

Rigid FR4 standard PCBs – general characteristics

Characteristic	Value/property/content
Material	Epoxy- fibreglass
RoHS compliant	Yes
Colour	Beige
Suppliers	Diverse, e.g.: Taiwan Leader, Panasonic/Matsushita, Isola, Shengyi etc.
Manufacturer's label	Yes,
UL certified	Yes, 94-V0
Tolerance on values (due to different FR4 suppliers)	+/-10%

Rigid FR4 standard PCBs – electrical characteristics

Characteristic	Unit	Value/property/content
Dielectric coefficient (ϵ_r)	-	4,3
$\tan \delta$	-	0,021
Volume resistant	Ωcm	$3,0 \times 10^{13}$
Electric strength	kV/mm	30
Surface resistant	Ω	$2,0 \times 10^{13}$
CTI	V	>175

Rigid FR4 standard PCBs – thermal & mechanical characteristics

Characteristic	Unit	Value/property/content
Tg	C°	135
Max. operating temperature	C°	110
Coefficient of Thermal Expansion (CTE) – X	ppm/K	17
Coefficient of Thermal Expansion (CTE) – Y	ppm/K	12
Coefficient of Thermal Expansion (CTE) – Z	ppm/K	70
Coefficient of elasticity (E-module)	GPa	25
Flexural strength	GPa	0,5
Copper adhesive force	N/mm	1,4
Hygroscopicity	%	0,16
Thermal conductivity (Epoxy Prepreg)	W/mK	0,25 to 0,50
Bow and twist	%	<1