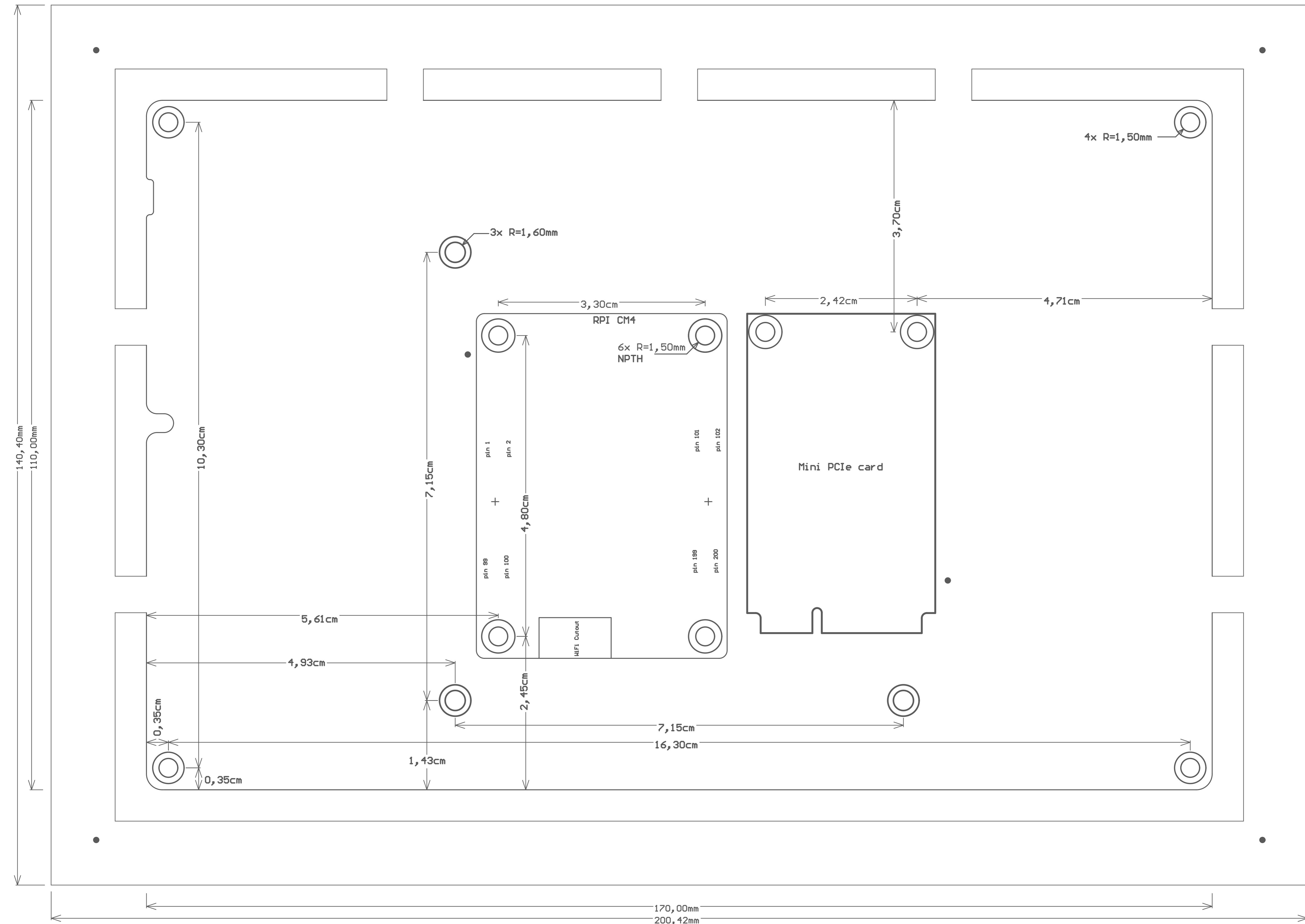
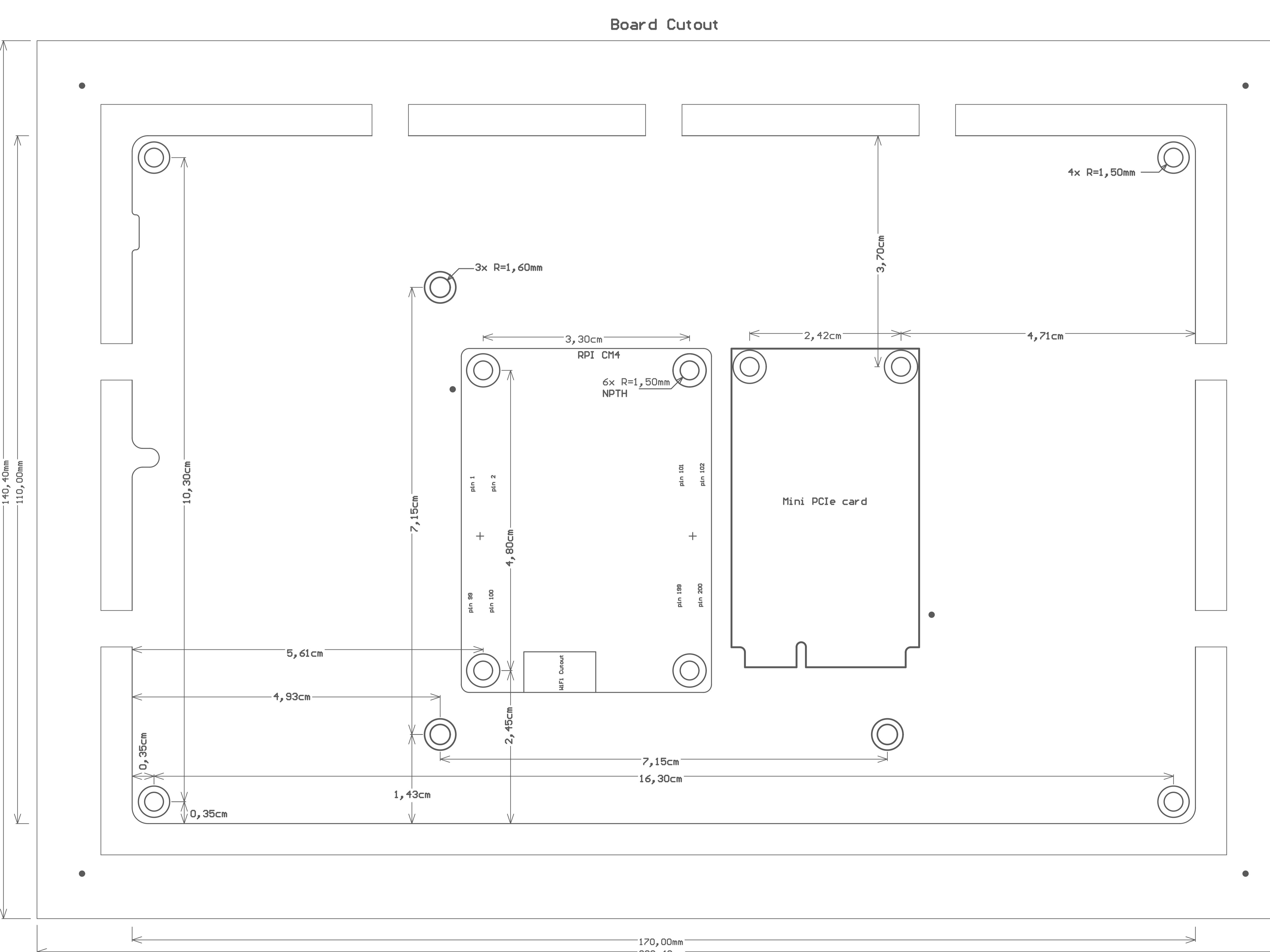


# Board Cutout





CONTROLLED IMPEDANCE			STACKUP AND LAYER DESCRIPTION																				
GENERAL PARAMETERS			GERBER LAYER NAMES:																				
<table border="1"> <tr><td>Parameter</td><td>Layer/Layers</td><td>Value</td></tr> <tr><td>Copper foil thickness</td><td>Top</td><td>17.5um</td></tr> <tr><td>Dielectric thickness between layers</td><td rowspan="2">Top-L2</td><td>173um (6.8 mils)</td></tr> <tr><td>Dielectric permittivity between layers (<math>\epsilon_r</math>)</td><td>4.2</td></tr> <tr><td>Copper foil thickness</td><td>Bottom</td><td>17.5um</td></tr> <tr><td>Dielectric thickness between layers</td><td rowspan="3">Bottom-L5</td><td>173um (6.8 mils)</td></tr> <tr><td>Dielectric permittivity between layers (<math>\epsilon_r</math>)</td><td>4.2</td></tr> </table>			Parameter	Layer/Layers	Value	Copper foil thickness	Top	17.5um	Dielectric thickness between layers	Top-L2	173um (6.8 mils)	Dielectric permittivity between layers ( $\epsilon_r$ )	4.2	Copper foil thickness	Bottom	17.5um	Dielectric thickness between layers	Bottom-L5	173um (6.8 mils)	Dielectric permittivity between layers ( $\epsilon_r$ )	4.2	GTP Top solder paste	TH via
Parameter	Layer/Layers	Value																					
Copper foil thickness	Top	17.5um																					
Dielectric thickness between layers	Top-L2	173um (6.8 mils)																					
Dielectric permittivity between layers ( $\epsilon_r$ )		4.2																					
Copper foil thickness	Bottom	17.5um																					
Dielectric thickness between layers	Bottom-L5	173um (6.8 mils)																					
Dielectric permittivity between layers ( $\epsilon_r$ )		4.2																					
CALCULATIONS			GTO Silkscreen	Top-Bot																			
RF (Top)	Target impedance	Single-ended	GTS Soldermask	ELECTRICAL LAYERS:																			
	Additional comments	Top layer, no side GND plane		Top: RF//PWR/GND																			
	Top layer copper foil thickness	17.5 um		L2: GND																			
	Track width	0.325 mm (12.795 mils)		L3: Signal/PWR/GND																			
	Dielectric layer thickness	173um (6.8 mils)		L4: PWR/Signal/GND																			
	Dielectric thickness between layers	Top-L2	173um (6.8 mils)																				
	Dielectric permittivity between layers ( $\epsilon_r$ )		4.2																				
Approximate microstrip line impedance			GBL 0.5oz+plating	Bottom: RF/Signal/PWR/GND																			
HDMI (Top)	Target impedance	Differential	GBS Soldermask	ADDITIONAL LAYERS:																			
	Additional comments	Top layer, no side GND plane		Mechanical 1: Board cutout																			
	Top layer copper foil thickness	17.5 um		ASM TOP: Assembly top																			
	Track width	0.2 mm (7.874 mils)		ASM BOT: Assembly bottom																			
	Track spacing	0.14 mm (5.511 mils)		Mechanical 13: Component 3D body																			
	Dielectric layer thickness	173um (6.8 mils)		Notes: Board shape and frame																			
	Dielectric thickness between layers	Top-L2	173um (6.8 mils)																				
Approximate microstrip line impedance			GBO Silkscreen																				
USB3, HDMI (L3)	Target impedance	Differential	GBP Bottom solder paste																				
	Additional comments	Top, bottom layer		Total PCB thickness: 1.6mm +/- 10% Via type #1																			
	Top layer copper foil thickness	17.5 um		0.2mm drill																			
	Track width	0.2 mm (7.874 mils)		0.4mm ring																			
	Track spacing	0.1 mm (3.94 mils)																					
	Dielectric layer thickness	173um (6.8 mils)																					
	Dielectric thickness between layers	Top-L2; Bottom-L5	173um (6.8 mils)																				
Approximate microstrip line impedance			PCB material																				
USB3, HDMI (L3)	Target impedance	Differential	Minimum copper to copper spacing	0.1mm (3.9mil)																			
	Additional comments	L3 layer track with L2 reference		Minimum track width	0.1mm (3.9mil)																		
	Top layer copper foil thickness	17.5 um		PCB thickness	1.6mm +/-10%																		
	Track width	0.15 mm (5.91 mils)		PCB material	IT-180A preferred or equivalent RF-rated material (up to 3 GHz or higher)																		
	Track spacing	0.1 mm (3.94 mils)		Copper weight	External layer 0.5 oz+plating																		
	Dielectric layer thickness	173um (6.8 mils)			Internal layer 1 oz																		
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance			Solder mask																				
USB3, HDMI (L3)	Target impedance	Differential	DARK BLUE																				
	Additional comments	L3 layer track with L2 reference		Both sides																			
	Top layer copper foil thickness	17.5 um		Halogen free																			
	Track width	0.15 mm (5.91 mils)		Glossy finish (NOT matte)																			
	Track spacing	0.1 mm (3.94 mils)		White epoxy ink																			
	Dielectric layer thickness	173um (6.8 mils)		Silkscreen																			
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance			Hole types on the PCB and information																				
USB3, HDMI (L3)	Target impedance	Differential	Both sides																				
	Additional comments	L3 layer track with L2 reference		Halogen free																			
	Top layer copper foil thickness	17.5 um		No silkscreen on pads																			
	Track width	0.15 mm (5.91 mils)		Plated <input checked="" type="checkbox"/> Non-plated <input type="checkbox"/>																			
	Track spacing	0.1 mm (3.94 mils)		Hole diameters are final																			
	Dielectric layer thickness	173um (6.8 mils)		manufactured diameters INCLUDING HOLE METALIZATION.																			
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance			Route process																				
USB3, HDMI (L3)	Target impedance	Differential	U-score <input type="checkbox"/> Tab route <input checked="" type="checkbox"/>																				
	Additional comments	L3 layer track with L2 reference		U-score and tab route <input type="checkbox"/>																			
	Top layer copper foil thickness	17.5 um		Panel																			
	Track width	0.15 mm (5.91 mils)		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																			
	Track spacing	0.1 mm (3.94 mils)		HASL lead free <input type="checkbox"/>																			
	Dielectric layer thickness	173um (6.8 mils)		HASL with lead <input type="checkbox"/>																			
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance			Immersion gold 0.05-0.10um of gold over 2.50-5.00um of nickel <input checked="" type="checkbox"/>																				
USB3, HDMI (L3)	Target impedance	Differential	OSP <input type="checkbox"/>																				
	Additional comments	L3 layer track with L2 reference		Hard gold <input type="checkbox"/>																			
	Top layer copper foil thickness	17.5 um																					
	Track width	0.15 mm (5.91 mils)																					
	Track spacing	0.1 mm (3.94 mils)																					
	Dielectric layer thickness	173um (6.8 mils)																					
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance			Surface finish (both sides)																				
USB3, HDMI (L3)	Target impedance	Differential																					
	Additional comments	L3 layer track with L2 reference																					
	Top layer copper foil thickness	17.5 um																					
	Track width	0.15 mm (5.91 mils)																					
	Track spacing	0.1 mm (3.94 mils)																					
	Dielectric layer thickness	173um (6.8 mils)																					
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance																							
USB3, HDMI (L3)	Target impedance	Differential																					
	Additional comments	L3 layer track with L2 reference																					
	Top layer copper foil thickness	17.5 um																					
	Track width	0.15 mm (5.91 mils)																					
	Track spacing	0.1 mm (3.94 mils)																					
	Dielectric layer thickness	173um (6.8 mils)																					
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance																							
USB3, HDMI (L3)	Target impedance	Differential																					
	Additional comments	L3 layer track with L2 reference																					
	Top layer copper foil thickness	17.5 um																					
	Track width	0.15 mm (5.91 mils)																					
	Track spacing	0.1 mm (3.94 mils)																					
	Dielectric layer thickness	173um (6.8 mils)																					
	Dielectric thickness between layers	L2-L3	250um (10 mils)																				
Approximate microstrip line impedance																							
USB3, HDMI (L3)	Target impedance	Differential																					
	Additional comments	L3 layer track with L2 reference																					
	Top layer copper foil thickness	17.5 um																					
	Track width	0.15 mm (5.91 mils)																					
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Approximate microstrip line impedance																							
USB3, HDMI (L3)	Target impedance	Differential																					
	Additional comments	L3 layer track with L2 reference																					
	Top layer copper foil thickness	17.5 um																					
	Track width	0.15 mm (5.91 mils)																					
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Approximate microstrip line impedance																							
USB3, HDMI (L3)	Target impedance	Differential																					
	Additional comments	L3 layer track with L2 reference</																					