昊邦电子
HAOBANG-PCB.COM

QR-ME-15(A)

Engineering Confirmation Note
Layer stackup & impedance

Subject :Questions about the stack and the impedance value

From : ShenZhen HaoBang Circuit Co., Ltd
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Cus NO : STK-95801
DATE : 2025/07/10 08:24:30

Stackup Information:

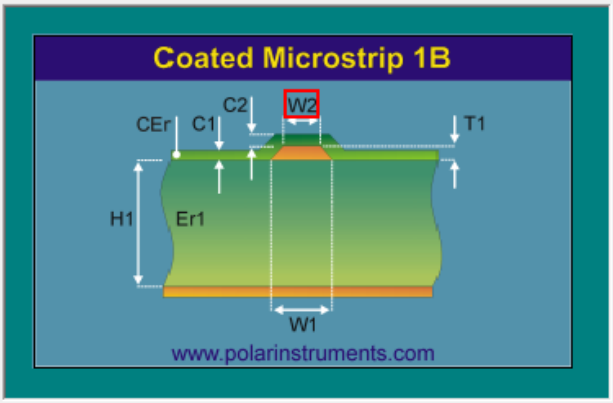
Layer	ER	Info	Thickness
TOP		==========	1/2 Oz+Plating=1.5mil
	4.0	PP 2116	4.2 (mil)
L2		==========	1 Oz=1.2mil
	4.5	Core 1.23 mm	48.43(mil)
L3		==========	1 Oz=1.2mil
	4.0	PP 2116	4.2(mil)
BOT		==========	1/2 Oz+Plating=1.5mil

Finished:	62.23(+6.3/-6.3) mil	1.59(+0.16/-0.16) MM
Designed:	63mil	1.6 MM
Material:	TU768	TU768

Impedance Information:

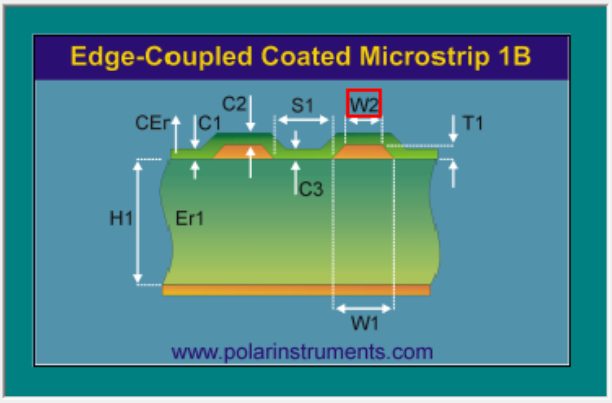
Ctrl	Ref	Imp_type	Cust_req	Imp_req	HB_des	Imp_des	mask	H1	Er1	H2	Er2
L1	L2	Single-Ended	6.8	50+/-10%	6.8	50.47	Yes	4.2	4.0		
L1	L2	Difference	17.9/5.0	50+/-10%	17.9/5.0	50.04	Yes	4.2	4.0		
L1	L2	Difference	5.8/5.2	90+/-10%	5.8/5.2	90.25	Yes	4.2	4.0		
L2	L1/L3	Single-Ended	5.5	50+/-10%	5.5	50.05		48.43	4.5	5.4	4.0
L3	L2/L4	Single-Ended	5.5	50+/-10%	5.5	50.05		48.43	4.5	5.4	4.0
L4	L3	Single-Ended	6.8	50+/-10%	6.8	50.47	Yes	4.2	4.0		
L4	L3	Difference	17.9/5.0	50+/-10%	17.9/5.0	50.04	Yes	4.2	4.0		
L4	L3	Difference	5.8/5.2	90+/-10%	5.8/5.2	90.25	Yes	4.2	4.0		

Coated Microstrip 1B



				Tolerance	Minimum	Maximum	
Substrate 1 Height	H1	4.2000	+/-	0.0000	4.2000	4.2000	Calculate
Substrate 1 Dielectric	Er1	4.0000	+/-	0.0000	4.0000	4.0000	Calculate
Lower Trace Width	W1	6.8000	+/-	0.0000	6.8000	6.8000	
Upper Trace Width	W2	6.0000	+/-	0.0000	6.0000	6.0000	Calculate
Trace Thickness	T1	1.5000	+/-	0.0000	1.5000	1.5000	Calculate
Coating Above Substrate	C1	1.5000	+/-	0.0000	1.5000	1.5000	
Coating Above Trace	C2	0.5000	+/-	0.0000	0.5000	0.5000	
Coating Dielectric	CEr	3.4000	+/-	0.0000	3.4000	3.4000	
Impedance	Zo	50.47			50.47	50.47	Calculate

Edge-Coupled Coated Microstrip 1B



				Tolerance	Minimum	Maximum	
Substrate 1 Height	H1	4.2000	+/-	0.0000	4.2000	4.2000	Calculate
Substrate 1 Dielectric	Er1	4.0000	+/-	0.0000	4.0000	4.0000	Calculate
Lower Trace Width	W1	17.9000	+/-	0.0000	17.9000	17.9000	
Upper Trace Width	W2	17.1000	+/-	0.0000	17.1000	17.1000	Calculate
Trace Separation	S1	5.0000	+/-	0.0000	5.0000	5.0000	Calculate
Trace Thickness	T1	1.5000	+/-	0.0000	1.5000	1.5000	Calculate
Coating Above Substrate	C1	1.5000	+/-	0.0000	1.5000	1.5000	
Coating Above Trace	C2	0.5000	+/-	0.0000	0.5000	0.5000	
Coating Between Traces	C3	1.5000	+/-	0.0000	1.5000	1.5000	
Coating Dielectric	CEr	3.4000	+/-	0.0000	3.4000	3.4000	
Differential Impedance	Zdiff	50.04			50.04	50.04	Calculate

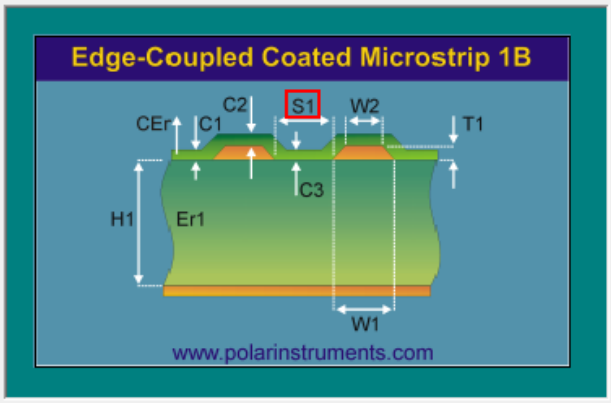
Notes

Add your comments here

Interface Style

Standard

Edge-Coupled Coated Microstrip 1B



				Tolerance	Minimum	Maximum	
Substrate 1 Height	H1	4.2000	+/-	0.0000	4.2000	4.2000	Calculate
Substrate 1 Dielectric	Er1	4.0000	+/-	0.0000	4.0000	4.0000	Calculate
Lower Trace Width	W1	5.8000	+/-	0.0000	5.8000	5.8000	
Upper Trace Width	W2	5.0000	+/-	0.0000	5.0000	5.0000	Calculate
Trace Separation	S1	5.2000	+/-	0.0000	5.2000	5.2000	Calculate
Trace Thickness	T1	1.5000	+/-	0.0000	1.5000	1.5000	Calculate
Coating Above Substrate	C1	1.5000	+/-	0.0000	1.5000	1.5000	
Coating Above Trace	C2	0.5000	+/-	0.0000	0.5000	0.5000	
Coating Between Traces	C3	1.5000	+/-	0.0000	1.5000	1.5000	
Coating Dielectric	CEr	3.4000	+/-	0.0000	3.4000	3.4000	
Differential Impedance	Zdiff	90.25			90.25	90.25	Calculate

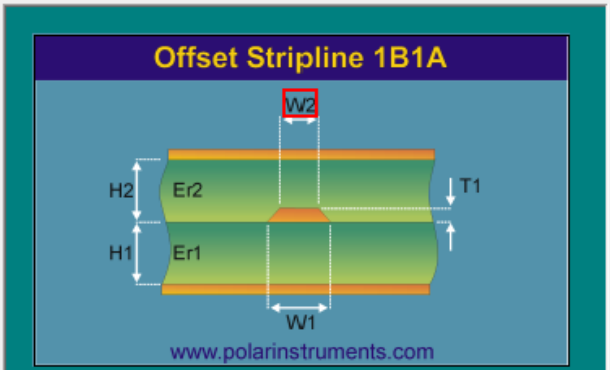
Notes

Add your comments here

Interface Style

Standard

Offset Stripline 1B1A



				Tolerance	Minimum	Maximum	
Substrate 1 Height	H1	48.4300	+/-	0.0000	48.4300	48.4300	Calculate
Substrate 1 Dielectric	Er1	4.5000	+/-	0.0000	4.5000	4.5000	Calculate
Substrate 2 Height	H2	5.4000	+/-	0.0000	5.4000	5.4000	Calculate
Substrate 2 Dielectric	Er2	4.0000	+/-	0.0000	4.0000	4.0000	Calculate
Lower Trace Width	W1	5.5000	+/-	0.0000	5.5000	5.5000	
Upper Trace Width	W2	4.7000	+/-	0.0000	4.7000	4.7000	Calculate
Trace Thickness	T1	1.2000	+/-	0.0000	1.2000	1.2000	Calculate
Impedance	Zo	50.05			50.05	50.05	Calculate

Remark ：

Customer Reply：　　Accept:　　Disapprove:

Date:：　　Signature：

Mark ：

Remark ：