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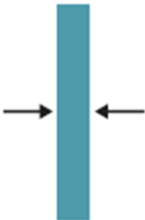
Fertigungsmöglichkeiten Stand 2025

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1 INNER AND OUTER LAYER COPPER FEATURES

1.1 Description

MIN. TRACK WIDTH	MIN. SPACE (FEATURE TO FEATURE)	MIN. ANNULAR RING	MIN. SPACE: PTH HOLE TO COPPER	MIN. SPACE: NPTH HOLE TO COPPER
				
A	B	C	D	E

1.2 Capability

FINISHED COPPER (um)	A	B	C	D	E
18 um (inner)	75	75	75	150	200
18 um (outer)	75	75	75	150	150
35 um (inner)	75	75	75	150	200
35 um (outer)	75	75	75	150	150
70 um (inner)	120	130	150	150	200
70 um (outer)	150	200	150	150	150
105 um (inner)	150	200	150	150	200
105 um (outer)	180	300	150	150	150
140 um (inner)	200	250	200	150	200
140 um (outer)	200	370	200	150	150

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2 DRILLING/ROUTING/V-CUT/BEVEL

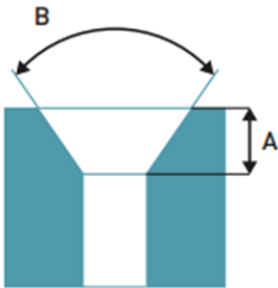
2.1 Drilling

DESCRIPTION	SIZE	BEST TOLERANCE PTH	BEST TOLERANCE NPTH
Min. hole mechanically drilled	0.10 mm	+/- 0.05 mm	+/- 0.05 mm
Max. hole mechanically drilled	6.50 mm	+/- 0.05 mm	+/- 0.05 mm
Min. slot width mechanically drilled	0.50 mm	+/- 0.05 mm	+/- 0.05 mm
Min. slot length mechanically drilled	0.75 mm	+/- 0.05 mm	+/- 0.05 mm
True positional tolerance	hole to hole	+/- 0.05 mm	+/- 0.075 mm
Aspect Ratio	0.2mm hole 0.25mm hole	1:14 1:16	/

BACK DRILLING / COUNTER BORE

	Depth tolerance (A)	1:1 aspect ratio	+/- 0.1 mm
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COUNTER SINK HOLES

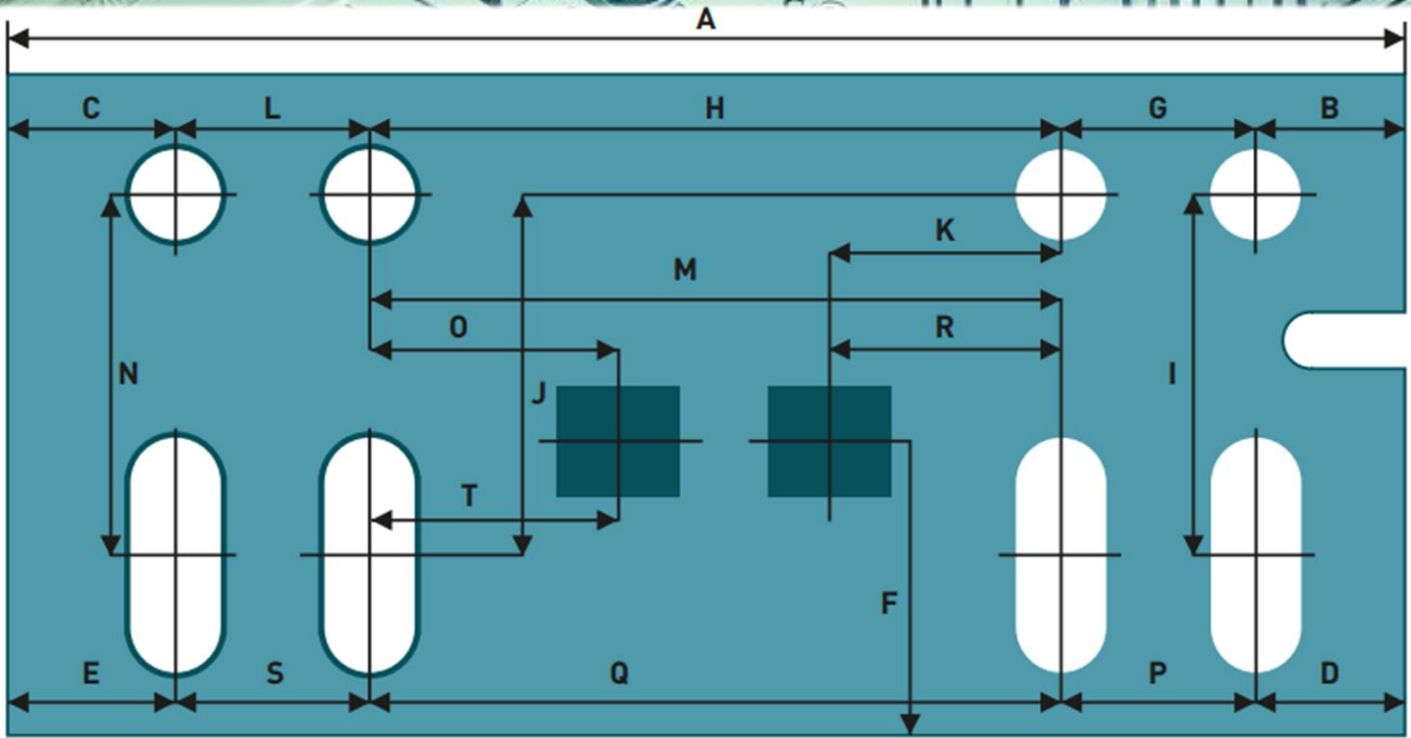
	Depth tolerance (B) Angel (B)	Degrees ±10° 82° 90° 100° 140° 165°	+/- 0.1 mm
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2.2 Routing

ROUT DIAMETER	Standard	0.60; 0.80; 0.90; 1.00; 1.10; 2.00; 2.40 mm
	Other	0.50 mm

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TOLERANCE IN mm (±)	BOARD EDGE	NPTH	PTH	NP SLOT	PT SLOT	CU PAD
BOARD EDGE	(A) +/- 0.1mm	(B) +/- 0.1 mm	(C) +/- 0.1 mm	(D) +/- 0.1 mm	(E) +/- 0.1 mm	(F) +/- 0.1 mm
NPTH		(G) +/- 0.1 mm	(H) +/- 0.1 mm	(I) +/- 0.1 mm	(J) +/- 0.1 mm	(K) +/- 0.1 mm
PTH			(L) +/- 0.05 mm	(M) +/- 0.1 mm	(N) +/- 0.1 mm	(O) +/- 0.05 mm
NP SLOT				(P) +/- 0.1 mm	(Q) +/- 0.1 mm	(R) +/- 0.1 mm
PT SLOT					(S) +/- 0.075 mm	(T) +/- 0.1 mm

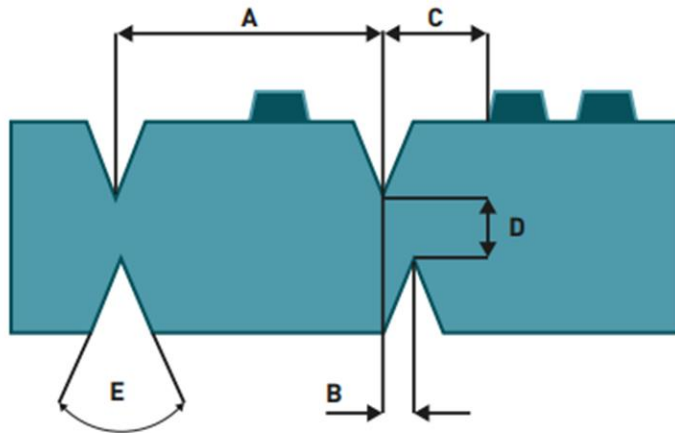
2.3 Chamfer / Bevel

	FEATURE TYPE	POSITION	SIZE
	Bevel height tolerance	A	+/- 0.10 mm
	Bevel angle range	B	15°-60°
	Bevel angle tolerance		+/- 5°

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2.4 Scoring / V-Cut



FEATURE TYPE	POSITION	NOM	MIN	TOLERANCE
POSITION ACCURACY	A	0.1 mm	0.05 mm	+/- 0.15 mm
BLADE OFFSET	B	0.05 mm	0 mm	+/- 0.05 mm
KEEP OUT AREA	C	0.35 mm	0.17 mm	/
WEB	D	Min.0.25 mm		+/- 0.1 mm
ANGLE	E	20, 30,45,60,90		+/- 5°
MIN BOARD THICKNESS	/	0.25 mm		
MAX BOARD THICKNESS	/	4.5 mm		

3 SOLDER MASK CAPABILITY (RIGID BOARD)

3.1 Finished solder mask thickness capability

BRAND	AVAILABLE COLORS	MATTE	GLOSS	SEMI GLOSS / MATTE	HALOGEN FREE [ACCORDING TO DATA SHEET OF MATERIALS]
SUN CHEMICAL	Green			✓	Y/N
PETERS	Green			✓	Y/N
TAIYO	Black			✓	Y/N
PETERS	White		✓		Y/N
PETERS	Blue			✓	Y/N
PETERS	Red			✓	Y/N
TAIYO	Green flex solder mask		✓		Y/N

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3.2 Via hole plugging techniques

3.2.1 General

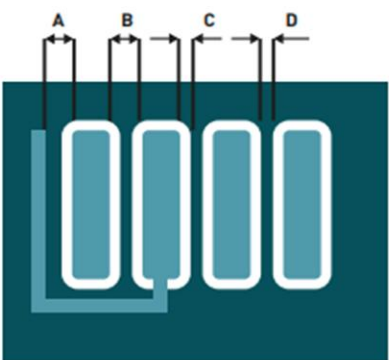
PLUGGING TECHNIQUES	DETAIL	Y/N	MAX HOLE SIZE	MIN HOLE SIZE
	Soldermask IPC 4761 Type VI	Y	0.5 mm	0.2 mm
	Resin non conductive IPC4761 Type VI	Y	1 mm	0.2 mm
	Resin electrical conductive	Y	0.5 mm	0.35 mm
	Resin thermal conductive	Y	0.5 mm	0.35 mm
	Over plated/ capped IPC 4761 type VII	Y	1 mm	0.2 mm

3.2.2 Plug depth (solder mask IPC4761 type VI)

HOLES SIZE (D)	BOARD THICKNESS (H)			
	$0.4\text{ mm} \leq H < 1.0\text{ mm}$	$1.0\text{ mm} \leq H < 1.8\text{ mm}$	$1.8\text{ mm} \leq H < 2.4\text{ mm}$	$2.4\text{ mm} \leq H < 3.6\text{ mm}$
$0.2\text{ mm} \leq D < 0.6\text{ mm}$	✓	✓	✓	✓
$0.6\text{ mm} \leq D \leq 0.8\text{ mm}$	✓	✓	✓	✓

3.3 Solder mask capability

3.3.1 Solder resist features to ensure no encroachment

	FEATURE TYPE	POSITION	$\leq 35\text{ }\mu\text{m}$	$\leq 70\text{ }\mu\text{m}$	$\leq 105\text{ }\mu\text{m}$
	SMT TO COVERED COPPER	A	100 μm	150 μm	250 μm
	COPPER TO COPPER SPACING	B	150 μm	200 μm	300 μm
	SOLDER MASK OVERSIZE	C	25 μm	50 μm	50 μm
	MINIMUM SOLDERMASK WEB	D	Green solder mask		min 70 μm
			White solder mask		min 150 μm
			Blue solder mask		min 135 μm
			Black solder mask		min 135 μm
			Red Solder mask		min 100 μm
			Green Flex solder mask		min 100 μm

4 LEGEND PRINT

4.1 Legend print

COLOR	White (standard)	Yellow	Black	Others
MIN LINE WIDTH	0.1 mm			

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5 PEELABLE MASK & KAPTON TAPE

PEELABLE MASK	Nominal Thickness	300 µm
	Minimum Thickness	200 µm
	Max covered hole diameter	6 mm
	Min distance to not covered feature	1 mm
KAPTON TAPE (TO COVER LARGER HOLES)	Can Use	Y/N
	Nominal Thickness	/

6 SURFACE FINISH

SURFACE FINISH	YES/NO	THICKNESS (µm)
HASL - Lead Free	Yes	/
HASL + Pb	No	/
Hard Gold fingers	Yes	3-6 µm Ni, 0.8-1.2 µm Au
Selective Hard Gold	Yes	3-6 µm Ni, 0.8-1.2 µm Au
Soft Gold	Yes	>=1µm
ENEPIG	Yes	Ni: 5-8µm, Pd:0.1-0.5µm, Au: 0.05-0.1µm
ENIG	Yes	Ni: 3-5µm; Au: 0.025-0.075µm
Chemical Tin	Yes	0.8 -1.2 µm Sn
Immersion Silver	Yes	0.15-0.5µm
Carbon	Yes	5-25µm
OSP	Yes	0.2-0.5mm

7 E-TEST

MAX TEST AREA	MINIMUM TEST BOARD THICKNESS	MINIMUM TEST PAD WIDTH	MINIMUM TEST PAD PITCH	HIGH VOLTAGE TEST	AUTOMATED SEGREGATION OF PASS / FAIL
620 x 650 mm	0.10 mm	0.08 mm	0.08 mm	1000 V	N (Y/N)

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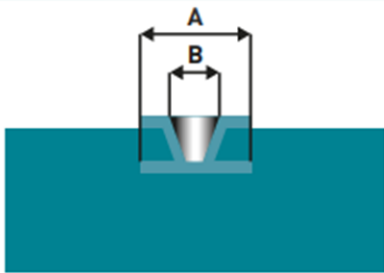
8 HDI (COMPLETE IF APPLICABLE)

LASER DRILLED HOLE	Min. hole size	0.1 mm
	Max. hole size	0.7 mm
ASPECT RATIO	Normal	1:10 x
	Best	1:20 x
BUILD-UP MATERIAL USED	SY,S1000H, S1000-2M	Yes (Y/N)
	ITEQ,IT158,IT180,etc	Yes (Y/N)
	TUC,TUC-768,TUC872SLK,TU-883	Yes (Y/N)
	ISOLA, 370HR, FR408HR,I-SPEED	Yes (Y/N)
	Panasonic,M6,M7	No (Y/N)
	KB,KB6160A,6165F 6167	Yes (Y/N)
	Polyimide, VT-901	Yes (Y/N)
	No-Flow prepreg	Yes (Y/N)
	Others	Yes (Y/N)
TECHNIQUE TECHNIQUE (CONT.)	1+N+1	Yes (Y/N)
	2+N+2 (staggered μ via)	Yes (Y/N)
	3+N+3 (staggered μ via)	Yes (Y/N)
	4+N+4 (staggered μ via)	Yes (Y/N)
	2+N+2 (stacked μ via)	Yes (Y/N)
	3+N+3 (stacked μ via)	Yes (Y/N)
	4+N+4 (stacked μ via)	Yes (Y/N)
	1-2-3 (step down μ via	Yes (Y/N)
FILLING TECHNIQUE μ VIA	Copper filled	Yes (Y/N)
	Resin filled (over plated)	Yes (Y/N)
	Copper pillar	No (Y/N)

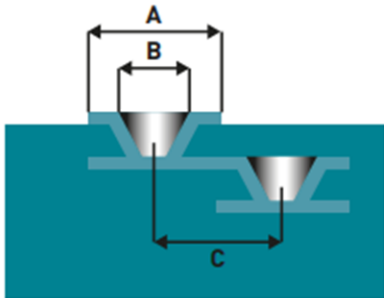
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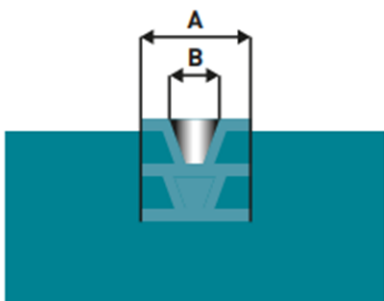
10.1 HDI Design Features



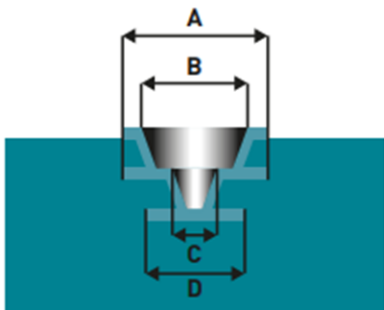
	POSITION	PREFERRED	MIN
ENTRY PAD	A	330 μm	250 μm
TARGET PAD L1	A	330	250
HOLE L1-L2	B	130	100



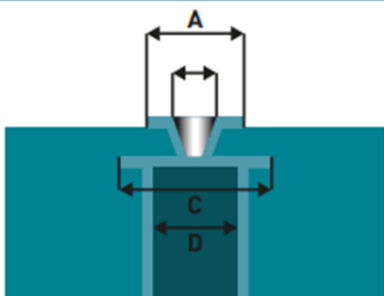
ENTRY PAD	A	330 μm	250 μm
TARGET PAD L2	A	330	250 μm
ENTRY PAD L2	A	330	250 μm
TARGET PAD L3	A	330	250 μm
HOLE L1-L2	B	130	100
HOLE L2-L3	B	130	100
HOLE PITCH	C	280	250



ENTRY PAD	A	330 μm	250 μm
TARGET PAD L2	A	330 μm	250 μm
TARGET PAD L3	A	330 μm	250 μm
HOLE L1-L2	B	130	100
HOLE L2-L3	B	130	100



ENTRY PAD	A	600	500
TARGET PAD L2	A	600	500
TARGET PAD L3	D	330	250
HOLE L1-L2	B	300	250
HOLE L2-L3	C	130	100



ENTRY PAD	A	330	250
TARGET PAD L1	C	500	350
μVIA HOLE L1-L2	B	130	100
BURIED HOLE	D	200	150

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**Sie planen ein Projekt oder
benötigen Rückmeldung zu Ihren
Anforderungen?**

**Sprechen Sie mit unserem
technischen Team - direkt, schnell
und verbindlich.**

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