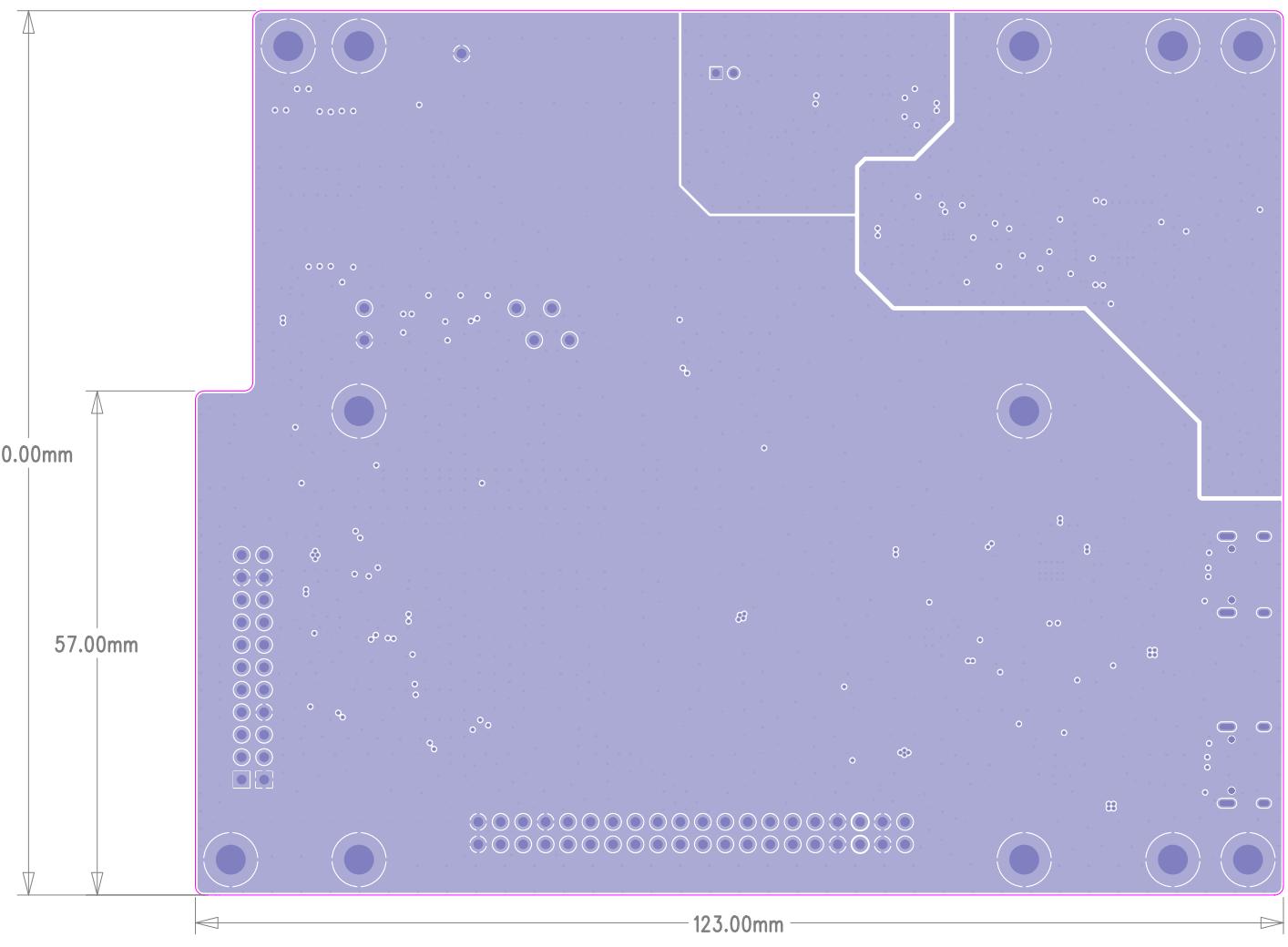


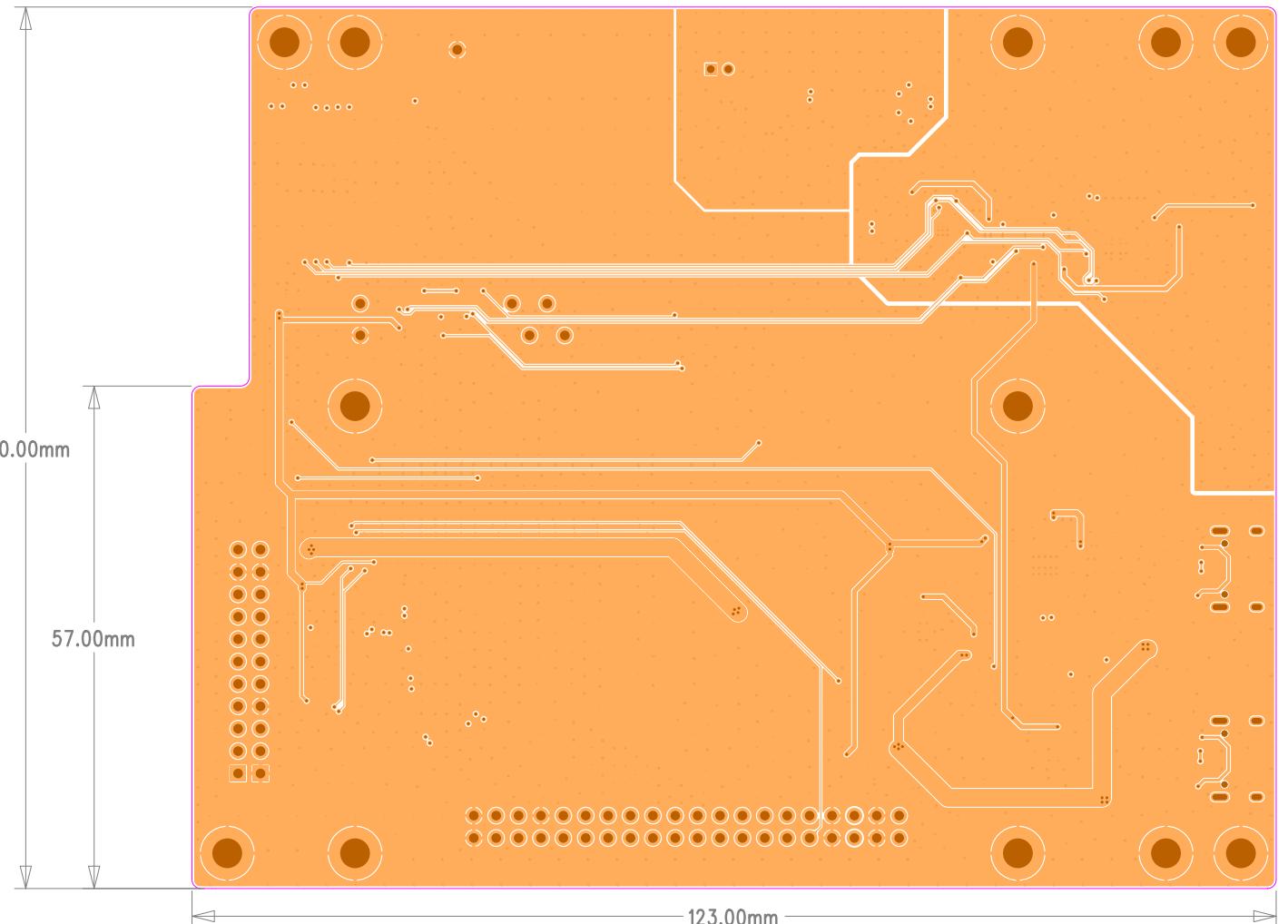
| ESPRESSIF SYSTEMS | | | | | |
|--|--|--|--|--|--|
| ESPRESSIF SYSTEMS (上层) 印刷板设计 设计者: 陈伟 设计日期: 2023-01-21 设计版本: V1.0 设计工具: Eagle 9.6.2 文件名: Top-21-2023 - Project 文件大小: 1.0 MB | | | | | |
| 设计者: 陈伟 设计日期: 2023-01-21 设计版本: V1.0 设计工具: Eagle 9.6.2 文件名: Top-21-2023 - Project 文件大小: 1.0 MB | | | | | |
| THICKNESS: 0.06mm EXPOSURE: 0.05mm DENSITY: 1.00 COAT: 0.00mm | | | | | |
| 1.0 mm 0.05 mm 1.00 0.00 mm | | | | | |

| ESPRESSIF SYSTEMS | | | | | |
|---|--|--|--|--|--|
| ESPRESSIF SYSTEMS (下层) 印刷板设计 设计者: 陈伟 设计日期: 2023-01-21 设计版本: V1.0 设计工具: Eagle 9.6.2 文件名: Bottom-21-2023 - Project 文件大小: 1.0 MB | | | | | |
| 设计者: 陈伟 设计日期: 2023-01-21 设计版本: V1.0 设计工具: Eagle 9.6.2 文件名: Bottom-21-2023 - Project 文件大小: 1.0 MB | | | | | |
| THICKNESS: 0.06mm EXPOSURE: 0.05mm DENSITY: 1.00 COAT: 0.00mm | | | | | |
| 1.0 mm 0.05 mm 1.00 0.00 mm | | | | | |



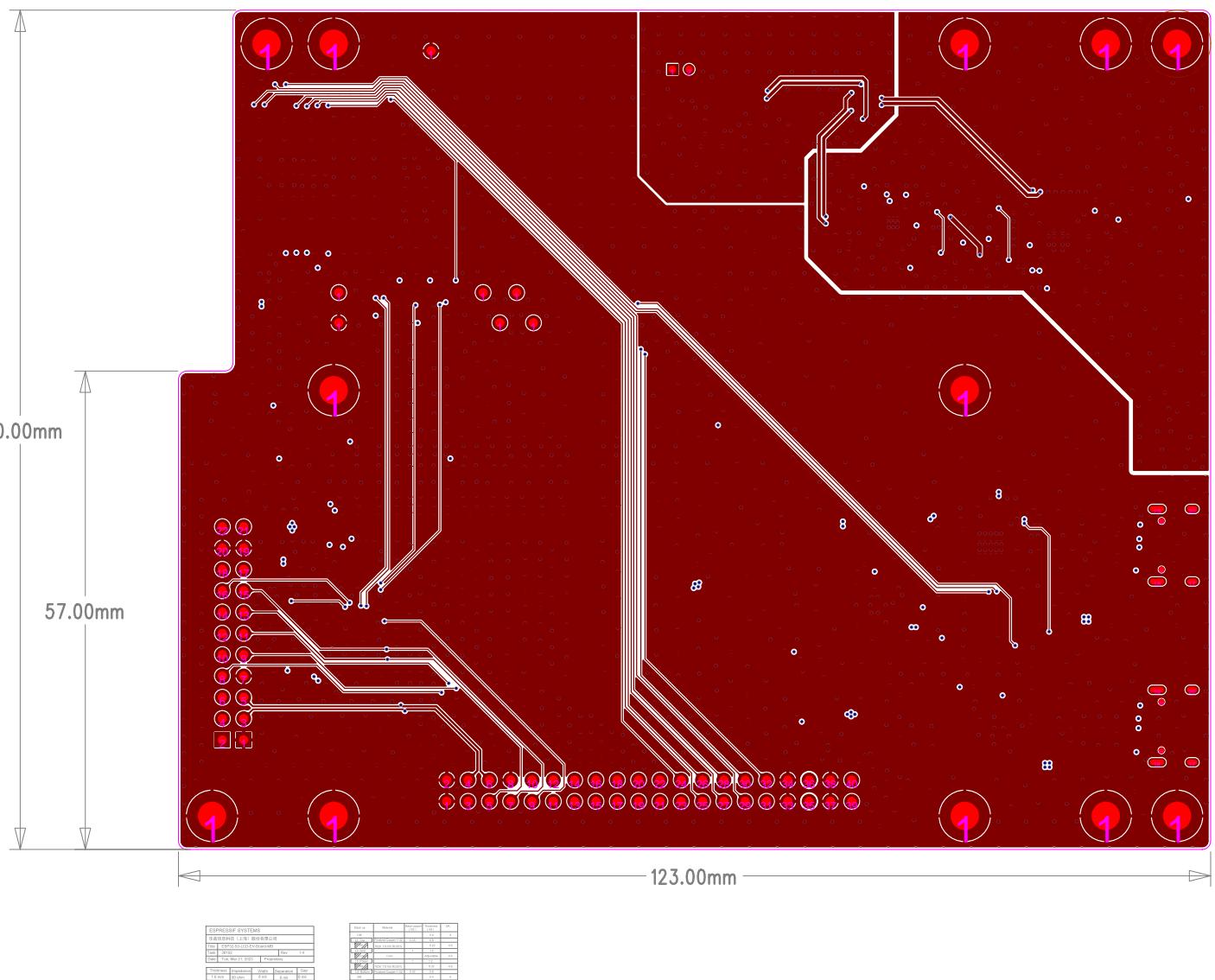
| | | | |
|------------------------------|-------------|-------------|-------------|
| ESPRESSIF SYSTEMS | | | |
| 友善微創科(上海)有限公司 | | | |
| Title: ESP32-L0C-UV-Board-M0 | | | |
| Task: 28182 | | Rev: | 1.4 |
| Date: Tue, Mar 21, 2023 | | Prepared by | |
| Thickness: | Unspecified | Width: | Unspecified |
| 1.6 mm | 99.0mm | 0.6in | 0 mil |

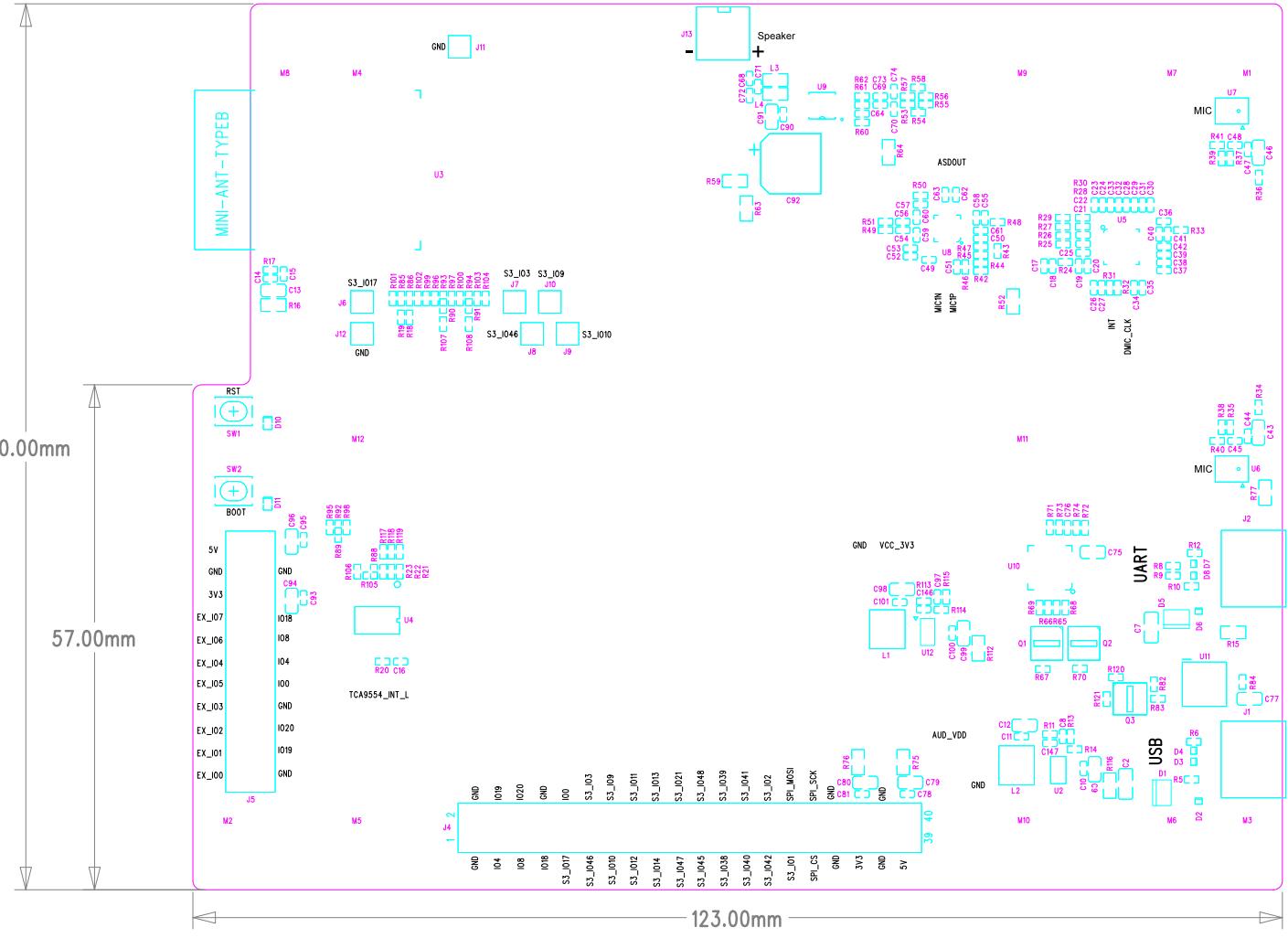
| Stack up | Material | Status support (L) | Thickness | DR |
|-----------|---|--------------------|-----------|-----|
| Cu | | | 0.6 | 4 |
| 1.5 Layer | Unidirectional Copper Felt | 0.6 | 0.6 | |
| 2.5 Layer | Unidirectional Copper Felt + FR-4 epoxy building | 0.6 | 0.6 | 4.5 |
| 3.5 Layer | | 1 | 1.7 | |
| 4.5 Layer | Cu/GF | | Above 0.6 | 4.5 |
| 5.5 Layer | | + | 1.7 | |
| 6.5 Layer | FR-4 T32 300 RCFB | | 0.6 | 4.5 |
| 7.5 Layer | Unidirectional Copper Felt | 0.6 | 0.6 | |
| 8.5 Layer | | | 0.6 | 4 |



| EXPRESSO SYSTEMS 易道微电子(上海)有限公司 | | | | |
|-----------------------------------|------------|---------|------------|---------|
| File | Print | Design | Components | Library |
| Date | 2020-03-21 | File | 1.0 | |
| Author | YD | Project | ESP32-CAM | |
| Comments | | Version | 1.0 | |

| EXPRESSO SYSTEMS 易道微电子(上海)有限公司 | | | | |
|-----------------------------------|------------|---------|------------|---------|
| File | Print | Design | Components | Library |
| Date | 2020-03-21 | File | 1.0 | |
| Author | YD | Project | ESP32-CAM | |
| Comments | | Version | 1.0 | |

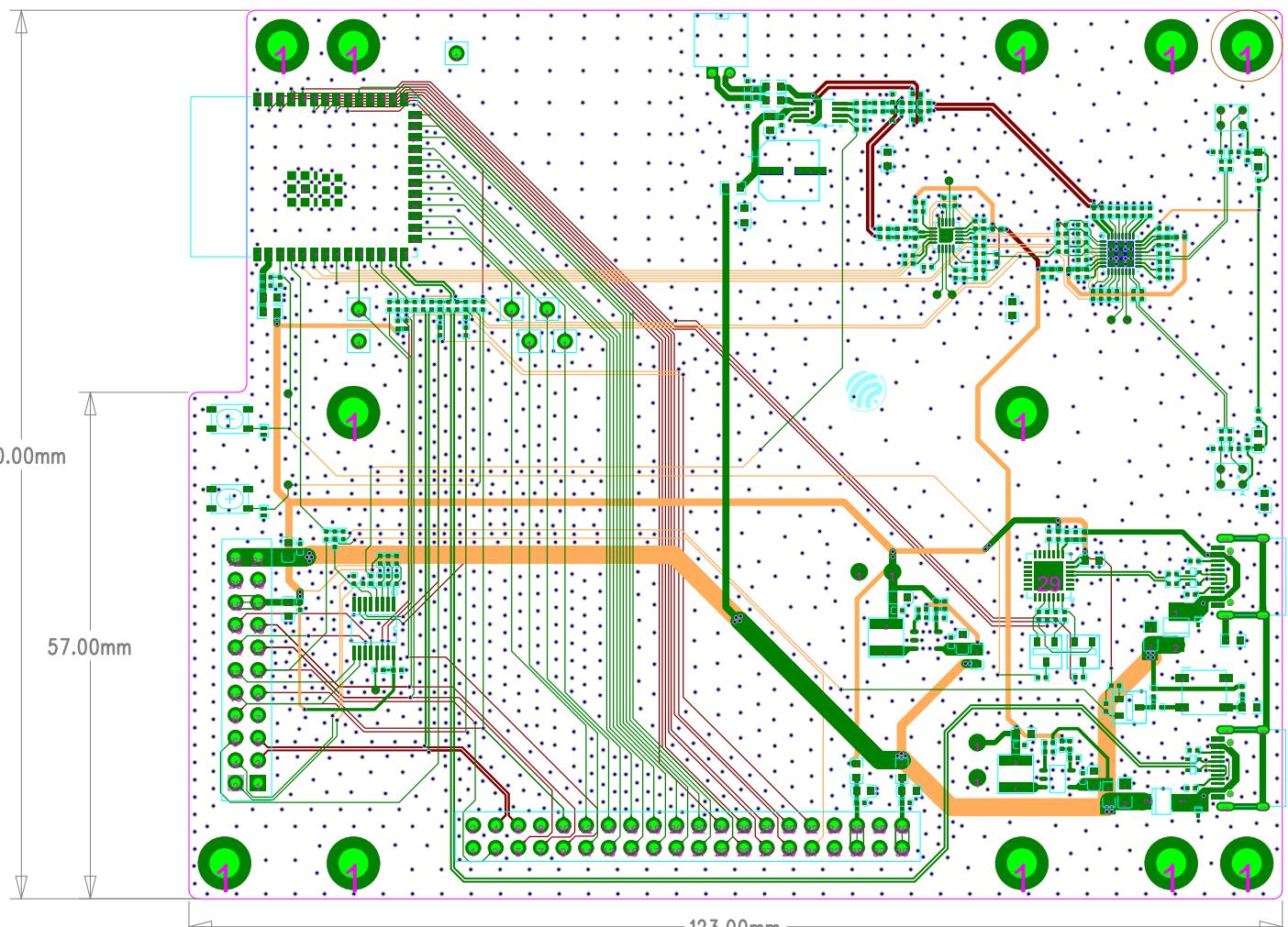




| ESPRESSIF SYSTEMS | | | | |
|-------------------|---------------------------|-------|------------|-------|
| 系统集成科(上海)股份有限公司 | | | | |
| Title | ESP32-03-LCD-EV-Board-M3 | | | |
| Date | 2019/02/01 Rev. 1.4 | | | |
| Date | Mar. 21, 2023 Proprietary | | | |
| Thickness | Impedance | Width | Separation | Gap |
| 1.6 mm | 50 ohm | 3 mil | 6 mil | 5 mil |

| ESPRESSO SYSTEMS | | | | |
|------------------|--------------------------|------------|------------|------|
| 精英微科技(上海)有限公司 | | | | |
| Title: | EM-02-03-LCD-EN-board-MB | Date: | 2012/2 | Rev: |
| Date: | Tue, Mar 21, 2023 | Properties | | |
| Thickness | Unigrid/Alu | Width | Percentage | Cap |
| 1.6 mm | 90 cm | 0 ml | 0 ml | 0 ml |

| Block up | Material | Surface area (SF) m ² | Weight kg/m ² | DP |
|------------|-----------------------|-------------------------------------|-----------------------------|-----|
| CAB | | | 0.4 | 9 |
| 1.5 Top | Concrete Capped 1 Top | 0.40 | 0.8 | |
| 1.5 Middle | Concrete 1.5 m thick | 0.40 | 0.25 | 0.5 |
| 1.5 Bottom | | 0.40 | 0.25 | |
| 1.5 Total | | 1.20 | 0.75 | 4.5 |
| 1.5 Total | TDR T3 100 RCB | 0.40 | 0.25 | 4.0 |
| 1.4 Bottom | Concrete Copper 100 | 0.35 | 0.8 | |
| 1.3 | | | 0.4 | 4 |



| ESPRESSO SYSTEMS | | | | | |
|-------------------------------|------------|-------------|---------|--------------|------------|
| TECHNICAL DRAWING INFORMATION | | | | | |
| Title: ESD-001 Rev C | | | | | |
| Date: 2020-01-21 | | | | | |
| Printed: | 2020-01-21 | Plotter: | Plotter | Date: | 2020-01-21 |
| Thickness: | 0.08mm | Exposure: | 0.05mJ | Resolution: | 0.02mm |
| UV: | 0.00 | UV Time: | 0.00 | UV Power: | 0.00 |
| UV2: | 0.00 | UV2 Time: | 0.00 | UV2 Power: | 0.00 |
| UV3: | 0.00 | UV3 Time: | 0.00 | UV3 Power: | 0.00 |
| UV4: | 0.00 | UV4 Time: | 0.00 | UV4 Power: | 0.00 |
| UV5: | 0.00 | UV5 Time: | 0.00 | UV5 Power: | 0.00 |
| UV6: | 0.00 | UV6 Time: | 0.00 | UV6 Power: | 0.00 |
| UV7: | 0.00 | UV7 Time: | 0.00 | UV7 Power: | 0.00 |
| UV8: | 0.00 | UV8 Time: | 0.00 | UV8 Power: | 0.00 |
| UV9: | 0.00 | UV9 Time: | 0.00 | UV9 Power: | 0.00 |
| UV10: | 0.00 | UV10 Time: | 0.00 | UV10 Power: | 0.00 |
| UV11: | 0.00 | UV11 Time: | 0.00 | UV11 Power: | 0.00 |
| UV12: | 0.00 | UV12 Time: | 0.00 | UV12 Power: | 0.00 |
| UV13: | 0.00 | UV13 Time: | 0.00 | UV13 Power: | 0.00 |
| UV14: | 0.00 | UV14 Time: | 0.00 | UV14 Power: | 0.00 |
| UV15: | 0.00 | UV15 Time: | 0.00 | UV15 Power: | 0.00 |
| UV16: | 0.00 | UV16 Time: | 0.00 | UV16 Power: | 0.00 |
| UV17: | 0.00 | UV17 Time: | 0.00 | UV17 Power: | 0.00 |
| UV18: | 0.00 | UV18 Time: | 0.00 | UV18 Power: | 0.00 |
| UV19: | 0.00 | UV19 Time: | 0.00 | UV19 Power: | 0.00 |
| UV20: | 0.00 | UV20 Time: | 0.00 | UV20 Power: | 0.00 |
| UV21: | 0.00 | UV21 Time: | 0.00 | UV21 Power: | 0.00 |
| UV22: | 0.00 | UV22 Time: | 0.00 | UV22 Power: | 0.00 |
| UV23: | 0.00 | UV23 Time: | 0.00 | UV23 Power: | 0.00 |
| UV24: | 0.00 | UV24 Time: | 0.00 | UV24 Power: | 0.00 |
| UV25: | 0.00 | UV25 Time: | 0.00 | UV25 Power: | 0.00 |
| UV26: | 0.00 | UV26 Time: | 0.00 | UV26 Power: | 0.00 |
| UV27: | 0.00 | UV27 Time: | 0.00 | UV27 Power: | 0.00 |
| UV28: | 0.00 | UV28 Time: | 0.00 | UV28 Power: | 0.00 |
| UV29: | 0.00 | UV29 Time: | 0.00 | UV29 Power: | 0.00 |
| UV30: | 0.00 | UV30 Time: | 0.00 | UV30 Power: | 0.00 |
| UV31: | 0.00 | UV31 Time: | 0.00 | UV31 Power: | 0.00 |
| UV32: | 0.00 | UV32 Time: | 0.00 | UV32 Power: | 0.00 |
| UV33: | 0.00 | UV33 Time: | 0.00 | UV33 Power: | 0.00 |
| UV34: | 0.00 | UV34 Time: | 0.00 | UV34 Power: | 0.00 |
| UV35: | 0.00 | UV35 Time: | 0.00 | UV35 Power: | 0.00 |
| UV36: | 0.00 | UV36 Time: | 0.00 | UV36 Power: | 0.00 |
| UV37: | 0.00 | UV37 Time: | 0.00 | UV37 Power: | 0.00 |
| UV38: | 0.00 | UV38 Time: | 0.00 | UV38 Power: | 0.00 |
| UV39: | 0.00 | UV39 Time: | 0.00 | UV39 Power: | 0.00 |
| UV40: | 0.00 | UV40 Time: | 0.00 | UV40 Power: | 0.00 |
| UV41: | 0.00 | UV41 Time: | 0.00 | UV41 Power: | 0.00 |
| UV42: | 0.00 | UV42 Time: | 0.00 | UV42 Power: | 0.00 |
| UV43: | 0.00 | UV43 Time: | 0.00 | UV43 Power: | 0.00 |
| UV44: | 0.00 | UV44 Time: | 0.00 | UV44 Power: | 0.00 |
| UV45: | 0.00 | UV45 Time: | 0.00 | UV45 Power: | 0.00 |
| UV46: | 0.00 | UV46 Time: | 0.00 | UV46 Power: | 0.00 |
| UV47: | 0.00 | UV47 Time: | 0.00 | UV47 Power: | 0.00 |
| UV48: | 0.00 | UV48 Time: | 0.00 | UV48 Power: | 0.00 |
| UV49: | 0.00 | UV49 Time: | 0.00 | UV49 Power: | 0.00 |
| UV50: | 0.00 | UV50 Time: | 0.00 | UV50 Power: | 0.00 |
| UV51: | 0.00 | UV51 Time: | 0.00 | UV51 Power: | 0.00 |
| UV52: | 0.00 | UV52 Time: | 0.00 | UV52 Power: | 0.00 |
| UV53: | 0.00 | UV53 Time: | 0.00 | UV53 Power: | 0.00 |
| UV54: | 0.00 | UV54 Time: | 0.00 | UV54 Power: | 0.00 |
| UV55: | 0.00 | UV55 Time: | 0.00 | UV55 Power: | 0.00 |
| UV56: | 0.00 | UV56 Time: | 0.00 | UV56 Power: | 0.00 |
| UV57: | 0.00 | UV57 Time: | 0.00 | UV57 Power: | 0.00 |
| UV58: | 0.00 | UV58 Time: | 0.00 | UV58 Power: | 0.00 |
| UV59: | 0.00 | UV59 Time: | 0.00 | UV59 Power: | 0.00 |
| UV60: | 0.00 | UV60 Time: | 0.00 | UV60 Power: | 0.00 |
| UV61: | 0.00 | UV61 Time: | 0.00 | UV61 Power: | 0.00 |
| UV62: | 0.00 | UV62 Time: | 0.00 | UV62 Power: | 0.00 |
| UV63: | 0.00 | UV63 Time: | 0.00 | UV63 Power: | 0.00 |
| UV64: | 0.00 | UV64 Time: | 0.00 | UV64 Power: | 0.00 |
| UV65: | 0.00 | UV65 Time: | 0.00 | UV65 Power: | 0.00 |
| UV66: | 0.00 | UV66 Time: | 0.00 | UV66 Power: | 0.00 |
| UV67: | 0.00 | UV67 Time: | 0.00 | UV67 Power: | 0.00 |
| UV68: | 0.00 | UV68 Time: | 0.00 | UV68 Power: | 0.00 |
| UV69: | 0.00 | UV69 Time: | 0.00 | UV69 Power: | 0.00 |
| UV70: | 0.00 | UV70 Time: | 0.00 | UV70 Power: | 0.00 |
| UV71: | 0.00 | UV71 Time: | 0.00 | UV71 Power: | 0.00 |
| UV72: | 0.00 | UV72 Time: | 0.00 | UV72 Power: | 0.00 |
| UV73: | 0.00 | UV73 Time: | 0.00 | UV73 Power: | 0.00 |
| UV74: | 0.00 | UV74 Time: | 0.00 | UV74 Power: | 0.00 |
| UV75: | 0.00 | UV75 Time: | 0.00 | UV75 Power: | 0.00 |
| UV76: | 0.00 | UV76 Time: | 0.00 | UV76 Power: | 0.00 |
| UV77: | 0.00 | UV77 Time: | 0.00 | UV77 Power: | 0.00 |
| UV78: | 0.00 | UV78 Time: | 0.00 | UV78 Power: | 0.00 |
| UV79: | 0.00 | UV79 Time: | 0.00 | UV79 Power: | 0.00 |
| UV80: | 0.00 | UV80 Time: | 0.00 | UV80 Power: | 0.00 |
| UV81: | 0.00 | UV81 Time: | 0.00 | UV81 Power: | 0.00 |
| UV82: | 0.00 | UV82 Time: | 0.00 | UV82 Power: | 0.00 |
| UV83: | 0.00 | UV83 Time: | 0.00 | UV83 Power: | 0.00 |
| UV84: | 0.00 | UV84 Time: | 0.00 | UV84 Power: | 0.00 |
| UV85: | 0.00 | UV85 Time: | 0.00 | UV85 Power: | 0.00 |
| UV86: | 0.00 | UV86 Time: | 0.00 | UV86 Power: | 0.00 |
| UV87: | 0.00 | UV87 Time: | 0.00 | UV87 Power: | 0.00 |
| UV88: | 0.00 | UV88 Time: | 0.00 | UV88 Power: | 0.00 |
| UV89: | 0.00 | UV89 Time: | 0.00 | UV89 Power: | 0.00 |
| UV90: | 0.00 | UV90 Time: | 0.00 | UV90 Power: | 0.00 |
| UV91: | 0.00 | UV91 Time: | 0.00 | UV91 Power: | 0.00 |
| UV92: | 0.00 | UV92 Time: | 0.00 | UV92 Power: | 0.00 |
| UV93: | 0.00 | UV93 Time: | 0.00 | UV93 Power: | 0.00 |
| UV94: | 0.00 | UV94 Time: | 0.00 | UV94 Power: | 0.00 |
| UV95: | 0.00 | UV95 Time: | 0.00 | UV95 Power: | 0.00 |
| UV96: | 0.00 | UV96 Time: | 0.00 | UV96 Power: | 0.00 |
| UV97: | 0.00 | UV97 Time: | 0.00 | UV97 Power: | 0.00 |
| UV98: | 0.00 | UV98 Time: | 0.00 | UV98 Power: | 0.00 |
| UV99: | 0.00 | UV99 Time: | 0.00 | UV99 Power: | 0.00 |
| UV100: | 0.00 | UV100 Time: | 0.00 | UV100 Power: | 0.00 |
| UV101: | 0.00 | UV101 Time: | 0.00 | UV101 Power: | 0.00 |
| UV102: | 0.00 | UV102 Time: | 0.00 | UV102 Power: | 0.00 |
| UV103: | 0.00 | UV103 Time: | 0.00 | UV103 Power: | 0.00 |
| UV104: | 0.00 | UV104 Time: | 0.00 | UV104 Power: | 0.00 |
| UV105: | 0.00 | UV105 Time: | 0.00 | UV105 Power: | 0.00 |
| UV106: | 0.00 | UV106 Time: | 0.00 | UV106 Power: | 0.00 |
| UV107: | 0.00 | UV107 Time: | 0.00 | UV107 Power: | 0.00 |
| UV108: | 0.00 | UV108 Time: | 0.00 | UV108 Power: | 0.00 |
| UV109: | 0.00 | UV109 Time: | 0.00 | UV109 Power: | 0.00 |
| UV110: | 0.00 | UV110 Time: | 0.00 | UV110 Power: | 0.00 |
| UV111: | 0.00 | UV111 Time: | 0.00 | UV111 Power: | 0.00 |
| UV112: | 0.00 | UV112 Time: | 0.00 | UV112 Power: | 0.00 |
| UV113: | 0.00 | UV113 Time: | 0.00 | UV113 Power: | 0.00 |
| UV114: | 0.00 | UV114 Time: | 0.00 | UV114 Power: | 0.00 |
| UV115: | 0.00 | UV115 Time: | 0.00 | UV115 Power: | 0.00 |
| UV116: | 0.00 | UV116 Time: | 0.00 | UV116 Power: | 0.00 |
| UV117: | 0.00 | UV117 Time: | 0.00 | UV117 Power: | 0.00 |
| UV118: | 0.00 | UV118 Time: | 0.00 | UV118 Power: | 0.00 |
| UV119: | 0.00 | UV119 Time: | 0.00 | UV119 Power: | 0.00 |
| UV120: | 0.00 | UV120 Time: | 0.00 | UV120 Power: | 0.00 |
| UV121: | 0.00 | UV121 Time: | 0.00 | UV121 Power: | 0.00 |
| UV122: | 0.00 | UV122 Time: | 0.00 | UV122 Power: | 0.00 |
| UV123: | 0.00 | UV123 Time: | 0.00 | UV123 Power: | 0.00 |
| UV124: | 0.00 | UV124 Time: | 0.00 | UV124 Power: | 0.00 |
| UV125: | 0.00 | UV125 Time: | 0.00 | UV125 Power: | 0.00 |
| UV126: | 0.00 | UV126 Time: | 0.00 | UV126 Power: | 0.00 |
| UV127: | 0.00 | UV127 Time: | 0.00 | UV127 Power: | 0.00 |
| UV128: | 0.00 | UV128 Time: | 0.00 | UV128 Power: | 0.00 |
| UV129: | 0.00 | UV129 Time: | 0.00 | UV129 Power: | 0.00 |
| UV130: | 0.00 | UV130 Time: | 0.00 | UV130 Power: | 0.00 |
| UV131: | 0.00 | UV131 Time: | 0.00 | UV131 Power: | 0.00 |
| UV132: | 0.00 | UV132 Time: | 0.00 | UV132 Power: | 0.00 |
| UV133: | 0.00 | UV133 Time: | 0.00 | UV133 Power: | 0.00 |
| UV134: | 0.00 | UV134 Time: | 0.00 | UV134 Power: | 0.00 |
| UV135: | 0.00 | UV135 Time: | 0.00 | UV135 Power: | 0.00 |
| UV136: | 0.00 | UV136 Time: | 0.00 | UV136 Power: | 0.00 |
| UV137: | 0.00 | UV137 Time: | 0.00 | UV137 Power: | 0.00 |
| UV138: | 0.00 | UV138 Time: | 0.00 | UV138 Power: | 0.00 |
| UV139: | 0.00 | UV139 Time: | 0.00 | UV139 Power: | 0.00 |
| UV140: | 0.00 | UV140 Time: | 0.00 | UV140 Power: | 0.00 |
| UV141: | 0.00 | UV141 Time: | 0.00 | UV141 Power: | 0.00 |
| UV142: | 0.00 | UV142 Time: | 0.00 | UV142 Power: | 0.00 |
| UV143: | 0.00 | UV143 Time: | 0.00 | UV143 Power: | 0.00 |
| UV144: | 0.00 | UV144 Time: | 0.00 | UV144 Power: | 0.00 |
| UV145: | 0.00 | UV145 Time: | 0.00 | UV145 Power: | 0.00 |
| UV146: | 0.00 | UV146 Time: | 0.00 | UV146 Power: | 0.00 |
| UV147: | 0.00 | UV147 Time: | 0.00 | UV147 Power: | 0.00 |
| UV148: | 0.00 | UV148 Time: | 0.00 | UV148 Power: | 0.00 |
| UV149: | 0.00 | UV149 Time: | 0.00 | UV149 Power: | 0.00 |
| UV150: | 0.00 | UV150 Time: | 0.00 | UV150 Power: | 0.00 |
| UV151: | 0.00 | UV151 Time: | 0.00 | UV151 Power: | 0.00 |
| UV152: | 0.00 | UV152 Time: | 0.00 | UV152 Power: | 0.00 |
| UV153: | 0.00 | UV153 Time: | 0.00 | UV153 Power: | 0.00 |
| UV154: | 0.00 | UV154 Time: | 0.00 | UV154 Power: | 0.00 |
| UV155: | 0.00 | UV155 Time: | 0.00 | UV155 Power: | 0.00 |
| UV156: | 0.00 | UV156 Time: | 0.00 | UV156 Power: | 0.00 |
| UV157: | 0.00 | UV157 Time: | 0.00 | UV157 Power: | 0.00 |
| UV158: | 0.00 | UV158 Time: | 0.00 | UV158 Power: | 0.00 |
| UV159: | 0.00 | UV159 Time: | 0.00 | UV159 Power: | 0.00 |
| UV160: | 0.00 | UV160 Time: | 0.00 | UV160 Power: | 0.00 |
| UV161: | 0.00 | UV161 Time: | 0.00 | UV161 Power: | 0.00 |
| UV162: | 0.00 | UV162 Time: | 0.00 | UV162 Power: | 0.00 |
| UV163: | 0.00 | UV163 Time: | 0.00 | UV163 Power: | 0.00 |
| UV164: | 0.00 | UV164 Time: | 0.00 | UV164 Power: | 0.00 |
| UV165: | 0.00 | UV165 Time: | 0.00 | UV165 Power: | 0.00 |
| UV166: | 0.00 | UV166 Time: | 0.00 | UV166 Power: | 0.00 |
| UV167: | 0.00 | UV167 Time: | 0.00 | UV167 Power: | 0.00 |
| UV168: | 0.00 | UV168 Time: | 0.00 | UV168 Power: | 0.00 |
| UV169: | 0.00 | UV169 Time: | 0.00 | UV169 Power: | 0.00 |
| UV170: | 0.00 | UV170 Time: | 0.00 | UV170 Power: | 0.00 |
| UV171: | 0.00 | UV171 Time: | 0.00 | UV171 Power: | 0.00 |
| UV172: | 0.00 | UV172 Time: | 0.00 | UV172 Power: | 0.00 |
| UV173: | 0.00 | UV173 Time: | 0.00 | UV173 Power: | 0.00 |
| UV174: | 0.00 | UV174 Time: | 0.00 | UV174 Power: | 0.00 |
| UV175: | 0.00 | UV175 Time: | 0.00 | UV175 Power: | 0.00 |
| UV176: | 0.00 | UV176 Time: | 0.00 | UV176 Power: | 0.00 |
| UV177: | 0.00 | UV177 Time: | 0.00 | UV177 Power: | 0.00 |
| UV178: | 0.00 | UV178 Time: | 0.00 | UV178 Power: | 0.00 |
| UV179: | | | | | |