Panasonic INDUSTRY

CTE x,y-axis 4-6ppm/℃
(Low CTE glass cloth)

Low warpage

Ultra-thin
excellent moldability

Applications
IC Package
IC substrate CSP (PoP-Bottom, Flip-Chip, Memory, Module, etc.)

LEXCM GX

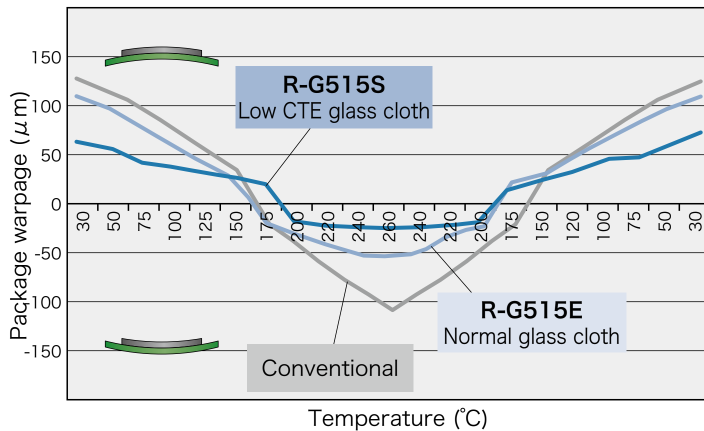
Laminate
R-G515S* R-G515E
Prepreg
R-G510S* R-G510E
*Low CTE glass cloth type

Low CTE ultra-thin IC substrate materials

With an insulation layer thickness of 15 μm or less, these low-profile materials enable thinner IC package designs. The low CTE reduces warpage and increases reliability.

IC package warpage
R-G515S, with low CTE glass cloth, reduces warpage to about half that of conventional Panasonic materials.

Result

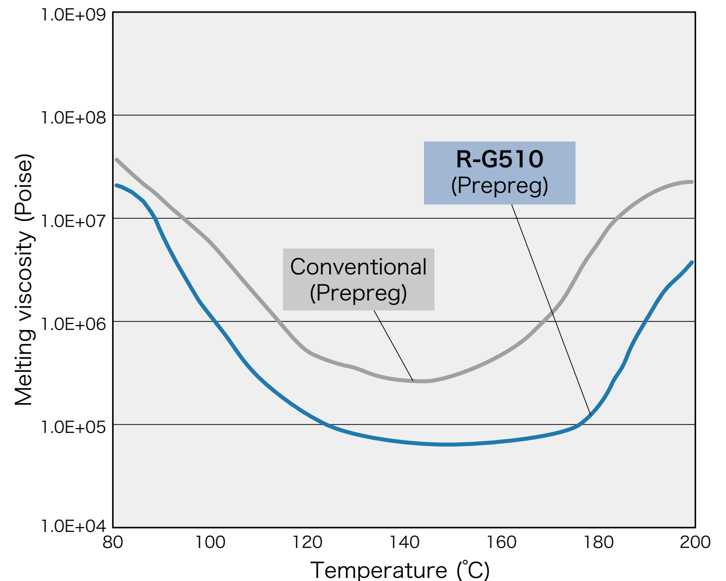


Package construction

Package size	12.5 x 12.5mm
Die size	10 x 10 x 0.10mmt
CUF material	Panasonic CV5300AM
Substrate thickness	0.2mmt (2L Cu:12 μm)

Melting and curling behavior
R-G510 has a wider melting area and higher moldability than conventional Panasonic materials.

Result



General properties

Item		Test method	Condition	Unit	LEXCM GX R-G515S Low CTE glass cloth	LEXCM GX R-G515E Normal glass cloth
Glass transition temp.(Tg)		DMA*2	A	℃	**220-240**	**220-240**
CTE x-axis	α1	Internal method	A	ppm/℃	**4-6**	**6-8**
CTE y-axis					**4-6**	**6-8**
Dielectric onstant(Dk)*1	1GHz	IPC-TM-650 2.5.5.9	C-24/23/50	–	**4.2**	**4.4**
Dissipation factor(Df)*1					**0.008**	**0.008**
Flexural modulus*1		JIS C 6481	25℃	GPa	**28**	**24**

The sample thickness is 0.1mm.
*1 0.8mm *2 Measurement in tensile mode
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-G515S

Panasonic Industry Co., Ltd. Electronic Materials Business Division

© Panasonic Industry Co., Ltd. 202410