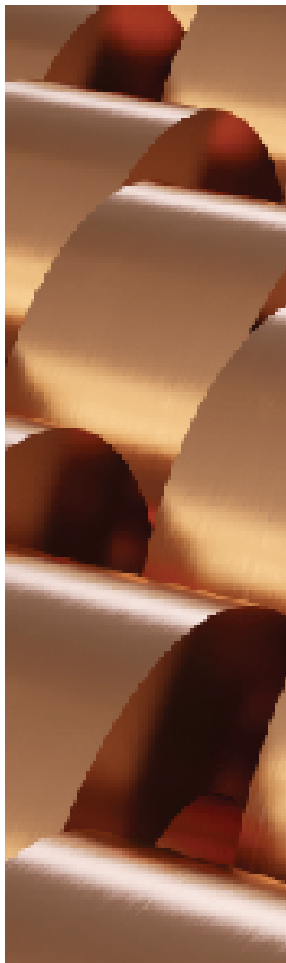


Copper Foils Enable Advanced Technology

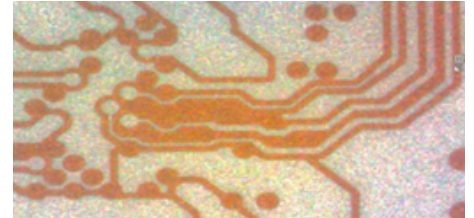
Insulectro
CopperSuppliers



Today's material selection builds tomorrow boards!

mSAP & Ultra-HDI: Mitsui MT18Ex & MT18FI

With signal loss of .1-.2 dB per inch possible due to copper foil topography, material selection is key! Grade 1 carrier foils available down to 1.5µm Rz, all on a 18µm copper carrier linked with DuPont™ Riston® DI5100 dry film and suitable imaging equipment supports the mSAP technology principle for 1mil L/S and below.



THINK.... EMC EM-892K & MITSU MT18 FOILS



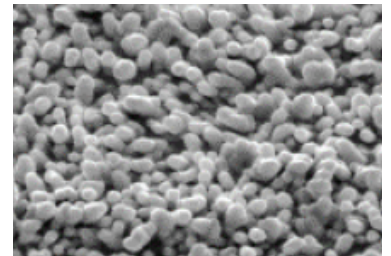
Highest peel strength, O/L bonding: Camden Copper HP2

When using a no flow or low flow resin you should specify a high-performance foil with an increased surface to ensure higher peel strength. HP2 a grade 3 foil with greater nodulation deposition and formation to achieve maximum peels (LBS/in) for epoxy, Pi, PPO PPE resins.

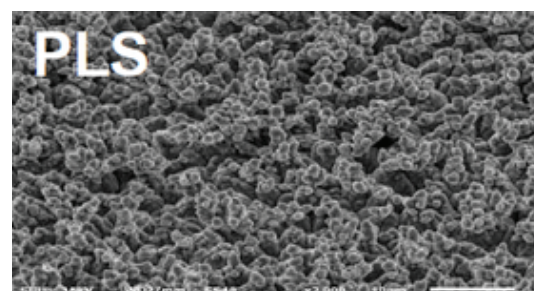
THINK.... EMC EM-528 & HP2

VLP2 / IPC U profile foils and Signal Integrity: JX Metals JXEFL (VLP2) RTF

Grade 3 & 11, RTF foil with a very low Rz profile of 1.7µm. Copper is a key material on 50Ghz > due to signal integrity criteria. Available in Toz, Hoz, and 1oz, ideal for Radio Frequency (RF) and High-Speed Digital (HSD) application. Balancing skin effect & peels strength needs.



THINK.... EMC EM-890K & JXEFL (RTF)



New Standard Grade 3 HTE foil for epoxy and Polyimide resins: PLS

A global producer that already supports many CCL's directly is working with Insulectro to offer their grade 3 HTE copper for O/L application. Chang Chun Petrochemicals (CCP) group is a Taiwanese privately held family-owned business.

There PCB foils via Insulectro are produced in Miaoli Taiwan. Available from Toz up through 3oz.

THINK.... EMC EM827, 370Z & 371Z & PLS



Next generation Cu foil: JX Metals Doubleflat HLP-II

This smooth grade 3 foil is designed for 80Ghz > supporting 6G and greater connectivity. Critical in automotive and communication markets includes servers for Rigid designs where transmission speed is essential. With a profile of less than 1µm (Averaging 0.7µm), chemical adhesion promoters and fine grains support bonding and clean side wall creation.

THINK..... EM-892K & JX METALS DOUBLEFLAT

Copper Foil: PCB Material Selection

IPC 4562 foil type	Foil Product name	Foil use	Applications	NEW Insulectro description	IPC 4562B Profile
ED (E)	PLS	Standard & Polyimide	Epoxy I.E 370Z 371Z FR4 Polyimide 85N, 85HP ETC.	COPPER ED HTE GR3 IPC PROFILE S & L X	S
ED (E)	MHT	Standard & Polyimide	Epoxy I.E 370Z 371Z FR4 Polyimide 85N, 85HP ETC.	COPPER ED HTE GR3 IPC PROFILE S X	S
ED (E)	HP2	Highest Peels	PI, PPO, PPE, PTFE (Low flow / no flow resins)	COPPER ED HTE GR3 HP2 X	S
ED (E)	JTCSP1	Low Profile HVLP/VLP2	High Speed/low loss	COPPER ED HTE GR3 JTCSP1 X (Previously called - IPC PROFILE U)	L & U
ED (E)	HLP-II	Extreme Low Profile (VLP1 / Double Flat)	Highest Speed/ultra low loss (80 GHz >)	COPPER ED HTE GR3 HLP2 X	U
ED (E)	RTF	Standard RTF	FR4 and others, mid Dk/loss	COPPER ED HTE GR3 RTF X	S
ED (E)	JXEFL	Ultra Low profile RTF (HVLP/VLP2)	High Speed/low loss	COPPER ED HTE GR3 JXEFL(RTF) X	U
ED (E)	MT18EX	Carrier Foil (Ultra-Thin)	mSAP, fine line, Ultra HDI	COPPER ED GR1 MT18EX X	U
ED (E)	MT18FL	Carrier Foil (Ultra-Thin)	mSAP, fine line, Ultra HDI	COPPER ED GR1 MT18FL X	U
RA (W)	Standard RA	Rolled Annealed	Flexible circuit, low profile	COPPER RA GR7 X	S
RA (W)	High performance RA	Rolled Annealed	Flexible circuit, low profile	COPPER RA GR8 LTA X	S

X Denotes item level specifics such as panel size and tooling

Other foils types available upon request, all material released to IPC4562 specification.

HTE = High Temperature Elongation

Some thickness and width combinations are special order and subject to an MoQ & lead-time

All Technical Data Sheets (TDS) are available at, insulectro.com.