

# World Standard RCC

## MR Series



MITSUI  
KINZOKU

- As a standard material for HDI board, widely used for mobile phone, base station, digital camera, PDA, notebook PC and chip substrate.
- MR500(LM) has excellent anti cracking property due to lower modulus.
- Resin thickness is available from 40 micron to 100 micron.
- Best service is assured from two factories (Taiwan, Malaysia) and two delivery centers in China (Suzhou, Guangdong).

### Resin type

MR500, MR500(LM)  
MR600

### Resin thickness

40  $\mu$ m to 100  $\mu$ m  
(standard 65  $\mu$ m/80  $\mu$ m)

### Copper Foil

MicroThin 3 / 5  $\mu$ m  
3EC-3 12 / 18  $\mu$ m

Properties	Unit	MR500	MR500(LM)	MR600	
Halogen	%	yes	yes	yes	
inorganic filler	*1	no	no	no	
Properties	Unit	MR500	MR500(LM)	MR600	
Tg	Celsius	150	165	185	DMA
Flammability class	-	UL-94V0	UL-94V0	UL-94V0	UL-94
Peel Strength (18mic. Cu)	kN/m	1.3	1.3	1.1	JIS C 6481
Tensile strength	MPa	88	103	83	JIS K 7113
Tensile modulus	GPa	3.5	2.6	3.0	JIS K 7113
Flexural strength	MPa	149	136	140	JIS K 7203
Flexural modulus	GPa	3.4	3.0	3.3	JIS K 7203
Fracture toughness	Nmm <sup>-1.5</sup>	71.2	82.3	70.1	ASTM
Charpy impact strength	kJ/m <sup>2</sup>	43.9	58.7	57.7	JIS K 7111
Elongation at break	%	6.4	9.4	8.0	JIS K 7113
Youngs modulus	GPa	3.5	2.6	3.0	JIS K 7203
Poissons ratio	-	0.38	0.37	0.38	JIS K 7073
CTE ( $\alpha_1/\alpha_2$ )	ppm/Celsius	70/160	70/170	70/150	IPC-TM650
Water absorption	%	1.2	1.3	1.6	JIS C 6481
Dielectric Constant	at 1 GHz	3.4	3.2	3.4	IPC-TM650
	at 2 GHz	3.3	3.2	3.2	
Dissipation Factor	at 1 GHz	0.025	0.017	0.023	IPC-TM650
	at 2 GHz	0.028	0.027	0.030	
Surface resistivity of dielectric	Mohm	3.0*10 <sup>8</sup>	5.9*10 <sup>8</sup>	3.0*10 <sup>8</sup>	JIS C 6481
Volume resistivity of dielectric	Mohm · cm	2.0*10 <sup>9</sup>	2.6*10 <sup>9</sup>	3.0*10 <sup>9</sup>	JIS C 6481
Solder floating at 260	sec.	>300	>300	>300	
Migration Test *2	$\Omega$	>1.0*10 <sup>9</sup>	>1.0*10 <sup>9</sup>	>1.0*10 <sup>9</sup>	

\*1 "no" means less than detection limit or trace quantity \*2 85 85% DC35V 1000h measured in an oven

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