



LEXCMGX

CTE x,y-axis 3-5ppm/°C
(Low CTE glass cloth)

Stress relaxation

Good thickness variation

Applications
IC Package

FC-BGA (CPU, GPU, FPGA, ASIC)

Laminate

R-1515V*

*Low CTE glass cloth type

Laminate

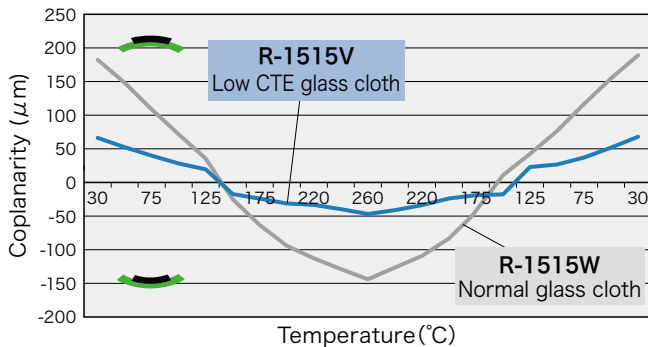
R-1515K

Low CTE IC substrate materials designed to improve reliability

Low CTE reduces warping and addresses a critical challenge with the IC packaging process. Flexibility and buffering features improve the reliability of the assembly process. Offers excellent thickness tolerances.

IC package warpage

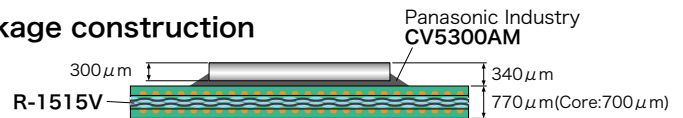
Result



Sample

Core thickness	700 μm (12-12 μm)
Package size	35 x 35mm (Die size 15 x 15mm)

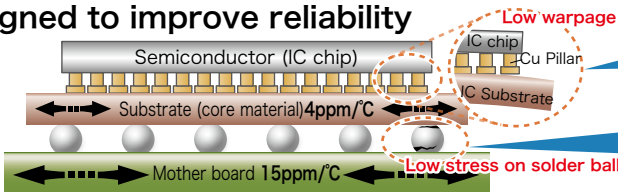
Package construction



A wide range of thickness options

R-1515V (Low CTE glass cloth)	0.21~1.8mm
R-1515K (Normal glass cloth)	

Designed to improve reliability



Low CTE

Low thermal expansion coefficient (CTE): close to that of silicon IC chips, which reduces warping and addresses a critical challenge with the IC chip packaging process.

Stress relaxation

Combines flexibility and buffering features while retaining low thermal expansion properties through a stress relaxation technology, improving the reliability of the assembly process.

General properties

Item	Test method	Condition	Unit	LEXCMGX R-1515V Low CTE glass cloth	LEXCMGX R-1515K Normal glass cloth	Conventional Normal glass cloth	
Glass transition temp.(Tg)	DMA*2	A	°C	260	260	260	
CTE x-axis	TMA*2	A	ppm/°C	3-5	7	8-10	
CTE y-axis				3-5	7	8-10	
Dielectric constant(Dk)*1	1GHz	IPC-TM-650 2.5.5.9	C-24/23/50	-	4.4	4.8	
Dissipation factor(Df)*1					0.016	0.015	0.015
Elastic modulus*1	IPC-TM-650 2.4.4*3	25°C	GPa	30	27	33	
		250°C		14	12	21	
Peel strength	1/3oz(12 μm)	IPC-TM-650 2.4.8	A	kN/m	0.6	0.6	0.9

The sample thickness is 100 μm. *1 700 μm *2 Measurement in tensile mode.

*3 The IPC standard determines the test sample size, methods and conditions, etc. but there is no formula for calculating the elastic modulus. Therefore, we quantified it according to JIS C 6481.

Please see our website for Notes before you use.

Our Halogen-free materials are based on JPCA-ES-01-2003 standard and others.

The above data are typical values and not guaranteed values.

industrial.panasonic.com/ww/electronic-materials

Panasonic Industry R-1515V

Panasonic Industry Co., Ltd. Electronic Materials Business Division

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