Datasheet Rev. 2.1
Standard Aluminium PCBs
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Standard Aluminium PCBs – general characteristics

Characteristic	Value/property/content
Material	Aluminium / Epoxy- fibreglass
RoHS compliant	Yes
Manufacturer's label	No
UL certified	Yes, 94V-0
Tolerance on values	±10%
Maximum Board size	450x450mm
Board thickness 1 layer	0,65mm to 3,2mm
Board thickness 2 layers	0,70mm to 2,4mm
Min. line/space	0,15mm (6mil) @ 35µm copper
Smallest drill	1,0mm
PTH wall thickness	>20µm
PTH tolerance	±0,10mm
NPTH tolerance	±0,10mm
Hole position deviation	±0,05mm
Outline tolerance >4cm² PCB	±0,20mm
Outline tolerance <4cm² PCB	±0,30mm
Layer count	1 layer to 2 layer (plated)

Standard Aluminium PCBs – electrical characteristics

Characteristic	Unit	Value/property/content
Dielectric coefficient (εr)	-	3,8 [1MHz]
Dielectric loss factor	-	≤ 0,03
Electric strength of pepreg (isolation)	kV/mm	>40
Surface resistance	Ω	5,0*10e15
CTI	V	>175

Standard Aluminium PCBs – thermal & mechanical characteristics

Characteristic	Unit	Value/property/content
Solder capability 288°C	s	60
Max. operating temperature	C°	125
Specific heat resistance	C°*m/W	2,5
Peel-off strength	N/mm	>1,4
Bow and twist	%	<1
Blistering [2 minutes @ 280°C]	-	None
Delamination [2 minutes @ 280°C]	-	None
Thermal conductivity (Epoxy Prepreg)	W/mK	0,4
Thermal conductivity (Aluminium)	W/mK	234

Note: Bergquist materials are available on enquiry. For specifications please visit http://www.bergquistcompany.com/

LeitOn GmbH
Gottlieb-Dunkel-Str. 47/48
12099 Berlin
Germany

Managing Director of GmbH
C. Kendler & M. Knopp
Prokura: D. Hartmann

Internet: www.leiton.de
Email: kontakt@leiton.de
Tel: +49 (0)30 – 701 73 49- 0
Fax: +49 (0)30 – 701 73 49- 19

Aluminium PCBs – available materials

Layer	Material	Material thickness
Circuit copper	Copper foil	35µm (1,0 OZ)
		50µm (1,5 OZ)
		70µm (2,0 OZ)
		105µm (3,0 OZ)
		140µm (4,0 OZ)
Dielectric layer	Special Polymer filled in ceramics	150µm (6mil), 100µm (4mil), 75µm (3mil)
Metal base layer	Aluminium	0,5mm, 0,8mm; 1,0mm; 1,2mm; 1,5mm; 2,0mm; 2,4mm
		3,0mm (only 1 layer)

1-layer Aluminium PCB stack-up example

Layer	Description	Stack-up	Thickness		Type
	Solder mask		20,0	µm	laquer
Top Layer 1	Copper		35,0	µm	Cu
	Prepreg		150,0	µm	Epoxy
	Base carrier		1500,0	µm	Aluminium

total thickness:	1,705 mm
tolerance:	10%
maximum thickness:	1,876 mm
minimum thickness:	1,535 mm

2-layers Aluminium PCB stack-up example

Layer	Description	Stack-up	Thickness		Type
	Solder mask		20,0	µm	laquer
Top Layer 1	Copper		35,0	µm	Cu
	Prepreg		150,0	µm	Epoxy
	Base core		1200,0	µm	Aluminium
	Prepreg		150,0	µm	Epoxy
Bottom Layer 2	Copper		35,0	µm	Cu
	Solder mask		20,0	µm	laquer

total thickness:	1,610 mm
tolerance:	10%
maximum thickness:	1,771 mm
minimum thickness:	1,449 mm

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