PCB DRC report

pcb-initial-drc-2026-08-02.rpt

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** Drc report for final.kicad_pcb **
** Created on 2026-08-02T00:49:10 **
** Report includes: Errors, Warnings **

** Found 73 DRC violations **
[clearance]: 間隙違規 ( 間隙 0.2000 mm; 實際 0.1700 mm)
    Local override; error
    @(16.2000 mm, 17.1800 mm): Pad 1 [/REF_SHDN] of U2 on B.Cu
    @(16.8500 mm, 17.1800 mm): Pad 2 [/3V3_ANA] of U2 on B.Cu
[clearance]: 間隙違規 ( 間隙 0.2000 mm; 實際 0.1700 mm)
    Local override; error
    @(16.8500 mm, 17.1800 mm): Pad 2 [/3V3_ANA] of U2 on B.Cu
    @(17.5000 mm, 17.1800 mm): Pad 3 [/GND] of U2 on B.Cu
[clearance]: 間隙違規 ( 間隙 0.2000 mm; 實際 0.1700 mm)
    Local override; error
    @(18.1500 mm, 21.5000 mm): Pad 5 [/GND] of U2 on B.Cu
    @(17.5000 mm, 21.5000 mm): Pad 6 [/VREF_2V5] of U2 on B.Cu
[clearance]: 間隙違規 ( 間隙 0.2000 mm; 實際 0.1700 mm)
    Local override; error
    @(16.8500 mm, 21.5000 mm): Pad 7 [/VREF_2V5] of U2 on B.Cu
    @(16.2000 mm, 21.5000 mm): Pad 8 [/GND] of U2 on B.Cu
[starved_thermal]: 緩釋熱焊盤 (花焊盤) 與覆銅的連接不完整 (層 F.Cu; 覆銅 最小引線數量 2; 實際 1)
    Local override; error
    @(0.0000 mm, 0.0000 mm): Zone 'GND覆銅' [/GND] on F.Cu, priority 2
    @(23.2850 mm, 27.5000 mm): Pad 1 [/GND] of U3 on F.Cu
[starved_thermal]: 緩釋熱焊盤 (花焊盤) 與覆銅的連接不完整 (層 F.Cu; 覆銅 最小引線數量 2; 實際 1)
    Local override; error
    @(0.0000 mm, 0.0000 mm): Zone 'GND覆銅' [/GND] on F.Cu, priority 2
    @(23.2850 mm, 30.0400 mm): Pad 3 [/GND] of U3 on F.Cu
[solder_mask_bridge]: 底層阻焊開窗區域與不同網路的項目相連
    Rule: 電路板設定阻焊層最小寬度; error
    @(16.2000 mm, 17.1800 mm): Pad 1 [/REF_SHDN] of U2 on B.Cu
    @(16.8500 mm, 17.1800 mm): Pad 2 [/3V3_ANA] of U2 on B.Cu
[solder_mask_bridge]: 底層阻焊開窗區域與不同網路的項目相連
    Rule: 電路板設定阻焊層最小寬度; error
    @(16.8500 mm, 17.1800 mm): Pad 2 [/3V3_ANA] of U2 on B.Cu
    @(17.5000 mm, 17.1800 mm): Pad 3 [/GND] of U2 on B.Cu
[solder_mask_bridge]: 底層阻焊開窗區域與不同網路的項目相連
    Rule: 電路板設定阻焊層最小寬度; error
    @(18.1500 mm, 21.5000 mm): Pad 5 [/GND] of U2 on B.Cu
    @(17.5000 mm, 21.5000 mm): Pad 6 [/VREF_2V5] of U2 on B.Cu
[solder_mask_bridge]: 底層阻焊開窗區域與不同網路的項目相連
    Rule: 電路板設定阻焊層最小寬度; error
    @(16.8500 mm, 21.5000 mm): Pad 7 [/VREF_2V5] of U2 on B.Cu
    @(16.2000 mm, 21.5000 mm): Pad 8 [/GND] of U2 on B.Cu
[via_dangling]: Via is not connected or connected on only one layer
    Local override; warning
    @(35.0000 mm, 55.0000 mm): Via [/GND] on F.Cu - B.Cu
[track_dangling]: Track has unconnected end
    Local override; warning
    @(27.2250 mm, 26.3648 mm): Track [/GUARD] on F.Cu, length 3.4015 mm
[track_dangling]: Track has unconnected end
    Local override; warning
    @(26.9298 mm, 24.9600 mm): Track [/GUARD] on F.Cu, length 0.4175 mm
[via_dangling]: Via is not connected or connected on only one layer
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    Local override; warning
    @(31.0000 mm, 24.5000 mm): Via [/GUARD] on F.Cu - B.Cu
[silk_edge_clearance]: Silkscreen clipped by board edge
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(0.0000 mm, 0.0000 mm): Rectangle on Edge.Cuts
    @(39.0500 mm, 55.7400 mm): Polygon of U1 on B.Silkscreen
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(38.2000 mm, 33.7000 mm): Footprint D8
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(26.8000 mm, 22.3000 mm): Footprint D5
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(38.2000 mm, 22.3000 mm): Footprint D6
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(26.8000 mm, 33.7000 mm): Footprint D7
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(32.5000 mm, 28.0000 mm): Footprint D1
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(25.7550 mm, 29.4050 mm): Footprint U3
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(14.8500 mm, 27.5000 mm): Footprint U6
[lib_footprint_issues]: 目前的配置不包含封裝庫「kicad footprint」
    Local override; warning
    @(17.1750 mm, 19.3400 mm): Footprint U2
[lib_footprint_mismatch]: Footprint 'ESP32-WROOM-32E' does not match copy in library 'RF_Module'
    Local override; warning
    @(48.2500 mm, 49.7400 mm): Footprint U1
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(38.1900 mm, 31.7452 mm): Reference field of D8
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(40.6900 mm, 33.7600 mm): Footprint text of D8 (+)
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(26.7900 mm, 20.3452 mm): Reference field of D5
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(29.2900 mm, 22.3600 mm): Footprint text of D5 (+)
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(38.1900 mm, 20.3452 mm): Reference field of D6
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(40.6900 mm, 22.3600 mm): Footprint text of D6 (+)
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)
    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(26.7900 mm, 31.7452 mm): Reference field of D7
[text_height]: 文字高度超出範圍 (電路板設定中的 "絲印文字高度" 約束 最小高度 0.8000 mm; 實際 0.4800 mm)

    Rule: 電路板設定中的 "絲印文字高度" 約束; warning
    @(29.2900 mm, 33.7600 mm): Footprint text of D7 (+)
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(23.8050 mm, 26.8800 mm): Segment of U3 on F.Silkscreen
    @(22.5375 mm, 26.6400 mm): Reference field of R13
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(22.5375 mm, 26.6400 mm): Reference field of R13
    @(21.7150 mm, 27.1000 mm): Circle of U3 on F.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(26.7900 mm, 31.7452 mm): Reference field of D7
    @(23.8050 mm, 31.9300 mm): Segment of U3 on F.Silkscreen
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(25.3700 mm, 25.8680 mm): Reference field of U3
    @(26.4500 mm, 25.8100 mm): Pad 1 [/TIA_OUT] of C1 on F.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(25.3700 mm, 25.8680 mm): Reference field of U3
    @(24.0000 mm, 24.8100 mm): Pad 1 [/PD_SUM] of R13 on F.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(26.7900 mm, 31.7452 mm): Reference field of D7
    @(28.2250 mm, 31.3100 mm): Pad 5 [unconnected-(U3-COMP-Pad5)] of U3 on F.Cu
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(52.0500 mm, 24.1500 mm): Reference field of R9
    @(51.9300 mm, 23.6750 mm): Reference field of R20
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(52.5700 mm, 23.7250 mm): Reference field of C33
    @(51.9300 mm, 23.6750 mm): Reference field of R20
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(52.5700 mm, 23.7250 mm): Reference field of C33
    @(52.0500 mm, 24.1500 mm): Reference field of R9
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(36.6800 mm, 52.5500 mm): Reference field of C35
    @(36.4900 mm, 53.8656 mm): Segment of C34 on B.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(39.0000 mm, 35.0000 mm): Reference field of U1
    @(40.4500 mm, 36.7900 mm): Segment of U1 on B.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(24.0500 mm, 16.5700 mm): Reference field of C16
    @(24.3113 mm, 16.7350 mm): Segment of C17 on B.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(18.5700 mm, 17.6750 mm): Reference field of R22
    @(18.7100 mm, 17.8400 mm): Segment of U2 on B.Silkscreen
[silk_overlap]: Silkscreen clearance

    Rule: 電路板設定中的 "絲印" 約束; warning
    @(11.1750 mm, 18.9300 mm): Reference field of R11
    @(10.7887 mm, 18.7650 mm): Segment of C15 on B.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(14.2887 mm, 25.2350 mm): Segment of C12 on B.Silkscreen
    @(15.4450 mm, 24.9920 mm): Reference field of U6
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(14.5500 mm, 26.1800 mm): Reference field of C12
    @(16.3500 mm, 26.0000 mm): Segment of U6 on B.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(9.4300 mm, 31.2750 mm): Reference field of C41
    @(9.7650 mm, 31.7113 mm): Segment of C40 on B.Silkscreen
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(11.1887 mm, 13.7650 mm): Segment of C37 on B.Silkscreen
    @(12.0000 mm, 13.9300 mm): Reference field of C25
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(16.7350 mm, 8.2887 mm): Segment of C22 on B.Silkscreen
    @(16.5700 mm, 8.2250 mm): Reference field of C23
[silk_overlap]: Silkscreen clearance
    Rule: 電路板設定中的 "絲印" 約束; warning
    @(22.9300 mm, 33.5000 mm): Reference field of R3
    @(24.0000 mm, 33.5700 mm): Reference field of R17
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(36.6800 mm, 52.5500 mm): Reference field of C35
    @(37.0000 mm, 52.9500 mm): Pad 2 [/3V3_DIG] of C34 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(38.4300 mm, 53.7250 mm): Reference field of C34
    @(39.5000 mm, 52.4600 mm): Pad 3 [/ESP_EN] of U1 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(38.4300 mm, 53.7250 mm): Reference field of C34
    @(39.5000 mm, 53.7300 mm): Pad 2 [/3V3_DIG] of U1 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(38.4300 mm, 53.7250 mm): Reference field of C34
    @(39.5000 mm, 55.0000 mm): Pad 1 [/GND] of U1 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(39.0000 mm, 35.0000 mm): Reference field of U1
    @(37.9125 mm, 35.0000 mm): Pad 2 [/5V_LED] of R9 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(24.0500 mm, 16.5700 mm): Reference field of C16
    @(23.1000 mm, 16.0000 mm): Pad 2 [/3V3_ANA] of C17 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(24.0500 mm, 16.5700 mm): Reference field of C16
    @(25.0000 mm, 16.0000 mm): Pad 1 [/GND] of C17 on B.Cu

[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(18.5700 mm, 17.6750 mm): Reference field of R22
    @(18.1500 mm, 17.1800 mm): Pad 4 [/GND] of U2 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(11.1750 mm, 18.9300 mm): Reference field of R11
    @(10.1000 mm, 19.5000 mm): Pad 1 [/GND] of C15 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(11.1750 mm, 18.9300 mm): Reference field of R11
    @(12.0000 mm, 19.5000 mm): Pad 2 [/3V3_DIG] of C15 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(15.4450 mm, 24.9920 mm): Reference field of U6
    @(15.5000 mm, 24.5000 mm): Pad 2 [/VREF_2V5] of C12 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(14.5500 mm, 26.1800 mm): Reference field of C12
    @(12.7000 mm, 26.5000 mm): Pad 10 [/3V3_DIG] of U6 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(9.4300 mm, 31.2750 mm): Reference field of C41
    @(10.5000 mm, 30.5000 mm): Pad 2 [/VREF_2V5] of C40 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(9.4300 mm, 31.2750 mm): Reference field of C41
    @(10.5000 mm, 32.4000 mm): Pad 1 [/GND] of C40 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(10.4300 mm, 10.2250 mm): Reference field of C39
    @(11.0500 mm, 10.5000 mm): Pad 1 [/GND] of C24 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(12.0000 mm, 13.9300 mm): Reference field of C25
    @(10.5000 mm, 14.5000 mm): Pad 1 [/GND] of C37 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(12.0000 mm, 12.1800 mm): Reference field of C24
    @(11.2250 mm, 12.5000 mm): Pad 1 [/GND] of C25 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(16.5700 mm, 8.2250 mm): Reference field of C23
    @(16.0000 mm, 7.6000 mm): Pad 1 [/GND] of C22 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(16.5700 mm, 8.2250 mm): Reference field of C23
    @(16.0000 mm, 9.5000 mm): Pad 2 [/PI_5V] of C22 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(12.0000 mm, 13.9300 mm): Reference field of C25
    @(12.4000 mm, 14.5000 mm): Pad 2 [/3V3_ANA] of C37 on B.Cu
[silk_over_copper]: Silkscreen clipped by solder mask
    Local override; warning
    @(12.0000 mm, 12.1800 mm): Reference field of C24

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    @(12.7750 mm, 12.5000 mm): Pad 2 [/3V3_ANA] of C25 on B.Cu

** Found 4 unconnected pads **
[unconnected_items]: Missing connection between items
    Local override; error
    @(0.0000 mm, 0.0000 mm): Zone 'GND覆銅' [/GND] on F.Cu, priority 2
    @(21.0000 mm, 28.5000 mm): Pad 1 [/GND] of NT1 on F.Cu
[unconnected_items]: Missing connection between items
    Local override; error
    @(0.0000 mm, 0.0000 mm): Zone 'GND覆銅' [/GND] on F.Cu, priority 2
    @(0.0000 mm, 0.0000 mm): Zone 'GND覆銅' [/GND] on F.Cu, priority 2
[unconnected_items]: Missing connection between items
    Local override; error
    @(1.0000 mm, 1.0000 mm): Zone 'GND覆銅' [/GND] on B.Cu, priority 3
    @(39.5000 mm, 55.0000 mm): Pad 1 [/GND] of U1 on B.Cu
[unconnected_items]: Missing connection between items
    Local override; error
    @(1.0000 mm, 1.0000 mm): Zone 'GND覆銅' [/GND] on B.Cu, priority 3
    @(57.0000 mm, 55.0000 mm): Pad 38 [/GND] of U1 on B.Cu

** Found 0 Footprint errors **

** Ignored checks **
    - Footprint has no courtyard defined
    - Track endpoint not centered on via
    - Tuning profile track geometries
    - Footprint doesn't match symbol's footprint filters
    - Items not allowed
    - Footprint component type doesn't match footprint pads

** End of Report **
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