

COBRITHERM AICu

DESCRIPTION

Insulated Metal Substrate (IMS) based on thick aluminium, and clad with ED copper foil in the other side. It is designed for an effective thermal dissipation. With a proprietary formulated epoxy-ceramic bonding layer, high thermal conductivity, dielectric strength, and thermal endurance is guaranteed. Mainly intended for SMD technologies, the laminate can resist all kind of mass soldering processes, using suitable soldering at high temperatures. The laminate is supplied with a PETP protective film on the aluminium side to protect it against wet PCB processes.

STANDARD CONSTRUCTIONS

	μm		
Aluminium thickness	1500 – 2000 - 3000	Aluminium Alloy / Treat.:	6082 T6; anticorrosion treatment
Insulation thickness	110 - 150	Dielectric thickness tolerance:	$\pm 15 \mu\text{m}$
ED Copper thickness	35 – 70 – 105 - 210		
Other constructions available upon requested			

APPLICATIONS

In printed circuits with high heat dissipation requirements, with all SMD components. Surface Laminating technologies could also be used to increase circuit densities.

PROPERTIES 1500 μm Al / 110 and 150 μm dielectric / 70 μm Cu	TEST METHOD	TEST CONDITIONS	UNITS	TYPICAL VALUES
Time to blister at 288°C, floating on solder (50 x 50 mm)	IEC-249-1	A	Sec	>180
Copper Peel strength, after heat shock 20 sec/288°C	IPC-TM 650-2.4.8.	E-20"/288	N/mm	1,8
Copper Peel strength, after 2000 hours/150°C	IPC-TM 650-2.4.8.	E-2000/150	N/mm	1,8
Dielectric breakdown voltage, AC	IPC-TM 650-2.5.6.2	A (air)	kV	7
Dielectric breakdown, after hours/150°C AC,	IPC-TM 650-2.5.6.2	E-2000/150(air)	kV	7
Dielectric breakdown, after water immersion AC	IPC-TM 650-2.5.6.2	D-48/50 (air)	kV	5
Thermal impedance (110 μm / 150 μm dielectric)	ASTM-D 5470	A	K in ² / W	0.13 / 0.18
Thermal impedance (110 μm / 150 μm dielectric)	ASTM-D 5470	A	K m ² / W	0.08 / 0.11 10 ⁻³
Thermal conductivity (dielectric layer)	ASTM-D 5470	A	W/m K	1.3
Thermal conductivity (total construction thickness)	ASTM-D 5470	A	W/m K	12 / 17
Surface resistance after damp heat and recovery	IEC-249-1	C96/40/92	M Ω	1,0 10 ⁶
Volume resistivity after damp heat and recovery	IEC-249-1	C96/40/92	M Ω m	1,0 10 ⁵
Relative permittivity after damp heat and recovery, 10 kHz	IEC-249-1	C96/40/92	-	6,5
Dissipation factor after damp heat and recovery 10 kHz	IEC-249-1	C96/40/92	-	0.01
Comparative tracking index (CTI)	IEC-112	A	V	600
Capacitance		A; 50Hz	pF/cm ²	38
Flammability, according UL-94, class	UL-94	A		V-0
Glass transition temperature of dielectric layer (by TMA)	IPC-TM 650-2.4.2.4	A	°C	100
Thermal endurance test-40/+150°C, 1000 cycles				
Copper peel strength	IPC-TM 650-2.4.8		N/mm	1,8
Dielectric breakdown voltage, AC	IPC-TM 650-2.5.6.2	(air)	kV	7

The data is based on typical values of standard production and should be considered as general information. Our company reserves the right to future changes. It is the responsibility of the user to ensure that the product complies with his requirements.

AVAILABILITY

Standard sheet size, mm / Sizes Tolerance	610 x 440 / +5/-0mm
Standard size tolerance in cut panels:	$\pm 0.3\text{mm}$
Maximum operating temperature:	130°C

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