 | 100 | 4.8700 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R8 | 100 | 4.5100 | 8.5500 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R9 | 100 | 4.1500 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R10 | 100 | 3.7900 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R11 | 100 | 3.4300 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R12 | 100 | 3.0700 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R13 | 100 | 2.7100 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R14 | 100 | 2.3500 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R15 | 100 | 2.0150 | 8.5650 | 90 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R16 | 100 | 1.9650 | 8.7500 | 180 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |

BoM, for Fabrication, with X, Y Position

| ref | value | Position X | Position Y | Orientation | Layer | Vendor | Vendor P/N | NOTE1 | NOTE 2 |
|------|-----------------|------------|------------|-------------|-------|-------------------------|-----------------|-------|-----------------------------------|
| R17 | 10k | 1.8725 | 1.4225 | 270 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R18 | 10k | 2.4725 | 1.4225 | 270 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R19 | 10k | 3.0725 | 1.4225 | 270 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R20 | 4k7 | 4.0500 | 9.7500 | 180 | Front | DigiKey | CF18JT4K70CT-ND | | Resistor, 1/8W, 5% |
| R21 | 4k7 | 4.0500 | 9.8700 | 180 | Front | DigiKey | CF18JT4K70CT-ND | | Resistor, 1/8W, 5% |
| R22 | 10k | 3.9900 | 9.1600 | 0 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R23 | 10k | 3.6725 | 1.4225 | 270 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R24 | 1k | 3.2000 | 2.2625 | 180 | Front | DigiKey | CF18JT1K00CT-ND | | Resistor, 1/8W, 5% |
| R25 | 1k | 3.0900 | 9.8500 | 180 | Front | DigiKey | CF18JT1K00CT-ND | | Resistor, 1/8W, 5% |
| R26 | 1k | 4.0500 | 1.9600 | 270 | Front | DigiKey | CF18JT1K00CT-ND | | Resistor, 1/8W, 5% |
| R30 | 100E | 3.2000 | 2.3525 | 180 | Front | DigiKey | CF18JT100RCT-ND | | Resistor, 1/8W, 5% |
| R31 | 10K | 3.7075 | 2.3600 | 180 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R32 | LDR SOCKET | 5.1000 | 1.2200 | 0 | Front | DigiKey | A32932-ND | | Socket header, 2 pin, for LDR |
| -- | LDR | | | | | DigiKey | PDV-P9007-ND | | LDR, 10k to 100k |
| R33 | 680E | 3.2000 | 2.4450 | 180 | Front | DigiKey | CF18JT680RCT-ND | | Resistor, 1/8W, 5% |
| R34 | 2k | 4.5000 | 1.5100 | 90 | Front | DigiKey | 3352T-202LF-ND | | Pot, Thumbwheel, Ceramic, |
| R35 | 680E | 1.3350 | 1.9100 | 90 | Front | DigiKey | CF18JT680RCT-ND | | Resistor, 1/8W, 5% |
| R36 | 10k | 5.7025 | 1.9900 | 180 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R37 | 10k | 5.6250 | 1.6400 | 180 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| R38 | 10k | 5.7025 | 2.1100 | 180 | Front | DigiKey | CF18JT10K0CT-ND | | Resistor, 1/8W, 5% |
| SP1 | SPEAKER | 3.6000 | 1.9500 | 90 | Front | DigiKey | 102-1169-ND | | Audio Buzzer |
| SW12 | INC | 3.3000 | 1.4000 | 270 | Back | DigiKey | 450-1644-ND | | Push button switch, Long Button |
| SW22 | DEC | 2.7000 | 1.4000 | 270 | Back | DigiKey | 450-1644-ND | | Push button switch, Long Button |
| SW32 | MODE | 2.1000 | 1.4000 | 270 | Back | DigiKey | 450-1644-ND | | Push button switch, Long Button |
| SW42 | RST | 1.5000 | 1.4000 | 270 | Back | DigiKey | 450-1649-ND | | Push button switch, Short Button |
| SW52 | ENTER | 3.9000 | 1.4000 | 270 | Back | DigiKey | 450-1644-ND | | Push button switch, Long Button |
| U1 | STP8DP05 | 1.9850 | 2.1750 | 0 | Front | DigiKey | 497-6271-5-ND | | IC, Row Driver |
| * | Socket STP8DP05 | | | | | DigiKey | A100206-ND | | Socket for IC U1 |
| U2 | 7805 | 6.1025 | 9.5200 | 0 | Front | -- | -- | | SHORTING LINK between VI and VO |
| U3 | ATMEGA8-P | 3.4900 | 9.4500 | 180 | Front | DigiKey | ATMEGA328-PU-ND | | Micro Controller |
| * | IC ATMEGA8-P | | | | | DigiKey | A100210-ND | | Socket for IC U3 |
| U4 | 74HC154 | 5.1200 | 9.3400 | 180 | Front | DigiKey | 568-1407-5-ND | | IC, Column Driver |
| * | IC 74HC154 | | | | | DigiKey | 3M5479-ND | | Socket for IC U4 |
| U6 | DS3231N | 6.3375 | 1.8525 | 90 | Back | DigiKey | DS3231S#-ND | | IC, RTC |
| X1 | 16MHz | 3.2400 | 9.1600 | 180 | Front | DigiKey | X908-ND | | Resonator, with capacitors, 3 pin |

| BoM, for Fabrication, with X, Y Position |
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| ref | value | Position X | Position Y | Orientation | Layer | Vendor | Vendor P/N | NOTE1 | NOTE 2 |
|-----|-------|------------|------------|-------------|-------|--------|------------|-------|--------|
|-----|-------|------------|------------|-------------|-------|--------|------------|-------|--------|

NOT USED COMPONENTS

| | | | | | | | | | |
|--------|-----------|--------|--------|-----|-------|--------------------------|-----------------------------|----------|---|
| C11 | 22p | 3.4425 | 9.1100 | 90 | Front | DigiKey | BC1034CT-ND | Optional | if using crystal instead of resonator |
| C12 | 22p | 3.0375 | 9.1100 | 90 | Front | DigiKey | BC1034CT-ND | Optional | if using crystal instead of resonator |
| CD1 | CDOT1 | 6.3375 | 1.4675 | 180 | Front | DigiKey | 3M9515-ND | Optional | if using I2SD, rtcBoB or ChronoDot, Socket, 4 pin |
| CD2 | CDOT2 | 6.3375 | 2.3675 | 0 | Front | DigiKey | 3M9515-ND | Optional | if using I2SD, rtcBoB or ChronoDot, Socket, 4 pin |
| CD3 | CDOT3 | 6.3375 | 1.2275 | 180 | Front | DigiKey | SAM1031-50-ND | Optional | if using I2SD, rtcBoB or ChronoDot, Header, 4 pin |
| DIL-U1 | STP16DP05 | 2.1850 | 2.1750 | 0 | Front | DigiKey | 3M5479-ND | Optional | if using rowBoB, 24 pin IC socket |
| J2 | V_IN | 6.6750 | 9.4800 | 180 | Front | DigiKey | ED2982-ND | Optional | USB-B, Socket |
| J3 | V_IN | 6.4875 | 9.8050 | 180 | Front | DigiKey | CP-002B-ND | Optional | Barrel socket |
| K3 | 7Seg_Sel | 5.2275 | 9.2775 | 90 | Back | -- | -- | Optional | Solder Bridge for uC pin selection |
| P1 | 7SegDisp | 5.1850 | 1.7750 | 0 | Front | Sparkfun | COM-09766 | Optional | 7 segment 4 digit display |
| P13 | ISP | 2.6500 | 9.8000 | 90 | Front | DigiKey | SAM1095-36-ND | Optional | Header, 3x2 pin |
| P41 | STACK-L | 1.4000 | 9.0000 | 270 | Front | DigiKey | SAM1009-50-ND | Optional | Socket, 4 pin, right angle, for daisy-chaining boards |
| P42 | STACK-R | 7.2600 | 9.0000 | 90 | Front | DigiKey | SAM1043-50-ND | Optional | Header, 4 pin, right angle, for daisy-chaining boards |
| P43 | CONN_1 | | | | | -- | Break Out Pad, no component | Optional | ATMega Port PC2 |
| SW1 | INC | 3.3000 | 1.2725 | 270 | Front | DigiKey | 450-1657-ND | Optional | Right Angle switch, for Top access |
| SW2 | DEC | 2.7000 | 1.2725 | 270 | Front | DigiKey | 450-1657-ND | Optional | Right Angle switch, for Top access |
| SW3 | MODE | 2.1000 | 1.2725 | 270 | Front | DigiKey | 450-1657-ND | Optional | Right Angle switch, for Top access |
| SW4 | RST | 1.5000 | 1.2725 | 270 | Front | DigiKey | 450-1657-ND | Optional | Right Angle switch, for Top access |
| SW5 | ENTER | 3.9000 | 1.2725 | 270 | Front | DigiKey | 450-1657-ND | Optional | Right Angle switch, for Top access |
| U2 | 7805 | 6.1025 | 9.5200 | 0 | Front | DigiKey | MC7805CTGOS-ND | Optional | if V_IN > 5V. ELSE USE SHORTING LINK |

MISC. COMPONENTS

| | | |
|-----|-----------|-----------------------------|
| BF1 | BAFFLE | Angus Hines |
| BP1 | BackPlate | Angus Hines |
| FM1 | FRAME | Ikea or Angus Hines or None |
| FP1 | FacePlate | Angus Hines |
| P8 | CONN_1 | Fixing Screw for Board |
| P9 | CONN_1 | Fixing Screw for Board |
| P10 | CONN_1 | Fixing Screw for Board |
| P11 | CONN_1 | Fixing Screw for Board |
| P14 | CONN_1 | Fixing Screw for Baffle |
| P15 | CONN_1 | Fixing Screw for Baffle |
| P53 | CONN_1 | Fixing Screw for Baffle |
| P54 | CONN_1 | Fixing Screw for Baffle |

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| BoM, for Fabrication, with X, Y Position |
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| ref | value | Position X | Position Y | Orientation | Layer | Vendor | Vendor P/N | NOTE1 | NOTE 2 |
|-----------------|----------|------------|------------|-------------|-------|--------|------------|-------|-------------------------|
| P49 | CONN_1 | | | | | | | | Fixing Screw for rtcBoB |
| P50 | CONN_1 | | | | | | | | Fixing Screw for rtcBoB |
| P51 | CONN_1 | | | | | | | | Fixing Screw for rtcBoB |
| P52 | CONN_1 | | | | | | | | Fixing Screw for rtcBoB |
| rowBoB1 | CONN_1 | | | | | | | | Fixing Screw for rowBoB |
| P24 to P39 DIL6 | | | | | | | | | Prototyping area |
| PCB1 | PCB | | | | | | | | Main Board, seeed |
| G1 | Logo-WL3 | | | | | | | | |
| G*** | OSHW_6mm | | | | | | | | |